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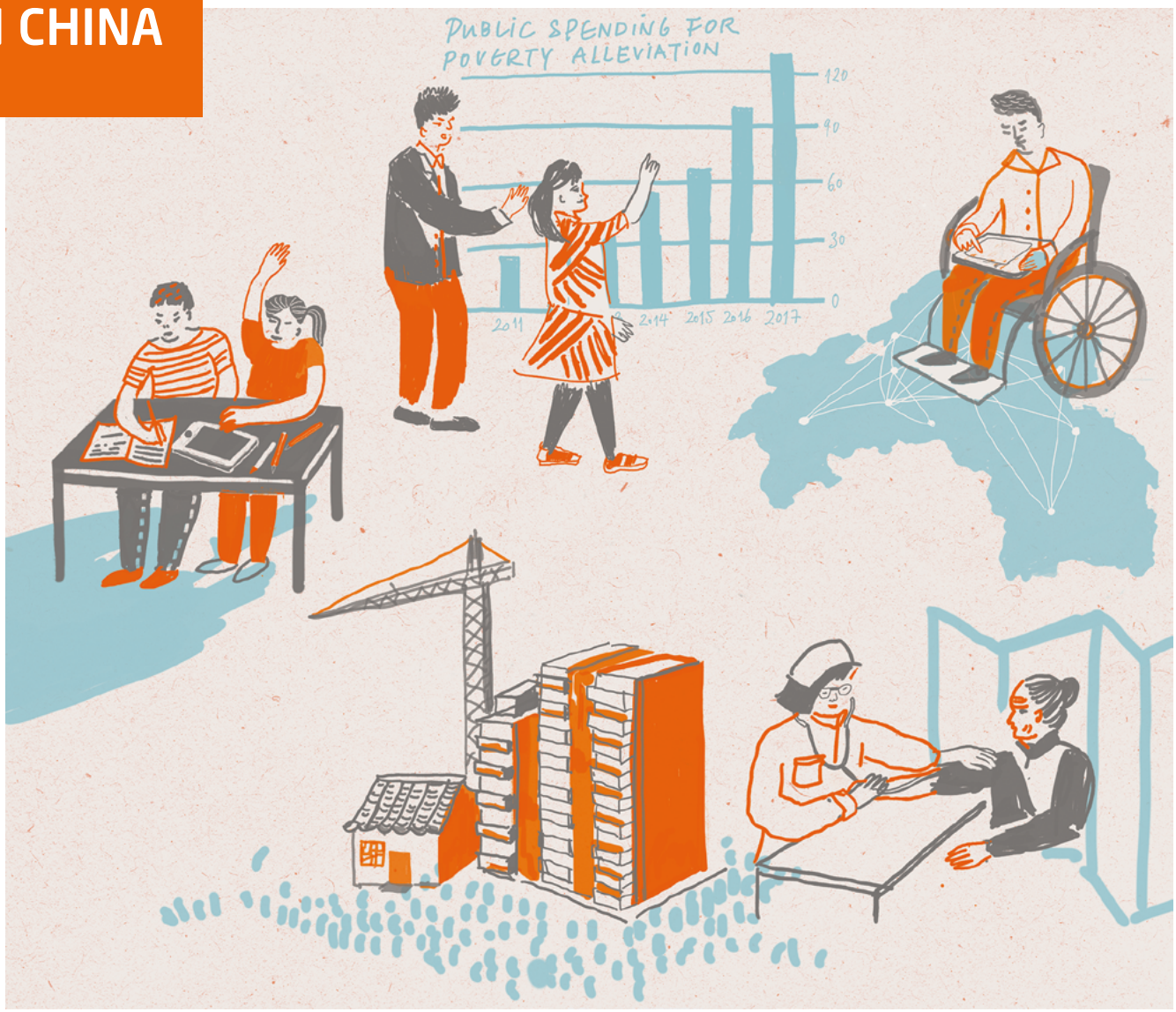

SERVE THE PEOPLE

Innovation and IT in China's social development agenda

Edited by Matthias Stepan | Jane Duckett

No 6 | October 2018

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Mercator Institute for China Studies

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Content

Acknowledgements 7

Foreword:
China's ambitious social agenda – a global model for policy innovation? 8
Klaus Rohland

Introduction:
Central plans, local experiments, and private money – social service provision in the Xi Jinping era 10
Matthias Stepan and Jane Duckett
- Social development on the political agenda 10
- Ageing, urbanization, and changing employment patterns 12
- The road ahead: four major challenges 14
- Outlook: a Chinese model for catching up to developed countries 17

Roadmap to a healthy China:
Integrating the delivery of medical care 19
Meng Qingyue
- "Healthy China 2030" sets ambitious targets 23
- Strategy focuses on health outcomes 24
- Local experiments set national standards 25
- Financing presents long-term fiscal challenge 27
- China's progress sends a signal to other countries 27

Digital technologies for education in China:
National ambitions meet local realities 29
Barbara Schulte
- Why and how digital learning technologies are relevant for China 32
- Conflicting policy objectives: spreading and controlling information 33
- Universal education becomes core state responsibility 34
- Education agenda faces structural and cultural obstacles 35
- China is a learner and a leader in global education 36

New solutions for urban residents:
Housing security in urban China 39
Zhu Yapeng
- Finding affordable housing: a challenge for the younger generation 41
- Municipal governments play key role in housing schemes 44
- Local pilot schemes hold nationwide importance 44
- Fund for prospective homeowners shows mixed results 47
- Market-based solutions guided by the state 48

China's fight against poverty:
Rallying all forces to eradicate poverty by 2020 51
Gao Qin
Central coordination of public and private actors 55
The role of e-commerce in empowering the poor 55
Dramatic increase in central and local funding 57
Challenges for balancing equity and growth 58

Disability employment in China:
Empowerment through digital solutions 61
Karen R. Fisher, Yu Haiqing, Li Bingqin and Gerard Goggin
Government focus shifts from welfare to self-help 63
Tax incentives and employment quotas for companies 64
Connecting policies on the digital economy and disability employment 65
Bringing in business and civil society 65
Policies work best for people with physical disabilities 66
Employment outcomes are difficult to measure 67
Non-traditional funding sources contribute to success 68
China's approach as a model for other countries 69

Contributors 73

Figures:

A mix of top-down decision making and local experimentation 11
Several levels engage in implementing the social agenda
Urbanization, ageing, and self-employment on the rise 12
Public service has to adapt to rapidly changing conditions
Investing in public service delivery 13
Strong increase in public spending for social safety and health
Public expenditure on education, health, employment, and social safety 14
Social safety net and employment efforts
China is catching up fast 16
Gap between China and OECD countries has narrowed
Addressing bottlenecks in China's hospital system 22
A referral system aims to distribute patients more evenly
IT-based learning has yet to be realized 32
China's socialist examination society struggles with integration of creative learning tools
Provinces step up efforts to provide affordable housing 42
Additional units for middle and low income households in urban areas
Public expenditure on housing security (2009–2016) 46
The financial burden is on local governments
Large shares of the Chinese population have been lifted out of poverty 54
World Bank and Chinese Statistical Office show the same trend
Digitization has become crucial to alleviating poverty 56
Six measures to combat poverty
Public spending for poverty alleviation is on the rise 58
Expenditure of central and provincial level governments (2007–2017)
More than half of the individuals registered as disabled have physical handicaps 66
Different types of disabilities according to the Chinese system (2016)

Acknowledgements

This volume of the MERICS Papers on China series is the result of the joint effort of ten public policy experts, residing on four different continents. They were brought together to provide an up-to-date account on the advancements in the field of public service delivery in contemporary China.

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Jane Duckett and Matthias Stepan

Berlin, September 2018

Foreword: China's ambitious social agenda – a global model for policy innovation?

Klaus Rohland

Around the world, governments face rising costs for public health care in times of rapid ageing, and they struggle with the challenges of providing adequate housing and of preparing children for the labor market. In the past, developing countries, among them China, used to look to western industrialized countries for best practice. Nowadays, China offers itself as an example for emulation. Success stories from China's development experience abound – from poverty alleviation to infrastructure development. Observing how the Chinese leadership advances its ambitious social agenda could provide lessons and inspiration for policymakers in developing and developed countries.

The chapters in this MERICS Paper on China series demonstrate that Chinese policymakers have embarked on a broad-based social development agenda. Their ambition is to overcome the remaining obstacles to achieving the Chinese Communist Party (CCP)'s goal for China to become a "moderately prosperous society" and to catch up to western industrialized countries. The strategies for health, education, poverty alleviation, disability employment, and housing policies illustrate China's evolutionary design of policy reforms. In line with the recent past, policymakers pursue multi-pronged strategies and a trial-and-error approach by testing new policies in pilot projects. Depending on the outcomes of these tests, policies are either abandoned, refined or rolled out across the country.

Evolutionary road maps are cautious but not necessarily conservative. China is embracing and testing digital solutions to overcome the "tyranny of distance" in its vast country. The design and implementation of such solutions is well advanced in the areas of health care, disability employment, and poverty eradication. Employment initiatives for disabled people focus on internet access and e-commerce business models to overcome the twin tyrannies of distance resulting from physical disability and geographic remoteness.

The applicability of digital solutions is more limited in other areas. China encourages the use of information technologies in its education sector. However, digital learning and teaching methods clash with China's traditional education system. The new methods focus on innovation and creativity, but China's university entrance examination system still requires rote learning of the established canon of knowledge. Across policy areas, reforms are at different stages of design and implementation. It is difficult to calculate the total cost of China's new social development initiatives, especially when including costs incurred by local governments that are often expected to pay for the implementation of the center's ambitious plans. For the center, costs may also be hard to predict. The prices for the construction of public housing are bound to increase, and health care expenditures already claim a disproportionate share of China's budget. Investments in poverty alleviation may also become more expensive as China moves to address persisting poverty problems in very remote areas or among severely disadvantaged groups in its population.

China's previous budgetary performance and its record on the provision of social services give cause for optimism, albeit not for complacency. In the recent past, the government has substantially increased expenditures on poverty reduction, education, health and public housing, in some instances by far more than ten percent year over year. Despite this surge, central government expenditure did not exceed revenues by more than three percent, well in line with fiscal considerations.

The authors of this volume compare the ongoing and planned reform strategies in major policy fields. In some areas, such as health system reform, policymakers follow a top-down approach, which borrows from other health systems around the world. Poverty eradication is built on a highly decentralized strategy, which draws lessons from China's own success in the past. For the implementation, the strategy relies heavily on enterprises, both private and state-owned, and on local organizations, including NGOs, and grassroots initiatives.

As the chapters in this volume illustrate, China has put forward credible strategies. The next step will be to implement the ambitious central plans across its vastly different regions and localities. If the new policies yield positive outcomes in the long-run, China would serve not only as an example for a highly adaptive policy process, but also for a global model for policy innovations that help to meet the challenges in providing public services in the 21st century.

Introduction: Central plans, local experiments, and private money – social development in the Xi Jinping era

Matthias Stepan and Jane Duckett

The provision and access to high-quality public services are important for political stability in China

Public services and social provision are central to China's social development. They shape the livelihoods and life chances of all China's 1.4 billion citizens. They are also critical to the development of China's economy and of its place in the world. As China becomes a major actor in the international aid and development sphere, its own policies will become influential across the globe. The provision and access to high-quality public services are important for political stability in China, and as such an important indicator of economic stability for foreign investors.

This MERICS Paper on China provides an up-to-date account of developments and trends in public services and social provision in China. It examines new policy directions and measures taken by the administration of President Xi Jinping and Premier Li Keqiang since the start of their first term in 2012/2013 in five important areas: health, education, housing, poverty alleviation and disability employment.

The chapters in this publication focus on identifying key actors and sources of finance, and then on highlighting innovations or use of IT solutions in the respective areas, as well as on assessing China's progress and the applicability of Chinese approaches elsewhere. The rest of this introduction provides context for the five policy chapters by setting out China's contemporary political agenda for social development, the approaches to reform social service delivery, as well as four major challenges that endanger a transition to a more efficient and sustainable system.

SOCIAL DEVELOPMENT ON THE POLITICAL AGENDA

The Chinese government has recognized the importance of public services and social provision. At the turn of the 21st century, it shifted focus from an almost exclusive obsession with economic growth and urban enterprise reform to "social development" and delivering public services across the population. Important policies in the first decade included abolishing rural taxes, introducing "new rural cooperative medical schemes" and basic health insurance for urban residents, extending means-tested income support and pensions to rural dwellers.[1] The government reiterated its commitment to nine years of free education for all and announced major health reforms.

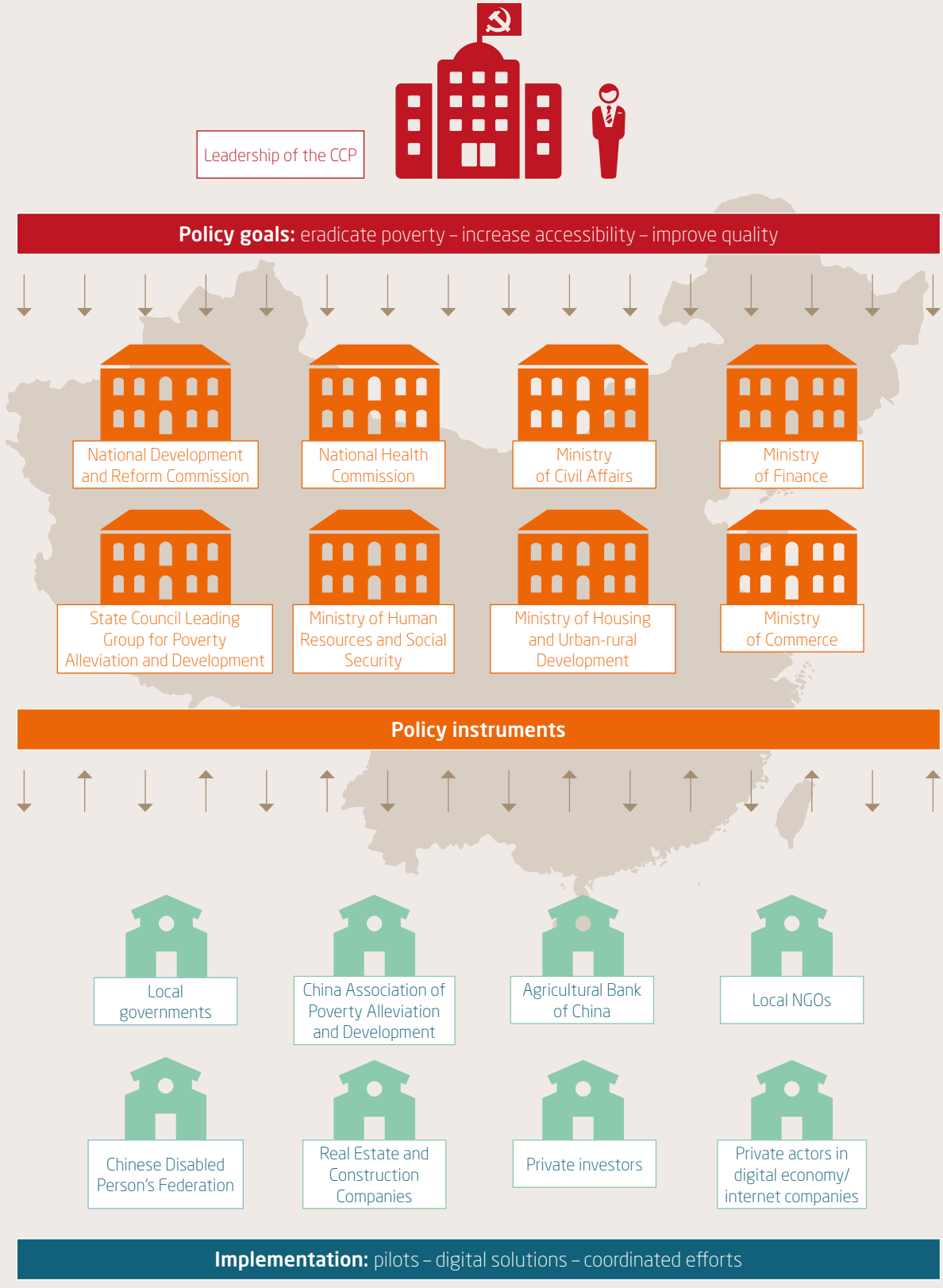
These policies are in part a response to challenges arising from a rapidly ageing population and high levels of inequality. But more positively connoted developments, such as increased social mobility, urbanization and the emergence of a large private sector have also made it necessary to rethink the provision of public services. The CCP and Chinese government have a strong commitment to the goal of attaining a "moderately prosperous society" (小康社会). Based on this understanding, tackling poverty, reducing inequality and raising living standards will contribute not only to a more "harmonious society" (和谐社会) but also to future economic growth and development. The aim of building a modern service delivery system has a pragmatic foundation beyond Communist Party ideology. Human and social development are no longer a result of economic development, but the very foundation of continuous, quality growth.

Since Xi Jinping assumed leadership of the Chinese Communist Party in 2012, public services and social provision have remained high on the policy agenda – as evidenced by their prominence in China's 13th five-year plan (2016-2020). Through these plans, the Chinese government intends to achieve ambitious goals, including the eradication of absolute poverty in China and "equalization" of basic services by 2020.

From the early 1990s through to the late 2000s, rising inequalities were partly mitigated by a continued increase in average incomes and living standards, as well as by government spending on rural health care, income support and pensions – all enabled by rapid economic growth. But fol-

Figure 1

A mix of top-down decision making and local experimentation
Several levels engage in implementing the social agenda



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IT solutions such as e-health, tele-health, and e-learning feature prominently in strategy papers

lowing the global financial crisis of 2008, China's growth slowed, putting pressure on top leaders and policy makers motivated to prevent protest and protect the CCP. The party's legitimacy is undermined by inequality and rural poverty because its rise to power from bases in the countryside in the 1930s and 1940s was founded on the promise of an egalitarian and more prosperous future. Indeed, rural protest had been rising in the early to mid-2000s. The CCP has therefore seen persistently low rural incomes and rural-urban inequalities as a threat – and it has stated "stability" as a goal in a number of policy documents.

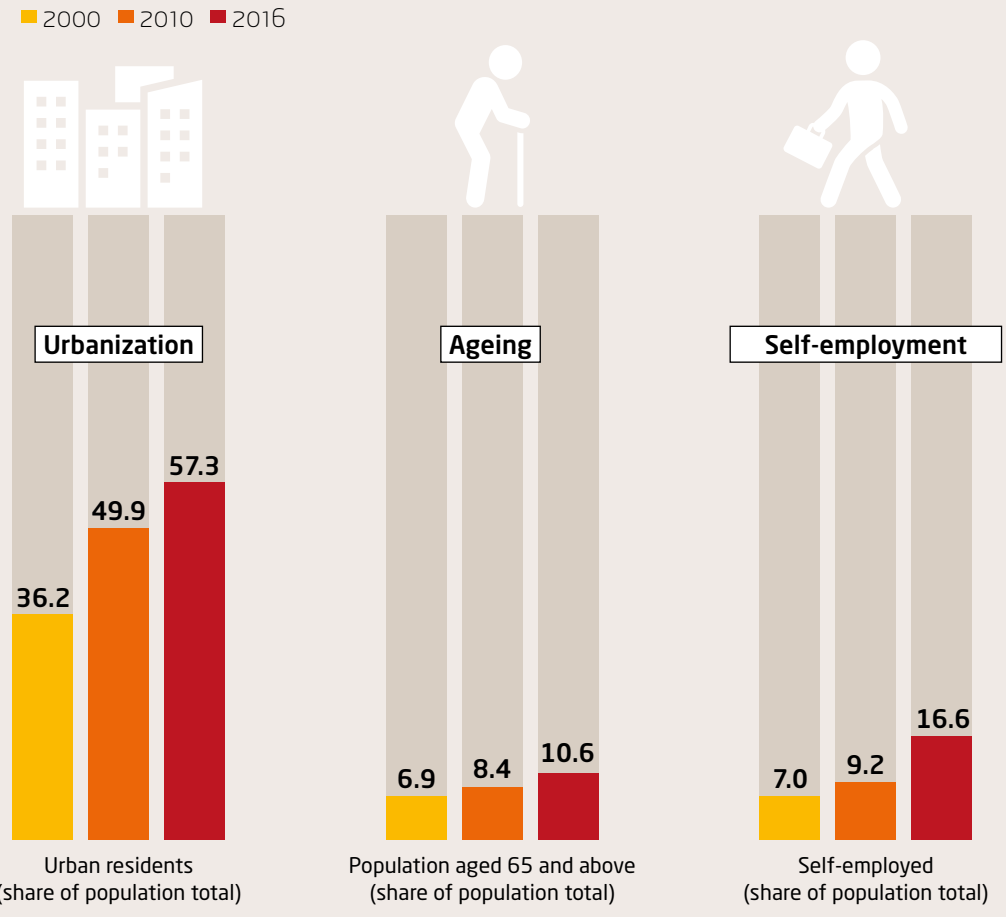
Over the past decade, the government has increased expenditure on poverty reduction, education, health services, and public housing, in some instances by far more than ten percent year over year.[2] At the same time it has stressed "innovation" – a signal that it aims higher than a quantitative boost to public services through public funding. It aims at increasing the quality and diversity of public service delivery. IT solutions such as e-health, tele-health, and e-learning feature prominently in strategy papers.

AGEING, URBANIZATION, AND CHANGING EMPLOYMENT PATTERNS

The setting of the political agenda and policy-making itself do not take place in a vacuum. In order to inform their actions, the CCP and the Chinese government gather data on the general socio-economic development and track public opinion via e-participation.[3] Ageing, urbanization,

Figure 2

Urbanization, ageing, and self-employment on the rise
Public service has to adapt to rapidly changing conditions



Source: Urbanization and self-employment – China Statistical Yearbook; Ageing – World Bank

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and changing employment patterns are the key catalysts to reform and constantly improve the public social service delivery.

An ageing population is increasing demand not only for pensions but also for public services such as health and social care. Therefore, the party-state has seen rising demand for affordable public services from a population with rising expectations. Each year in March, the Chinese government conducts polls among two to four million individuals to assess which issues they consider most pressing. In the last ten years, the items social security (社会保障), reform of the health system (医疗改革) or individuals' income (居民收入) usually feature among the top three.[4]

Channeling urbanization is one of the CCP's key missions. Rural to urban migration, and in effect urbanization, have contributed to lifting tens of millions out of poverty. Yet, rising income inequality transformed China from one of the world's most equal countries in 1980 to one of the most unequal in the early 21st century. Rural-urban inequalities in living standards and access to public services, too, became starker. The household registration system (short hand in Chinese: hukou 户口) had been introduced in the 1950s, initially to control labor migration. Only later were the right to and provision of social benefits directly connected to it. The designation as rural or urban to an individual at birth decided the allocation of public services. In times of rapid urbanization, with nearly one fifth of the population earning their income as migrant workers far from home, the hukou as organizational principal became dysfunctional. An official residency status is considered as an alternative. Yet large cities, such as Beijing, Shanghai, or Guangzhou are restrictive in issuing long-term residency permits. But the large share of migrant workers in so-called second or third tier cities is likely to benefit from this measure.

A growing share of the working age population is in unstable work relationships

Changing employment patterns present a further challenge. The privatization of state-owned enterprises and government programs to incentivize entrepreneurship have transformed the Chinese labor market. In urban areas, the number of self-employed individuals has increased substantially. It has quadrupled in the time since 2000 and reached 86 million in 2016. In rural areas, the official number of self-employed reached 42 million in the same year.[5] A much larger share of the working age population is in unstable or changing work relationships.

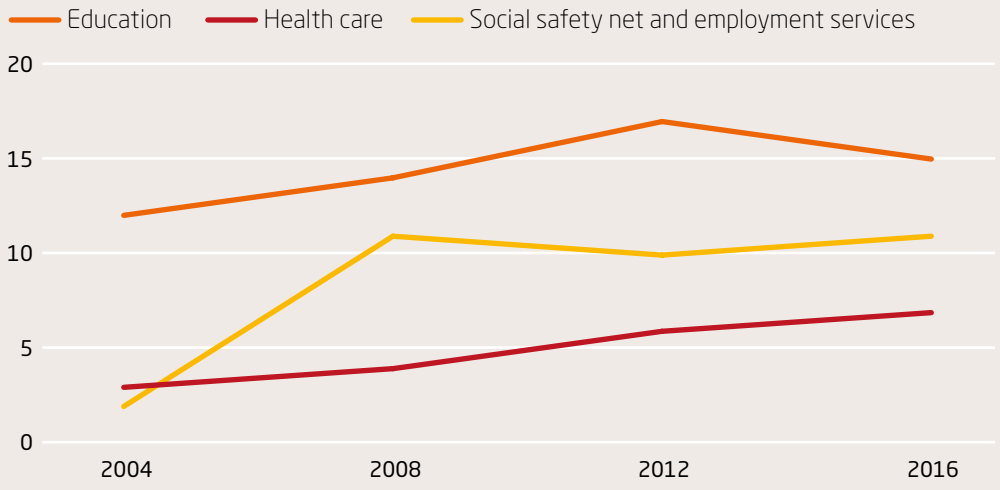
In the heyday of the planned economy (1949–1978 until the late 1990s) these people would have been excluded from receiving any social services. The administration, financing and delivery

Figure 3

Investing in public service delivery

Strong increase in public spending for social safety and health

Share of national government expenditure, in percent



Source: National Bureau of Statistics (2004-2016): China Statistical Yearbook[6]

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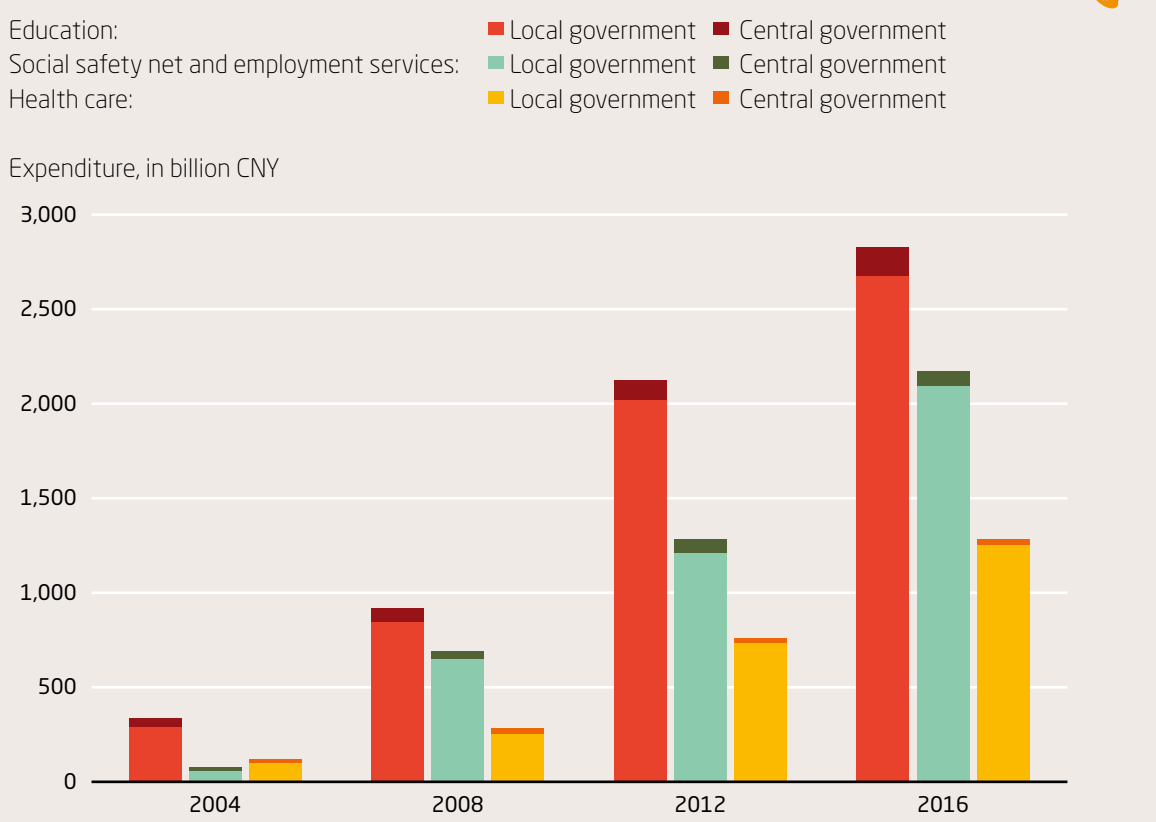
Figure 4

Public expenditure on education, health, employment, and social safety



Source: National Bureau of Statistics (2004-2016): China Statistical Yearbook

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of public services in urban areas were in the hands of urban state-owned enterprises (SOEs), so-called public service units, or state and party organs. Work units (单位) provided these services to their staff and dependent family members. In rural areas, this system was supplemented by mutual family support within People's Communes. But in the current phase of China's development, neither work units (due to the changing labor market structures and employment relationships), nor families (due to the shrinking size of households) can fulfill public service functions.

THE ROAD AHEAD: FOUR MAJOR CHALLENGES

The Chinese government faces four major challenges in its efforts to establish an efficient and sustainable system.

Unfunded mandates: local governments need sufficient and sustainable income

Economic growth and tax reforms meant that by the early 21st century Chinese government revenues increased (both in absolute terms and as a share of GDP), enabling policy makers to commit funds to extending public services.

Despite this increased availability of funds, the center remained reluctant to upscale its financial commitment. Local governments were supposed to cover the largest share of expenses for public services and had relatively few incentives to do so. Instead, they invested more directly in projects that resulted in economic growth – the key indicator in cadre performance measurement. This situation resulted in so-called "unfunded mandates," meaning that local governments did not receive sufficient earmarked funds to implement central government policy commitments.

The result has been substantial variation in the implementation of public policies across China, with wealthier areas often providing much better services than poor areas.

Informatization gap: digital solutions require resources and IT literacy

As early as 1997, the Chinese government advanced a strategy using IT solutions to improve public service delivery. In the past two decades, the digitization of government services has played a major role in improving administrative processes and in the provision of public services.[7] However, not all local governments have had the sufficient means to establish the required infrastructure, which has resulted in incompatible systems. Whereas rich cities in Eastern China could afford to purchase the latest technology and attract qualified staff, rural areas often kept paper records and remained offline. On the user side, the number of internet users – especially through mobile devices – had increased to 772 million by the end of 2017.[8]

In 2015, Premier Li Keqiang announced the "Internet Plus Action Plan" (互联网+), promising major public investment in IT infrastructure in urban and rural areas.[9] The upgraded capabilities provide new opportunities for the service sector in general, but also for the nationwide application of e-government solutions. The Internet Plus Action Plan affects the provision of public services and the government's ability to achieve the goals of its social agenda, especially in the areas of disability employment, the targeted anti-poverty initiative, and education.

Rich cities in Eastern China could afford to purchase latest IT – rural areas often remained offline

Overlapping responsibilities: the need for streamlining and transparency

Overlapping or unclear responsibilities represent major fault lines in the system. The elaboration of strategies and nationwide plans, as well as decision-making on the delivery of public services are dominated by ministries (for Education, Human Resources and Social Security, Civil Affairs), several important leading groups and commissions (e.g. Poverty Alleviation). While there is no ministry for disability, the *China Disabled People's Federation* (CDPF), a government-organized NGO, has quasi-governmental status in leading on disability policymaking.

Ultimately, the provision is the task of local governments. For the delivery of services the central departments (including the CDPF) head a vertical system of subordinate organizations in all of China's provincial, prefectural, county and city (urban district) government or party committees – in some instances down to street-level committees. This is also the reason for persisting diversity and lack of local standards across the country (see chapter on health services). In the most recent government reshuffle in March 2018, the government agencies in charge of overseeing the health sector have been streamlined. The Ministry of Health gained new competencies, absorbing the State Council Leading Small Group on Deepening Medical System Reform and taking over certain tasks from the National Development and Reform Commission.

Lack of trust in non-state actors: constraints for bottom-up initiative

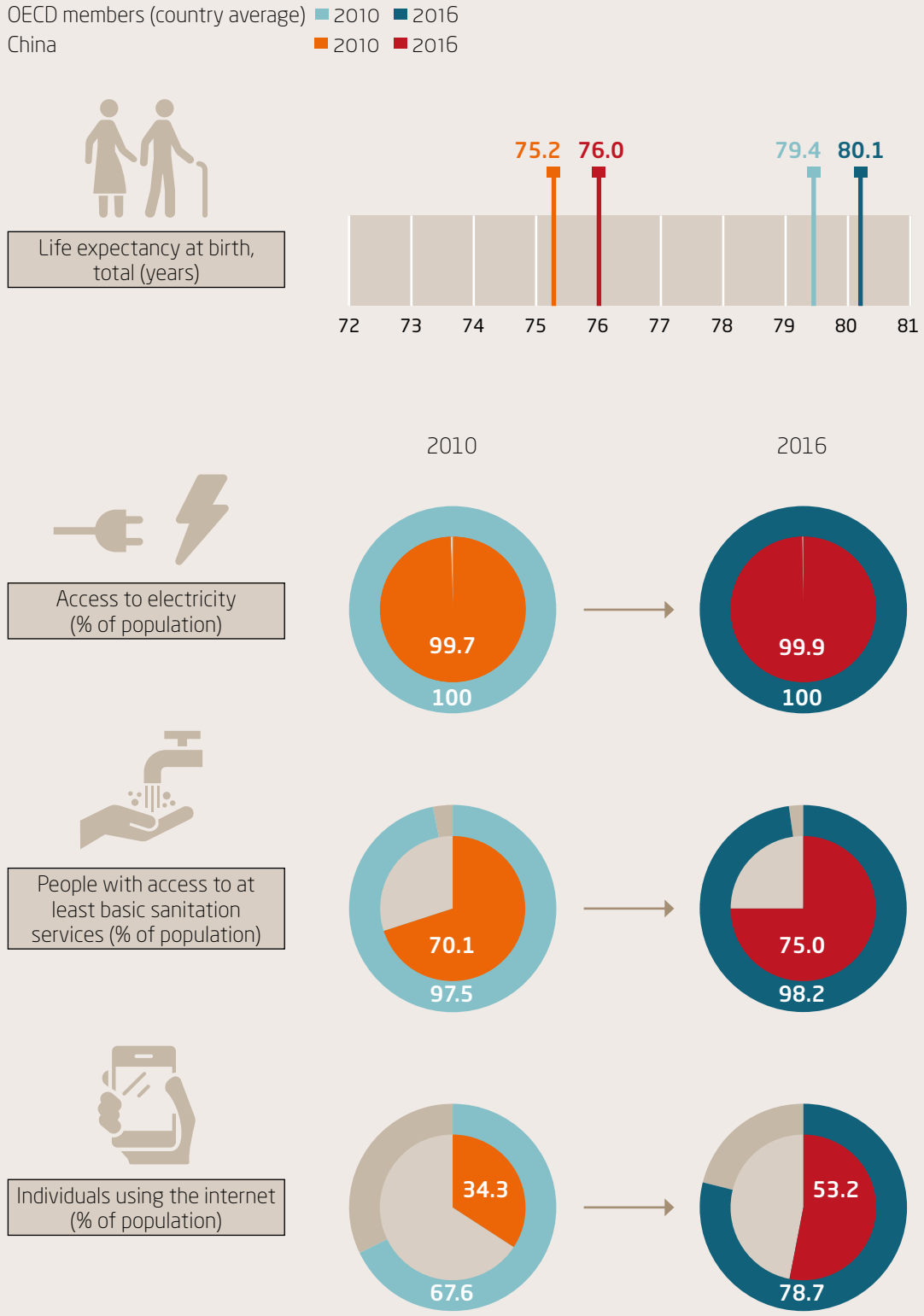
Facing unfunded mandates and a lack of expertise, many municipal and county governments have encouraged non-state actors to play a role in delivering public services. Non-profit organizations have thus become crucial service providers in some spheres (most notably involving marginalized and vulnerable groups such as sex workers and disabled people). With two major pieces of legislation – the Foreign NGO Management Law and the Charity Law (both issued in 2016) – the first Xi-Li administration set clear (legal) boundaries for these organizations' activities, e.g. by limiting their capacity to become more engaged in advocacy. But it also created more legal certainty for their operations. Organizations that are contracted by local governments to provide services benefit from this new setup. The government has been testing different arrangements for contracting out social service delivery to domestic NGOs. Research shows that contractual arrangements still vary across the country.[10]

Next to the delivery of services, the financing models in China also differ from those in other countries. In a much more systematic way than in previous decades, both SOEs and private companies are being signed up to provide funding for key projects. The targeted anti-poverty measures (see chapter in this volume) are a case in point. With the "Ten thousand companies helping ten thousand villages" project (万企帮万村), coordinated by the *All-China Federation of Industry and Commerce*, or initiatives by private companies such as *Alibaba*, large funds are accumulated to support the key CCP initiative of eradicating poverty.

Figure 5

China is catching up fast

Gap between China and OECD countries has narrowed



Source: World Bank[11]

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OUTLOOK: A CHINESE MODEL FOR CATCHING UP TO DEVELOPED COUNTRIES

One overarching finding of this paper is that the Chinese leadership does not aim at direct social service provisioning by the state, with the exception of guaranteeing a subsistence minimum for the neediest groups. Instead, the party-state tries to regulate and closely supervise the provision of public services by multiple non-state actors – including private companies and NGOs.

The central government's goals for public services and social provision may be ambitious but they are constrained by corrupt cadres who misappropriate funds,[12] by the uneven distribution of resources and capacities across China's vast territory, and by the center's preference for maintaining operational and ideological control. And of course, economic growth considerations still play a large role (see chapter on housing security).

Despite the massive anti-corruption campaign since Xi came to power, local officials are still not fully trusted to spend funds as intended. This means that the center tends to focus investment on tangible projects – such as building construction – that are more easily verifiable, rather than on soft provisions.

Meanwhile, there is little fiscal redistribution. Local governments keep a share of their fiscal revenues and prioritize spending on projects that guarantee high economic growth rates to increase their general revenues. This also means that poor regions have less funding to invest in addressing social problems and that they rely on central government earmarked transfers. In the past, local cadres had room to experiment with approaches that suited local conditions. Without sufficient and sustained funding, attempts to create an equalization of basic services by 2020 might overburden local governments, and might founder.

Despite these shortcomings, China is catching up with developed countries in the provision of social services. Taking the OECD member countries as a yardstick, the gap has narrowed. Even in the relatively short period from 2010 to 2016, China's efforts to improve the livelihood of its population have delivered strong and visible results. And yet, China has still a long way to go to on some indicators, from increasing the share of population with access to basic sanitation services or tertiary education. The Chinese government invests substantially in IT infrastructure and presents internet-based solutions as instruments to improve public services. Yet, the share of the population using the internet was only slightly more than 50 percent in 2016. There remains a significant digital divide in Chinese society, meaning that IT solutions might aggravate economic and social inequality. The authors of this MERICS Paper on China will provide extensive quantitative data and qualitative insights into how China plans to close the remaining gap that divides it from developed countries.

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Roadmap to a healthy China: Integrating the delivery of medical care

Meng Qingyue

Roadmap to a healthy China: Integrating the delivery of medical care

Meng Qingyue

KEY FINDINGS

- The "Healthy China 2030 Strategy" is the government's response to challenges from an ageing society to the spread of non-communicable diseases such as diabetes.
- The strategy aims to integrate preventive and curative care through information-sharing and networking of health providers.
- As in many other countries, primary care physicians will be the first point of contact for patients and decide on referrals to specialists.
- The plan faces structural challenges: Urban residents in China are inclined to visit the next nearby hospital without consulting a primary care physician. Rural areas suffer from a shortage of well trained physicians.

Over the last four decades, sustained high levels of GDP growth have lifted more than 600 million Chinese people out of poverty and significantly improved their health conditions.[1] Life expectancy increased from 67 years in 1980 to 76 in 2015 and infant mortality fell substantially.[2] Although the threat of diseases such as SARS and avian influenza is a constant reminder to stay vigilant, and tuberculosis remains a problem – communicable diseases associated with poverty, such as malaria and polio, have been contained.

China's move to become an upper middle-income economy has increased the prevalence of non-communicable diseases (NCDs) such as cancer, cardiovascular disease, stroke and diabetes. This is in part due to changing lifestyles that have come with urbanization and greater wealth – more sedentary work and habits, abuse of cigarettes and alcohol, and diets higher in salt and fats. It is also due to China's declining fertility rate, which together with the fall in communicable diseases means China's population is ageing much faster than in other countries at similar income levels. By 2040, the population aged over 60 years will account for 28 percent of the total, and about 33 percent of all occurring diseases will affect this group.[3] NCDs now contribute about 70 percent of the total disease burden and cause over 80 percent of all deaths.[4] It is predicted that population ageing will increase the prevalence of NCDs by 40 percent by 2030 compared to the level in 2015.[5]

The ageing population will place great demands on China's health system

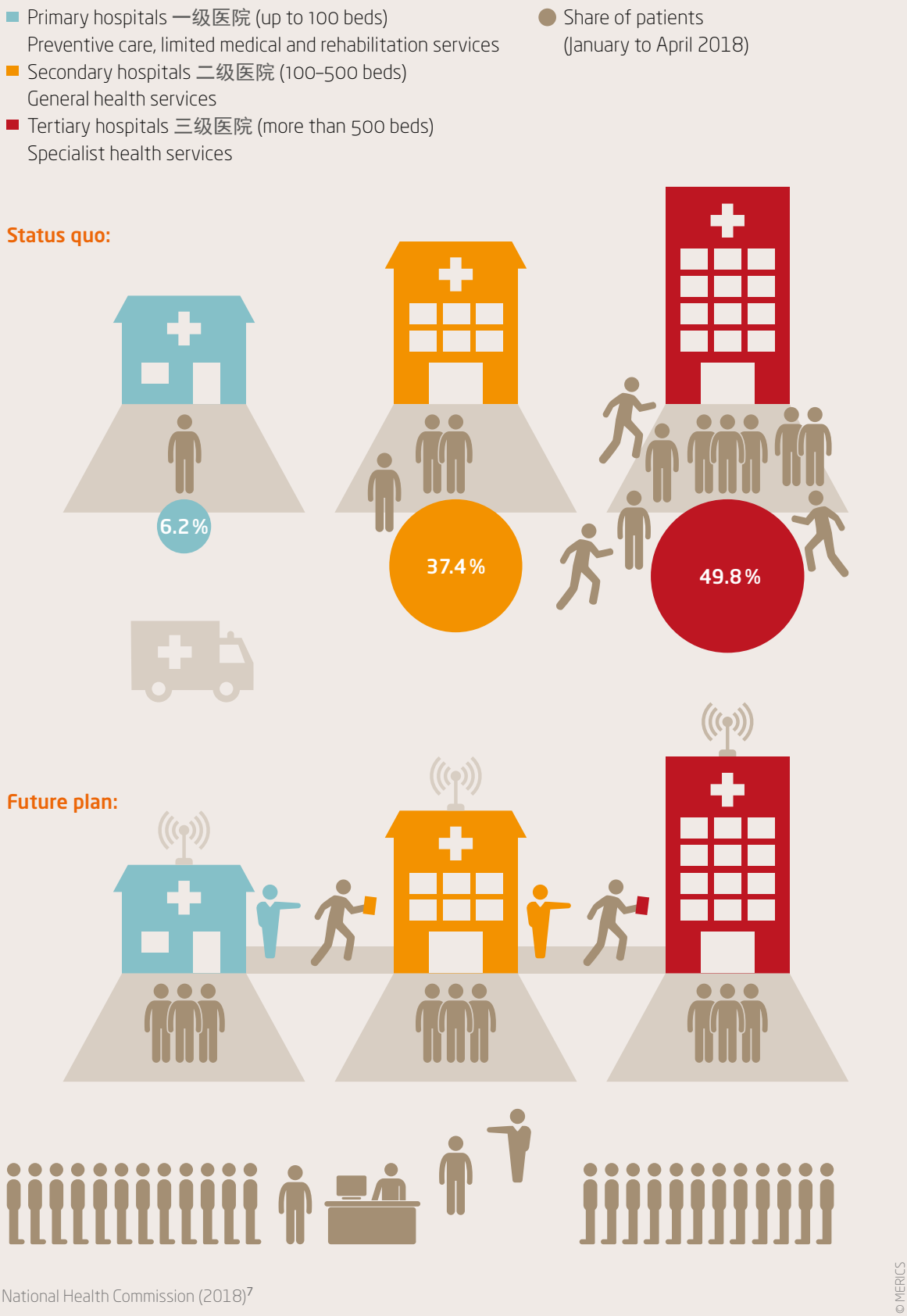
The ageing population and the increase in NCDs will place great demands on China's health system: it has been estimated, for example, that the rapid increase in prevalence of Type 2 Diabetes will cost 47.2 billion USD in treatment by 2030.[6] But at the same time, China's poverty reduction, improved health insurance schemes and medical assistance mechanisms since the 1990s have increased demand for quality care, so that health system reform has become one of the most pressing policy issues.

Despite major reforms since 2009, many problems remain. The government needs to reconcile the fiscal constraints arising from a slowdown in the economy with a growing need for health services due to changing disease patterns. To fill the financial shortfall China will need to reduce its health system's organizational inefficiencies. Currently, it is hospital-centric, meaning that too much care is provided unnecessarily and at great cost by hospitals because primary care is of poor quality. It is also too focused on curative rather than preventive care and on providing treatment rather than improving health – largely because providers have generated income by charging fees that patients pay for out-of-pocket and therefore have incentives to over-provide. Finally, it is

Figure 1

Addressing bottlenecks in China's hospital system

A referral system aims to distribute patients more evenly



Source: National Health Commission (2018)[7]

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fragmented, with poor linkages between primary care and more specialized hospital providers – in terms of both referrals and information sharing. These problems are exacerbated by a severe shortage of medical professionals at the primary care level.[8] There is also still huge unrealized potential in the use of information technology (IT) to advance health care management, to help integrate the health care system, and thereby to improve the quality of care. Improvements in regulations, policies, and incentives for IT development in health care are needed.

In sum, China faces four interconnected challenges in health reform: (1) to use financial resources more efficiently, in part by changing the way providers are paid (so-called payment system reform), (2) to rebalance its multi-tiered health system away from hospitals and towards a pivotal role for family doctors and health workers at the primary (county and village) level, (3) to anchor the system in the achievements of health outcomes as opposed to medical treatment, and (4) to make better use of the potential of IT to seamlessly integrate the several tiers of the system and the payment system.

"HEALTHY CHINA 2030" SETS AMBITIOUS TARGETS

The CCP's and government's commitment to the financing and provision of health care was strongly reaffirmed in major systemic reforms in 2009 and set the scene for further far-reaching initiatives. The "Healthy China 2030" (健康中国2030) strategy was endorsed by the Fifth Plenum of the 18th CCP Central Committee on October 25, 2015. In late August 2016, China held its second "National Conference on Health" (全国卫生与健康大会), after the first in 1996. Two months later the CCP and State Council published their "Healthy China 2030 Outline Plan" (健康中国规划纲要 hereafter, Outline Plan).[9] President Xi Jinping then in his report to the 19th CCP National Congress referred to "Healthy China 2030" as having strategic importance.[10] "Healthy China 2030" – sometimes referred to as a plan and sometimes as a strategy – thus defines health policy for the next decades.

With the "Healthy China 2030" strategy, the CCP Central Committee and the State Council have for the first time made improving the population's health a "political priority and given it a strategic role" (优先发展的战略地位) in national development. The Outline Plan is connected with the UN Sustainable Development Goals for 2030, and is organized into eight parts and 29 chapters. It establishes basic principles for developing and implementing "Healthy China 2030" policies that include fostering innovation, using scientific developments, and improving fairness and justice. The Outline Plan also sets out ambitious health improvement targets: that major health indicators (including life expectancy, infant and maternal mortality rates) will be in line with the top-ranked upper-middle income countries by 2020, and commensurate with those of high-income countries by 2030.

Improving the population's health is a "political priority" and plays "a strategic role"

The Outline Plan calls for health care system reforms with the following key goals:

- To establish a system in which public health facilities, hospitals, and primary health care providers can work together to prevent and control major health problems. Preventive care and curative care should be integrated with an effective information-sharing system and well-connected network of different types of health providers.
- To improve the tiered health care system based on the family doctor mechanism and referral system, in which the health providers at upper and lower levels will be closely connected to provide continuous care.
- To speed up health provider payment reforms and expand the coverage of portable insurance payment systems for migrants and retired people.
- To establish a comprehensive health information system at central, provincial, municipal, and county levels so that everyone is covered and has been issued a health card.

The Outline Plan envisages a key role for science and technology, especially new digital technologies, in facilitating the integration of health care providers and improving access to health care in remote areas. "Internet+Medicine" (互联网+医药) for example, enables online medical information, online medical consultations, online hospital registration and online NCD management sys-

tems.[11] It also includes the goal of all health facilities being covered by "telemedicine" (远程医疗) – the use of technology to deliver diagnosis and facilitate treatment without requiring patients to actually visit a health care facility. Another initiative promotes the use of wearable smart devices and mobile communication devices ("mobile health" 移动健康) to collect data, but also to access information concerning health services. In this way, the "Healthy China 2030" strategy has great potential to enable cooperation between health and digital industries. It will also create business opportunities for new digital technologies: since 2013, "Internet+Medicine" has been a focus for investment.

STRATEGY FOCUSES ON HEALTH OUTCOMES

During the 19th CCP National Congress in autumn 2017, President Xi Jinping re-defined the main contradiction in Chinese society today as that between "unbalanced and inadequate development and the people's ever-growing needs for a better life."[12] This conclusion will guide the development of both the economic and social, including health-related, sectors for at least the next five years.

The government established the National Health Commission (NHC) as the key actor in devising and implementing the "Healthy China 2030" strategy in March 2018. Prior to that, responsibilities were shared among four principal government agencies and one State Council leading small group. The NHC takes over health care regulation and administration from its predecessor, the National Health and Family Planning Commission (NHFPC). In addition, it takes over responsibilities from the National Development and Reform Commission (NDRC), which used to be the main actor in resource reallocation for infrastructure investment in health and health-related sectors. Last but not least, the executive office of the State Council Leading Small Group on medical and health care reform – in charge of long term plans and cross-departmental coordination – was transferred from NDRC to NHC.

The supervision and administration of China's myriad of social health insurance programs has undergone a major overhaul. There are two main social health insurance schemes: residents' health insurance covering both urban non-working people and rural population, and urban employee-based social health insurance. These programs used to be supervised by the Ministry of Human Resources and Social Security (MOHRSS) and its departments at lower levels of government, but are now administered by the newly founded State Medical Insurance Administration.

Other key financiers are central and local governments, which fund residents' health insurance. The central Ministry of Finance (along with local government finance departments) also draws up regular health sector budgets.

The new strategy focuses on health outcomes, which will have different implications for public and private organizations in the health sector. Tertiary public hospitals will face challenges in expanding their scale and services because the strategy emphasizes – and increases support for – primary health providers. In addition, as advanced payment systems are more widely used by the government and health insurers, they will push public hospitals to improve their clinical governance and operations.

Government efforts to contain medical care costs will focus on control of drug expenditures

At the same time, however, non-governmental health providers will have more opportunities to develop because the new strategy makes it clear that the non-governmental hospital sector is an essential and important component of the health care system, an effective way of meeting multilevel and diversifying medical demands. In the "National Guidelines for Health Care System Planning (2015-2020)" (全国医疗卫生服务体系规划纲要2015-2020), the non-governmental health sector is said to be: "an essential and important component of the health care system, an effective way of meeting multilevel and diversifying medical demands."[13] Even though the market share of service provided by non-governmental health providers has not yet significantly increased, the "Healthy China 2030" strategy is expected to result in a positive push for development in this sector.

In the long run, pharmaceutical companies will also benefit from the "Healthy China 2030" strategy because in order to meet the goals for better health more medicines will be needed. However, in the short term, given the high proportion of total health expenditures on drugs and

prevalent over-prescribing of drugs, government efforts to contain medical care costs will focus on control of drug expenditures – as already done in removing drug markups as a source of hospital finance.

LOCAL EXPERIMENTS SET NATIONAL STANDARDS

A number of experiments and pilots have been set up to improve the performance of the health system. The central government has issued guidelines and policies, followed by action plans and implementation at local levels (provincial, municipal and county). Three cases of policy practice and implementation below show how the government aims to address the challenges for health reforms: to establish a well-connected network of different types of health providers; to improve the tiered health care system based on the family doctor mechanism and referral system; to speed up health provider payment reforms; and to establish a comprehensive health information system.

Strengthening the capacity of the county health system: Huangzhong County in Qinghai Province

"Medical consortia" (医疗联合体) are regarded as an effective way of integrating health provision by sharing medical care resources within an area, for example a rural county or urban district, and thereby improving both efficiency and equity in the use of health resources.[14] The capacity of primary health providers (village and township health units in rural counties) can be strengthened by higher-level health providers through a consortium.

Strengthening the capacity of village and township health providers reduces medical expenditures

Huangzhong County in Qinghai Province is one example of emerging good practice in piloting medical consortia.[15] Huangzhong is a poor county with 450,000 inhabitants that largely relies on transfer payments from upper level governments to operate its health insurance schemes and health care delivery. Strengthening the capacity of village and township health providers keeps patients within the county and reduces medical expenditures (because county provision is less expensive than urban hospital care). Huangzhong has three medical consortia, each led by a county-level hospital (the coordinator of the consortium). Township health centers within the county and village clinics within each of the townships are assigned to each of the three consortia.

Within each of the consortia, shared information systems have been key to integrating medical care. A connected and shared information system has been set up within the consortium facilities. In most of China's hospitals and health facilities, information systems are institution-based without connection with each other. But in Huangzhong's medical consortia, information systems in all hospitals and township health centers are linked with each other and work as the basic system for sharing information. They also include a shared computerized health information system of the residents' "health records" (健康档案).

The information system-based integration of care between county, township, and village health providers has improved overall quality of care within the county. Health professionals in county hospitals are sent to township health centers to work for a limited period. Diagnosis and treatment are standardized in township health centers with the support from county hospitals. In addition, a developed telemedicine system is used to improve quality of care in township health centers and village clinics. County hospitals are equipped with the necessary hardware for telemedicine with government subsidies.

Establishing a tiered health care delivery system: Yichang Municipal City in Hubei Province

To establish a tiered health care delivery system is one of the top priorities in the health system development in the next few years. It is expected that a tiered delivery system would perform better in providing continued and good-quality health care. The main policy objectives are to strengthen the capacity of primary health providers by using information technologies and attracting more patients to use primary health care. The social health insurers set higher reimbursement rates for patients if they use the primary care providers. This innovative practice has been explored in some areas. The case below shows how the Internet+Tiered Health System,

meaning the use of internet-based information systems to facilitate sharing of information and resources by all health providers in a region, is used for directing flow of patients in Yichang, Hubei Province.[16]

Yichang is a municipal city in Hubei province with a population of four million. With the aim to introduce a tiered delivery system, the key innovation in Yichang is the establishment of a Coordinated Referral Platform (CRP). Facilitated by "Internet+" (互联网+), medical resources and health information are shared through the CRP that links all existing related information systems in Yichang so as to facilitate patients' referral and management. The existing information systems include rural and urban health insurance management systems, hospital information systems, and individuals' health records. Through the CRP, patients can be easily and timeously referred between the health providers. Information on services provided by all health providers to a patient, including registration, medical consultation, referral, medical follow-ups, and chronic disease management, is shared through the CRP. The CRP is operated by a company (Jiankang Zhilu Company), and regulated and financially supported by the government. If the patients are referred through the CRP, a high share of their medical expenses are covered by the insurance scheme: 90 to 100 percent for services at township health centers, and 65 to 75 percent for services at county and municipal hospitals. If the patients refer themselves without going through the CRP system, the reimbursement rate of medical expenses may be reduced to only 40 percent.[17]

The CRP system helped redistribute treatment of patients between different levels of health facilities. About 90 percent of patients are treated by the health providers within the county, a 20 percent increase after introduction of the CRP, which makes the services more efficient for health providers and convenient for patients. Patients can get more continued care, and quality of care is improved because lower-level health providers have access to technical and diagnostic assistance by upper level providers. The Yichang experiment has been recommended to other places by the national government.

Harmonizing reforms of payment and delivery systems: Luohu District in Shenzhen City

Social health insurance schemes have covered nearly all of the Chinese population since 2010 and health expenditures through health insurance channels have increased rapidly. This means that health insurance has increased its potential to influence the behavior of health providers and encourage them to be more efficient and effective in delivering on government priorities. One of the challenges in achieving this, however, lies in coordinating between the health care delivery side (hospitals administered by health departments) and health insurance side (administered by social insurance agencies). Luohu District in Shenzhen has achieved good progress in this.[18]

One challenge lies in coordinating between health care delivery and health insurance

Luohu is a district in Shenzhen city with a population of one million by the end of 2016. The major element of the Luohu reform on the health care delivery side is the Luohu Hospital Group (LHG). LHG is an organization consisting of all public health providers within Luohu District including hospitals, clinics, and community health centers. LHG is a single interest group that shares resources, bears costs, and enjoys benefits. On the health insurance side, Luohu has replaced the formerly widespread fee-for-service payments (paid directly by patients) with a "global budget" payment method in which a fixed total budget is allocated to LHG. The global budget is adjusted every year based on the number of newly-enrolled insured and the availability of insurance funds. While a deficit of insurance funds allocated to LHG is fully borne by the health providers within LHG, savings and surpluses can be kept and used by LHG. This creates a strong incentive for LHG to save medical care costs by directing patients to use community health providers.

In response to the new payment system, LHG adopted a strategy of using community health centers as the gatekeepers of health care through a family doctor contracting system. The community health centers are encouraged to contract with the families and individuals. The number of contracted families is closely linked with the income of the community health centers. To control the cost of medical care, LHG encourages community health workers to focus on provisions of preventive care and basic clinical care so that the number of hospitalized patients can be reduced. Financial incentives are provided by LHG to community health workers for their delivery of health advice and education to the contracted families and individuals.

After the reform, utilization of outpatient services provided by community health centers increased by 62.2 percent.[19] The financial burden to households of patients decreased after the

reform, the proportion of medical expenditures in total household expenditures was reduced from 3.6 percent in 2012 to 2.5 percent in 2014, and out-of-pocket spending as a share of total health expenditures fell from 22.4 percent in 2012 to 19.6 percent in 2014.[20]

FINANCING PRESENTS LONG-TERM FISCAL CHALLENGE

Government health expenditures have increased rapidly, with 20.8 percent annual growth between 2009 and 2015, 4.8 percent higher than the growth rate of total government expenditures.[21] Even though the government was facing fiscal difficulties in 2016, a 3.7 percent increase was allocated for government health expenditure, a growth rate 1.3 percent higher than the growth of overall government expenditures.[22] Looking forward, the "Healthy China 2030" strategy will serve as a catalyst for investments in health by the government, non-governmental organizations, and individuals.

The government will continue to increase finance for health care. As a national strategy, the government will have institutional arrangements in its budgeting policies and other financial mechanisms to ensure stable growth of finance for health. Priority areas for government financial support will include extension and sustainability of social health insurance, expansion of medical assistance fund programs for poverty eradication initiatives, operation of the essential public health programs, strengthening of primary health providers, and expansion of programs on key health problems (diseases and vulnerable population).

However, it will be difficult to maintain the current growth pace of government spending on health. China's economic growth rate will decelerate as China edges forward toward the status of a high-income country. Fiscal space for health expenditures will narrow accordingly. A mitigating factor will be that health insurance schemes and basic health infrastructures will have been relatively well established, which will reduce the need for government investments in this area.

There is no doubt that the non-governmental sector will be attracted by the "Healthy China 2030" strategy to increase investments in health. The current capacity of health providers cannot meet the health needs of the population. Private investment in health is therefore needed, because the government will not be able to finance a further expansion of supply. It is predicted that private investment in health will increase rapidly in the coming years. Investment in building and operating hospitals and in the production of health-related goods will be the main investment areas. Besides private investment, other non-governmental organizations, for example state-owned enterprises, will also be potential investors in health.

The non-governmental sector will be attracted by the "Healthy China 2030" strategy to increase investments in health

One of the concepts in the "Healthy China 2030" strategy is "mutual building and sharing" (共建共享), implying that individuals need to take health responsibilities in addition to efforts from government, the employers, education institutions, NGOs, and other social organizations. In addition, with increased income, individuals will be increasingly willing to pay for health services.

CHINA'S PROGRESS SENDS SIGNAL TO OTHER COUNTRIES

Universal health coverage is one of the aims of the United Nations Sustainable Development Goals (UN SDGs). As the world's second largest economy, China's policies are carefully monitored by others. China has made substantial progress in extending health insurance coverage and access to public health programs. However, it is still a long way from offering comprehensive affordable health care for all.

Continued government commitment to the "Healthy China 2030" strategy will send a strong signal to other countries that effective policies in finance and delivery are essential for the provision of sufficient and equitable health services. The basic tenets of the reform, namely a tiered health system with a working referral system between village, county and provincial providers on the supply side, combined with comprehensive insurance systems should have broad applicability elsewhere. China's experiences also show the importance of using information technologies for connecting and integrating health providers. If China succeeds, this would serve as a bellwether to other countries.

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Digital technologies for education in China: National ambitions meet local realities

Barbara Schulte

Digital technologies for education in China: National ambitions meet local realities

Barbara Schulte

KEY FINDINGS

- The use of digital technologies for learning plays a central role in China's education reform. China has emerged as global leader in promoting ICT4E.
- ICT4E infrastructure has been implemented in Chinese schools at remarkable speed. Yet, the digital education technologies are still rarely used in class.
- The slow local acceptance can be attributed to two factors: University entrance exams still emphasize rote learning. Many parents and teachers consider ICT4E a distraction from learning.
- To take advantage of ICT4E's innovative potential, China's educational staff needs additional training to learn more about how to integrate digital technologies into teaching. China might even have to consider reforming the university examination system.

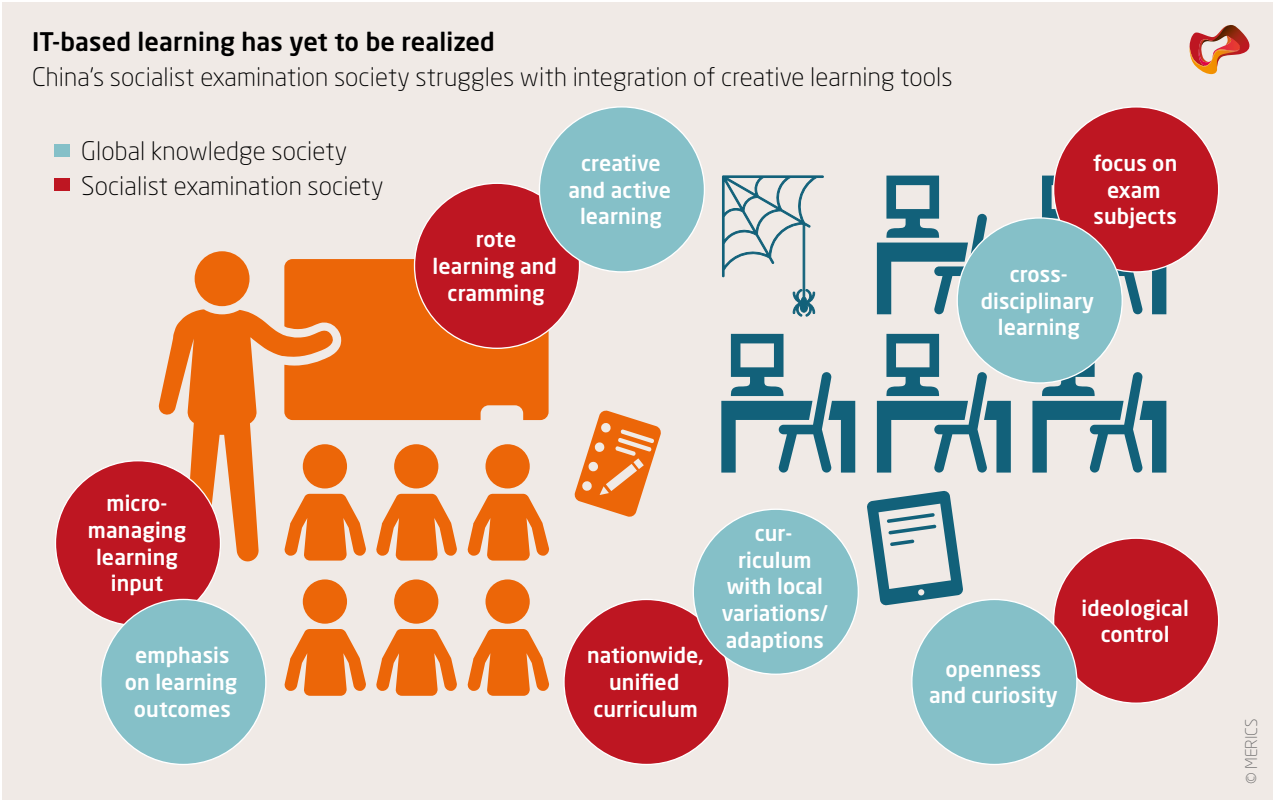
China has been a pioneer in including information and communication technologies for educational purposes (ICT4E) in national educational policies. Having recognized the role technology can play in education in the late 1990s, the country has by now emerged as an international leader in propagating the benefits of ICT4E. At the levels of the school and individual learner, however, ICT4E still play a subordinated role. This mismatch between political ambitions and educational realities can largely be attributed to contradictions within the Chinese education system, which attempts to reconcile diverging political, social, and pedagogical objectives.

The following section will introduce the reader to these contradictions, to then briefly outline what ICT4E entail in general, and how they are relevant in China. The subsequent sections will describe the goals, initiatives, and policies related to ICT4E in China particularly since 2012/2013 – the time when Xi Jinping took over as head of party and state; identify actors and their interests; shed light on implementation, experiments, and outcomes; and conclude by discussing the global implications of Chinese ICT4E initiatives.

China's education system is characterized by two basic tensions. Firstly, while the system has expanded at all levels, enabling 40 percent of an age cohort to attend a university in 2017 (compared to 17 percent in 2003), schools and universities have increasingly diversified in quality and prestige. Various social and geographical divides impact the educational quality that students have access to, such as lower vs. middle class background or rural vs. urban residency. Secondly, while the curriculum reform since the late 1990s intends to turn Chinese students into creative, innovative, active, and responsible members of the knowledge society, persisting forms of examination that stress rote learning and cramming, such as the university entrance examination (*gaokao* 高考), run counter to these goals – as does continued political-ideological control.

Social and geographical divides impact the educational quality that Chinese students have access to

Figure 1



WHY AND HOW DIGITAL LEARNING TECHNOLOGIES ARE RELEVANT FOR CHINA

Both in China and internationally, ICT4E have been associated with potential improvements in teaching, learning, and educational administration, based on the following assumptions:[1]

- **ICT4E enable tailor-made, differentiated learning.** Learners can progress according to their respective skill levels and preferences. This is in line with China's curriculum reform, which seeks to move beyond traditional, teacher-centered instruction.
- **ICT4E allow for interactive learning.** Digital applications facilitate communication among students and shared learning. The Chinese curriculum reform aims to move from exam-oriented rote learning to more student interactivity.
- **ICT4E bridge divides and improve equity.** ICT4E can provide universal access to digital knowledge resources and instruction units. In China, this is considered a cost-efficient way to reduce educational inequalities.
- **ICT4E support the professional development of teachers.** The provision of knowledge resources, online teacher training, and platforms for communication and exchange among teachers can advance on-the-job teacher training. In China, this has been integrated with existing teacher networks for learning.
- **ICT4E facilitate educational administration, school inspection, and assessment.** Shared digital software can align administrative work, leading to more efficiency and transparency. In China, this can be considered a part of the more general digitization of administrative services (e-governance).
- **ICT should be a part of the school curriculum**. This stresses the importance for students to acquire ICT skills and digital literacy. In Chinese documents and guidelines, the two purposes – teaching of and by ICT – are often blurred. ICT are not an exam topic in the university entrance examination.
- **ICT4E can educate the public.** New technologies have the capability to educate the wider society outside the school. With regard to China, this role of ICT has occasionally been framed as "propaganda 2.0."[2]

CONFLICTING POLICY OBJECTIVES: SPREADING AND CONTROLLING INFORMATION

Policies and initiatives related to ICT4E gained momentum in China in the early 2000s and became increasingly specified and substantiated during the present administration under Xi Jinping. The most important policy document to date is the "Ten Year Development Plan for the Informatization of Education between 2011 and 2020" (教育信息化十年发展规划2011-2020年).[3] The plan defines an ICT strategy for education in the digital age and largely revisits educational issues that had been on the agenda for almost two decades, such as: using ICT to support mass education, high-quality education, individualized learning, and lifelong learning; nurturing an innovative and strong nation; improving equality and shared access to educational resources; and involving diverse actors under the guidance of the government. The plan is also the first key strategy document by the Ministry of Education to target the problem of digital divides (besides the already existing offline divides), particularly between urban and rural areas. These more recent ICT4E objectives as outlined in the plan are linked to the older idea of distance education, which took its beginnings in the 1930s. It played an important role after the Communist take-over in 1949, and was made a priority under the Hu Jintao/Wen Jiabao administration, in the form of large-scale rural distance education projects (2003-2007). The focus has been particularly on the less populated Western regions, with the Normal Universities (in charge of teacher education) as driving forces.[4]

From 2012 onwards, the Chinese government's ICT4E strategies began to be specified through the so-called "three implementations" – schools going online, classes using online resources, and virtual learning spaces reaching everyone (even beyond school education). These implementations were to be supported by "two platforms:" platforms providing educational resources; and platforms for educational administration.[5]

Throughout policy design and discussion, two questions have kept re-surfacing over the past 15 years. First, how to keep control of the content while making information and knowledge accessible for all; and second, how to strike a balance between involving private and commercial actors while keeping the state in the driver's seat. Already in 2002, the Ministry of Education (MOE) made it clear that online content should be "healthy, reliable and secure;" it also cautioned against an over-emphasis on commercial interests.[6] However, there is little detail on the regulation and standardization of online content in education, and the issue has largely been left to the general censorship and control mechanisms (such as the Great Firewall). More recently, plans have emerged to combine ICT4E with moral education and the cultivation of "good netizens;" besides, "security" (of technology and content) has lately been added as a focus of attention.[7] Regarding commercial actors, the Chinese government stresses that unlike "Western countries" it does not rely primarily on the market but follows the principle of "government policies controlling, companies participating in the construction, and schools using sustainably" ICT4E.[8] Again, lack of regulatory clarity leaves a grey zone in which commercial actors can operate.

There is little detail on the regulation and standardization of online content in education

ICT4E policies in the Xi Jinping era are marked by the following four characteristics:

- **Education as a shared resource.** "Enjoying together" is a key term in education (and beyond) in the 13th Five-Year-Plan (2016-2020).[9] Tackling the problem of both quality and equality in education, Xi Jinping intends to "let millions of children enjoy high-quality education;" through ICT4E, "all people can learn, people can learn everywhere, and people can learn at any time," enabling everyone to "change one's destiny through knowledge."[10]
- **Re-centralization of ideology through education.** The Xi Jinping administration also places increased emphasis on moral education as a root to national wellbeing. This marks a shift from the previous emphasis on learner autonomy and creativity towards more ideological control of the curriculum. Offline, these efforts have included the recentralized production of textbooks and strengthened ideology education; online, security concerns begin to be addressed more systematically in ICT4E strategies.
- **Investment in mass innovation.** While ICT4E have long been associated with innovation and creativity, the Xi Jinping administration has reinforced the mission of nurturing and spreading "innovation" in various announcements and guidelines. The administration's focus is on expanding innovation from the elites to the masses, by facilitating grassroots innovation. ICT, both in education and beyond, are considered to play an important role in this mission. Policy

papers do not address the potential contradiction between calls for innovation and creativity on the one hand and increasing ideological control on the other.

- **Push for global impact through education.** China's ICT4E strategy also has a global dimension that has been substantially expanded under Xi Jinping. As has been noted by UNESCO,[11] China has been able to distinguish itself as an important global actor in ICT4E particularly in Africa. Also, the UNESCO International Research and Training Centre for Rural Education, which has a strong focus on ICT4E, is based in Beijing. Underlining his personal investment in the issue, Xi delivered the welcome address at the International Conference on ICT and Post-2015 Education, jointly organized with UNESCO, in May 2015 in Qingdao. This conference resulted in the so-called Qingdao Declaration of "Leveraging ICTs for Achieving Education 2030" as well as in a series of follow-up conferences in Qingdao and internationally.

UNIVERSAL EDUCATION BECOMES CORE STATE RESPONSIBILITY

Most initiatives, programs, and projects in ICT4E are state-run, though often in cooperation with commercial partners. While there are educational grassroots initiatives in the charity sector, they are highly unstable and increasingly under political pressure. Even more than its predecessors, the Xi Jinping administration postulates that it is the core responsibility of the state to deliver education for all.[12]

The Xi administration considers education for all a core responsibility of the state

There are actors at the national, provincial, municipal/school district, and school level. At the highest level, the guidelines, legal frameworks, regulations, announcements, and opinions issued by the Chinese government, including the Ministry of Education (MOE), provide the general direction for the discussion and possible implementation of ICT4E. Until October 2016, two important institutions were consulted: the National Center for Educational Technology (NCET), which is in charge of designing and overseeing the implementation of ICT4E throughout the country; and the Office for the Promotion of Informatization in Education (OPIE), which was established in 2011 to guide the planning and implementation of ICT4E and comprised mainly actors from the MOE's Science and Technology Department plus the head of the NCET.

In October 2016, the OPIE was dissolved; instead, the MOE established a Leading Small Group for Internet Security and Informatization (LSGISI). Headed by the Minister and the Vice Minister of Education, it serves as a cross-departmental coordination platform within the ministry. It is hence constructed analogously to the central leading small group for internet security under Xi Jinping, with the explicit mandate to implement the central group's goals and guidelines.[13] The group led by Xi oversees the Cyberspace Administration of China, which is the central agency for internet censorship. This signifies an important change of mandate under Xi Jinping: instead of treating ICT4E as a mainly technical challenge, the state organs dealing with the matter have been integrated in the national internet security structure. Thus, while the former OPIE mainly executed the guidelines as developed within the MOE's Science and Technology Department, the LSGISI constitutes a direct link between China's central political leaders and the design and implementation of ICT4E. It remains to be seen to what extent the change from OPIE to LSGISI constitutes a true organizational change, or merely symbolizes the central leadership's claim to control.

As is often the case with Chinese policy design and implementation, the policy formulations at the highest level leave much room for interpretation; there is also a lack of clear goals or clearly defined milestones, so that success or failure are difficult to assess objectively. Provinces and municipalities do not start implementation simultaneously. Some regions have served as early adopters or even pilot areas, whose "best practices" are then selected and adapted by other regions.[14] This trial-and-error approach, combined with the rules of the Chinese nomenklatura, tends to favor ambitious regional leaders who may be able to boost their careers by assuming the role of (successful) pioneers.

Generally, public or private ownership of schools does not make any difference with regard to ICT4E. Private actors benefit more from providing ICT equipment and solutions to schools than from owning or operating schools. ICT4E generate lucrative business opportunities for producers of hardware and software as well as for providers of ICT infrastructure and services. The MOE has signed large contracts with companies like China Telecom, China Mobile, and China Unicom. Other

large companies like Lenovo, Huawei, Tencent, Alibaba, Inspur, and iFlytek have secured contracts at the provincial level, amounting to an estimated volume of 156 billion CNY (22 billion EUR) in 2016 and showing a growth rate of almost 30 percent compared to the preceding year.[15]

EDUCATION AGENDA FACES STRUCTURAL AND CULTURAL OBSTACLES

In terms of numbers, the speed of ICT4E implementation in China has been remarkable: by 2016, 87 percent of primary and middle schools had access to the internet (compared to 25 percent in 2011); 80 percent of classrooms were equipped with multimedia facilities (40 percent in 2011); 8 students shared one computer (compared to 12.5 students in 2011); millions of online instruction units had been created, and millions of teachers and students had undergone ICT training.[16] In international comparison, however, China's ICT4E implementation is still below OECD average: in OECD countries, 1.3 students share a school computer, and 96.4 percent of these computers are connected to the internet.[17] Differences at pupil's home are even starker: while in OECD countries, an average of 91.2 percent of students can use a computer at home for doing homework, only 59.8 percent of Chinese students have this possibility; besides, only 64.6 percent have an internet connection at home, compared to an OECD average of 94.3 percent.[18] In terms of finances, the MOE reports that in 2016, 4 billion CNY (540 million EUR) were invested in ICT4E at the provincial level.[19]

By 2016, 87 percent of primary and middle schools had access to the internet

WHAT DOES A LOCAL ICT4E INITIATIVE LOOK LIKE? THE EXAMPLE OF XINGYE COUNTY IN GUANGXI PROVINCE

Population: ca. 763,500 inhabitants, mainly rural areas, home to twelve different ethnic groups
GDP in 2016: 15 billion CNY (2 billion EUR); **public expenditures on education:** 4.6 percent of GDP

In March 2017, the county launched an ICT4E project with a volume of 20 million CNY (2 million EUR) (ca. 3 percent of the country's annual public expenditure on education). This covered hardware for 293 schools, the establishment of a data center, a platform providing educational resources, an administrative platform, a platform for communication, resources for mobile learning, resources for applying technology in teaching, and a platform for knowledge about digitization. Content includes 4 million documents for learning, 25,000 teaching units, 270,000 e-books, and 1.6 million exam topics.[20]

The Chinese central government's enthusiastic embrace of ICT4E has led to a myriad of initiatives and platforms, operated by both state and commercial actors. In areas where political leaders encourage ICT4E initiatives, this has led to an uneconomical competition of various projects, at times producing wasteful duplicates; while in less focused regions, there can be a lack of commitment to ICT4E altogether. Another side effect of the massive investment in ICT4E is the urgency to spend the allocated resources. Often, this leads to an unequal distribution of resources, due to political prioritization or as a result of too superficial research into local demands and very limited involvement of local stakeholders. Hasty investment often turns out to be not sustainable; while hasty spending can lead to (often unintended) misuse of funds, such as constructing luxury administrative buildings.[21] Generally, there has been little alignment with local needs and grassroots initiatives: public and grassroots initiatives related to ICT exist alongside each other, with grassroots actors facing increasing political difficulties over recent years.

ICT4E = BETTER LEARNING OUTCOMES AND LESS INEQUITY?

As outlined at the beginning, ICT4E are expected to improve learning outcomes and reduce inequity in education. A study of an ICT4E trial project in Chengdu reveals that rather than upgrading low-quality schools and improving the learning results of disadvantaged students, "the main benefactors of the project intending to help weak schools are, perverse as it seems, the elite schools in the respective districts."[22] With the help of additional resources and student participation, elite schools profit from producing videos that are then widely distributed to the poorer regions. In contrast, students in the poorer regions only passively consume these videos, and the schools do not receive additional benefits. The study could find no peer learning or community empowerment; neither was there evidence for more interactive and differentiated learning. Finally, the study notes a benefit for commercial providers who sell their online material to the poorer regions while profiting from government subsidies.

Even more problematic is the social acceptance of ICT4E among teachers and families. Fieldwork conducted by the author in the years 2014 to 2017 showed that most teachers and parents regard ICT as inadequate for learning. They consider ICT as distracting and potentially counter-productive for children, and at the school as well as in family homes, ICT are at best offered for entertainment and relaxation, often as reward after long periods of cramming and rote learning. These latter, conventional modes of learning are considered most efficient for attaining good exam results. In fact, schools' higher performance often corresponds to a less frequent use of ICT, while less prestigious schools allow for a certain amount of leeway, or lenience, towards ICT use.

Most teachers and parents regard ICT as inadequate for learning

Even though the MOE emphasizes the "three uses" of ICT4E – "use in the class room, frequent use, and widespread use"[23] – what has been most conspicuous when visiting Chinese schools is the non-use of ICT4E, particularly among students. If at all, ICT4E are used for presentation purposes by teachers, e.g. in the form of PowerPoint presentations or downloaded micro-lectures. Rarely do ICT4E change the approach towards learning, or generate changes in how information and knowledge are being sought and processed. International surveys confirm this non-use among Chinese students: according to the OECD-conducted Programme for International Student Assessment (PISA), Chinese students use the internet least of all students internationally;[24] they were also found to have difficulty with effectively navigating information on the internet (task-oriented browsing).[25]

CHINA IS A LEARNER AND A LEADER IN GLOBAL EDUCATION

China's heavy investment in ICT4E does not only have domestic implications but is also of global relevance.

Many observers regard China primarily as a learner – as an emerging nation that, in the field of education, needs to solve above all two issues: equal access to high-quality education across regions and schools; and upgrading the country to an innovative knowledge society, in order to be a creator, and not just a maker, of globally competitive products.[26] ICT4E are seen to help in this quest.

However, China has also emerged as a global actor in (offline) education, and the government's ambitions have moved beyond learning from other countries and reforming its own system. International large-scale assessments of educational performance such as PISA have shown the competitiveness of (some parts of) the Chinese school system. This has not only resulted in educational publications to market the Chinese solution to the rest of the world, but also to the actual export of teaching experiences and models to developed countries like the United Kingdom – an achievement that the Chinese MOE has been particularly proud of.[27]

For the most part, these exports have focused on conventional methods of teaching and learning with the aim to achieve excellence. The export of ICT4E is mostly seen from a develop-

mental perspective, as a tool for bridging social and regional divides. The Vice Minister of Education, Du Zhanyuan, sees the potential "international impact" of Chinese ICT4E and possibilities of export as one of the most important strategies for increasing China's soft power.[28] Over recent years, China has been increasingly engaged in the strategy of "opening the new era's education to the outside."[29]

This involves educational aid to, and engagement in, developing countries, particularly in Africa.[30] China increases its export of ICT technologies and know-how to Africa,[31] and it has intensified its ICT4E engagement on the African continent. For the first time in history, China signed a Fund-in-Trust with UNESCO in 2012, to advance ICT for teacher education in ten African countries.[32] In the subsequent years, the Xi Jinping administration has invested massively in education initiatives in Africa,[33] particularly in those involving ICT. In light of the recent, systematically designed programs for establishing soft power – among other things, through founding the National Cultural Soft Power Research Center at Peking University[34] – these global activities suggest that China is ready to assume global leadership in education.[35]

China has invested massively in education initiatives in Africa

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New solutions for urban residents: Housing security in urban China

Zhu Yapeng

New solutions for urban residents: Housing security in urban China

Zhu Yapeng

KEY FINDINGS

- Housing has turned into a pressing issue for China. Due to high real estate prices, more than 60 percent of urban households have difficulties to find affordable housing.
- The government subsidizes housing for low-income households, whereas the market is supposed to serve households with a medium income.
- Housing provision is traditionally in the hands of local governments and developers. But the central government, concerned about excessive speculation and public dissatisfaction, has now made the issue a priority.
- Local pilot programs test ways of improving the housing situation for different income groups. Measures include shared ownership schemes for medium and low-income households, support for the development of a rental housing market for medium income households, and shantytown upgrading to renovate existing housing units.

Providing "good-quality affordable housing" in accordance with the OECD definition has turned into one of the most pressing issues for the Chinese leadership. Due to the steep rise of real estate prices – particularly after 2003 – millions of medium- and low-income households are excluded from the housing market or cannot even afford renting adequate housing space.[1]

In an international comparative perspective, the share of public, or "social" housing units is low. Renting of private housing units in the Chinese system is also the exception. Ever since housing has become a commodity in the late 1990s the preference of most Chinese is to own their housing property instead of renting – about 70 percent of urban households live in their own property.[2] Furthermore, government measures focus on providing subsidies to individuals and regulating the housing market, e.g. by setting incentives for companies to provide affordable housing. Public policies in this field are subsumed under the term "housing security" (住房保障).

The preference of most Chinese is to own their housing property instead of renting

The success of government measures is limited and the housing situation of an increasing share of the population has deteriorated in the early 2000s. In 2015, the consulting company *McKinsey* estimated that 60 percent of households in urban China cannot afford basic housing at a market price.[3] This means that a large share depends on public subsidies to rent or purchase apartments. The massive urbanization drive adds to the problem. Many urban residents without a local "hukou" (户口) live in the outskirts of cities, in informal housing often without basic living facilities, such as tap water, electricity and heating.

Lastly, the deteriorating residential situation of millions of citizens who once worked for previously state-owned enterprises has turned into an issue for housing security policies. Especially in areas that used to be the industrial base of China's planned economy, shantytowns – zones with housing units in poor condition, inadequate infrastructure, poor communications, high security and fire risks and bad sanitation conditions – have emerged in many cities.[4]

FINDING AFFORDABLE HOUSING: A CHALLENGE FOR THE YOUNGER GENERATION

The Chinese government at all levels is reluctant to engage in the direct provision of adequate and affordable housing. Direct provision is means-tested and restricted to households below the

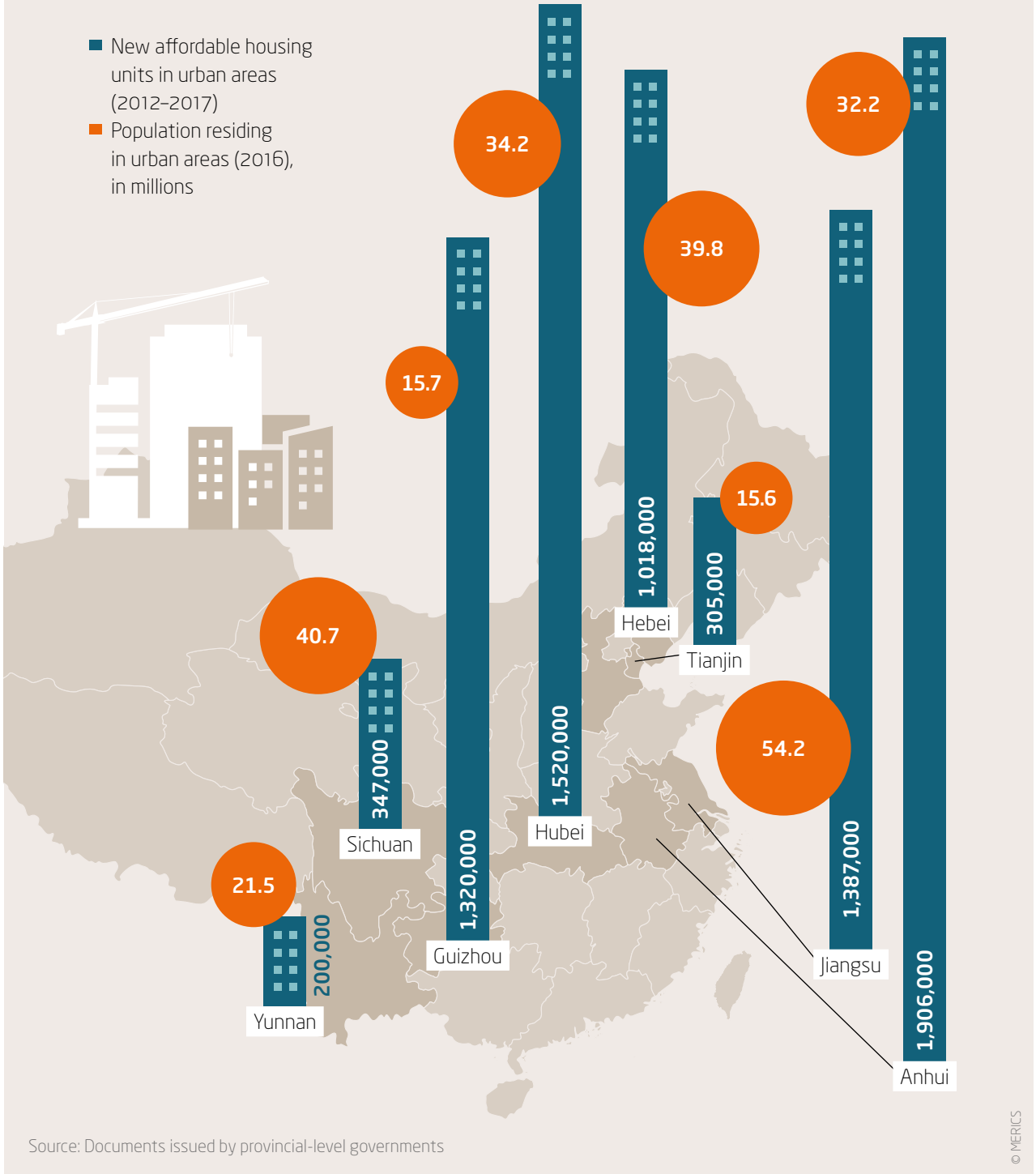
poverty line of the respective city. Entry and exit policies are strictly enforced.[5] Public policies in the field of housing security focus on incentives for public and private actors in the construction and real estate sector and on correcting perceived market failures.

Housing security was never the direct responsibility of the Chinese state. During the planned economy period (1950s-1980s), work units were tasked to assure that their (urban) employees had decent housing. Local governments provided housing directly only for people not affiliated to a work unit, a "danwei" (单位), and without a family to depend upon. After a transition phase in the 1980s and early 1990s, during which the government allowed for experiments with private

Figure 1

Provinces step up efforts to provide affordable housing

Additional units for middle and low income households in urban areas



Source: Documents issued by provincial-level governments

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home ownership, the state relieved work units of their responsibility. Eventually, many housing units belonging to work units were purchased by workers at low prices. This marked a major step in turning housing into a commodity.

Whereas the older generation of urban residents profited of the transition, an increasing share of the younger generation could no longer afford purchasing or even renting, due to the steep rise in real estate prices and the non-existing rental market. And, the programs for the neediest introduced in 1998 – such as the "low-rent housing" (廉租房) and "economical and affordable housing" (经济适用房) – largely based on providing subsidies and rent rebates, were ineffective. They were underfinanced and poorly managed. In the period from 1998 to 2006, only 268,000 households benefited from the low-rent housing program and the government invested a total of seven billion CNY in the same period.

The central government saw the need to intervene and curb speculation with real estate that had intensified in the early 2000s. In 2007, a comprehensive framework was put forward to assist urban residents to meet their housing needs, to merge existing programs and render their management more efficient. Price-capped housing was introduced as a new measure targeting first home purchasers and displaced households. The beneficiaries received financial subsidies, but faced restrictions concerning the sale of their property. When China was hit by the global financial crisis in 2008, the Chinese government focused on sustaining economic development with a big stimulus package. Due to the dominant role of the construction sector in the economy, a large proportion of the public investment went into infrastructure and real estate, which fueled a construction boom and a rapid inflation of property prices. The Ministry of Housing and Urban-Rural Development (MOHURD) oversaw a large share of the 4 trillion CNY (586 billion USD) economic stimulus package of November 2008. In urban areas a share of the money went into the construction of more affordable and low-rent housing, and the renovation of so-called shantytowns (mostly housing estates previously owned by state-owned enterprises that had been sold to employees in the 1990s).

In 2010, in order to cater for the housing needs of middle-income groups, the government launched a "public rental housing scheme" (公共租赁房) and consolidated other public policies to provide affordable housing. Seven ministries jointly issued the document titled, "Guiding opinions to speeding up public rental housing schemes."[6] The target group for affordable rental housing was defined as follows: urban medium-low income households, newly employed employees without dwellings and rural to urban migrants with stable jobs.

Public investment into real estate fueled construction and a rapid inflation of property prices

In the 12th Five-Year Plan (2011-2015), the central government put forward the goal of providing 36 million apartments for low-income households from 2011 to 2015. This rapid development is conceived as an important step in the provision of public housing. Financial resources were appropriated, and incentives strengthened to accelerate the reform. Ultimately, the stipulated goal was even exceeded.[7] Yet, imbalances remain as the implementation varies across regions regarding the coverage, eligibility and supply.[8] In addition, already in the period of the 12th Five-year Plan, the government had become concerned about the problem of "sandwich" households, whose income exceeded the threshold to qualify for public rental housing. However, in the plan it suggested correcting market failures, such as the speculation with housing property or the investment in high-end residential units, rather than extending the offer of public social housing.

In the 13th Five-Year Plan (2016-2020), the central government reiterated the goal to improve the quality and affordability of housing. It aims at establishing a housing supply system in which the government provides housing to those near or below the poverty line, whereas the remaining households are served by the market. MOHURD provided more details concerning these goals in the specified plans of the ministry for the period of the 13th Five-Year Plan[9]. The ministry re-emphasized the priority of developing the rental sector. The new plan extends eligibility from long-term urban residents to individuals who moved to the city more recently. In certain cities it was practice that persons with no local *hukou* had to reside in the city at least for eight years to qualify for supporting measures. As a new criterion, all individuals with a resident permit – long-term or temporary – shall be considered for support.

In the next section of this paper, the current situation of implementation of new measures – including prominent experiments and policy pilots, such as shared-ownership schemes and shantytown upgrading are presented and discussed in detail.

MUNICIPAL GOVERNMENTS PLAY KEY ROLE IN HOUSING SCHEMES

For most of the period since the founding of the PRC in 1949, housing security had been decentralized. The founding of the Ministry of Housing and Urban-Rural Development (MOHURD) in 2008 marks the first time a central government organ is in charge of this issue. Its predecessor organization, the former Ministry of Construction, had dealt with macro plans for the construction of urban and rural infrastructure. Since the late 2000s, other ministries such as the National Development and Reform Commission, the Ministry of Finance, and the Ministry of Human Resources and Social Security have been involved in devising strategies for housing security and in monitoring compliance of subnational actors – both provincial and city governments, and enterprises. The role of municipal governments has increased over the years, as they were overseeing the provision of housing for the growing number of individuals below or near the poverty line.

City governments, real estate developers, construction companies – many of them publicly owned –, and private investors are the key actors in the housing sector. However, the close connection and cooperation between these actors has a major downside. Without proper supervision it opens avenues for corruption and uncontrolled speculation. Municipal governments are in charge of land provision, finance and administration for public rental schemes. Income from land sales, related taxes and levies from the real estate sector are major sources of local government revenue. In many provinces and cities they account for more than 70 percent of total local government income before fiscal transfers.

The requirement to provide public rental housing imposes a financial burden on local governments. Measures that target the neediest, but also urban households in the lower-middle and middle income quintile, come at a price for them – such as free land provision, but also a reduction of land available to lease for fees, tax and levies. In some cases, localities were simply too poor to afford the introduction of those schemes.

Without strict supervision by higher-up government agencies, local governments had few incentives to implement public housing schemes, or phased them out after their initial introduction. Building housing complexes for rich clients, who consider real estate as a vehicle for investment or speculation is far more profitable than entering China's underdeveloped rental sector.

An assessment of the nationwide situation is difficult because of regional imbalances in the provision of housing. There is still strong and unmet demand for affordable and adequate housing in first-tier cities. Other cities report an oversupply of housing units. The Chinese economist Wu and his colleagues calculated the cumulative gap between newly added floor space and floor space sold in the period 2001 to 2014 in China`s provincial capitals. He finds that the two extremes are Shanghai with the demand exceeding the supply by 30 percent and Chengdu, the capital of the south western province Sichuan, with the supply exceeding the demand by even 130 percent.[10]

LOCAL PILOT SCHEMES HOLD NATIONWIDE IMPORTANCE

CCP leaders have identified housing security as a key building block for sustainable economic growth

The Chinese central leadership under Xi Jinping has identified housing security as a key building block for sustainable and healthy economic growth in the "new era of socialism with Chinese characteristics" (新时代中国特色社会主义思想). The phrase originally used by Xi in the fall of 2017, "housing is for living in, not for speculation" (房子是用来住的，不是用来炒的) has turned into a guiding theme and was confirmed in the Central Economic Work Conference in December 2017. The public schemes that make part of the housing system shall cater for the need of households in different income quintiles, such as urban low, lower middle- and middle-income households, but also new arrivals with a rural hukou. As such, the housing system is an important component in maintaining social and political stability.

Three public policies that were initially locally piloted and gained national attention are presented and discussed below. They are highly relevant as they might be applied nationwide to increase home-ownership of middle-income households, to boost the establishment of the rental market and to guarantee that run-down areas are renovated.

(1) Shared home ownership schemes for medium to low income households

The shared home ownership scheme (共有产权房) is a policy targeting medium-low income households. The basic principle is that households below a certain locally defined monthly income threshold can initially purchase 70 percent of the ownership rights to an apartment, the other 30 percent are purchased by the local government. Households in the lower-middle income quintile can even start with a share of 50 percent. If the household income increases, additional shares of the ownership rights can be purchased from the local government. In the first five years after the original purchase, the price for additional shares is the same as the starting price. If the government purchases shares held originally by the household, it will do so at current market prices of the property.

In 2007, the scheme was first locally piloted in Huai'an, a third-tier city in Jiangsu province. Shanghai started a pilot in 2010. In 2014, after official endorsement by MOHURD and an explicit mentioning in the work report of the government, the pilot project expanded to another four cities including Beijing and Shenzhen, as first tier cities, Chengdu, a second-tier city, and Huangshi as a third-tier city. Regulations for the share acquisition process and for the involvement of private or state owned real estate companies vary locally. It is documented that in certain cases in Shanghai, the city government even started loan negotiations with commercial banks on behalf of applicants. This does not seem to be the case in other cities.

A 2017 document of the Beijing provincial government shows how the scheme has been adapted in the meantime.[11] According to the document, a total of 325,000 shared ownership housing units will be provided in Beijing in the five years until 2022.[12] This not only means the shared ownership housing is expected to play a much bigger role as a national policy in the future, but also reflects three distinctive changes from the past practice:

325,000 shared ownership housing units will be provided in Beijing until 2022

Eligibility: In the document, the previous restriction based on household income is removed and all residents in their thirties with a local "hukou" who do not own housing property are qualified. Furthermore, about 30 percent of total shared ownership housing projects will be geared toward residents without a local "hukou." The policy is designed as an incentive for high-skilled workers to stay in Beijing. With the relaxed means test the target group now also includes medium-income households, known as the "sandwich class," whose incomes are too high for public rental housing but not sufficient to purchase apartments at market prices.

Restrictions on purchase/sale of shares: The document sets a ban on purchasing the government-owned share. Moreover, the part of property share owned by the household cannot be traded in the open market and can only be transferred to the official agency or other qualified applicants five years after the initial purchase. Thus, the shares are outside of the real estate market cycle.

Pricing: The original selling price of shared ownership housing is based on the value of property of similar quality in the same locality, narrowing the selling price gap between state subsidized housing and housing on the market.

The shared ownership scheme has gained popularity among members of the middle-income group. In the meantime, millions of Chinese households hope to own the full rights to their apartments in the future. However, critics stress that the policy has little potential to stabilize property prices and benefits first and foremost local governments, which benefit from subsidies but otherwise still have few incentives to provide truly public housing for rent. The example of Shanghai showed that the demand for the scheme among middle-income households could not be met, due to a lack of available land for the construction of respective housing units. The land was sold to investors who built commercial houses instead. Other critics point to the long and bureaucratic process as the major downside of the scheme.

(2) Support for the nascent housing rental market: build-to-rent schemes

The build-to-rent scheme is the first-ever government intervention to place a priority on the private rental sector, which had remained underdeveloped and unregulated for a long time. The State Council announced the first nationwide guidelines for China's rental industry in October 2017. In order to attract both private and state-owned real estate developers to engage in renting rather than selling residential units, the State Council issued documents to provide financial incentives and preferential policies. These include the right to raise money through corporate bonds and sell asset-backed securities when developing housing units for the rental market. Meanwhile, a government-operated online rental platform will be set up. The overall aim of the build-to-rent scheme is to boost the establishment of a rental market for apartments.

The overall aim of the build-to-rent scheme is to boost the establishment of a rental market

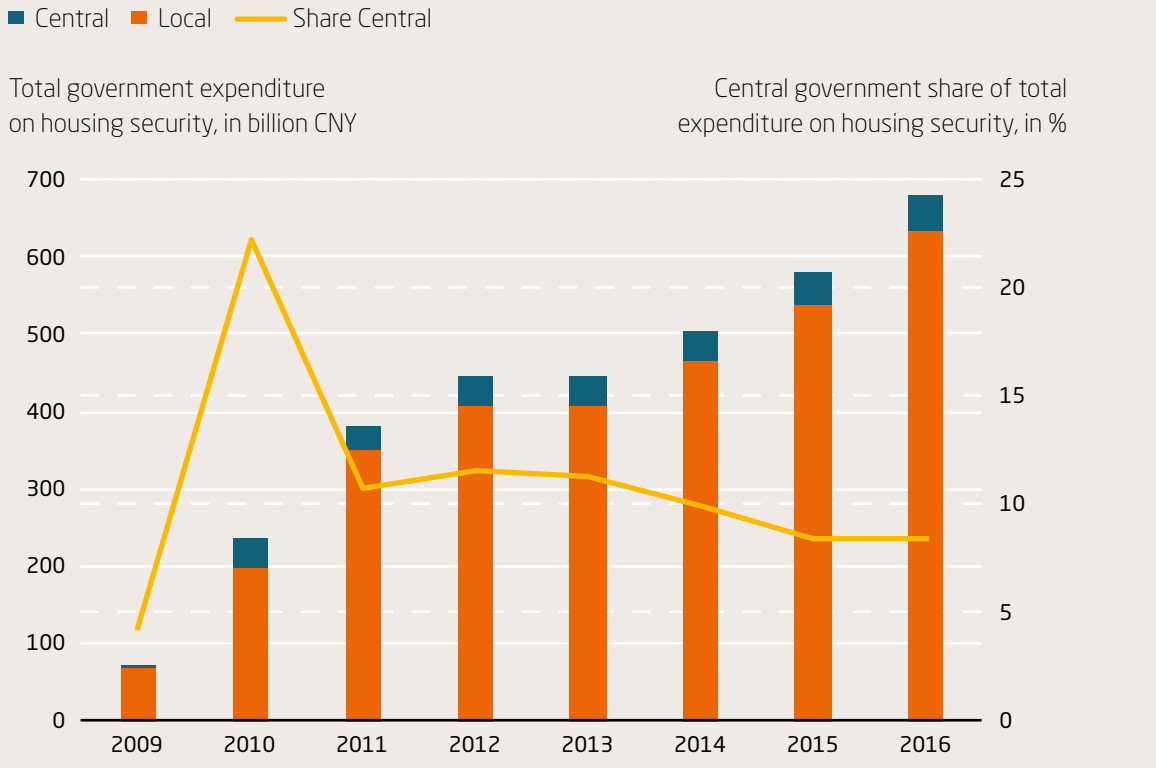
The project was first piloted in Beijing in November 2016. The city government issued new regulations for land auctions of residential property. They set a price cap on the sale of land-use rights. As soon as the limit is reached in the bidding process, the government sells the land-use rights to the developer offering the greater proportion of building-for-rent housing or public housing on the land.[13] Developers taking part in the scheme are not allowed to sell any housing units that are part of the respective project for the term of the land-use rights, usually 70 years. Moreover, in order to avoid a "rent-as-sale" option, developers are also not allowed to sign long-time contracts with tenants. The maximum duration is 10 years. This is why the project is also called "long-term rental housing" (开发商自持长租公寓).

At the end of 2017, the project was extended to 12 first- and second-tier cities. As of early 2018, there were at least three local variations of the scheme, including the Beijing model described above. Shanghai attracted state-owned real estate developers to enter the rental market by offering land below market prices.[14] Shenzhen requires real estate developers to retain 20 percent of total newly developed residential units as rental units at a defined rent.[15]

Figure 2

Public expenditure on housing security (2009-2016)

The financial burden is on local governments



Source: National Bureau of Statistics (2018)[16]

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It is too early to assess the outcome of the scheme in its different variations. If both the central and local governments push real estate developers to comply, it could mark a decisive change in the housing sector.

(3) Renovating existing housing units: shantytown upgrading

"Shantytown upgrading" (棚户区改造) (SU) was first piloted in the 2000s. According to the initial policy design, local governments fund the renovation of existing housing units, most of them privately owned. The Xi-Li administration set the ambitious goal of renovating 10 million houses in shantytowns from 2013 to 2017.[17] In a series of policy documents in 2013, 2014 and 2015, the central government introduced financial and fiscal incentives for real estate developers to channel investments to SU-related projects. Almost all of China's provincial-level governments had adopted the policy by 2015.

Attracting private investment to SU-related projects through public-private partnership schemes has become a major trend. One consequence of the inflow of private money is that many old residential units are no longer renovated but torn down. The residents are offered new housing units – including monetary incentives or even full compensation. However, not all relocated households receive cash subsidies or the apartments they were promised.

SU has proven effective in upgrading the housing standard of millions of tenants. However, the beneficiaries are mostly households who already own housing property. It has little to offer those who are still searching for adequate and affordable housing.

Furthermore, although SU has a role in stimulating consumption and economic growth, it requires a huge amount of direct investment and land supply. It also limits the opportunities for local governments to profit from selling land to commercial real estate developers at market prices. The number of reported cases of abuse is rising. In some cases, local governments relocated existing tenants to newly built housing units in the outskirts of the city and sold the land of the original housing units at high prices to commercial real estate developers.

Many households still lack access to adequate and affordable housing in urban areas

Despite the rapid increase of public investment in housing security since 2010 and the push to establish a rental market, many households still lack access to adequate and affordable housing in urban areas. The long-term effects of the above-mentioned three policy innovations require further study.

FUND FOR PROSPECTIVE HOMEOWNERS SHOWS MIXED RESULTS

The financial burden of China's "housing security" policies is mainly carried by local governments (see Figure 2). Despite the push for implementing the new projects, the investment by the central government remains low (see graph).

Policy banks and public-private partnerships (PPP) are two additional sources of finance for the pilots and experiments introduced above. Mandated by the central government, the China Development Bank has been one of the main financiers of SU projects since 2013. The amount of new loans increased year over year: from 106 billion CNY (17 billion USD) in 2013 to 408.6 billion CNY (66 billion USD) in 2014 to 750.9 billion CNY (117 billion USD) in 2015.[18] Since May 2015, the central government has also pushed for the use of PPPs as a viable alternative to expand funding for public housing and shantytown upgrading. Currently, various types of PPP, such as build-operate-transfer (BOT), build-operate-sell (BOS), and real estate investment trusts (REITs), are discussed in policy circles.

The publicly managed Housing Provident Fund (HPF) (住房公积金) is a support instrument for prospective homeowners. Employers and employees each contribute to the fund. According to national regulations it is a compulsory savings plan, but by far not all urban employees have an account. The contributing individuals can apply for preferential mortgages rates or rent subsidies, but also withdraw money from their personal account to pay for housing repair and maintenance costs. Local governments decide on the rate of the contribution, but according to a central government guideline, rates should not be lower than 5 percent or exceed 12 percent of the employee´s

monthly wage. For example, since July 2013, employers and employees in Beijing have deposited 8 to 12 percent of the employees' monthly salary. In Tianjin, the contribution rate is between 5 percent and 15 percent, depending on company profits.[19] The scholarly assessment of HPF is divided. For individuals with stable, but low incomes, participation increases their chances of becoming homeowners. It also encourages housing investment and income redistribution from high- to low-income households.[20] However, individuals without a stable employment relationship – most of them in the vulnerable group of low-income earners – are barred from contributing to the fund.

MARKET-BASED SOLUTIONS GUIDED BY THE STATE

China is facing a new housing challenge. In the past, the often-quoted success of the Chinese government in avoiding the development of slums in the periphery of large cities could be attributed to a rigid system to control the mobility of citizens. The challenges in the 2010s are different, and the government needs to improve the supply of affordable and adequate housing in urban areas – especially of rental housing. The three new policies introduced in section three (shared homeownership schemes, build-to-rent schemes and shantytown upgrading) illustrate the main approaches in answering the demand for housing security.

The provision of public social housing on a bigger scale is not among those priorities. This is in line with the developments in OECD countries that also saw an overall shift away from social rental housing.[21] The use of subsidies instead of direct provisioning shows that the Chinese government prefers market-based solutions to guarantee the supply of adequate and affordable housing, as it also helps to stimulate the economy.

With its state-led economic model, China has more means than many other countries to guide the housing sector. The use of subsidies and incentives may be a market-based policy instrument, but the public ownership of urban land gives the government the final say in steering private investors and real estate developers in the preferred direction.

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China's fight against poverty: Rallying all forces to eradicate poverty by 2020

Gao Qin

China's fight against poverty: Rallying all forces to eradicate poverty by 2020

Gao Qin[1]

KEY FINDINGS

- China has set the ambitious goal to eradicate poverty by 2020. The targeted anti-poverty initiative (TAPI) tackles entrenched poverty in China's rural areas.
- TAPI mobilizes a broad range of actors to participate in poverty alleviation efforts, including government departments, state-owned and private enterprises, and local organizations.
- The initiative places a strong focus on the use of digital technology such as e-commerce to create new income opportunities for the poor.
- Both central and provincial funding for poverty alleviation have increased dramatically since TAPI's launch, singling out this initiative as one of the government's top priorities.
- In addition to improving income levels, China needs to guarantee equal access to high-quality health care and education to sustain its poverty reduction achievements.

China has made enormous progress in tackling poverty over the past 40 years, reducing the number of poor people by 800 million and making a significant contribution to achieving the United Nation's 2015 Millennium Development Goals.[2] Building on this achievement, the Chinese party-state has committed to eradicating poverty, targeting the remaining five percent of China's population living below the national poverty line (see textbox and Figure 1).

The challenge has thus shifted to tackling entrenched poverty – often found in China's most remote rural areas and among people in poor health conditions and/ or unable to work. As the Chinese Communist Party (CCP) approaches its centennial anniversary in 2021, it is committed to achieving its goal of "building a moderately prosperous society" (全面建成小康社会). To this end, the head of the CCP and Chinese President Xi Jinping proposed a targeted anti-poverty initiative (TAPI 精准扶贫) in November 2013 aimed at eradicating rural poverty by 2020. On November 29, 2015, the State Council officially adopted this policy initiative in its "Decision on winning the fight against poverty" (关于打赢脱贫攻坚战的决定). Since then, TAPI has become one of the Chinese government's top priorities and has been carried out with localized innovation and experimentation nationwide. This chapter discusses the key aspects of this initiative, reviews selected local experiments, and discusses its future directions and global implications.

MEASURING POVERTY IN CHINA - NATIONAL AND WORLD BANK STANDARDS

The Chinese government uses an official national poverty line to measure the poverty level of its rural population. The line was set at 200 CNY per person per year in 1985 (then about 65 USD), then raised to 1,196 CNY in 2009 (175 USD) and again to 2,300 CNY in 2011 (about 360 USD). Since the 1980s, the World Bank has been collecting household data around the world to estimate the number of people living in extreme poverty. It sets an absolute poverty line and seeks to keep the line's real value constant even as relative prices change. The last time the Bank adjusted the poverty line was in 2015: from 1.25 USD to 1.90 per day USD.

Poverty reduction has long been an important policy area, yet until recently it has not been a top priority for the CCP and the government. As one indicator of the top leadership's emphasis on this initiative, Xi Jinping visited about 20 provinces and 180 villages during his first term (2012–2017) to inspect TAPI programs.[3] TAPI represents the first time the Chinese government has set the explicit goal of eradicating poverty by 2020. Both official documents and media reports repeatedly state its determination to reach this goal on time. It has adopted and updated the long-standing CCP strategy of campaign-style mass mobilization, in which all government departments and many public institutions as well as private enterprises participate. For local officials, whether they are able to achieve poverty eradication goals according to or even ahead of schedule has become a top criterion for their performance assessment and promotion.

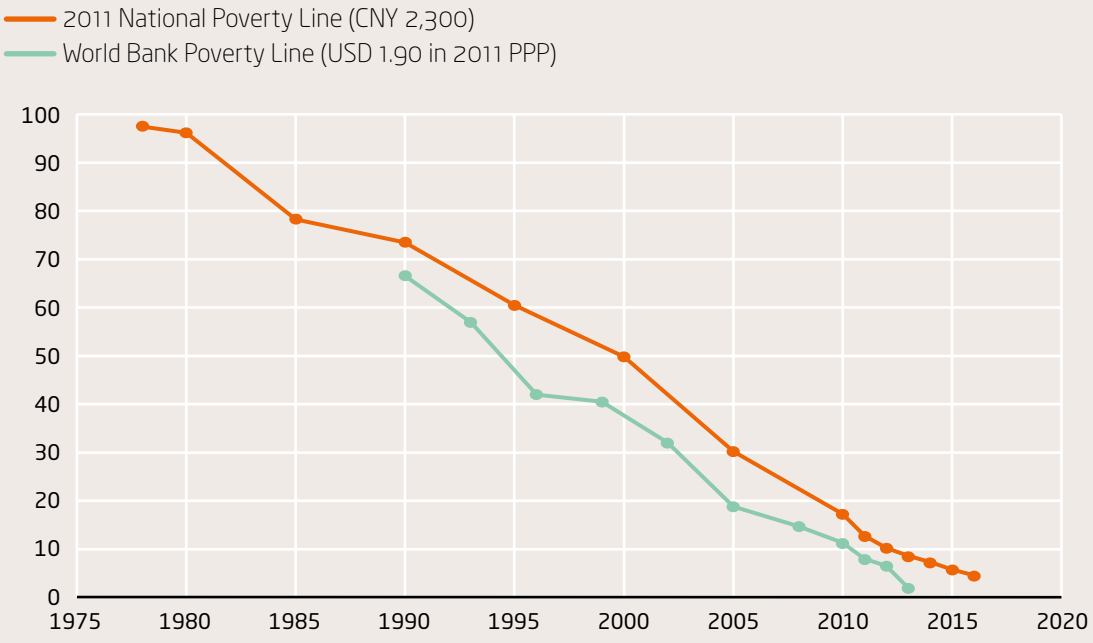
The initiative has several other unique features. First, it focuses exclusively on rural areas and does not address poverty among urban citizens or rural-to-urban migrants living in cities. Second, it relies heavily on targeted measures in poverty identification and reduction. It aims to identify those with work abilities and train or support them to become self-reliant, and to identify those with health or other challenges and give them sufficient and sustained assistance. Third, it uses a detailed information system (建档立卡) to track the living conditions of individuals identified as poor as well as government officials and other personnel who are designated to help them escape from poverty (责任人).

On the basis of these goals and basic features, the central government set forth broad policies for TAPI, leaving plenty of room for local innovation and experimentation.

Figure 1

Large shares of the Chinese population have been lifted out of poverty

World Bank and Chinese Statistical Office show the same trend



Sources: National Poverty Line 1978-2015,[4] 2016,[5] World Bank Poverty Line 1990-2014[6]

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CENTRAL COORDINATION OF PUBLIC AND PRIVATE ACTORS

TAPI is overseen by the Office of the State Council Leading Group for Poverty Alleviation and Development. This group is one of the most influential interdepartmental coordinating bodies assembled by China's top leaders. Its office is able to mobilize the participation of nearly all government departments, many public institutions, and private enterprises and organizations.

Key government departments involved in TAPI include the General Office of the State Council, the National Development and Reform Commission and the Ministry of Civil Affairs. High-profile institutions include the China Foundation for Poverty Alleviation and the China Association of Poverty Alleviation and Development. Major participating businesses include the Agricultural Bank of China (ABC), the Evergrande Real Estate Group, as well as Alibaba and JD.com,[7] the two largest e-commerce companies in China. TAPI encourages local innovation and experimentation, and local officials are charged with developing measures and timetables for achieving the goal of poverty eradication by 2020.

The actors involved in the implementation of TAPI vary depending on the causes and adopted measures to fight poverty. Key actors in the implementation of the e-commerce measures, for example, include central and local governments, e-commerce platform operators, not-for-profit organizations and financial organizations such as banks and insurance companies, and local individuals and households identified as poor.

One goal is to have internet coverage for over 90 percent of poor villages by 2020

Various government departments often collaborate to build the necessary infrastructure for e-commerce, such as roads, internet, electricity, and postal services. These involve – but are not limited to – departments of industry and technology, finance, development and reform, agriculture, commerce, transportation, and postal services. The goal is to have internet coverage for over 90 percent of poor villages, and information service centers for over 80 percent of poor villages by 2020.

Financial organizations such as banks and insurance companies help provide start-up capital for prospective entrepreneurs. For example, the Agricultural Bank of China (ABC) has increased loans to poor households and charges them risk-free interest rates. ABC has also expanded its service network to many poor counties and villages. The Industrial and Commercial Bank of China (ICBC) provides an e-commerce platform for many small businesses in poor counties.

Commercial e-commerce platform operators and not-for-profit organizations partner with and support government anti-poverty initiatives. For example, the Pillar Project (顶梁柱项目) is a collaboration among Alibaba,[8] the Ant Financial Services Group, and the China Foundation for Poverty Alleviation.[9] The Pillar Project collects donations through the e-commerce platforms and provides supplementary health insurance for primary breadwinners in households that were officially identified as poor.

Financial organizations also participate in TAPI through other channels. CITIC Bank offers funding and personnel to localities in extreme poverty in the Western province Gansu and the autonomous region Tibet, with a focus on building education infrastructure. The People's Insurance Company of China (PICC) partnered with the government of Fuping county in Hebei province to provide funding and insurance protection for local poverty alleviation projects through agricultural development. PICC and the local government split the responsibility for insurance contributions and compensation payments.

THE ROLE OF E-COMMERCE IN EMPOWERING THE POOR

Poverty alleviation through e-commerce is one of the most prominent approaches under TAPI. Yet, measures have been locally implemented with different outcomes. Local experiments are guided by the "Guiding opinions on promoting targeted poverty alleviation through e-commerce" (关于促进电商精准扶贫的是到意见) issued by the Office of the State Council Leading Group on Poverty Alleviation and Development in November 2016. These guidelines specified that the government should provide direction, but that the market should play the dominant role in poverty alleviation through e-commerce. Multiple e-commerce platforms should be co-opted as partners, and products and services traded through e-commerce should be based on local conditions and reflect local characteristics. The "Guiding Opinions" encouraged innovation through local experimenta-

Figure 2

Source: Wanfang Data – local government documents[10]

tion, with the goal of replicating successful approaches and applying them to a broader range of localities.

Many e-commerce experiments utilize an extensive information system that contains detailed data about poor households to connect resources and opportunities with them. For example, the All-China Federation of Industry and Commerce initiated the "Ten thousand companies helping ten thousand villages" project (万企帮万村) to mobilize companies to be matched with poor villages and support them. State-owned companies are often required to participate in such projects, while private companies can choose to participate or not. By June 2017, 34,300 private companies were matched with 35,700 villages (25,600 of these villages were registered in the information system).[11]

These e-commerce projects may especially empower women and disabled people to gain access to financial and social capital and engage in innovative business ventures. Many projects offer training for poor women to discover their interests and skills and learn to use internet platforms to set up businesses and conduct e-commerce. Some localities also try to set up businesses suitable for disabled people so that they can participate in e-commerce and earn a living (see also the chapter by Karen Fisher et al.).

Local experiments and implementation of other measures under TAPI such as employment support or pairing up developed provinces and municipalities in the east with impoverished regions in the west are in full swing nationwide. Official documents and media reports about these programs are plentiful, both in print and online. But given their relatively short history and the complexity of poverty alleviation, rigorous evidence and systematic evaluations are lacking. It will be important for both policy makers and scholars to track the progress and outcomes of these programs and have an evaluation system in place so that they can collect important data for accurate tracking and timely assessment.

E-commerce projects empower women and disabled people to engage in innovative business ventures

DRAMATIC INCREASES IN CENTRAL AND LOCAL FUNDING

The Chinese government's ongoing commitment to poverty alleviation is reflected in its consistent increases in funding. Figure 2 shows the trends in central and provincial government funding designated for poverty alleviation from 2001 to 2017. This includes funding for employment programs, development of ethnic minority regions, and subsidized loans.

Since TAPI was launched, both central and provincial funding for poverty alleviation has increased dramatically, revealing this initiative to be one of the government's top priorities. From 2014 to 2017, annual central government funding for poverty alleviation doubled from 43 billion CNY (7 billion USD) to 86 billion CNY (12.6 billion USD), while provincial government funding more than quadrupled, from 12.5 billion CNY (2 billion USD) to 54 billion CNY (7.9 billion USD). This recent trend suggests that, while the central government still shoulders the lion's share of China's anti-poverty initiative, local governments are expected to play a much more active role in helping achieve the goal of eradicating poverty by 2020.

Many governments of provinces in China's east are investing substantial financial, personnel, and technology resources in western provinces that are matched with them through TAPI. Within provinces, richer and more developed localities and entities are often matched with poor localities to provide funding and other support. Similarly, state-owned and private enterprises, especially the wealthy ones, have been urged to contribute directly to TAPI. In March 2016, President Xi Jinping urged such businesses to set a good example and help the government to achieve its poverty alleviation goals.[12] Many companies followed this directive with major investments and active participation. For example, by September 2017, the state-owned Poly Group had provided 320 million CNY in poverty alleviation funds. Alibaba's philanthropy foundation uses 0.3 percent of its annual profits as well as about 10 billion CNY donated by its top leadership and employees for anti-poverty projects. The private company Suning Holdings focuses its efforts on delivering industrial and electric products to rural areas and promoting agricultural products in cities, reaching 89 percent of all poor counties.

CHALLENGES FOR BALANCING EQUITY AND GROWTH

Careful implementation and close monitoring are needed for sustainable results

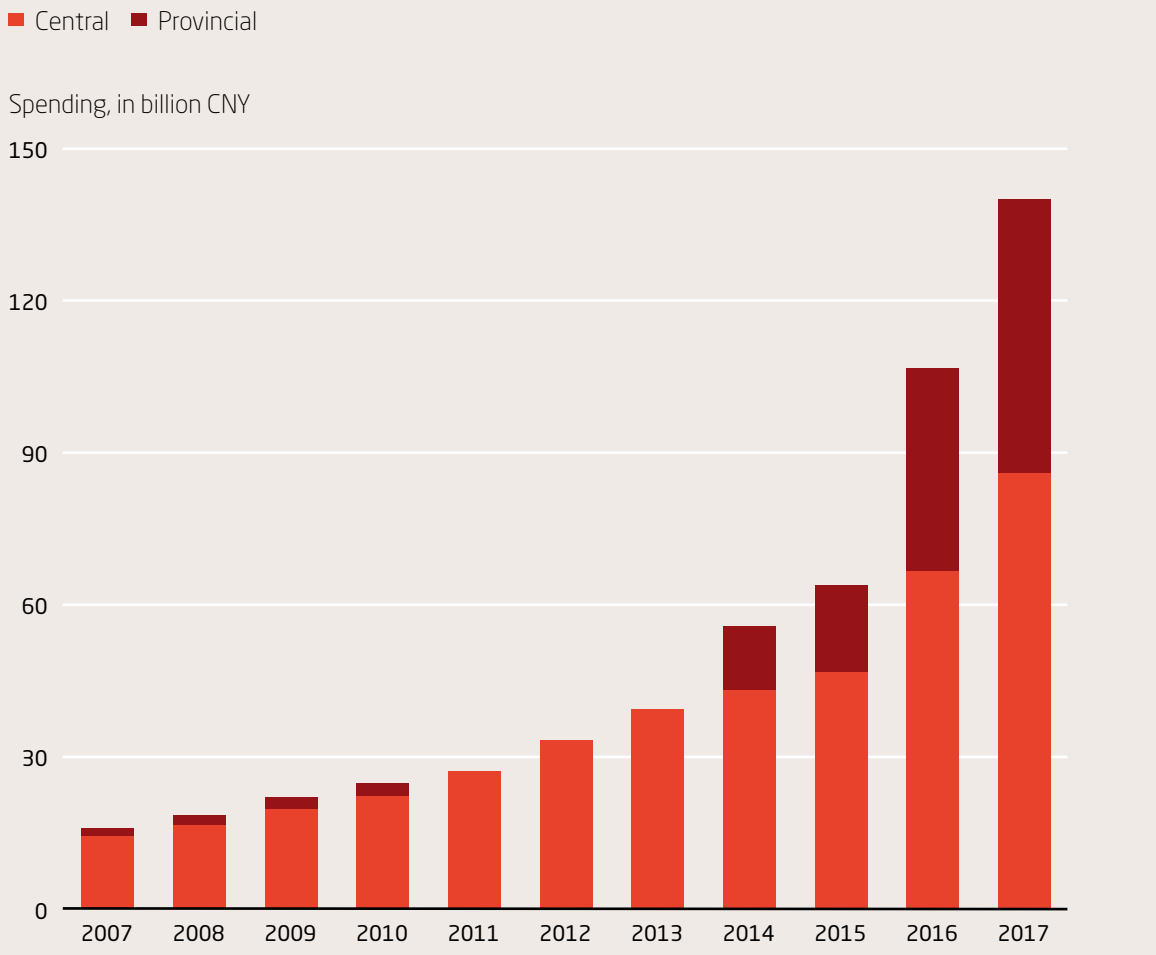
The Chinese government's goal of eradicating poverty before the CCP's centennial anniversary in 2021 faces several challenges. First, striving for greater equity without sacrificing growth remains a balancing act. Second, the central plans can be difficult to implement in varied local settings. Different measures under TAPI, such as the employment-related programs, require precise targeting, extensive screening and monitoring, and a comprehensive, accurate, and updated data tracking system, which is difficult to achieve. In poverty alleviation through e-commerce, the main challenge is to balance the interests of government, businesses, NGOs, poor households and villages.

Nevertheless, the central leadership has prioritized this initiative, and its use of campaign-style mass mobilization means that TAPI is likely to meet its ambitious goals and reach even remote areas. Yet careful implementation and close monitoring will be needed to ensure that these outcomes are sustained. It is also important to remember that TAPI was launched based on the current absolute poverty line, while poverty in reality can be a relative concept. For example, if a society's poverty is measured in relation to average incomes, as in OECD countries, it will continue to exist, especially during times of economic slow-down and growing inequality. As a result, sustaining poverty reduction and human development achievements beyond 2020 will remain an important challenge in China's grand targeted anti-poverty initiative.

Figure 3

Public spending for poverty alleviation is on the rise

Expenditure of central and provincial level governments (2007–2017)



Note: Data on provincial government funding for poverty alleviation are not available for the years 2011–2013.
Sources: Central Government Funding 2001-2014,[13] 2015-2016[14]
Provincial Government Funding 2001-2010,[15] 2014-2015,[16] 2017[17]

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China has been – and remains – a global leader in addressing absolute poverty nationwide. Its government serves as a role model for other countries in placing poverty reduction at the center of its development goals. But as the Chinese government moves forward, it can learn from other countries about how to meet the needs of those in poverty. The targeted measures need to go beyond an improvement of income levels and living standards. The government needs to guarantee equal access to high quality health services and education.

China can learn from countries such as Brazil and Mexico that have promoted human development through conditional cash transfer programs, tying welfare provisions to school enrolment or health clinic visits. Equally important, it would have to build a social service system through which the poor and disadvantaged can access resources and meet their care needs. More professional social workers need to be trained and quality criteria for professional service providers need to be established. Apart from encouraging entrepreneurship, China also needs employment support policies and programs to provide both work incentives and rewards for escaping from poverty. Only a combination of effective development measures and social policies and services can help China eradicate persisting rural poverty in the long run.

Endnotes:

1 | Acknowledgement: I thank Xu Liao, Qianfeng Lin, and Shu Zeng for excellent research assistance. I am also grateful to the co-editors, authors of other chapters in this volume, and other participants of the August 2017 workshop held at MERICS for helpful comments and suggestions.
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Disability employment in China: Empowerment through digital solutions

Karen R. Fisher, Yu Haiqing, Li Bingqin and Gerard Goggin

Disability employment in China: Empowerment through digital solutions

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KEY FINDINGS

- Disability employment initiatives in China focus on the internet and digital technologies to better connect disabled people to the labor market.
- E-commerce has become a viable (self-) employment opportunity for disabled people, even in remote rural areas.
- There is no statistical evidence yet that more disabled people are employed nationwide as a result of these initiatives. But the digital economy has opened up new opportunities.
- The digital economy has created numerous new employment opportunities for people with physical disabilities, but is hard to access for people with intellectual disabilities who mostly still rely on state support.

Reflecting the deep impact of information and communication technologies (ICTs) on Chinese society, growing numbers of disabled people have sought employment and income opportunities in China's digital economy.

The digital economy is characterized by the use of modern information networks and communication technologies, such as the internet, cloud computing, big data, the Internet of Things (IoT), and FinTech. It transforms social interactions, drives productivity, stimulates innovation, and enables economic activities to be more flexible, agile, and smart.

China's digital economy made up a 31 percent share of the nation's 2016 GDP, and has been described as "a global trailblazer."[1] China has the world's largest online population and e-commerce market. Political and business leaders, but also entrepreneurial individuals, have sought to take advantage of the potential of ICTs and the digital economy to reduce barriers to disability employment.

China's digital economy made up a 31 percent share of the nation's 2016 GDP

This paper examines the impact of the digital economy on disability employment in the context of China's "Internet Plus" (互联网+) initiative that aims to integrate the internet and traditional industries. Proposed by former Chinese Premier Wen Jiabao and written into the annual government report in 2015, "Internet Plus" and "mass innovation and mass entrepreneurship" (大众创业、万众创新) are strategies to upgrade China's economic structure and innovative capacity from below through ICT-enabled technologies and infrastructure. As this paper illustrates, the digital economy is seen by key stakeholders, including governmental and non-governmental actors, private companies and disabled people themselves, as providing opportunities for disability employment.

GOVERNMENT FOCUS SHIFTS FROM WELFARE TO SELF-HELP

The use of digital technologies by disabled people, as by other Chinese citizens, has shifted in the past ten years. In 2005, Guo, Bricout and Huang demonstrated how disabled people were able to use these technologies to overcome physical and social barriers.[2] But at that time only a few had access to these technologies. Over a decade later, we now witness high rates of use that generate economic opportunities.

The "Internet Plus" policy has begun to adopt new concepts of economic and digital inclusion that reflect the goal of poverty alleviation and overall moderate prosperity by 2020, proposed by

President Xi Jinping in 2015. The new digital inclusion agenda encourages e-commerce and digitally enabled and digitally based enterprises – especially run by, employing and involving disabled people. Such enterprises provide an opportunity for entrepreneurial disabled people to overcome barriers to employment, business and economic participation. They differ from formerly charity-based or state-directed welfare enterprises, which provide protected but low-skill and low-end employment opportunities for disabled people in an isolated environment.

Key to these initiatives is the promotion of affirmative action and a shift from self-help and self-employment to mutual help within the disability communities, enabled by the digital economy. China's approach is in line with Pullin's observation that in developed countries, disability is increasingly seen as an opportunity rather than a barrier for innovation, particularly when it comes to user design in digital technology.[3]

TAX INCENTIVES AND EMPLOYMENT QUOTAS FOR COMPANIES

Disabled people are estimated to constitute 6.3 percent of the population (83 million) and their officially stated employment rates are about 80 percent.[4] But the actual rate is much lower because employers often fraudulently buy disability certificates without actually employing disabled people and because countless disabled people are not registered with the official Chinese Disabled Persons' Federation (CDPF). The CDPF and its branches at the five levels of government (national, provincial, prefectural, county and township) are key service support providers and advocates for disabled people. They have responded to the central government's call to make the digital economy serve disability employment. Disability employment services have shifted from traditional and protective state welfare enterprises (set up and subsidized in China's planned economy period, roughly 1950s-1980s) to market-based private enterprises.

Disability employment services have shifted from traditional welfare to market-based private enterprises

The Law on the Protection of Disabled People (LPDP)[5] promotes the employment of disabled people, and the Law on the Promotion of Employment[6] from 2008 stipulates people's right to work and obligations on employers to employ them. Disability policy goals are stated in each of China's Five-Year Plans. The 13th Five-Year Plan (2016-2020), for example, calls for increasing the income of disabled people and creating suitable jobs for them.

Current policy encourages employment through four mechanisms: a 1.5 percent disability employment quota for all employers with over 30 staff; designated government positions ("welfare posts") for disabled people (similar to those reserved for women and ethnic minorities); welfare enterprises (examples include massage clinics run by blind masseurs); and self-employment. Each of these mechanisms involves preferential tax treatment for employers and social insurance subsidies for disabled employees, if certain requirements are met or exceeded. Employers who do not meet the disability employment quota pay a levy to a Disabled Persons Employment Security Fund. The CDPF uses the fund to provide employment services – such as vocational training and job placement – to disabled people and employers respectively.

Since 2008, new policies have expanded disability employment through greater involvement of the private sector. The concentration of disability employment through preferential opportunities in welfare workshops and welfare enterprises before the 1990s is now complemented by the quota scheme and self-employment in the market economy.[7] The new dispersion policies encourage businesses, social enterprises, and individual entrepreneurs to employ disabled people. Employers can boost their social responsibility profiles and take advantage of preferential tax and social insurance policies for disability employment. This policy framework emphasizes individual agency, skill upgrading and self-empowerment through digital and social economy and entrepreneurship.[8] Disability employment is increasingly framed as an individual and societal responsibility rather than simply a state duty.

The fast expansion of the digital economy in China seems to offer new solutions to perennial problems in disability employment. As key players in the digital economy, internet-based service platforms within communities, for example, facilitate coordination and information-sharing. They also allow disabled enterpreuneurs to raise funds for their startups. Alibaba, for example, has worked with CDPF to provide training and employment opportunities for disabled people in call centers and the custom service sector for e-commerce companies and e-stores at its C2C (cus-

tomer to customer) retail platform Taobao.com and B2C (business to customer) retail platform TMall.com. Cloud computing and the convenience of mobile phone payment and digital banking methods have reduced the physical barriers for disabled persons to find employment in the service sector. The government encourages disabled people to "jump into the digital sea," inviting them to participate in economic and productive activities as entrepreneurs and employees.[9]

CONNECTING POLICIES ON THE DIGITAL ECONOMY AND DISABILITY EMPLOYMENT

Developing the digital economy is a national policy in China aimed at stimulating economic growth and tapping into under-developed human resources, including those of disabled people. E-commerce is viewed as key to opening up new employment opportunities. It is also part of the government's plan to eradicate absolute poverty and achieve "overall moderate prosperity" (全面小康) by 2020.

In its latest Action Plan for Poverty Alleviation of Disabled People (2016-2020), the State Council emphasizes employment/income increases through concerted efforts of the government, businesses, social organizations and entrepreneurial individuals with disabilities. The focus of measures has hence shifted from building accessible facilities in urban design in the previous Action Plan of 2012 to e-solutions, accessible ICT and digital networks.

This inclusive development strategy sets the context for the CDPF's call for "Internet + disability" (2016) and "E-commerce + disability" (2017). In alignment with the national 13th Five-Year Plan, the 13th Disability Affairs Five-Year Plan (2016-2020)[10] issued by the CFPF emphasizes increasing disability employment opportunities as central to poverty alleviation by 2020. The 2017 Alibaba report on disability and e-commerce further testifies to a faith in the ability of digital technologies and digital economy to facilitate disabled people's equal participation in economic activities as entrepreneurs, producers, sellers, and consumers.[11]

Digital technologies are seen to play a key role in ending the economic and social marginalization of the disabled

In sum, the government made ICT-assisted poverty alleviation and social integration central to its disability employment policies, particularly after 2015. Digital technologies and the digital economy are seen to play a key role in providing innovative ways to end the economic and social marginalization of disabled people by invoking their individual agency and entrepreneurship. The CDPF and other policy makers believe that digitally-enabled/based enterprises – especially run by, employing and involving disabled people – provide an opportunity for them to overcome physical, technical and attitudinal barriers to employment, business and economic participation.

BRINGING IN BUSINESS AND CIVIL SOCIETY

China's disability employment policies emphasize the role and agency of disabled people. The new policy on e-solutions to disability employment asks them to proactively seek out e-commerce and start-up opportunities and to strive for self-fulfillment through self-help and self-employment, enabled by ICT and opportunities offered by the digital economy. It asks public and private sectors to provide support to disabled e-entrepreneurs, who are expected to generate more social impact by inspiring and providing mutual help to the disability sector.

As the primary agency representing disabled people, the CDPF plays a key role in leading and promoting the interests of disabled people in the digital economy. In May 2017 the "Implementation Plan of E-Commerce Assisted Poverty Alleviation for Disabled People" was jointly issued by the CDPF, the Ministry of Commerce, and the Office of the State Council Leading Group for Poverty Alleviation and Development.[12] It sets the goals in e-commerce training (for 10,000 disabled people in poverty), micro-entrepreneurship assistance (helping 3,000 disabled e-retailers, who sell goods via electronic transactions on the internet, to manage their online stores), and disability employment in e-commerce, enabling 15,000 disabled people to be employed in the e-commerce business.

Not only does the digital economy offer new opportunities for people previously excluded from the labor market, but it also stimulates their engagement with digital technologies (e.g. as programmers, cloud computing coders and users), digital companies (e.g. as developers, subcon-

tractors, and service providers), and fellow disabled e-entrepreneurs for peer support. Whereas the previous decade saw a shift from the government providing services to its sharing that responsibility with the public sector, this decade has seen an increasing number of non-governmental actors such as NGOs, social entrepreneurs, digital start-ups, and e-commerce entrepreneurs by and for disabled people facilitating the expansion of disability employment. For example, by 2016 only a third of disability vocational training centers were run by the government, and the remainder by social organizations.[13]

E-commerce has removed some of the traditional physical, educational, and age barriers to employment

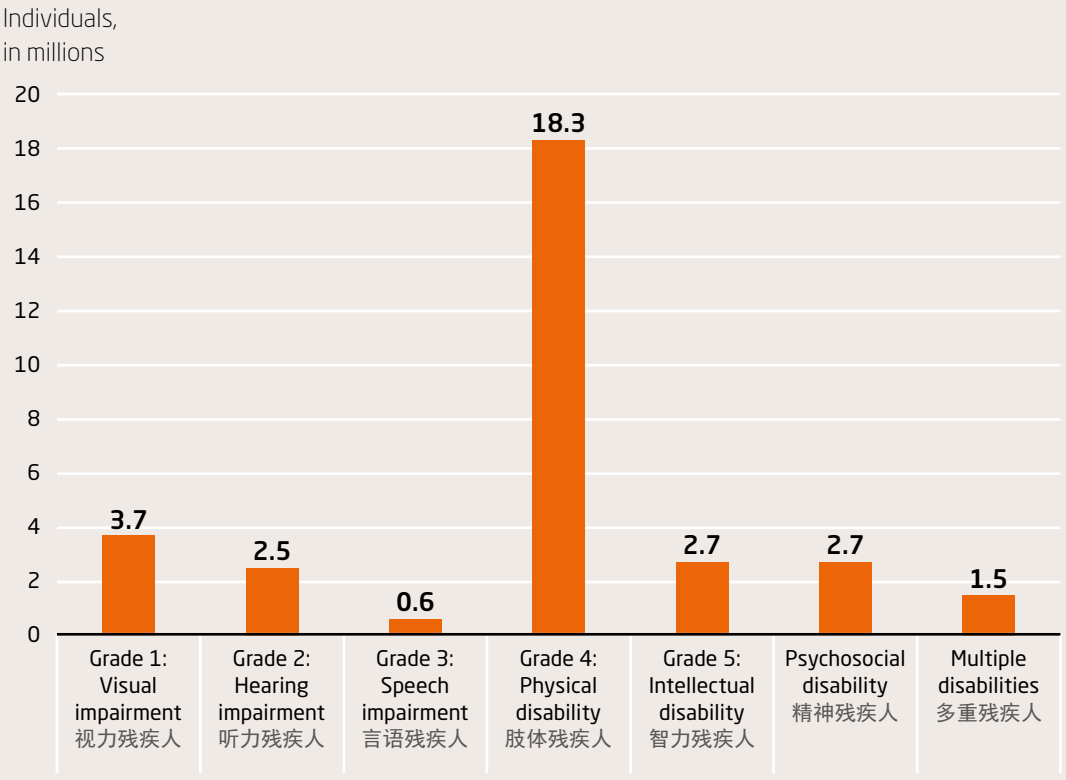
In addition to private Chinese internet and ICT companies and civil society organizations, transnational corporations are also setting a disability agenda through their corporate social responsibility (CSR) initiatives. National labor laws require them to meet the disability employment quota in their own companies, but with a CSR agenda, some of them also support disabled people's economic and social participation by employing or subcontracting them, often working with civil society organizations. This has a three-fold payoff: employing disabled staff to meet the disability employment quota, raising corporate social profiles for diversity and equality practices, and hence attracting investors and customers or improving stock market performances.

POLICIES WORK BEST FOR PEOPLE WITH PHYSICAL DISABILITIES

E-commerce has removed some of the traditional physical, educational, and age barriers to employment. Many disabled people and other disadvantaged groups have new opportunities to seek jobs and become micro-entrepreneurs. As discussed earlier, operating online stores at Taobao.com or being employed in call centers and customer service positions is a common engagement with e-commerce by disabled people.[14] The Chinese government and media hold up some successful disabled people as model entrepreneurs and employers. One case is Cui Wanzhi, a man with physical

Figure 1

More than half of the individuals registered as disabled have physical handicaps
Different types of disabilities according to the Chinese system (2016)



Sources: China Disabled People's Federation (2017)[15]

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disabilities who runs an online apparel shop and employs 120 people.[16]

The government supports these e-commerce initiatives through the CDPF network. For example, Zhejiang province's DPF in 2016 provided financial concessions and support in rent, insurance, loans, training and guidance in technology and platform development.[17] Its goal was to help disabled people start e-commerce businesses and generate employment. In Shanghai, an incubator workshop called "Maker 201" was launched in December 2016 to support young disabled entrepreneurs to network, share, commercialize and marketize their designs and start-up programs. With this market and government support, disabled entrepreneurs have become e-retailers, Taobao partners, cloud customer services, designers, and programmers. This is a positive sign of high-skill trends in disability employment, particularly among the younger generation who are fluent in the language of blogs, social networking, and e-commerce necessary for contemporary business marketing.

Disabled people are also developing e-solution platforms to promote disability employment to others. For example, CJRJOB (残疾人就业促进网), founded in 2008, is an online employment network with the aim to help disabled people find quality, white-collar and high-tech employment. By 2016, more than 12 million disabled people had used the service via the web site and micro-blog.[18] "Help Each Other" (互帮网) is a similar job matching website, started in Wuhan, which now has nationwide reach.[19]

Not all disabled people benefit from the e-commerce approach

Not all disabled people benefit from the e-commerce approach. The preferential policies have greater impact for people with a physical disability, hearing or vision impairment. Others remain excluded from e-commerce because of access barriers such as living in a remote location, poverty or lack of literacy. Disabled people continue to face discrimination not only in the job market, but also in access to education and government support to prepare for and find employment. Many disabled people are either not registered with their local DPF or their local DPF is not able to support them. These people are not counted in the disability employment statistics.

Support for people with intellectual disabilities is still concentrated in traditional welfare enterprises, low-skilled jobs and employment quotas. For less internet-savvy disabled people, particularly older people and those from lower socioeconomic backgrounds (especially in villages and small towns), self-employment is still confined to the "traditional trades" such as running tailor shops, shoe repair shops, barber shops, newspaper booths, three-wheelers, massage clinics, as well as low-skill and low-end manufacturing jobs.

For this reason, government reform of traditional welfare enterprises remains important. Welfare enterprises have been encouraged to transform into sustainable businesses or be replaced by income-earning social enterprises since 2008. With the support of the British Council's Skill for Social Entrepreneurs programs in China (through which Chinese social entrepreneurs take training courses in the UK every year), collaborative projects to incubate social enterprises for disability employment and by disabled persons have been set up, such as "The Nest" in Shanghai that involves a nongovernmental organization, the Non Profit Incubator, and the Shanghai Civil Affairs Bureau. A similar example is the Shenzhen Maker space to support disabled entrepreneurs (British Council 2017).[20] These examples build on government policy to leverage international funding and local collaboration.

Instead of building partnerships with the government, as the older generation of enterprises did, the new generation has turned to their own arena of expertise, the internet. E-commerce platforms enable success for some who were previously excluded from business. In fact, many e-entrepreneurs with disabilities are from rural areas, including some without a high school education.

Our fieldwork shows that these rural people, including e-micro-entrepreneurs and those who are indirectly involved in the e-business, often work from home and in their family business. Their participation in the digital economy is characterized by flexibility and invisibility, and hence the total number is hard to ascertain from the government's point of view.

EMPLOYMENT OUTCOMES ARE DIFFICULT TO MEASURE

There are no reliable official statistics showing the employment of disabled people in China's digital economy. The latest national census data for disabled people was collected in 2017 and is not

yet available. The previous census in 2006 did not include questions on digital economy. The best available source of information is the data published by Alibaba, which showed that between April 2016 and March 2017, 160,000 online shops were run by disabled people, with total sales of 1,240 million CNY, 27,000 with sales revenues more than 30,000 CNY. Nearly 70 percent of the shop owners had physical disabilities. One third had first and second grade disabilities and two thirds had third and fourth grade disabilities.[21]

However, at national level, despite all the excitement, no evidence can show that more disabled people are employed as a result of digital economy and the disability employment support policies. On the contrary, the annual statistics published by the CDPF shows an actual decline in the total number of disabled people in work.[22] This is the case for both total employment and new employment and for self-employment and flexible employment where the digital economy might have played the biggest role.[23] This trend is also confirmed by research using household survey such as the CHIP survey.[24]

Philanthropists' outreach has shifted from providing financial aid to enabling social inclusion

However, this national trend cannot refute the impact of the digital economy because the national-level employment statistic is too crude to offer break down information. Several factors might affect the decline in employment. First, the aging of the population aging has led to a decline in the total number of working-age disabled people. Second, there might be a replacement effect of people working in the digital economy who might have worked in other trades in the past, but may have moved to online platforms because of higher earning potential. Third, not all people involved in digital employment are officially registered.

Fourth, the Chinese government may have taken measures to crack down on companies that falsify disability employment figures by providing shadow employment positions to disabled people in order to avoid paying the disability employment levy, without actually providing employment opportunities to these people. As a result, however, in this paper we can at most argue that the digital economy opens up new opportunities. As to what extent these opportunities can be considered extra employment, is not possible to tell at this point.

NON-TRADITIONAL FUNDING SOURCES CONTRIBUTE TO SUCCESS

Funding for disability employment support is now far more dispersed than in the past. When the CDPF started in the 1980s, responsibility for funding and providing disability employment services was almost entirely with the government. In contrast, the recent LPDP and five-year plans purport to shift that responsibility to all government agencies, the community and citizens, to provide skill training to disabled people and financial support to their employers. The CDPF's exclusive access to the Disabled Persons Employment Security Fund generated from the levies of employers who choose not to meet the employment quota, means that it has opportunities to invest in disability employment support. The levy is collected and spent locally on DPF programs, grants and subsidies.

The Chinese government and CDPF continue to play a key role in financing public services, and in regulating and coordinating private resources in public service provision. The government is taking measures to expand disability employment through other means, including reforming the Chinese Disability Employment Insurance Scheme to tackle fraud and corruption. Cases range from companies fabricating disability employment numbers to paying a nominal wage to people with disability certificates rather than actually employing them, in order to benefit from preferential tax treatment.

Both the private and public sectors have actively employed ICTs and digital economy in inclusive development and engaged with e-solutions to disability employment problems. In fact, many business initiatives are merely encouraged by policy, rather than calling on government funds. The rise of volunteerism, grassroots philanthropy, social enterprise, and Chinese government's increased tolerance of civil society organizations in social service provision[25] has opened up the space for non-governmental financing in public services, including disability employment. Social entrepreneurship has been taken up as an employment pathway and viable financing mechanism for disabled people and disabled persons' organizations. Private foundations and philanthropists' outreach to the disability community has shifted from providing financial aid to enabling social inclusion, including skill training and job creation.[26]

CHINA'S APPROACH AS A MODEL FOR OTHER COUNTRIES

The Chinese experience of exploiting e-solutions for disability employment is an example of a successful combination of digital solutions and developmental intervention in a mixed market. The government's disability and digital inclusion strategy has seen positive outcomes. More employment opportunities are available to disabled people; and more micro-entrepreneurs with disabilities have emerged from China's digital economy boom. The policy emphasis transfers the responsibility from the state to individuals, business and the social sector.

Irrespective of their success, the Chinese digital disability employment policies have also demonstrated that government-led e-solutions are not the panacea for all disabled people, because of the remaining barriers to access. A significant government role in state-led disability employment support remains in China.

China has become a model for governments in other countries trying to approach disability employment support. Examples of international companies, such as the health and agricultural chemical company Bayer[27] transferring disability employment practices between China and their home countries are already emerging. Bayer improved the accessibility of its online platforms for disabled people, by enabling compatibility with screen-reading technology, while also complying with Chinese disability employment quotas.

The Chinese experience suggests that the role of funding from government, non-governmental sources, and lending institutions in grants for start-ups is one of many factors that can improve disability employment. Preferential policies such as tax deductions and quota schemes are essential in ensuring disabled persons the equal right to work. Market-based incentives, such as the practice of purchasing or contracting out social service practices to civil society organizations and private companies, as through the partnership with Alibaba, will continue to play a key role in optimizing the opportunities for disability employment. The hardest task, however, is universal – irrespective of political, cultural, and economic contexts – that is, to effect a cultural shift to dissipate social bias or discrimination against disability. This is an international challenge, not unique to China.

Disability employment in e-commerce is an example of a successful combination of digital solutions and developmental intervention

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