



E-Commerce Development: ***Experience from China***



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Foreword

Digital technology is altering the way we produce and consume and ultimately affects the way we live. It brings new opportunities or new and more productive jobs, but also the risk of exacerbating the digital divide and economic inequality. E-commerce stands out among digital applications relevant to development because of its ability to instantly link sellers with buyers, lower transaction costs, and create new niche markets tailored to consumer demand. While large producers and enterprises reap the greatest benefit from e-commerce in absolute terms, the market access afforded by e-commerce can be a boon for small producers and enterprises facilitating their integration into value chains.

China has one of the fastest growing e-commerce markets in the world. In 2018, total e-commerce trade volume in China reached 32 trillion yuan. According to McKinsey, China accounted for more than 40 percent of the value of e-commerce transactions worldwide. At these volumes, more than 5 percent of total employment in China is already in e-commerce and online purchases have become part of daily life for many Chinese households.

The success of e-commerce in China shows that the benefits of digital technology are not necessarily limited to high-income countries and urban areas. With the right conditions, it can flourish in developing countries and in rural areas. The rapid growth of e-commerce also has not been confined to the high-tech sector and is providing employment opportunities for semi-skilled workers, creating new types of employment, such as express delivery, e-shop design, and e-modeling, as well as supporting more flexible entrepreneurship.

Clusters of e-commerce villages (called Taobao Villages) have increased sharply in number and have gradually been spreading inland, though they are still concentrated in more populous coastal areas. Case studies show that some poverty-stricken areas of China have been enriched by e-commerce development and people have gained wealth and improved their lives by participating in e-commerce. In several cases, migrants have returned home to work in e-commerce—seizing job opportunities that would not have been available in rural areas without online platforms. This has enabled them to enjoy life among elder family members and children, restoring the social fabric of their hometowns. These developments offer hope that e-commerce can be a powerful instrument for rural vitalization and poverty reduction.

Yet, little is known yet about how digital technologies contribute to growth and equity, what conditions are needed to support healthy development, and how to address the tendency for the technology to produce winners and losers. Analysis of the contribution of digital technologies to economic development

and social welfare has been hindered by the lack of data. This report, the result of joint research by the World Bank and Alibaba Group, seeks to fill this research gap, drawing on unique primary data about Taobao Villages, poverty-stricken counties, and online selling and purchasing through the Alibaba platforms, supplemented by secondary data from government agencies, international organizations, think-tanks, and academia.

Among the study findings is that participation in e-commerce has a positive association with household welfare improvement, especially in rural China and that beneficiaries include vulnerable populations—women and youth. The development of e-commerce, where it has taken hold, is associated with higher household consumption and reduced inequality, bringing to people in rural areas the convenience, variety, and low prices enjoyed by urban dwellers.

China's rapid development of e-commerce has built on both digital development and its analog complements: development of human capital through education, as well as investment in transport and logistics infrastructure. The government, partnering with the private sector, has provided important support to e-commerce development. While the combination of factors may be unique to China, the country's experience offers lessons on the development of e-commerce and its impact that may be applicable elsewhere. Notably, the China experience shows that, targeted support to improve skills and entrepreneurship, lower entry barriers and an improved business environment, and measures to address information asymmetries between producers and consumers and allow new entrants to participate in online markets, can help to launch e-commerce also in less advantaged areas.

We hope the report will stimulate debate about ways to support inclusive growth through digital technology and e-commerce. It will be particularly important to address questions about the effectiveness and efficiency of specific government policies and private sector initiatives to support e-commerce development in less developed regions and rural areas; tease out the causality between e-commerce development and household welfare improvement and its distributional aspects; and understand the dynamics of the platform economy and its potential risks and opportunities for all. With the implementation of evidence-based policies that support e-commerce development for poverty alleviation, other countries can learn from the China experience to help make the dream of a world without poverty a reality.



Martin Raiser
World Bank Country Director for China, Korea and Mongolia

Foreword

The year 2019 marks the 50th anniversary of the birth of the Internet, the 25th anniversary of China's access to the Internet, and the 20th anniversary of Alibaba.

To "make it easy to do business anywhere," Jack Ma and a group of youngsters founded Alibaba 20 years ago in the hope of empowering SMEs, young people, and entrepreneurs.

This is an easier-said-than-done task. However, we believe that we can make a difference to the world through unremitting efforts.

Fortunately, Alibaba has made its way into prominence nowadays with dreams, amid China's rapid economic growth over the past 20 years, the Chinese government's open attitude towards the Internet industry, and its support for e-commerce.

Looking back on the path we have trodden, we saw not only the enormous vitality the Internet injected to China's economy, but also the new opportunities and shared benefit e-commerce brought to remote areas, tens of millions micro, small and medium-sized merchants and the general public.

The equal opportunities brought by e-commerce have outweighed the transaction itself.

E-commerce enables all merchants to display their products online on an equal footing no matter where they are and whether their business is big or small. Merchants doing small business or living in remote areas can also stand out as long as they sell high-quality or creative products. Besides, vicious competition is never an option for long-term and stable online business operation. Instead, merchants are encouraged to continuously introduce or develop more high-quality and innovative products.

Fund-raising difficulties and the lengthy process for getting loans have always been a threat to the survival of small and micro-sized businesses. Traditional lenders cannot provide services for tens of thousands of small and micro-sized merchants without considering the cost, and the long approval process cannot address the pressing needs of the merchants. Using big data and AI technologies, MYbank has granted loans to 27 million merchants instantly based on their social credit scores. It has greatly enhanced the resource allocation

efficiency and reduced the cost of lending, saving precious time for many small and micro-sized businesses. The fund lent to these businesses may be petty (only RMB 30,000 in average), but it could be a straw for them to clutch at.

E-commerce has also brought special benefits for consumers in remote areas. A survey shows that 62% products on Alibaba platforms could not be found in rural stores, and their prices are lower than those sold in general physical stores. Alibaba provides the same opportunity for rural residents to buy a variety of better and cheaper products as for urban residents. Meanwhile, the convenience of getting high-grade products also stifles counterfeit production in remote areas, safeguarding the rights of local consumers.

Today, fewer and fewer people say that e-commerce is unfair, because it is visibly bringing equal opportunities for all small and micro-sized businesses. A number of e-commerce players have worked their way up to power sellers with RMB 10 million revenue in just two to three years. More people have benefited from the social progress in this process.

The changes in regional development brought by e-commerce have also outweighed the commerce itself.

Online retail is just a beginning. What we expect to see is a virtuous circle: When more individuals, merchants, and governments embrace the power of the Internet, big data, and cloud computing, and understand the way of thinking in the digital age, they will not only change themselves with their burgeoning creativity, but also boost the transformation of local industries such as retail, wholesale, finance, foreign trade, manufacturing, and service.

When we studied Taobao villages a few years ago, we noticed that e-commerce development is not exclusive to high-income regions, and innovation is not necessarily driven by highly educated people. Instead, it is small and micro-sized businesses that swing into action more quickly and march into the mainstream market.

This phenomenon is especially observable in rural areas. In most cases, the success of one online merchant in a village will drive the growth of surrounding industries, thus forming a large Taobao village or even a Taobao town. This proves that innovative business started by grass-roots entrepreneurs in rural areas of developing countries can thrive via the e-commerce platform under the right conditions.

Daniel Zhang, chairman of Alibaba Group, said that "people are connected by big data as never before in the digital era. The global market has already become a place where our interests are intertwined." In the development of

digital economy, e-commerce will definitely play a key role in accelerating new business civilization and fostering new technologies.

It is a great honor for Alibaba to represent China's e-commerce industry to contribute to the research, discussion, analysis, and drafting of this World Bank report. We would like to express our gratitude to the research team of World Bank for their expertise, devotion, and international perspectives. The report's conclusion is very encouraging: With the support of the government and e-commerce platforms, developing countries and rural areas could leverage the power of rapidly growing digital technologies to eliminate poverty and vitalize rural economy.

The 20-year-old Alibaba would like to share its digital prowess with the whole society, and promote inclusive, green, and sustainable development with the World Bank and other development partners all over the world.

A handwritten signature in black ink, consisting of the Chinese characters '闻捷' (Wen Jia) written in a cursive style.

WEN Jia
Partner of Alibaba Group
President of Public Affairs of Alibaba Group

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OVERVIEW

The potential contribution of digital development to economic and social welfare remains a topic of debate and active empirical inquiry. Unfortunately, for developing countries, data are relatively scarce, and we have little robust evidence on whether and how digital technologies contribute to income growth, what this depends on, and who are the potential “winners and losers” in digital development. Policy makers, the private sector, and others in the development community have a strong and growing interest in how to harness digital technology to aid growth and support job creation in an inclusive manner.

Among the many digital technologies with relevance for development, e-commerce stands out because of its potential to overcome market barriers and connect consumers and businesses even when traditional commercial and market transactions are relatively limited. It can create jobs directly as well as through forward and backward linkages in the e-commerce ecosystem, such as logistics services; it can improve household welfare by offering a wider variety of products, potentially at lower prices; and it can contribute to economic growth by lowering the asymmetry of information and increasing economic efficiency.

China has one of the fastest growing e-commerce markets in the world. As such it is an important case study to analyze the potential of e-commerce to generate welfare benefits, including in rural communities previously considered relatively distant from the market. The experience in China shows that e-commerce is not necessarily limited to high-income countries or urban areas, and it has not been confined to the high-tech sector. E-commerce also offers employment opportunities in developing countries and in rural areas for semi-skilled workers and other groups (including people with disabilities) who, in the past, had more limited opportunities in the labor market. The ratio of women to men entrepreneurs in e-commerce is at or near parity on the Alibaba platforms, compared to 1:3 in all business. Three quarters of rural e-tailers are 20-29 years old.

The present volume presents a series of analytical studies that attempt to bring more evidence to bear on the discussion about the development benefits of e-commerce. It is based on a combination of statistical data collected for China as a whole, as well as data from a specifically commissioned survey (a joint work with Peking University in collaboration with Nankai University) of Taobao Villages, rural villages in China substantially engaged in e-commerce. The present volume is the result of a joint research initiative between the World Bank and the Alibaba Group offering rich and unique evidence on the growth of e-commerce in China and how this has been associated with improvements in people's livelihoods in select communities.

Key Research Questions, Findings, and Caveats

This volume aims to address four research priorities:

- Describe the patterns and evolution of e-commerce development in China.
- Describe the specific government policies and private sector initiatives to foster e-commerce development in rural villages.
- Identify pre-conditions for successful e-commerce development by examining empirically the association between county-level characteristics and level of e-commerce development.
- Investigate the links between e-commerce development and household welfare improvement, including its distributional aspects across different types of households.

Overall, the data in the present volume suggest a positive association between participation in e-commerce and household welfare for China's rural citizens. Younger, better educated households benefit more and women are strong beneficiaries. E-commerce development is associated with higher household consumption and lower spatial inequality. Access to an online market allows people in rural areas to enjoy the convenience, variety, and low prices enjoyed by people in big cities. In Taobao Villages, households that participate in e-commerce have per capita income 80 percent higher than households that do not participate; and e-shop workers have wage levels equal to or higher than workers in urban private industries. Most people in Taobao Villages, especially e-households, perceived their social status as equal to or higher than it was five years ago, and they believe they will have equal or even higher social status two years in the future.



While the evidence in the present volume is rich, there are several reasons it needs to be interpreted with considerable care and with awareness of the data limitations. First, the development of e-commerce has gone hand-in-hand with rapid economic development overall. China has made substantial progress in building what the 2016 World Development Report called the “analog complements” to digital development, namely investment in physical infrastructure, education and skills, and improvements in the business climate. China’s progress along both dimensions—digital development and analog complements—creates a fertile ground from which to reap digital dividends. Countries in which the analog complements are not similarly strong are unlikely to get the same benefits. Getting the pre-conditions in place, particularly the human capital with skills and entrepreneurial spirit, good infrastructure and logistics, and an overall conducive business environment, is crucial for fostering entrepreneurship and supporting growth in an inclusive manner through e-commerce development.

Second, the data in this report are drawn from a representative sample of Taobao Villages, most of which are clustered in the more developed coastal provinces. As the analysis in the report suggests, Taobao Villages share certain characteristics of market proximity, connectivity, and a pool of returned migrants with the necessary entrepreneurial skills. While the Chinese government and Alibaba are keen to expand the Taobao Village experiment further inland, so far there is no evidence of assured success. Other countries need to bear this in mind when looking to China for evidence of the potential of e-commerce to leapfrog market development. Again, the analog complements would seem to matter—perhaps a lot. More data and rigorous research are needed to distill lessons about whether and how the successful experience of e-commerce development in rural China could be replicated and scaled up.

Third, the institutional characteristics of China’s economy, and specifically the relationship between the government and the private sector, mean that the specific policies adopted may have only limited transferability to other country contexts. Nonetheless, the report includes a description of how the public and private sector collaborated in facilitating the expansion of e-commerce which adds to the understanding of China’s reform strategy in this particular area, even if lessons need to be drawn with care. Tailoring the lessons learned from the experience in China to the local conditions and developing a beneficial collaboration between the public and private sectors are keys to success.

The remainder of this summary is structured as follows. The next section introduces basic definitions and data sources used. This is followed by a summary of e-commerce development in China, including the rapid growth in the number of Taobao Villages as well as their geographical distribution (Chapter 1 of the main report). The subsequent section describes the key policy initiatives launched by the government and the Alibaba Group to foster the expansion of e-commerce in rural villages, including recent initiatives to focus on poor counties (Chapter 2 of the main report). This is followed by a summary

of the basic characteristics of Taobao Villages, which confirms that e-commerce development is more likely in counties with better initial endowments (Chapter 5 of the report). The next section summarizes the findings on the association between participation in e-commerce and household welfare (Chapters 3 and 4 of the report). The final section discusses the main findings and next steps.

Definitions, Data Sources, and Limitations

This volume, in addition to providing analysis at the national level, builds on a first-hand micro-survey—with information at the village, household, individual, and e-shop levels—that is representative of all the 2,118 Taobao Villages in 2017 where e-commerce is most developed in rural China. The analysis at all levels is used to distill lessons.

Taobao Villages and Taobao Towns are special phenomena of e-commerce development in rural China. Taobao Villages are areas where e-commerce is most developed or concentrated in rural areas, specifically, they are defined as villages where at least 10 percent of households engage in e-commerce (or where there are at least 100 active e-shops) with annual online sales of at least 10 million yuan (or \$1.5 million). A Taobao Town is defined as a town, township, or street that consists of at least three Taobao Villages.

The report draws on a variety of data sources, including primary data sources of micro survey and aggregate transaction data from the Alibaba platforms¹ and secondary data sources—government agencies, international organizations, think-tanks, and academia (see box below).

Data Sources

Three unique sources of primary data provide information about Taobao Villages, poverty-stricken counties, and online selling and online purchasing in China.

- **Taobao Village Survey.** This collaboration between the World Bank, Alibaba Group, and Peking University and Nankai University joint research team is, to our knowledge, the first of its kind on rural e-commerce clusters. It is representative for the universe of 2,118 Taobao Villages in 2017, covering the characteristics of the villages, detailed household-level information—demographic characteristics, assets and income, risk aversion and social attitudes, e-shop operations and employment, as well as subjective constraints and support needed for e-commerce development.
- **Alibaba Transaction Data.** Alibaba transaction data from Tmall.com and Taobao.com, aggregated at the county level, provide a detailed picture of e-commerce development in China, including in nearly all poverty-stricken counties.² The transaction data include volume of online sales and purchases, number of online sellers and online buyers, and numbers of packages sent and received.
- **Online Business Index (OBI) and Online Shopping Index (OSI).** AliResearch developed these indexes from the Alibaba platform online transaction numbers. Given Alibaba's dominant market share, this largely reflects the e-commerce development levels from both the buying side and the selling side at the county level.

Two sources of secondary data are also used:

- **Administrative data and statistics.** Statistics from government agencies (such as the Ministry of Commerce of China and National Bureau of Statistics of China), international organizations (such as the UNCTAD and World Bank), and other sources (such as Boston Consulting Group, Goldman Sachs, and McKinsey) provide a picture of e-commerce development in China from various angles and the basis for the study of the links between e-commerce and broader development characteristics.
- **Household survey data.** China Family Panel Study data, administered by Peking University, provide nationally representative information of consumption, including online consumption, at the household level.

Due to data constraints, this report does not investigate or assert a causal relationship between e-commerce development and economic growth or household welfare improvement. More research is needed to quantify the costs and benefits of targeted support for e-commerce to foster inclusive growth and rural vitalization. The availability of county-level data from the statistics yearbook limits the analysis at the county level to the association of e-commerce development and a few economic indicators. The availability of information at the village level (only from the Taobao Village Survey, which covers a representative sample of Taobao Villages but no other villages) limits the ability to examine e-commerce participation and household income growth to within Taobao Villages.

Patterns and Evolution of E-Commerce Development in China

E-commerce has developed rapidly in China. According to a McKinsey report, in 2016, China accounted for more than 40 percent of the value of worldwide transactions in e-commerce. The current value of China's e-commerce transactions is estimated to be larger than that of France, Germany, Japan, the United Kingdom, and the United States combined.³ Annual e-commerce trade volume in China grew from RMB 930 billion in 2004 to RMB 31,630 billion in 2018.

Online purchases have become part of daily life for many Chinese households. The Ministry of Commerce reports that China had 772 million Internet users in 2017, 533 million (69 percent) of whom made purchases online. The pace of e-commerce growth has been particularly notable: e-commerce trade volume increased at a compound annual growth rate of 26 percent between 2008 and 2018 and online retail sales grew even faster, at a compound annual rate of 53 percent. According to the State Post Bureau of China, 51 billion parcels were delivered in 2018, a large share of which were related to e-commerce. In a 12-month period in 2015–2016, over one-quarter of households made online purchases; the share of their online consumption among those households increased by 2 percentage points from 6 percent in 2013 to 8 percent in 2015.

Despite the apparent scale of e-commerce development, the growth of e-commerce has been unevenly distributed among provinces and between urban and rural areas. In Shanghai 49 percent and in Beijing 44 percent of total retail sales of consumer goods were purchased online in 2017, but the share was much lower (less than 2 percent) in seven inland provinces.⁴ Ministry of Commerce data indicate that nearly three-quarters of online stores and Internet users were concentrated in urban areas. In 2018, urban Internet users accounted for about 73 percent of the national total (829 million), much higher than their share of the total population (60 percent). Online purchases and online sales are both much more developed in coastal areas, and gaps between the coastal and inland regions have remained wide. Compared with online purchases, online business is even more concentrated, particularly in Jiangsu, Shanghai, and Zhejiang.

Household survey data indicate that online purchases in rural areas are expanding much more rapidly than in urban areas, even if still comparatively less well-developed. Internet penetration in rural areas was 38 percent in 2018, compared to 75 percent in urban areas.⁵ China Family Panel Study data show that 15 percent of rural households purchased online in 2015, compared to 33 percent of urban households. From 2014 to 2017, however, online retail sales in rural China increased from RMB 180 billion to 1.24 trillion, a compound annual growth rate of 91 percent, compared to 37 percent nationally. With the strong

urban concentration so far, the potential for continued growth and expansion of e-commerce remains strong as penetration into the rural areas continues.

Alibaba Taobao Villages have emerged and expanded rapidly—from 20 in 2013 to 3,202 in 2018—offering useful examples of e-commerce development in rural China. As the numbers of these rural villages expand, clusters of them come to form Taobao Towns. The number of these towns grew from 19 in 2014 to 363 in 2018. While the majority of Taobao Villages and Taobao Towns are concentrated in the coastal region, particularly in Guangdong, Jiangsu, Zhejiang provinces, they also have spread to inland areas. The rapid expansion and prosperity of Taobao Villages and Taobao Towns shows that e-commerce is not only a phenomenon of urban areas in high-income countries; with the right conditions, it can flourish in rural areas in developing countries.

E-commerce experience in China offers many examples of ways in which such business can support existing economic activities and develop new ones, create employment, and improve household welfare. Case studies by AliResearch show the prosperity of Taobao Villages and that people gain wealth and have better lives when they participate in e-commerce.

- In Shuyang and Suining, Jiangsu province, many young and talented people, including women, have returned, bringing back with them the skills and entrepreneurial spirit needed to develop e-commerce businesses and earn incomes similar to or higher than they did in the cities, while enjoying family life with their elders and children. Many have become leaders of e-commerce in their home villages and are role models for fellow villagers.
- In Heze, Shandong province, people gained wealth by creating and developing niche products and whole new industries—in this case, special clothing, such as performance dresses for holiday occasions—and sell large volumes through online platforms serving the domestic and international markets.
- In Mengjin, Henan province, people are enriched by access to new markets through online platforms for traditional cultural products, such as peony painting and Tang tri-color ceramics. Many young people have started to (re)learn traditional skills that will sustain the local cultural heritage.
- In Xifeng, Guizhou province, households receive a higher farmgate price for kiwis and therefore have an incentive to increase production through online sales to domestic as well as European markets.
- In Huimin, Shandong province, building on traditional net production, not only developing large-scale automated production of nets for construction and agriculture usage, but also innovating to create customized products with higher value added, such as string lamps and climbing facilities for playgrounds.

- In Wuyi, Zhejiang province, households developed e-commerce building on the advantage of proximity to hardware industrial park with support from the government, including subsidized office space rental and targeted support to attract migrants to return to develop e-commerce.⁶

E-commerce is growing in poverty-stricken counties though still at a level lagging behind other counties. From 2013 to 2016, online purchases through the Alibaba platforms in those counties increased from RMB 67.5 billion to RMB 205.2 billion, while online sales for those counties increased from RMB 8.4 billion to RMB 29 billion, faster than the 10 percent growth in GDP from 2013 to 2015. According to AliResearch, in 2016, the average poverty-stricken county sold its products to 280 prefecture-level cities through Alibaba. In 2018, the poverty-stricken counties had 45 Taobao Villages, including Pingxiang county, Hebei province, which had a cluster of 18 Taobao Villages.

However, the volume of online sales per county varies considerably among poverty-stricken counties and the distribution is highly uneven. From 2013 to 2016, the top 25 percent of poverty-stricken counties accounted for 90 percent of online sales amount and packages sent, as well as 70 percent of online stores. Poverty-stricken counties in the central and eastern regions, though only 46 percent of the poverty-stricken county population, accounted for 77 percent of online sales. Online purchases were also unevenly distributed. From 2013 to 2016, a quarter of the poverty-stricken counties represented 60 percent of the online purchase amount, packages received, and online buyers. The regional distribution of online purchases was in line with population distribution: the central and eastern regions account for 47 percent of online purchases in poverty-stricken counties (similar to their population share). Some poverty-stricken counties experienced a decline in e-commerce activities, especially online sales. The reasons e-commerce has grown faster in some poverty-stricken areas than in others are unclear and merit further research.

Targeted Interventions by the Government and the Private Sector to Support E-Commerce Development in Less-Developed Areas

The government and private sector companies have implemented several programs to support e-commerce development in less-developed areas. This report describes three of these programs:

- The government's Rural E-Commerce Demonstration Program seeks to promote e-commerce in rural areas by establishing and improving rural e-commerce public service, fostering rural e-commerce supply chains,



promoting connectivity between agriculture and commerce, and enhancing e-commerce training.

- Alibaba's Rural Taobao Program set out to establish an e-commerce service system in 100,000 administrative villages in 1,000 counties across China to bring consumer goods to rural areas and agricultural products to urban areas.
- The Alibaba Poverty Alleviation Program, building on the Alibaba Rural Taobao Program, aims to contribute to poverty alleviation in five target areas: e-commerce, ecology, education, health, and women.

The Rural E-Commerce Demonstration Program annually selects a limited number of new counties, many of which are poverty-stricken counties, to demonstrate the role of e-commerce for poverty alleviation in rural areas. The provinces determine which counties will be included in the program using logistics, Internet availability, and characteristic industries as criteria. By 2018, the program had supported 1,016 demonstration counties, including 737 poverty-stricken counties, among them 137 counties with extreme poverty. By the end of 2016, according to Ministry of Commerce, the program had created 120,000 jobs for poor households. Online stores registered in rural areas grew from 8.17 million in 2016 to 9.86 million in 2017 and resulted in employment for 28 million. With the assistance of the program, e-commerce enterprises have accelerated their penetration into rural areas and cooperate with demonstration counties to help implement the Rural E-Commerce Demonstration Program. At least 15 e-commerce companies have joined the effort to reduce poverty in rural areas.

The Alibaba Rural Taobao Program engages in multiple activities that help promote the development of e-commerce in rural areas. It promotes entrepreneurship among rural returnees and creates new sources of rural employment by establishing “incubators” at the village level. By 2018, according to the Alibaba Group, it had established more than tens of thousands village-level service stations in 29 provinces, autonomous regions, and municipalities, and recruited more than 30,000 rural full-time shop assistants and nearly 30,000 part-time aides. The program improves logistical connections with underserved villages to ensure timelier pickup and delivery by expanding existing private logistical systems from county centers to villages. The program agent not only helps villagers navigate the platforms to support online transactions, but also expands the availability of customer services, such as charging stations, Internet access, online booking travel. The program provides training in e-commerce through 11 training centers throughout the country and a series of online e-commerce training courses for self-learning by entrepreneurs. It also supports rural financial services, such as online payment, small collateral-free loans, insurance, and other financial services.

The Alibaba Poverty Alleviation Fund is an umbrella for multiple initiatives focused on the five focal areas and targeting nationally identified poverty-stricken counties, including e-commerce, women, education, health, and green economy. To reduce poverty through e-commerce, the program aims to help impoverished regions build on their natural endowments to incubate and develop industries to sell agricultural or local handicraft products online. Through the Rural Compulsory Education Plan and Occupational Education Plan, education poverty alleviation is to introduce incentives to enhance teaching practice and improve rural education. Health poverty alleviation provides health insurance to impoverished areas using donations gathered online and resources from the program. Women poverty alleviation provides targeted support to women and offers insurance, business development training, and childcare instruction tailoring to their needs. From the ecological perspective, the program aims to help impoverished regions explore ways to use local resources in a manner that ensures a balance between ecological conservation and economic development, helping to develop conservation forests and supporting the online sales of sustainable products (such as honey from alpine bee farming).

Pre-Conditions for E-Commerce Development

The main enabling factors for e-commerce development, as revealed in the literature and from the experience of China, include human capital, infrastructure and logistics, and a business environment conducive to e-commerce. Besides

access to the Internet, e-commerce development requires most of the same facilitating factors that enable traditional offline trade, including skills to manage or operate in the online platform, a spirit of entrepreneurship to identify business opportunity (particularly as an online platform enables access to a wide range of customers and therefore new niches in the long-tail market) to develop business and willingness to take risk and innovate, good infrastructure and logistics for timely delivery of packages from producers to consumers, and a conducive enabling business environment (see box below). Besides that, it requires a platform ecosystem that is beneficial for all parties—sellers, buyers, and platform companies.

Local production structures and other endowments condition e-commerce development, particularly the extent to which e-commerce can take off in the early stages. Analysis based on the statistics for about 2,000 counties for four years shows that e-commerce, including both online business and online shopping, is more developed in counties with higher economic development level, smaller secondary sector, larger household savings, and more developed financial sector, and with the presence of Taobao Villages, while online shopping also has positive relationship with population density and fixed asset investment and negative relationship with size of primary sector. After controlling for local economic characteristics, the positive association between e-commerce development and initial GDP per capita remained.⁷ The experience in China largely supports findings in the theoretical literature. E-commerce is more developed in areas where initial endowments are more favorable and GDP per capita is higher.

Readiness Checklist for E-Commerce

- **Skills and entrepreneurship**, including the skills needed to use the Internet for operations, provide customer service, and develop online products. A capacity for training followed by incubation services. The presence of an entrepreneurial spirit with a willingness to take risks and be flexible in pursuit of new opportunities in a digital economy.
- **Infrastructure and logistics**, including access to the Internet and an e-commerce platform, access to roads and a logistics network, and access to finance and a mobile payment system.
- **Enabling business environment**, including all traditional factors as well as factors specific to e-commerce: direct subsidies, logistics, training, and online product services and incubation services, improved roads and regulations to make it easier to do business.

In Taobao Villages, individuals with skills and entrepreneurial spirit, many of them returned migrants, are important in establishing e-commerce businesses

and creating role models for fellow villagers. Knowledge sharing within circles of friends and relatives is an important driver for the e-commerce development and clustering in Taobao Villages (Zeng et al. 2015). Infrastructure and logistics connect people to the market. All Taobao Villages have access to broadband and more than half of people in Taobao Villages use the Internet. People with higher education are more likely to do so, particularly for work and learning. The Internet penetrates people's lives with news, entertainment, online shopping, work, and education. Nearly all Taobao Villages have package pickup and express delivery services, with a wide range of logistics services providers. Nearly half of the Taobao Villages had logistic centers in the village at the time of the survey in 2018. Government support, including subsidized training or a one-stop shop for registration, provides a conducive environment for e-commerce development, as does non-monetary support and verbal encouragement from local government leaders.

E-Commerce Development and Household Welfare in Taobao Villages

A large and growing body of literature examines the links between e-commerce on job creation, economic growth, and welfare improvement. E-commerce can improve the efficiency of resource allocation by reducing the transaction costs (UNCTAD 2001) and facilitate the integration of SMEs into value chains (OECD 2017). However, research is limited on the causality between the e-commerce development, economic growth and welfare improvement, the additionality and substitutability of e-commerce to traditional business, and the magnitude of the impact of e-commerce on total employment and economic growth.

E-commerce can stimulate household consumption growth through the mechanisms that expand product variety, embrace consumer demand, and lower prices (see box below). The results of the data analysis done for this report show that the relationship between e-commerce development and household consumption growth is stronger for the rural sample, inland regions, and poor households, suggesting that e-commerce development helps reduce spatial inequality in consumption (Luo et al. 2019). For people in remote areas with limited access to markets, the saving in search costs and the increase in variety of products accessible online compared with traditional brick-and-mortar stores can be particularly large.

E-Commerce Development and Household Consumption Growth

Access to an online market allows people in rural areas to enjoy the convenience, variety, and low prices enjoyed by people in big cities. This is driven by two main factors.

Lower search cost makes price discovery easier, bringing the law of one price closer to reality (Gorodnichenko and Talavera 2017). Lower transaction costs increase the level of specialization in the society and create more trade. According to a McKinsey report by Dobbs et al. (2013), e-tailing may have lowered China's average retail price by 0.2 to 0.4 percent in 2011 and 0.3 to 0.6 percent in 2012.

The saving in search costs and the increase in variety of products accessible online compared with traditional brick-and-mortar stores can be particularly large for people in remote areas. E-tailing is not just a replacement of purchases that would otherwise take place but could spur incremental consumption particularly in small cities and towns. Couture et al. (2018) show that 62 percent of goods bought through Alibaba's Rural Taobao platform were not available in the village.

While the increase in market access is most likely beneficial for consumers, particularly those in remote areas, the declining effect of distance and national geographic barriers might negatively affect local producers due to increased competition from outside. The extent to which e-commerce can help raise income levels among the poor or disproportionately support the development of poorer regions remains an open question. While the platform companies can generate significant network effects and high user values, they can also carry risks, including the potential risks faced by consumers as well as producers (particularly small producers) in the "winner takes all" situation (Moreau 2017, Choudary 2017).

E-commerce can contribute to new job creation. The Taobao Village Survey shows that it has done so mainly through three channels: fostering entrepreneurship (such as self-employed e-shop owners); creating jobs directly related to e-commerce (such as e-shop workers as well as jobs that directly serve e-shops, such as website designers, e-shop models, and e-shop photographers); and creating jobs indirectly related to e-commerce with linkages upstream or downstream (such as logistics services, materials and intermediate input providers to e-shops, and the like). About half of the entrepreneurs on Alibaba platforms are women, compared to only one-quarter among all entrepreneurs in China; three-quarters of rural e-tailers are 20-29 years old.

E-commerce participation can contribute to household income growth. An examination of the pattern of e-commerce participation in Taobao Villages as it related to household income and growth had three main findings. First, e-commerce participation is not random: participation is higher among the households with younger household heads, with secondary education, particularly those with technical and vocational education, urban work experience, and knowledge of

e-commerce. Second, e-commerce participation is associated with higher household income, with some indications that participation has a strong positive effect on household incomes. Third, e-commerce appears to yield benefits that are broadly shared among participants in an equitable way in Taobao Villages.

However, as reported in the Taobao Village Survey, the high cost of online advertising, tough competition, and lack of skills are considered by e-shop owners the top three obstacles to developing e-commerce. Access to finance remained an important constraint. The majority of e-households have never borrowed for operations, or only borrowed from household members, friends, and relatives. The turnover rate for e-shops is high, particularly for smaller e-shops and those that are only one or two years old. While targeted support at the beginning of a new e-shop can help overcome some of the challenges, much depends on the products offered, the level of competition, and the ability to market the e-shop.

To scale up success where e-commerce is already in place and enhance its effect on people's living standards, it is necessary to continue upgrading the value chain and increasing the value added of online product sales, as well as supporting expansion of "winners" (selected by the market) and the entry of more e-shops.

- First, most e-shops sell the same or similar products within their market. Many Taobao Villages focus on niche products for which they have a comparative advantage. However, as e-commerce continues to develop, replication can result in low-end competition within the same village or with an adjacent village, driving down profit margins or leading to disputes where there are no patents or ownership rights for products or process innovations are unclear.
- Second, most e-shops are small-scale operations. Nearly two-thirds of Taobao Village e-shop owners are self-employed and have no employees and a third have fewer than five workers. While this allows flexibility of production and may make it easier to change products to meet evolving demand, it limits the ability to scale up or upgrade the technology when demand surges. Such limits can be severe for agricultural produce or products that require long periods to produce (such as a season for fruit or years for tree products) and cannot be outsourced to increase the scale of production. In these situations, e-shop owners need to manage the supply in line with the demand and not accept more orders online than they can reasonably fulfill given their production capacity.
- Third, an online market provides low-cost entry for small businesses, but it is also important to support the continuing growth of "winners" to generate employment for other villagers. Support is also needed for upgrades to the value chain, exploration of clustering and agglomeration to achieve economies of scale, and continuation of innovation. Many e-shop owners are women and youth, who often have difficulty accessing finance, and for women, have more responsibility taking care of the family. Targeted support that helps them continue to grow, including providing equal-opportunity access to resources, is important.

Conclusion and Next Steps

The success of e-commerce development in rural China shows that the benefits of digital technology are not necessarily limited to high-income countries and urban areas. With the right conditions, it can flourish in developing countries and in rural areas and can be a powerful instrument for rural vitalization and poverty reduction. The rapid development of e-commerce in rural China has built on tremendous improvements in human capital as well as in logistics and transport infrastructure. The former includes compulsory nine-year education as well as the experience and entrepreneurial spirit that returned migrants bring home. These “analog complements” are reflected in a Human Capital Index of 0.67 and a Logistics Performance Index of 3.61 and, ranking China 46 and 26 in the world, or 6 and 1 among all upper-middle-income countries respectively.

E-commerce is not suited to all locations, all households, or all products and should be deployed with care. Considering local conditions and drawing on the existing and latent comparative advantages are important for selecting e-commerce as an instrument for poverty reduction and inclusive growth. The available data are not sufficient to quantify the effects of e-commerce development on local economic development. More research is needed on the cost-effectiveness of the targeted interventions and the causal relationship between e-commerce participation and improved lives and to identify the channels through which such benefits are realized. Where e-commerce is a suitable and desirable development option, policymakers and development partners can benefit from information and lessons learned about policies that can support its development in rural areas and enhance its effect on job creation and inclusive growth.

Risks and Challenges in E-Commerce Development. As e-commerce continues to prosper and becomes more important in the economy, new risks and challenges arise. While technology transformation and platform economy increase market efficiency, the accompanied disruption brings risks for sellers and buyers, as well as to the e-commerce ecosystem. On the regulatory side, there are critical issues to grapple with, such as how to regulate the platform providers to ensure a level playing field for comparable digital services, protect consumers, and ensure fairness between online and physical vendors.

As indicated in the literature, sellers and buyers face special risks online compared to offline business—from cyber security, privacy, fraudulent or defective/counterfeit products, and technical concerns regarding electronic payment, and risks stemming from imbalances in competition among platform providers. Large platform companies can generate significant network effects and create high user values and can be efficient and socially beneficial. But existing large platform companies with significant advantages over new entrants can potentially distort the market. With rising challenges and opportunities in

the platform economy, a regulatory and policy framework is needed to support the healthy development of the ecosystem, providing level playing field and protection to all parties, including sellers and buyers, as well as the platform companies.

Due to the potential reach of all sellers in an e-commerce marketplace, competition is fierce and survival uncertain. In Taobao Villages, e-shops that have been in operation for two years or more show strong performance, but few survive the earliest years. Low profit margins are a major challenge for young online shops. In addition, the “one-click-away” nature and “just-in-time” delivery requirement can make it difficult for sellers to determine the right level of stock required to maximize profits (and still quickly respond to market demand) and minimize risks (due to large stocks of unsellable products). Yet, however harsh that is for small online shops, the platform economy can provide a niche market that may not exist in traditional brick-and-mortar business, which is particularly important for the small shops, and produces efficiency gains overall. In addition, customers can benefit from the reduction of information asymmetry, allowing them to find products and compare prices more quickly.

Where to Go from Here. The sun is rapidly setting on the “wild frontier days” of e-commerce development and a new phase is beginning during which new balance between online buyers, online sellers of all sizes, platform companies, and traditional offline business is being developed. This new frontier will require careful testing of policies, and any resulting regulations, to ensure their effectiveness and assess their effects on the market and implications for the entire economy and human welfare. New institutional arrangements, from business registration to tax administration, will need to be developed or strengthened to meet evolving needs. It is therefore essential to continue serving e-merchants as well as supporting cross-fertilization with traditional offline businesses.

The success of e-commerce development in rural China has unique elements. Countries that look to China for evidence need to keep in mind the importance of the “analog complements.” Nevertheless, China’s experience offers pointers for supporting the development of e-commerce for fostering employment and support growth. Most notably, the China experience shows that, targeted support that lowers entry barriers and transaction costs, addresses information asymmetry, and allows new entrants to participate in online markets, can help to launch e-commerce in less advantaged areas.

It may not be necessary to wait for perfect conditions to develop e-commerce. Creative solutions can go a long way to overcome hurdles, but execution of the arrangement must consider the local culture and have solid business and institutional supports in place. Where large domestic markets are already established, specific improvements may be required. Where markets are less developed or fragmented, a step-by-step approach may be needed, letting the market play a role in “selecting the winners,” focusing support in areas with most potential, and supporting the demonstration effects of early successes spill

over to other areas. The additional resources generated from the early successes can then be used to support the next round and provide equitable opportunities for all. As always where poverty reduction and shared prosperity are the goal, the government cannot operate alone—private sector partners, citizens, and local communities need to help develop solutions and spur action.



Notes

1. China has two large e-commerce platform companies, Alibaba and JD, and many smaller ones. Alibaba Group has the largest share of the e-commerce market. According to eMarketer.com, in 2018, Alibaba accounted for 58 percent of the total retail e-commerce sales, followed by JD.com (16 percent), while the market shares of the smaller companies, despite rapid growth by some in recent years, remain less than 5 percent each. In this report, unless otherwise specified, e-commerce transaction data refer only to the Alibaba platforms, which account for the majority of the market in China. Source: Sharon Kwok, "Alibaba tops e-commerce market share while facing fresh competition in China," 11/7/2018: <https://www.marketing-interactive.com/alibaba-tops-e-commerce-market-share-while-facing-fresh-competition-in-china/>
2. Poverty-stricken counties are defined by the State Council Leading Group Office of Poverty Alleviation and Development. See Appendix C for details. Source (in Chinese): http://www.cpad.gov.cn/art/2013/3/1/art_50_23734.html.
3. See McKinsey 2017.
4. These seven inland provinces are Gansu, Heilongjiang, Inner Mongolia, Jilin, Qinghai, Tibet, and Xinjiang.
5. Source: China, Ministry of Commerce 2019.
6. Several of the case studies, including Heze and Huimin in Shandong province and Wuyi in Zhejiang province, used to be poverty stricken-counties by provincial standards.
7. See details in Appendix F.

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