

E-Commerce & Development in China: driving upgrades in logistics & finance

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Abstract:

E-commerce in China has developed rapidly. Logistics and payment constraints were expected to thwart e-commerce transactions for some time; instead the logistics and finance sectors have seemingly responded to the demand for their services. At the same time, China's policy goals included increasing consumption and services as drivers of growth.

This paper explores these processes in China in the last decade to test the hypothesis that e-commerce has been the driver of these changes rather than just a beneficiary. A secondary theme is the evolution of the relationship between government policy and the development of the private service sector. A third theme is understanding new innovation processes in the service sector. The paper uses secondary data combined with company case studies based on interviews.

Preliminary results suggest that the growth in e-commerce has fueled growth in consumption, logistics and finance. First, e-commerce has grown much faster than overall consumption. Second, the timing of companies entering the express delivery service and their growth during the decade indicates a response to increased demand for service. Third, innovations in web-based and mobile payment systems are evolving fast in China. While early uses included payments for online purchases, payments for many kinds of goods and services are now possible with mobile phones. Finally, e-platform innovations are being utilized in the logistics sector to help with economies of scale and institutional voids for small and medium sized companies.

Taken together, these changes in China represent a new development phase with changing options for companies in China and evolving public-private relationships.

E-Commerce & Development in China: driving upgrades in logistics & finance

Introduction

E-commerce in China has developed rapidly. Logistics and payment constraints were expected to thwart e-commerce transactions for some time; instead the logistics and finance sectors have responded to the demand for their services and often in innovative ways.

According to Wei and cited by KPMG, in 2000 in China only about 2 million people used the internet and e-commerce basically did not exist (Wei 2013, 2014, p.2). China's big internet companies were established about the same time at the very end of the 1990s. Growth has exploded since. Over the same time, China's policy targeted increasing consumption and services as drivers of growth, which has become synonymous with the e-commerce boom.

The hypothesis explored is that e-commerce has been the driver of modernization and growth of logistics and payments rather than just a beneficiary. This has been a result of an endogenous growth process with three main facets.

First, the growth of e-commerce in China has been rapid, and much earlier than anticipated by many analysts. Consumers and businesses in China took to e-commerce quickly despite the limitations that initially characterized this sector. Consumer culture and expectations have changed as the options have changed, and just as importantly, have shaped those options. Demand and potential demand increased in both B2C and B2B channels.

Second, demand for e-commerce services led to demand for delivery and payment options, creating investment opportunities to fill these voids. Existing delivery companies responded by growing and innovating, and new companies entered the market. The e-commerce players initiated their own solutions as well, adding to the competition and growth in these services. For example, innovations in web and mobile phone-based apps for payment such as Alipay and WeChat were developed to facilitate e-commerce transactions that were accessible and people felt they could trust. In logistics, phone apps for delivery, satellite mapping and multiple transport channels were developed to meet customers' expectations in terms of speed of delivery and to beat the competition.

Third, government policy shifted towards favoring the rise of consumption and services in China's overall economic activity, and was not averse to the development of e-commerce as part of this transition. New interactions between the state and the private service sector can be observed in the process of e-commerce growth and innovation—

both in terms of encouragement and imposing restrictions to maintain control when needed.

Taken together, these trends in China represent a new development phase characterized by consumer-service-led demand with expanding options for business models and evolving public-private relationships.

The paper uses secondary data combined with company case studies based on interviews. The focus is on the development of domestic Chinese business by Chinese firms rather than on foreign companies in China or selling to China and includes both business to consumer (B2C) and business to business (B2B). While B2C e-commerce in China is probably more well-known due to the wide use of websites such as Taobao and TMall, Alibaba built its B2B business first by creating a platform to help small Chinese companies sell components to foreign markets. The points argued, however, are applicable across the e-business space.

Background Literature

The main hypothesis explored is that the rise of e-commerce has led to the modernization of delivery services and payment options in China. E-commerce has grown in advanced markets such as the U.S. utilizing sophisticated delivery systems and credit markets that pre-existed Internet-based buying and selling. In China, e-commerce has grown very quickly despite the limited use of credit cards, lack of other reliable and convenient payment options, and very basic transport and delivery services.

A paper by Lu (2005) evaluated the state of e-commerce and the Internet in China in the early 2000s. While he saw a major opportunity for e-commerce to grow in China, he emphasized the constraints that he thought would take some time to overcome. He specifically discussed the lack of a legal framework and security issues, the telecom monopoly over ISPs so that Internet access was slow, expensive and primarily available in urban areas, and a traditional consumer culture that did not seem likely to adopt e-commerce easily. In addition, only three percent of the population was online at that time. Tan and Wu (2004) conclude that while China was pushing technological advances that would support e-commerce, there was a disconnect between that and the business, legal and cultural changes that were also needed. Wong et al. (2004) found that traditional consumer behavior, uneven development across China, and heavy reliance on debit cards, which were viewed as unsafe options for online payment, all were factors holding back the development of e-commerce in China. Li & Suomi (2006) describe barriers to e-commerce in the three key areas addressed in this paper: government regulations, payment systems and logistics.

Despite the documented constraints, e-commerce in China continued to grow. Liu (2013) measures the contribution of e-commerce to growth in China's gross domestic product (GDP) between 1997 and 2009. His estimates show that e-commerce has grown faster than GDP, and that its contributions to GDP can be measured statistically using variables measuring consumer, investor, government and export spending. Since

his data end in 2009, and e-commerce has grown substantially since then, we would expect to find a larger effect on GDP growth today.

Development of e-commerce in China has been driven by the private sector. Alibaba is a private company begun by Jack Ma in Hangzhou in the late 1990s. The other big players today include Tencent, JD.com and Baidu—all private companies. The other players that support e-commerce, including telecom, banking and transport, are all state dominated in China. Hence, the evolution of the e-commerce sector in China has necessarily involved cooperation, negotiation and competition between new private companies and well-established state-owned enterprises.

In the late 1990s, state companies successfully shut out private competitors setting up ISPs and other internet services, but private companies were much more successful with internet portals and content (Clark 2016, p.86). Alibaba was financed by investment capital and not government loans or subsidies—something that Jack Ma often proudly shares with his audiences. Once Alibaba launched Alipay, however, cooperation with the state sector became increasingly necessary. Alipay is a payment mechanism utilizing escrow accounts that allows buyers to pay sellers once they are satisfied with the product, while also protecting sellers from non-payment. Now independent from Alibaba but owned by Jack Ma, Alipay is used by consumers in China to pay for many goods and services such as utilities, cell phone minutes, restaurants etc. Ant Financial Services Group has raised financing from China's state banks, although at times these banks have tried to thwart the growth of Alipay (Yuan 2016).

Government regulation of certain types of private activity, and of companies that grow large, is common in market economies. One of the issues explored in this paper is how the private sector developed such an impressive e-commerce environment without government involvement, or whether this process was more government directed or influenced than has been recognized.

Nicholas Lardy, in his book *Markets over Mao* (2014), argues that China's private sector has developed on its own through market competition and now leads state companies in many sectors in profitability and growth. While some sectors remain state-dominated, such as banking, telecommunications, rail and oil, most markets in China are competitive. Certain constraints to private sector development, such as access to bank loans, have become much less binding since the mid-1990s in part because of the relative success of private companies.

In contrast to Lardy, there are others who argue that China's growth path is better characterized as "state capitalism," where the dominant driver of growth has been state-directed resources. This view places private companies on the margin of economic activity in China, and where they matter to a sector it is due to government permission and assistance. To succeed, then, a private company needs the right "political connections."

Chen (2015), based on research on the rise of Wenzhou and other areas that have large private sectors, argues that the importance of connections rises and falls depending on the how interventionist the state is in markets. He documents a distant state in the 1980s in Wenzhou, followed by more interventionist policies later in reaction

to crises related to poor quality products and later to slowing growth. Local officials follow cues from central policies, applying them in the home environments, which necessarily gives them local flavors. Simultaneously, groups in the center champion different policies, which can give local leaders protection when there is disagreement about the goals and implementation process. In the case of Wenzhou, the leaders favoring market-oriented reforms supported the Wenzhou entrepreneurs in the 1980s in the face of much opposition from those who believed improved planning was the right socialist path. After Tiananmen in 1989, Chen argues that the central government moved towards more intervention and control of markets, as did the Wenzhou government.

E-Commerce takes off in China: the demand side

B2C

The rapid rise of internet users in China has been well-documented. The number of internet users that shop online has also increased very quickly and most recently, the ubiquity of smart phones has given access to online purchases of products and services to many more people across China.

Deloitte (2016), based on statistics from eMarketer, reported China's online retail transactions were about \$582 billion in 2015, and were growing over 36 percent per year. This represented about 35 percent of global retail online sales, making China the leading market for e-commerce. Online retail sales represented about 15 percent of total retail sales in China in 2015 as compared with 7 percent in the U.S. Some have suggested that the underdeveloped bricks and mortar shopping in China has led this sector to move online faster than previous growth patterns in retail, which is especially true outside of China's major urban centers. Other factors are the use of mobile phones for purchases, the standardization of platforms, inexpensive delivery and the common practice of embedding purchasing links within anything digital (de Rijk 2016).

B2B

The B2B online sector has also grown very quickly in China. Alibaba's first platform was designed to help Chinese companies, especially small and medium-sized companies, export their components globally. From the beginning, Chinese suppliers used the site, but now companies from other countries are also users of Alibaba. In 2012 its website read: "Alibaba is the leading global e-commerce platform for small businesses around the world." In 2017 the focus had broadened: "to make it easy to do business anywhere (Alibaba.com)." The company claims to serve wholesale buyers in over 190 countries. The company also offers 1688.com for domestic B2B business.

For the suppliers, the first thing that Alibaba does is provide the space on the server, and the url within Alibaba, for them to develop their "store" or website within Alibaba.com. Each supplier has a unique account with Alibaba. Alibaba provides templates to develop keywords specific to each company's products, write a description,

and build an online showroom. Companies can choose to use the free services of Alibaba or pay for additional services. These services are tied to rankings of companies' products and services, and trustworthiness, which help to place them closer to the top of the search results. Given the thousands of companies using the site, a company's ranking can be critical to attract buyers. The rank is determined by a complicated algorithm combining how much a supplier pays (including paying for key words, clicks, and the basic fee), plus an evaluation of the supplier's website by Alibaba and users, which includes how professional the storefront looks, the key word relevancy, the clarity of the description, the quality of the pictures, etc.

On the buyer side, there are also numerous services, all free. These services cover different ways to find products, get information on the suppliers, contact and chat with suppliers and carry out transactions once a good match has been found. Buyers have different levels of access to suppliers depending on the suppliers' membership status. The highest is the Gold premium member, where buyers have instant and unrestricted access to these stores.

Many of the users of Alibaba are very small companies. Two examples are Sichuan Andes Trading Company and Wanmuren Company.

Sichuan Andes Trading Co., Chengdu

Eric founded Sichuan Andes Trading Co. in 2009 in Chengdu. The company designs, produces and markets shoes both internationally and domestically. Chengdu is considered the "capital" of ladies' footwear, with hundreds of small companies manufacturing shoes. Many of them specialize in handmade high-heeled shoes because machines cannot produce good quality heels. These companies are willing to accept orders of 100 or less, while the mass production operations, which are mostly located in southern China, are looking for orders of 500 or more as a minimum for one size and color. Eric worked for one of the smaller companies in Chengdu and while there, learned how to sell on Alibaba. Seeing potential in the online exporting channel, he started his own company to take advantage of this opportunity. Exports through Alibaba represented about one-third of his company's revenue as of 2012.

Wanmuren Co., Leshan, Sichuan

Mr. Tian's company makes carved wood handicrafts from ebony, a very special wood found in the river channel mud in Sichuan after being buried for 4,000 years. One cubic meter of ebony cost 10-20,000 yuan in 2012 as compared to regular wood which is much cheaper at about 3,000 yuan per cubic meter. The Forbidden City needed a lot of ebony when it re-built some of the buildings and exhibits, which pushed the price very high. The wood is supplied by farmers who find it as they are building and repairing dams. On a small scale the farmers can sell what they find by themselves, but large amounts must be handled by a government company or government-sanctioned company. Mr. Tian relies on the small amounts sold to him by the farmers. Mr. Tian began to export using Alibaba in 2010, and by 2012 sold 15 percent of his production overseas via the e-commerce site.

Alibaba continues to grow its B2B business, and is the major company in this sector. However, many others –some say hundreds--have entered this space as well, such as Makepolo, Global Sources, HC 360, Made-In-China, Dhgate, BeB.cn, 111.com.cn, ECVV, and bossgoo (Quora, Caballero 2016). For users, the sheer number of suppliers online now presents challenges in terms of being “seen,” and for buyers, understanding who is trustworthy (Jean et al. 2017). Nonetheless, having an online presence is becoming mandatory to stay competitive, with intense competition at each step of the process.

Whether retail or wholesale e-business, both need pick-up and delivery services, and payment methods. These two critical pieces of logistics are discussed next.

Business Investment and innovation in Logistics

China’s logistics challenge

China scores well in the World Bank’s logistic performance index at 3.7 out of 5. This compares with 2.9 for the world average, 2.6 for middle income countries and 4.0 for the U.S. (World Bank Indicators). However, this index includes transport infrastructure as well as the logistic system, so we would expect China to score relatively high based on the vast investment in roads, rail and ports that has occurred in China over the last decades.

However, the rapid increase in e-commerce in China has challenged the logistics sector and has created bottlenecks (Wang, L. 2015). This is especially true for express delivery (Goh & Gan, 2014), which McKinsey estimates is growing at 30 percent per year (Lau & Su 2016), as well as “reverse logistics,” which deals with the inevitable returns of product that are essential to e-commerce companies (Wang, W. 2015). There are also wide variations in the volume of purchases and therefore number of packages due to very successful marketing such as Singles Day as compared with normal days.

The China Logistics Prosperity Index follows over 300 logistic companies in China with monthly surveys. The industry is fragmented with most companies covering a region with a specific service. Clark (2016, p.20) estimates there are over 8,000 private delivery firms in China, with only 20 or so that are not very small and local. In developed markets, delivery for B2B developed first and therefore the B2C delivery followed fairly smoothly. In China both developed at once, and very quickly, leading to a more difficult growth process (Rodrigue 2015). According to China Daily (2016), China’s logistics cost represented 15 percent of GDP in China in 2016, down from 16 percent where it had been for many years, but still much higher than the U.S. or India.

China’s domestic logistics sector blossoms

The logistic business is growing quickly in China at over 15 percent growth annually, and represents a US\$1.6 trillion market in terms of revenue according to one estimate (Ren 2017). Package delivery is growing at 30 percent per year according to McKinsey

(2016). Companies have seen opportunities for growth and innovation, and some of them have established themselves as key players in e-commerce. This sector is very complex, involving freight-forwarding, long-haul transport, warehousing, cold-chain storage, data management, third-party operators, as well as delivery services. Here we focus on express delivery to illustrate development in this sector. These are the companies that interact the most with the customer at the final destination of a package—also referred to as “the last mile” delivery space—and in some ways, the most challenging piece of the system.

Table 1 lists the major express delivery firms in China in terms of ownership, date established, and some statistics indicating the size of their operations. Interestingly, four of these were started by entrepreneurs in one town in Zhejiang, Tonglu, near Hangzhou where Alibaba is based: STO, YTO, ZTO and Yunda (Clark 2016, p.15). YTO was established at the same time as Alibaba, but Yunda and STO began before Alibaba and ZTO is a relative newcomer, established in 2013. Except for EMS, all of these companies are private. Several have listed on one of the exchanges in the last two years. EMS is state-owned and a part of the postal system.

Table 1: Major Chinese Express Delivery Companies

Company	Established	Headquarters	Stock Listing	Ownership	Parcel Vol. (Billion \$)	Revenues (Billion \$)	Assets (Billion \$)
SF Express	1993	Guangdong	Shenzhen	Private	2.58	8.7	6.7
STO Express	1993	Shanghai	Shenzhen	Private	3.26	1.5	1.2
ZJS	1994	Beijing	-	Private			
TTK	1994	Hangzhou	-	Private	1.26	0.01	0.6
Yunda	1999	Shanghai	Shenzhen	Private	3.21	1.1	1.0
YTO	2000	Shanghai	Shanghai	Private	4.46	2.5	1.7
ZTO	2002	Shanghai	Shanghai	Private	4.5	1.4	1.7
Sure	2006	Shenzhen	-	Private			
Best Express	2007	Hangzhou	*planning NY	Private	2.2	1.3	3.0
EMS	2010	Beijing	-	State			
Notes:	Ranking source: http://www.sohu.com/a/115052101_475976						
	For TTK, reported revenues are after-tax.						
	All data are for 2016.						

Sources: See Appendix.

Some e-commerce companies have developed, or are in the process of developing, their own logistics systems. JD.com is a good example. Originally named Jingdong Mall, the company’s e-commerce website was 360buy.com and now has been rebranded as jd.com. The company runs JD Logistics to manage all deliveries and returns of products purchased from its platform. Likewise, VIP.com owns Pinjun Express, and Suning operates its own logistics but has recently also invested in TTK Express.

Alibaba, on the other hand, does not have its own shipping infrastructure. According to Clark (2016, p.14), in the early 2000s Jack Ma approached China's postal system to see if they could work together to develop express delivery, but at that time he was told there was not enough demand for such a service. Later Alibaba invested in Best as one of its delivery options. Best, previously Best Logistics Technologies, entered the express delivery business in 2007. Also based in Hangzhou, Best applied for its IPO in New York in 2017. Alibaba has also invested in YTO Express and in Suning, which has Suning Logistics and a piece of TTK Express as noted previously.

The rise of e-platforms

Alibaba has continued to search for delivery solutions rather than build the infrastructure itself. A new concept is the e-platform Cainiao, or China Smart Logistics. Alibaba and other companies jointly created this e-platform in 2013. The fifteen or so delivery companies involved share data and cooperate to share the business so that packages can be delivered faster and with fewer problems. This strategy gives Cainiao more national coverage, including rural areas, than any one company, and more capacity. The platform is also using data analysis to anticipate peaks and troughs, and route volumes. Cainiao also serves cross-border transactions (ecommerce IQ Asia). In September, 2017, Alibaba announced it was taking control of Cainiao in a sign that the company is moving towards more control over its logistics options (Caixin Global 2017).

While Cainiao benefits from Alibaba and other big backers, other delivery companies are working together via digital platforms as well. According to McKinsey, about 50 companies are working on an "Uber"-like app to match merchants with shipping companies in terms of timing and capacity (Bu et al. 2017).

Payment option innovations

A critical aspect of logistics is payment. Sellers must believe that buyers are willing and able to pay for products and services; buyers need trust that their payment will be secure, that the products or services will be as advertised, and that they have recourse if they are not satisfied. In developed markets, credit card companies play an intermediary role facilitating payment along with trust. In China, credit card use is growing but still very low as compared with the U.S., for example (Trivedi 2017). In the early 2000s, credit card use was just beginning and therefore was thought to be a constraint for e-commerce. At that time, three options were the most common—credit or debit online, cash upon receipt via postal delivery, or remittance through the postal system. Since most people used debit instead of credit cards if they had a card at all, Wong et al. concluded this was a major reason that B2C e-commerce had not grown much (2004, p.79).

Then innovation occurred. Online, followed by mobile, finance advanced quickly. (See Table 2.) One of the first innovative solutions to the payment challenge was Alipay, developed by Alibaba and launched in 2004. Alipay's underlying strength was its escrow system where payment would be made to the Alipay account but would not be released

to the seller until the buyer was satisfied and agreed to accept the merchandise. Alibaba partnered with over 100 banks to allow transactions to flow through its Alipay platform first on the Internet and later, mobile devices.

Table 2: Payment Systems

Payment Service	Company	Date Established	Ownership	Number of Registered Users (Millions)	Web and/or Mobile
Unionpay	Unionpay	2002	State	600	Both
Alipay	Alibaba	2004	Private	520	Both
TenPay	Tencent	2005	Private		Web
Wechat pay	Tencent	2013	Private	800 (2016 Q2)	Both
QQ Wallet	Tencent	2014	Private	652	
UnionPay QR	Unionpay	2017	State		Mobile
Notes:	Tencent cooperated with Wechat in 2013 to create Wechat pay.				
	652 is the number of QQ users that have access to QQ Wallet.				
	UnionPay as issued over 5 billion cards.				

Sources: See Appendix.

Tencent's Tenpay was created soon after Alipay, and has been a growing contender for payment services. In 2013 Tenpay partnered with WeChat, the very popular mobile app, to offer WeChat Pay. These two payment systems have 90 percent of the transactions on mobile phones (Aouad 2017). UnionPay, China's state-run credit card network, announced in June that it also is joining the e-pay business with a QR code app in cooperation with 40 banks (Aouad 2017).

With both shipping and payment, Chinese companies have been innovative in accommodating the rapidly growing consumer market. Customers require secure and reliable solutions for selecting, paying, receiving and returning merchandise as needed. Institutional gaps in access to credit, mechanisms of trust and transparency, and physical delivery of products have been at least partially overcome by creating new business models including e-platforms, mobile applications, industry alliances and public-private partnerships.

Government's role in the development process

Transportation infrastructure has been on China's policy makers' radar for a long time. The road, rail and port infrastructure construction and upgrades have been some of the fastest and more extensive in history. Having this infrastructure in place is a major

positive for logistics, obviously, but the logistics business sector itself has more recently come to the government's attention.

The Ministry of Information Industry was formed in 1998 (Lu 2005), and IT was designated a pillar industry in the 10th Five-year plan (2001-05) where government policy focused on e-government and government investment in internet infrastructure in education. In 2010, the State Council issued a "White paper—The Internet in China," covering its support for the development and applications of the Internet, the large investments the government had made, a commitment to closing the digital gap by making access inclusive, ensuring internet security, promoting the Internet for business, government and public discussion, as well as taking care of national security and preventing illegal activity (State Council 2010).

The Internet is a double-edged sword for China, however. The Party wrestles with how to use the internet to develop the economy but also not let it undermine political power (Clark 2016, p.132). Chinese leaders believe that China needs to build a knowledge economy based on information and services, but is also wary of losing control of information. Large state investments had been made in communication infrastructure to support this next stage of development, coined "informatization" (*xinxihua*). These state companies successfully shut out private competitors setting up ISPs and other internet services, but private companies were much more successful with internet portals and content (Clark 2016, p.86). This has been the driver of e-commerce.

China's government has increasingly come to see e-commerce and the related services as a way to promote growth and innovation, while also trying to regulate and manage the rapid changes occurring.

For example, the State Council established the China Federation of Logistics and Purchasing to keep track of the industry. E-commerce merited a mention in the 11th Five-year plan (2006-10) and logistics was recognized in the 12th Five-year plan (2011-15). Logistics and express delivery were covered in the 2014 government work report delivered by Premier Li Keqiang emphasizing reforms to remove barriers and lower costs (Berger 2014). The change to value-added tax for businesses in services, which started in Shanghai in 2012 and was expanded in 2016, has reduced the taxes and costs for these types of companies. According to the State Council, this move was explicitly intended to encourage the development of the service sector (State Council, 2017).

The 13th Five-year plan (2016-20) brought many, and more specific, changes targeted at developing domestic trade focusing on e-commerce, the Internet and distribution (Lam & Leung 2016). Included in the many directives was the "Opinions on Striving to Develop E-commerce to Speed up the Cultivation of the New Economic Driving Force," released in May 2015 by the State Council. (Lam & Leung 2016, Dickinson 2015). The stated goal of the directive is to create a modern, private e-commerce system by 2025.

These central directives to some extent are moves to catch up to what has been happening in localities across China. Private entrepreneurs have created their own business opportunities and contribute to growth in China since the reforms began (Lardy 2014). E-commerce and more generally, e-platforms, have multiplied those

opportunities. Local governments have created service-oriented industrial parks to help promote innovation and value-added service companies. These companies are overwhelmingly private, but benefit from direct and indirect government support and legitimacy (Huang et al. 2017).

Xinyue IT Corporation

The Xinyue company illustrates this phenomenon. Xinyue is located in a logistics cluster south of Shanghai. Thousands of logistics companies are concentrated in this chemical industrial park, which is one of the original industrial parks in the Yangze Delta. These logistics companies are SMEs and primarily service the chemical industry. Xinyue developed from a small, local logistics company into the owner of a sophisticated e-platform serving hundreds of clients across China providing packages of services to clients. The platform goes far beyond information exchange, to providing customized solutions for overcoming existing market deficiencies and managing risk for the stakeholders involved.

For example, one of the first services that Xinyue created was a credit system for companies to purchase diesel for their trucks. Offering credit directly to small companies is often considered too risky for banks, or for the supplier of products such as diesel. Xinyue worked with Sinopec, the state petroleum company, and with banks such as Minsheng Bank, to create a diesel “credit” card. Companies could buy up to a certain amount of diesel with the card, but could not use it to purchase anything else. In similar ways, the company also created options for buying cargo insurance, managing business operations such as tax compliance, and other services.

The local government has supported Xinyue in various ways. For example, in China, intermediary services are relatively underdeveloped, especially for small and medium-sized enterprises (SMEs). SMEs are not accustomed to finding and using third-party services, and they are not used to paying for such services, perhaps because they are not aware of the value these services can bring them. In response to this situation, the Shanghai Economic and Information Technology Commission created a special fund to subsidize the cost of SMEs using e-platforms to purchase intermediary services. The goal of the fund is to promote the furthering of intra-industry specialization by encouraging third party service outsourcing networks. In policy terms this is a step towards encouraging e-industry networks rather than general e-market networks. In 2016, because Xinyue had developed sophisticated, value-added services that had been accepted within the market, the company was selected as one of 12 companies that clients could use the funds to purchase services. This support encourages clients to use the services because the cost is less, and it helps potential customers find Xinyue.

Xinyue’s innovative business model represents an important example of service innovation occurring in China’s private sector today. Further, this process of innovation involves interaction between the state and private sectors, with the state providing primarily legitimacy and encouragement for innovation to occur and secondarily help with funding and resources (Huang et al. 2017).

Implications and Discussion

The previous discussion suggests three noteworthy economic trends in China today.

First, e-commerce is itself a driver of growth in that it is creating opportunities for companies to invest and innovate in sales, logistics and payment systems to meet the rising demand of users. The use of e-platforms as part of the innovation process is also widespread in China. A decade ago these changes were not anticipated, but have rapidly created a new ecosystem of service and innovation.

Not surprisingly, with the rapid growth of e-commerce, barriers and constraints continue to exist. Much of the policy recommendations deal with these constraints. Likewise, there are periods of development where e-commerce advances after a constraint has been loosened. For example, once Alipay was introduced transactions on Taobao grew quickly (Liu 2017).

Second, the e-commerce story is central to China's desired transition from investment-export-led growth to consumption-service-driven growth. While the former incentives for state infrastructure and private housing investment still exist, business decisions based on consumer-led priorities are now increasingly apparent. In addition, as the 13th Five-year plan shows, the focus of government policy is also changing towards promoting services, national markets and competition.

The third trend suggested by the e-commerce phenomenon is that the role of government in China's development process in these sectors is characterized by indirect encouragement of the private sector, with targeted government investment when needed. There is also more public-private cooperation, which has been very rare. This is seen in the Xinyue case where the company worked with state sector finance and insurance companies to create access to services the SME private sector lacked. It is also seen in that the backbone of the Internet and telecommunications, such as the Internet service providers, the domain name management, security services etc. are state dominated, while the companies offering services and content are mostly privately-owned, requiring cooperation and partnerships between the two sectors. Most recently, as part of a new reform program referred to as "mixed ownership," private investors are being allowed to invest in state companies but this time with the intention of significant influence on strategy and operations (Caixin Global 2017, Lucas 2017).

The public-private relationship continues to evolve, however, and is often an uneasy one. This quote by Clark (2016, p.239) is especially pertinent:

Entrepreneurs in China can never eliminate the risk for their business of arbitrary regulations or actions. Instead they can try to shield their companies by helping the government do its job.

E-commerce companies fit this description very well. With the rapid growth and very large size now of Alibaba, Tencent and others, these companies are receiving more government scrutiny. Payment systems, for example, now must be cleared through the formal banking system, and the amount of money people can hold in their payment

accounts has been greatly curtailed (Lucas 2017). This resurgence of state intervention is similar to what Chen (2015) describes in his work on Wenzhou and the legitimization of the private sector.

Conclusion

The development of e-commerce and related services in China emerges as a dynamic process based on domestic demand and resources, the creation of new opportunities, and supportive government policy. The result is rapid growth, modernization and innovation of delivery and payments supporting e-business.

These conclusions are preliminary, and suggest further questions. For example, does this dynamic, private-led process also characterize other sectors? Is the private-state relationship evolving or is it really quite similar to the first decades of China's reform process? While consumers do seem to be shaping business decisions more than in the past, is the shift toward consumption-led growth actually occurring in measurable ways? Is there a danger that the challenges, which are not fully discussed here, might overwhelm the progress and dynamism in the e-business space? For example, challenges include fake products and the resulting discouragement to consumption and innovation, Internet security issues, the closed nature of China's Internet, and vested interests in legacy technologies and market power.

If these challenges can be dealt with, and if this dynamism extends beyond the sectors analyzed here, then China has a good chance of ushering in a new development model that better supports the country's goal of transitioning to an innovative, knowledge economy.

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