

Control, exploitation and exclusion: Experiences of small farmer e-tailers in agricultural e-commerce in China

Xiaojun Feng 

Department of Sociology and Anthropology,
China Agricultural University, Beijing, China

Correspondence

Xiaojun Feng, Department of Sociology and
Anthropology, China Agricultural University,
No.17 Tsinghua East Road, Beijing, 100193,
China.

Email: xiaojun.feng@cau.edu.cn

Funding information

National Social Sciences Foundation of China,
Grant/Award Number: 21ZDA058

Abstract

Digital technologies are reshaping the landscape of agriculture. In 2021, around 10% of agricultural products in China were distributed through the Internet. As small farmers are traditionally subsumed by commercial capital in the sphere of circulation, this article investigates what difference online marketing has made to this relationship. Using qualitative data collected from a county in China, we examine the experiences of small farmer e-tailers. We find that agricultural e-commerce provides them with an alternative marketing channel and a larger customer base, increases the efficiency of product distribution and allows them to retain a greater share of the value they produce. However, while extant literature suggests that agricultural e-commerce has increased farmers' autonomy and income, we find that small farmers' vertical expansion into e-commerce by becoming agricultural e-tailers fails to alleviate their subsumption by commercial capital and subjects them to more oppressive forms of commercial capital in three ways. First, small farmer e-tailers are controlled by agricultural e-commerce platforms, as their transactions rely on these platforms that are quasi-monopolies in China. Second, these e-tailers are increasingly exploited by platforms and other cybermediaries whom they are forced to pay for Internet traffic. Finally, small farmers are being excluded from being e-tailers as platforms are becoming e-tailers and they cannot compete with corporate e-tailers.

KEYWORDS

agricultural e-commerce, commercial capital, market, small farmers

1 | INTRODUCTION

With the spread of capitalism, small farmers lose their ability to reproduce outside the market and its discipline (Bernstein, 2010). Traditionally, they are connected to the market through offline arrangements driven by agribusiness, ranging from spot markets to contract farming to full vertical integration of ownership across all transaction stages. Vulnerability to such exploitative connections has been identified as a root cause of rural poverty (Barrett, 2008; Sivramkrishna & Jyotishi, 2008).

In China, small farmers are overrepresented among the poorer population. In 2016, they accounted for over 98% of agricultural producers, and in 2019, the average farm size per rural household was roughly 7.8 *mu* (1 *mu* equates to around 1/15 of a hectare) (Xinhuanet, 2019). Despite their deep involvement in wage employment, in 2022, 34.6% of Chinese farmers' per capita disposable income was generated from business operations, mainly agricultural production, having fallen from 65.6% in 1999 and 47.5% in 2010 (National Bureau of Statistics of China, 2023). Small farmers are connected to consumers largely through middlemen. The farm-gate price of agricultural products in China dropped from 61% of the retail price in 1999 to 49% in 2010 (Wu, 2012). Thus, one way to increase small farmers' income is to build vertical coordination of successive stages of production and marketing driven by themselves.

Digital technologies are reshaping the landscape of agriculture, and e-commerce has become a popular alternative to traditional commerce. In this article, e-commerce refers to buying and selling goods and services through the Internet. In China, a global leader in e-commerce, the online proportion of national retail revenues from consumer goods rose from 8% in 2013 to 30% in 2020 (National Bureau of Statistics of China, 2015, 2021). In 2021, Alibaba platforms (mainly Taobao, Tmall and 1688), JD, Pinduoduo and TikTok generated 51%, 20%, 15% and 5% of China's online retail revenues, respectively (E-commerce News, 2022).

E-commerce has penetrated agriculture. China's central government highlights agricultural e-commerce as a key vehicle for rural revitalization and has emphasized its support for it in annual No. 1 policy statements since 2013. Between 2017 and 2020, online retail revenues from agricultural products in China jumped from 172.3 to 610.7 billion yuan (China Agricultural University & iiMedia, 2021). In 2021, around 10% of agricultural products in China were distributed through the Internet, 20% directly from the source through offline connections between producers and end retailers or consumers and 70% through wholesale markets (Han, 2021). In 2019, the central government's goal was for 15% of agricultural products to be distributed through the Internet by 2025 (Ministry of Agriculture and Rural Affairs of China, 2020).

Fresh food is a challenging but attractive online market owing to its perishability and high purchasing frequency. In recent years, online retail revenues from fresh food in China have grown much faster than from generic agricultural products. In 2019, national online retail revenues from fresh food totalled 109.5 billion yuan, and China's top five apple-producing provinces all sold over 10% of their apples via the Internet (Chinese Academy of Agricultural Sciences, 2020).

Farmers' expansion into e-commerce as e-tailers represents their drive towards vertical coordination. Many corporate consulting reports and academic publications interpret e-commerce as a marketing channel that enhances farmers' autonomy and income by allowing them to sell directly to consumers (Ball & Duval, 2001; Joiner & Okeleke, 2019). We contest this prevailing view and examine the experiences of small farmer e-tailers, using qualitative data collected in Kangyang (pseudonym), a county in Sichuan, China. As well as acknowledging the multiple benefits that e-commerce brings to farmers' marketing, we show how shopping platforms, together with other

cybermediaries, control and exploit e-tailers, including small farmers, and how agricultural e-commerce in China has evolved to exclude agricultural producers, particularly small farmers, from becoming e-tailers. As market participation is a common challenge for farmers, and agricultural e-commerce is burgeoning in much of the less developed world, this Chinese study offers potential lessons beyond China.

2 | FROM OFFLINE TO ONLINE: FARMERS' MARKET PARTICIPATION AND AGRARIAN CHANGE

Capitalism's penetration into agriculture and its impacts on the peasantry have been much debated. Marx (1996 [1867]) viewed the transition to capitalist farming in England as the rise of an agrarian class structure based on capitalist landed property, agrarian capital, and landless labour. Similarly, Lenin (1964 [1899]) argued that capitalism developed in 19th-century Russia through class differentiation of rural producers, which would eventually evolve into agrarian capital and proletarian labour. However, in reality, peasant households appear to be resilient, and large-scale farming based on wage labour has made only limited inroads in the less developed world (Bernstein, 2004).

Among the various factors inhibiting greater capital investment in agriculture discussed in the literature (Bernstein, 2010), particularly relevant to this article is how peasant households are not uprooted but incorporated into commodity production, resulting in control of their production and extraction of their surplus by capital and the state. Chayanov (1966 [1925], p. 202) found that finance capitalism 'convert[s] the farmer into a labor force working with other people's means of production'. In his study of Africa, Bernstein (1977) finds that simple commodity producers are squeezed by industrial interests, trading companies, and the state, for example through the terms of exchange for the commodities they produce relative to those needed for simple reproduction, and development schemes requiring more expensive inputs. They are exploited by merchant capital through unequal exchange that cheapens their commodities because their own reproduction is subsidized by unpaid family labour and their household labour-time is devalored in competition with more capital-intensive forms of farming. Banaji (2002, 2016) moves further in identifying various arrangements through which merchant capital regulates the conditions of peasant production.

Bernstein (2010, p. 126) defines exploitation as 'appropriation of the surplus product of classes of producers by (dominant) classes of non-producers'. He argues that as a result of the penetration of commodity relations into production, farmers 'are not 'independent' at all but occupy the class place of labour in relation to capital ... Hence farmers are exploited in the same sense as labour is exploited by capital more generally' (Bernstein, 2010, pp. 92–93). Moreover, peasant commodity production appears to be a more widespread pattern of exploitation than farming based on alienated land and hired labour; in other words, the commodification of subsistence provides a more generic basis for the subsumption of labour by capital (Banaji, 2016; Bernstein, 2010). These works provide a powerful corrective to orthodox Marxism's privileging of production and neglect of circulation (Arboleda, 2020), as value generated in the sphere of production can only be realized in the sphere of circulation.

The sphere of circulation is a contested terrain. On the one hand, vertical coordination may be driven by agribusiness to shift control over decisions on and gains from agricultural production away from farms. In spot market exchanges mediated by middlemen, contract farming, and ownership management, farmers are often exploited and impoverished. On the other hand, vertical coordination may be driven by farmers to maintain their control over production and protect their income. Prominent among such efforts are cooperatives. Collective marketing by cooperatives may increase farmers' income by exploiting economies of scale in selling and creating countervailing power over buyers (Chayanov, 1966 [1925]; Roy & Thorat, 2008).

The impact of decades of marketized reforms on the Chinese peasantry has been widely discussed. Opinions are divided on peasants' condition in the sphere of production. Populist scholars highlight the comparative advantage and persistence of family farming over capitalist farming (He, 2013; Huang, 2011; Van der Ploeg & Ye, 2016). It is estimated that in 2006, hired year-workers totalled only 3% of all labour input in Chinese agriculture

(Huang et al., 2012). In contrast, Marxist scholars argue that capitalist dynamics have reshaped the landscape of agricultural production and differentiated rural producers in China (Yan & Chen, 2015; Zhang & Donaldson, 2010). On capitalist farms, the presence of hired labour is substantial (Chen, 2020; Huang, 2015).

Nevertheless, populist and Marxist scholars concur on the predicament of Chinese farmers in the sphere of circulation. China's state-monopolized system of agricultural product distribution in the planned-economy era has been transformed into a market-based system with profit-driven intermediaries (Circulation Promotion Centre of the Ministry of Commerce, 2009). Huang (2012) suggests that most agricultural producers in China are small farmers who cannot bargain effectively with big commercial capital and their agents, resulting in unequal exchange. Chen (2016) goes further in arguing that small farmers in China are subsumed by capital in terms of both agricultural outputs and inputs. Although they appear autonomous in production, they are in essence reduced to 'hidden employees' of commercial capital. Wu (2012) finds that the proportion of farmers' profit (the difference between sales revenues and production costs, including labour costs) in the profit generated by agricultural products (the difference between retail revenues and all production and distribution costs) in China dropped from 29% in 1999 to 20% in 2010, with the rest being captured by middlemen between farmers and consumers.

This situation suggests that the government's scheme for agribusiness-led vertical coordination has performed poorly in improving farmers' bargaining power in the market (Huang, 2011). The government also encourages the development of agricultural cooperatives, which can provide a wide range of services to farmers, including marketing. However, most of these are dominated by local businessmen and officials rather than representing farmers' interests (Liu, 2010). In addition, attempts to establish nested markets have been small-scale (Ye & He, 2019).

Against this background, the development of e-commerce, allowing farmers to become e-tailers, has received much attention. E-commerce is a child of the digital age when extraction and analysis of big data are key to the functioning of capitalism (Zuboff, 2019). Lack of Internet access and suitable hardware and inability to use Internet technology and implement successful Internet marketing strategies are identified as key barriers to producers embracing e-commerce (Henderson et al., 2004). Some scholars argue that e-commerce can reduce producer e-tailers' transaction costs and thereby increase their income by allowing them to internalize activities traditionally performed by intermediaries (Peterson et al., 1997). However, others argue that e-commerce does not necessarily reduce their transaction costs, as online marketing requires the presence of intermediaries (Chintagunta et al., 2012).

Since the 2000s, selling through platforms such as eBay has become a global trend. Platform intermediation materializes through the configuration of three operational layers: a network or community layer where platform participants interact; an infrastructure layer of software tools, rules and services; and a data layer matching supply with demand (Choudary, 2015). One strand of literature identifies the benefits of platform intermediation for producer e-tailers, such as improving access to customers, more efficiently matching demand with supply, lowering costs by ensuring smoother transactions and offering flexible and inclusive job opportunities for women, rural residents and the disabled (Sundararajan, 2016; Vallas & Schor, 2020). However, another strand argues that platforms have a panoptic view of users' activities. Through collection and analysis of aggregated real-time user data, platforms exploit online producers by charging commissions and selling targeted advertisements. Platform jobs are precarious, and platforms' exploitative tendency is often aggravated by their quasi-monopolistic status resulting from the network effect, whereby the value of a product or service increases when more people use it (Cutolo & Kenney, 2021; Langley & Leyshon, 2017; Zuboff, 2019).

The literature on agricultural e-commerce overseas is quite limited. As previously mentioned, platform-mediated agricultural e-commerce tends to be interpreted as a form of direct marketing that benefits farmers (Ball & Duval, 2001; Joiner & Okeleke, 2019). In China, most relevant studies relate to rural e-commerce, which includes both agricultural and non-agricultural e-commerce in the countryside. Rural e-commerce in China is mediated mainly by shopping platforms. Extant literature reveals both opportunities and challenges arising from rural e-commerce, and opinions are divided on whether it boosts farmers' income. Based on household survey data, Li et al. (2021) find that Taobao and other shopping platforms significantly increase farmers' income by reducing transaction costs and boosting sales. Wei et al. (2020) draw the same conclusion from their survey and interview data. In particular,

drawing on interview data, Yu and Cui (2019) find that e-commerce through Taobao increases female e-tailers' economic status, but not necessarily their political status in family and village life. In contrast, based on a randomized control trial and survey and administrative microdata, Couture et al. (2021 [2018]) find that e-commerce brings limited income gains to rural producers, but significantly reduces some rural users' cost of living by lowering logistical barriers and increasing product variety in local stores.

Despite this controversy, scholars concur that rural e-commerce creates local jobs (Wang et al., 2021; Wei et al., 2020). In 2018, it was estimated to have created 28 million jobs (China Academy of Information and Communications Technology, 2019). According to the Food and Agriculture Organization and Zhejiang University (2021), e-commerce not only allows farmers to set up e-businesses and widen their market access but also informs their production decisions by providing real-time market information.

While the majority of studies in this field emphasize the economic opportunities offered by e-commerce, a small body of literature focuses on the challenges faced by rural e-tailers, including intensified competition between themselves owing to high product homogenization and falling profit margins owing to the rising costs of Internet traffic, labour and raw materials (Liu et al., 2021; Nie & Wang, 2021; Shao, 2017, 2020).

The existing literature unveils various paths to the subsumption of agricultural producers by capital, including commercial capital, and the relationship between producer e-tailers and platforms, an embodiment of giant commercial capital at present. However, related literature on agricultural e-commerce appears limited, tending to highlight the opportunities offered and downplay the challenges. In light of this, we examine the experiences of small farmer e-tailers within the framework of China's ongoing agrarian change. Our study advances the existing literature by showing how platforms control, exploit and exclude small farmer e-tailers.

3 | CASE BACKGROUND AND RESEARCH METHODS

Although a study of a single county cannot be statistically representative of the whole of China, Kangyang is a theoretically significant case through which to examine the experiences of small farmer e-tailers. Its economy is dominated by agriculture and related services. In the 1980s and 1990s, farmers in Kangyang grew early- and mid-season mandarins, which were the dominant mandarin varieties planted in China at that time. In the early 2000s, in response to plummeting prices of these varieties, the local government promoted the cultivation of late-season mandarins (mainly Papagan and Dekopon) and kiwifruit.

In 2019, Kangyang's population was 267,500, including 178,200 registered as rural residents living in 62 villages. Its arable land area was approximately 450,000 *mu* (30,150 ha), including 250,000 *mu* (16,750 ha) of mandarins and 100,000 *mu* (6700 ha) of kiwifruit. Most mandarin and kiwifruit producers were small farmers. On average, each rural household had 6 to 7 *mu* (0.402–0.469 ha) of arable land. Prior to the development of e-commerce, most young people in Kangyang migrated to work elsewhere. Nearly two-thirds of its villages had cooperatives in 2021, but most of these did little to coordinate the production and sale of their members' products.

After shifting to late-season mandarins, Kangyangers spent years improving the fruit's quality, developing storage and transport facilities and promoting the fruit to consumers. The price of late-season mandarins increased significantly after 2014 as the rise in supply failed to satisfy a bigger rise in demand. At its peak in 2017, the farm-gate price of mandarins was 16 yuan per kilogramme, while the average cost was less than 3 yuan per kilogramme, inclusive of labour costs. The profitability of mandarin growing encouraged emigrant Kangyangers to return. Kangyang farmers had traditionally sold most of their products to wholesalers offline through fruit brokers. However, equipped with business acumen and technological know-how from their migration experiences, the returnees, mostly young people in their 20s and 30s, were well-positioned to engage in e-commerce. Furthermore, the local government offered a wide range of training courses and subsidies to foster e-commerce development. In 2016, the central government selected Kangyang as a demonstration county for rural e-commerce in China and provided it with 20 million yuan for investment.

Between 2016 and 2020, online revenues from agricultural products in Kangyang rose from 440 to 1840 million yuan. Fruit e-commerce was most prosperous between 2016 and 2018, when many small farmers became e-tailers. However, thereafter many small farmer e-tailers withdrew, as competition among fruit e-tailers intensified and major shopping platforms acquired quasi-monopolistic market status and increasingly exploited the e-tailers. In 2021, roughly 20% of mandarins and 40% of kiwifruit produced by Kangyang were sold online.

E-tailers in Kangyang varied in scale. In 2020, five of the county's e-tailers had annual revenues of over 100 million yuan, and another 30 made 10 to 100 million yuan. They were supply chain companies that diversified into e-commerce, companies founded with external capital and local businessmen who got into e-commerce in the early 2010s and managed to take off. Owners of cold storage warehouses also joined in, often making 5 to 10 million yuan in annual revenues. Farmers tended to be even smaller in scale, depending on the point at which they entered the business and the extent to which they formed partnerships with friends and relatives.

Our fieldwork data were collected in Kangyang in July 2021. The research team conducted semi-structured interviews with 59 people, reached through introductions by local officials, cold visits after finding their contact information online or simply by stopping and asking them. Most interviews lasted for 1 or 2 h. Twenty-four of the 59 interviewees were fruit e-tailers, including 17 small farmer and seven corporate e-tailers. We asked them questions about their operations of e-stores on platforms. Small farmer e-tailers relied mainly on family labour and their own orchards. They engaged in e-tailing for only a few months per year and spent the rest of the time farming or doing temporary work, such as working for corporate e-tailers or on-call driving. Their parents were generally small farmers, and their families had the right to use small allotments of farmland, entitled mainly by their membership of local villages. They more or less engaged in agricultural production, while their parents took the main responsibility for farmwork. In contrast, corporate e-tailers relied mainly on regular hired labour and fruit suppliers, and engaged in e-tailing throughout the year. Thirteen informants were government officials who worked on developing local agriculture, e-commerce and fast mail logistics. We also interviewed eight small farmers, five fast mail workers, three people in agricultural input businesses, three fruit vendors, two fruit brokers and one agricultural technician. We supplemented our fieldwork data with news reports and statistical material.

4 | PRODUCERS' PARTICIPATION IN AGRICULTURAL E-COMMERCE IN CHINA: FROM INCLUSION TO EXCLUSION

Several business models for agricultural e-commerce have developed in China. Of these, the model of platforms as marketplaces that now predominates allows agricultural producers, including small farmers, to become e-tailers. However, models involving platforms as retailers are gaining momentum, and these exclude agricultural producers from becoming e-tailers.

Agricultural e-commerce began in China in 1998 when the State Council promoted the use of computer and Internet technology in its reform of grain and cotton distribution systems. In the ensuing decade, agricultural e-commerce only affected the lives of mid- to high-income urban households through the launch of shopping websites featuring high-priced green and organic food. It took off in China in 2013, when technological tycoons and venture capitalists entered the arena. In October 2020, China had approximately 16,800 fresh food e-commerce companies, over 80% of which had been established since 2016 (Zhuang, 2021).

Table 1 lists the five major business models for agricultural e-commerce in present-day China according to the role of platforms. In the model of platforms as bulletin boards (Model 1), producers post advertisements on platforms to attract consumers and are responsible for all transaction stages. They do not need technological know-how, nor do they pay fees to platforms. This works well within the producers' circles of acquaintance, but it is difficult to build trust outside those circles. In the simplest form of the model of platforms as marketplaces (Model 2), producers set up stores on shopping platforms to reach more customers. They need to know how to manage e-stores and pay fees to platforms for some services.

TABLE 1 Major business models for agricultural e-commerce in China.

Model name	Business model	Major platforms and their year of establishment	Simplest form of functional division between producers and platforms
1. Platforms as bulletin boards	Producer → Platform as bulletin board → Consumer	Weibo (2009), WeChat (2011)	Platforms are used for advertising. Producers are responsible for all transaction stages.
2. Platforms as marketplaces	Producer → (Marketing intermediary) → Platform as marketplace → Consumer	Taobao (2003), JD (2004), Tmall (2008), Pinduoduo (2015), TikTok (2016)	Platforms provide solutions for trust building, matching, payments and regulation. Producers are responsible for production, quality control, warehousing and logistics.
3. Platforms as retailers with a virtual presence	Producer → (Marketing intermediary) → Platform as retailer → Consumer	JD (2004), Tmall (2008)	Platforms are responsible for all transaction stages.
4. Platforms as retailers with a physical presence	Producer → (Marketing intermediary) → Platform as retailer → Physical store/warehouse controlled by platform → Consumer	Hema Fresh Supermarket (2015), Dingdong Maicai (2017), 7fresh (2018), Meituan Maicai (2019), Duoduo Maicai (2020), Taocaicai (2021)	Producers are responsible for production.
5. Platforms as producers and retailers	Platform as producer → Platform as retailer → Consumer	Tony's Farm (2005), Tootoo Gongshe (2008)	Platforms are responsible for production and all transaction stages.

Source: Fieldwork interviews and miscellaneous news reports.

[Correction added on 24 October 2023, after first online publication: the last column for Models 3 and 4 has been corrected.]

In the models of platforms as retailers with either a virtual (Model 3) or physical presence (Model 4), producers are responsible only for production, while the platforms are responsible for all transaction stages. Platforms adopting Model 3 set up online supermarkets to compete with online sellers, capitalizing on the traffic that they have attracted and business data collected from both sellers and shoppers. In Model 4, platforms compete with physical stores by offering a wider variety of products through the Internet with a much smaller physical presence. Their customers place orders on the platforms and may choose either delivery or collection. Deliveries are usually made within a day in Model 4, but may take longer in the other models. In the model of platforms as producers and retailers (Model 5), platforms lease land and engage in farming.

Model 2 is the most popular. According to a high-level meeting endorsed by two of China's ministries, in 2020, revenues from agricultural products totalled 303.7 billion yuan on Alibaba platforms, 250 billion on Pinduoduo and 120 billion on JD, amounting to 673.7 billion yuan through these three channels (Fu, 2021). Thus, the 610.7 billion yuan of national online retail revenues from agricultural products in 2020 reported by the China Agricultural University and iiMedia (2021) seems to be an underestimate.

The three giant platforms probably generated the vast majority of online agricultural revenues in China in 2020. They employed both Models 2 and 3, but the majority of revenues were probably derived from Model 2 for several reasons. First, Alibaba did not have its own e-store until 2012 when it set up the Tmall Supermarket, and Tmall did not purchase its merchandise from suppliers until January 2019. Prior to that, its suppliers were responsible for marketing their own products on Tmall, while it handled their warehousing and logistics (Latepost, 2020). Revenues from 1688, a business-to-business platform, account for a tiny minority of Alibaba's platform revenues. Revenues from

Pinduoduo's own e-store are negligible, and JD has much smaller agricultural revenues than Alibaba and Pinduoduo, although it owns the stores on its platforms.

The dominance of Model 2 suggests that agricultural e-commerce in China may include many small farmers. On Taobao and Tmall, the number of sellers making over 50% of their revenues from agricultural products rose from 260,600 in 2012 to 880,000 in 2015, while the number of sellers living in townships and villages rose from 480,000 in 2013 to 661,100 in 2014 (AliResearch, 2014, 2015, 2016). Some agricultural produce sellers on Taobao and Tmall were presumably farmers. Alibaba stopped releasing relevant data thereafter. However, its platform revenues from agricultural products rose from 13.4 billion yuan in 2012 to 303.7 billion yuan in 2020 (AliResearch, 2014, 2015; Fu, 2021). The number of farmers selling agricultural products on Alibaba platforms is likely to have increased concomitantly.

However, the increasing adoption of Models 3 and 4 in agricultural e-commerce in China indicates a trend to exclude agricultural producers from e-tailing. Between 2013 and 2018, revenues from Alibaba's Tmall Supermarket grew 53 times larger. Tmall, which features daily necessities such as fresh food, beverages, snacks and other groceries, is positioned to compete with third-party fresh food sellers such as farmer e-tailers (Latepost, 2020). This competition will inevitably be unfair, as Tmall Supermarket enjoys high customer trust and Internet visibility through its platform. JD started e-commerce with its own stores and has now allowed third parties to operate on its platforms, but remains a much smaller player in agricultural e-commerce.

Model 4 is in the early stages of development but has also gained momentum, fuelled by investment from technological companies and venture capital funds. Companies are experimenting with various solutions using this model and are competing for market share. Some have gone bankrupt. Between 2010 and April 2021, 287 investments were disclosed in fresh food e-commerce in China. These involved 154 projects and 46.3 billion yuan, of which 22.4 billion yuan was invested in three projects that adopted Model 4. Many smaller players using Model 4 also received investments. By April 2021, 14 of the 154 projects had gone bankrupt (Qichacha, 2021). Missfresh received 14.3 billion yuan from investors, including tech giants such as Tencent and leading investment firms such as Goldman Sachs, Tiger Global and Sofina, but went bankrupt in July 2022 (Chen, 2021a; Wangzai, 2022).

Revenues from agricultural e-commerce firms that adopted Model 4 have been quite limited but have experienced impressive revenue growth. For instance, the business leader Dingdong Maicai had annual revenues of only 13 billion yuan in 2020, a fraction of those made by Alibaba. However, these had grown 19 times larger within three years (Chen, 2021b). Revenues made by Meituan Maicai, another major player using Model 4, grew 50 times larger between 2019 and 2022 (Liu, 2023). Over time, Model 4 may gain a larger presence in China's agricultural e-commerce, which will threaten the inclusion of farmers as e-tailers.

5 | BENEFITS OF AGRICULTURAL E-COMMERCE FOR FARMERS IN KANGYANG AND THEIR LIMITS

In this section, we examine the case of Kangyang, where Model 2 dominated agricultural e-commerce at the time of our study. A local official estimated that in 2020, Kangyangers had about 5500 stores on e-commerce platforms, most of which sold fruit. Model 1 was also popular. Many sold their fruit through WeChat (the Chinese equivalent of WhatsApp), particularly between 2015 and 2017. However, as competition among WeChat sellers intensified, they found it hard to secure orders and some withdrew. Model 1 targets acquaintances. Therefore, fruit sold through Model 1 tended to be of superior quality to sales through Model 2. Some Model 1 e-tailers took account of saving on platform charges in Model 1 and sold similar-quality fruit at lower prices through Model 1 than Model 2 channels. Some who adopted both models offered coupons to encourage acquaintances to place orders through Model 2 channels in order to boost sales and increase their free Internet traffic. Models 3 and 4 also emerged in Kangyang. In 2020, Alibaba built a warehouse there to supply fruit for its own stores. In 2021, JD did the same, and Meituan was said to be planning to do so. The implications of these warehouses for local e-commerce remain to be seen.

The development of agricultural e-commerce in Kangyang has brought significant benefits to farmers, particularly with regard to marketing. First, it provides farmers with a new market channel. Traditionally, months before harvest time, farmers in Kangyang would be approached by fruit brokers who would sign purchasing contracts with them on behalf of wholesalers. With the development of e-commerce, farmers are able to sell to wholesalers, sell online themselves or sell to other e-tailers, reducing the risk of poor sales. As a marketing channel with minimal human-to-human contact, e-commerce was indispensable during the COVID pandemic. In fact, according to a local official, in 2020, when the pandemic hit the country and prevented outside buyers from reaching Kangyang for weeks, 60% of mandarins was sold via the Internet.

The second benefit is that e-commerce allows local fruit to reach more customers. In Kangyang, e-commerce was used much more to market medium- and low-grade than high-grade fruit. In areas where Kangyang fruit was available offline, e-commerce competed with offline channels, particularly those selling medium- and low-grade fruit. However, e-commerce made Kangyang fruit more widely available, thereby expanding the customer base. For example, Kangyang fruit of inferior quality used to be sold mainly to less developed mountainous areas surrounding Kangyang, but is now sold to price-sensitive consumers across the country.

The third benefit is that e-commerce increases the efficiency of local fruit distribution, which lowers the retail price and is thus likely to boost demand. In 2021, it took 3 days for fast mail companies to deliver parcels from e-tailers in Kangyang to consumers in Beijing. In comparison, it took 4 days to transport Kangyang fruit to wholesale markets in Beijing and another 2 to 7 days to sell to retail stores. Lengthy offline supply chains drive up consumer prices. According to a local fruit broker, between 2018 and 2020, the difference between the price farmers received and the price consumers paid for local fruit was usually at least 12 yuan per kilogramme in supermarkets (10 yuan added by supermarkets and the rest by wholesalers) and 6 to 8 yuan per kilogramme in e-stores.

The fourth benefit is that selling online allows farmers to retain a greater proportion of the value of their produce, which would otherwise be taken by middlemen. According to a local official, e-tailers in Kangyang achieved profit margins of nearly 30% in 2016, and although these subsequently dropped, they remained positive. According to a small farmer e-tailer, in 2016, the farm-gate price of Hongyang kiwifruit was about 14 yuan per kilogramme (for mixed grades), and he sold low-, medium- and high-grade kiwifruit online at about 18, 20 and 24 yuan per kilogramme, respectively. The cost of packing and logistics (except to Tibet, Xinjiang and three provinces in North-east China) was 2.8 yuan per kilogramme, and the cost of Internet traffic was negligible. Another small farmer e-tailer estimated that in 2019, he earned 2 to 4 yuan more for every kilogramme of mandarins that he sold online rather than to wholesalers.

The fifth benefit is that e-commerce reduces reliance on outside wholesalers, enabling locals to gain more control over marketing channels for their produce. In addition, the development of e-commerce in Kangyang has created many off-farm jobs, reducing population outflows. According to a local official, in 2020, around 30,000 people (11% of the local population) worked in the e-commerce value chain. This relates to the large volume of fruit circulated in Kangyang, enabled by its rich reserve of e-commerce skilled workers and efficient and low-cost e-commerce infrastructure. In 2019, at least 300,000 tons of fruit were transported through Kangyang, including 80,000 tons produced elsewhere.

However, e-commerce, as a marketing channel, cannot rectify the deteriorating market exchange terms faced by farmers. In the past few years in China, supplies of late-season mandarins have increased, while demand has been sluggish, so prices have plummeted. In response to increasing prices, between 2016 and 2020, the area of land under cultivation for late-season mandarins in Sichuan province, a major producer of this fruit, rose from 1.6 to 2.3 million *mu* (from 106,666.7 to 153,333.3 ha) (Wang, 2021). This enlarged growing area quickly translated into higher yields. However, on the demand side, the slowdown of the Chinese economy suppressed fruit consumption. As a result, the farm-gate price of Papagan mandarins per kilogramme in Kangyang dropped from 14–16 yuan in 2017 to 10–12 yuan in 2018, 6–7 yuan in 2019 and 5–6 yuan in 2020. In 2021, prolonged frost harmed the quality of Papagans, reducing the price to 3–5 yuan. Kiwifruit prices have experienced similar drops in recent years.

In contrast, prices of inputs increased. In the case of Papagans, according to an agricultural input businessman, between 2016 and 2021, the cost of pesticides per *mu* rose from 400–500 to 800–1000 yuan because the main pathogen became bacteria rather than fungi; the cost of chemical fertilizers per *mu* rose from 1000–1200 to 1500–1800 yuan because the price of chemical fertilizers rose; and after years of mono-cropping, in 2021, growers had to spend another 300–500 yuan per *mu* on improving soil quality using organic fertilizers. In 2021, the cost per kilogramme of Papagans was 2.4–2.8 yuan, including labour costs, roughly 50% of which was for fertilizers and pesticides, 15% for fruit bags and 35% for labour. If the prices of outputs and inputs were to continue to move in opposite directions, farmers would be unable to break even. The poor market conditions for these two fruits also drove down the profits and income of other entities in the value chain, including agricultural input businesses, refrigerated warehouse operators, sorting and packaging workers and fruit e-tailers.

Moreover, e-commerce, as a marketing channel, inevitably gives rise to competition among e-tailers, resulting in price wars that lower their profit margins. The number of newly registered active sellers on Taobao in the 2021 financial year was higher than in the preceding five financial years (Xu, 2021). The number of active sellers on Pinduoduo rose from 3.6 to 8.6 million between 2018 and 2020 (Pinduoduo, 2019, 2021). In Kangyang, the number of e-stores increased from roughly 4700 to 5500 between 2019 and 2020. In addition, third-party stores face competition from platforms' own stores. In a context in which online shoppers' price sensitivity is strengthened by the economic slowdown in China, competition among e-tailers naturally translates into price wars. In Kangyang, the value per online sale of kiwifruit was commonly 50 to 60 yuan before 2017 but dropped to 19.9 yuan in 2021, resulting in a decrease in profits per sale from over 10 to just 1 or 2 yuan. A common response to price competition from e-tailers was to sell inferior-quality fruit online, but this harmed the reputation of Kangyang fruit.

6 | THE MYTH OF DIRECT SELLING: CYBERMEDIARIES, CONTROL AND EXPLOITATION

Unlike the prevailing view on direct selling in e-commerce, e-tailers reach consumers through cybermediaries, the most important of which are platforms. The indispensable intermediary role of platforms in online marketing, the quasi-monopolistic market status of major platforms and increasing competition among e-tailers give major platforms considerable power vis-à-vis e-tailers, resulting in platforms' growing control and exploitation of e-tailers. Such control is costlier for agricultural than other e-tailers owing to certain features of agricultural products, and exploitation squeezes e-tailers' income. Control and exploitation in agricultural e-commerce are facilitated by platforms' access to users' data.

In offline channels, farmers in Kangyang are connected with consumers through local fruit brokers and outside wholesalers and retailers. There are many fruit brokers in Kangyang, and a single fruit-producing village may have a dozen brokers. Each serves several wholesalers. Thus, both farmers and brokers have ample choice of whom to deal with. Brokers sign contracts with and pay deposits to farmers and in the harvest season arrange fruit picking, sorting, transportation to cold storage warehouses in Kangyang, re-sorting, packaging and transportation to ultimate destinations. In 2021, their per-kilogramme commission was 0.1 yuan for mandarins and 0.2 yuan for kiwifruit. Wholesalers and retailers add their commission to the prices paid by consumers, which are highly volatile and tend to drop in a buyer's market.

In the popular Model 2 of e-commerce, to reach online shoppers and conduct safe and sustainable transactions with them, e-tailers must operate stores on e-commerce platforms, which function as intermediaries in online marketing. Launched in 2003, Taobao was the clear leader in e-commerce platforms in China for over a decade. Pinduoduo was launched in 2015, and on 12 and 13 February 2021, its number of daily active users reached 259 million, overtaking Taobao's 237 million (Nan, 2021). TikTok was launched in 2016 and has since grown rapidly. As previously mentioned, in 2020, Alibaba, Pinduoduo and JD were quasi-monopolies in agricultural e-commerce in China.

The power asymmetry between farmers and intermediaries is more acute in e-commerce than in offline marketing. Farmers have a wide range of potential fruit brokers to deal with and can negotiate over contractual terms. However, given the concentration of platforms, farmer e-tailers have very limited choice of which platform to operate on and must accept the terms of participation decided unilaterally by platforms, allowing the latter to control their e-marketing activities. Platforms exercise control by governing the Internet traffic they allow to individual e-tailers, which determines the visibility of products, and thus sales.

Platforms exercise rudimentary control over e-tailers by linking the amount of free traffic provided to e-tailers' compliance with platforms' terms. These terms are often biased towards consumers and increase the costs of agricultural e-tailers more than others. Such control is often wielded by customers: Their review data are collected by platforms, thereby both facilitating and concealing the platforms' control. For example, on Taobao, e-tailers have to work hard to improve their store scores, which severely affect the amount of free traffic from the platform. These scores are given by consumers after each transaction, based on correspondence between product description and reality, the quality of pre- and post-sales service, the timeliness of shipping and the shipping companies' service.

It costs agricultural e-tailers more than other e-tailers to improve their store scores, partly because of the non-standard nature of agricultural products. The quality of fresh food received by online shoppers depends on many factors, and even food of the same quality may be rated differently by different consumers. Therefore, post-sale customer services are a headache for e-tailers in Kangyang. If they fail to appease unsatisfied consumers, their free traffic is reduced by platforms. However, many of our informants reported that Pinduoduo approved almost all complaints filed by consumers against e-tailers, regardless of whether they were reasonable. Consumer complaints may result in loss of part or all of the sales revenue, because faulty fresh food will not be returned owing to its perishability. Another reason for higher costs is dramatic fluctuations in the prices of agricultural products. Particularly for e-tailers relying on suppliers for fruit, to ensure timely delivery of orders, they must put down deposits with suppliers to fix specific amounts of fruit at specific prices, which is risky when prices are dropping.

Platforms exercise advanced control over e-tailers by forcing them to pay for traffic. In fact, as platforms grow bigger, intense competition between e-tailers alters the power relations between cybermediaries such as platforms and e-tailers to the former's advantage, allowing cybermediaries to extract revenues in the form of traffic charges, in addition to any commission fees (2% of revenues on Tmall and zero on Taobao and Pinduoduo). E-tailers can boost their Internet visibility through platforms' own and third-party marketing tools, such as click farms and social media influencers. Platform marketing tools and click farms are commonly used by both small farmer and corporate e-tailers, while social media influencers are used mainly by corporate e-tailers. General platform algorithms dictate that the art of online marketing lies in using paid traffic to leverage free traffic by boosting sales: The more one sells, the more free traffic received from platforms.

Shopping platforms offer a wide range of marketing tools, which are most commonly used by e-tailers. The most relevant for fruit e-tailers in Kangyang are targeted keyword search advertisements and promotional activities. The former may immediately boost advertised products' online visibility. They are enabled by platforms' collection and analysis of customer data, for example, on the gender, age, region and shopping habits of people most likely to consume kiwifruit. To place such advertisements, e-tailers bid on keywords such as 'kiwifruit' and choose target consumers. Different consumers are shown different advertisements when they browse platforms' webpages. Platforms rank advertisements with similar keywords according to the amount bid and charge e-tailers according to the number of clicks by consumers.

Promotional activities may effectively boost sales. E-stores must fulfil specific requirements to be eligible for such activities, and promotional activities with low entry barriers often require stores to sell at a loss. However, participating in such activities prepares stores for admission to profit-making promotional activities. Therefore, ironically, e-stores queue to take part in promotional activities on which they will lose money. For example, both Taobao and Pinduoduo run 'flash sales' in which buyers can purchase items at substantial discounts within a short defined period. One informant reported that when she launched mandarins on Taobao in early 2021, she sold fruit costing 5 yuan at 1 yuan and achieved sales of 3000 within 5 min. This strategy increased the number of clicks on

her products and their conversion rate into transactions, giving her a better chance of participating in lucrative promotional activities later. In fact, strategic loss-making marketing is common in fruit e-commerce. A successful corporate e-tailer said that in 2020, when he launched kiwifruit online, in the first and second weeks, he made losses of 18% and 8%, respectively, owing to aggressive spending on paid traffic, but as paid traffic translated into transaction volumes large enough to make him a top seller of kiwifruit on the platform, free traffic and thus profits resulted.

Third parties also offer a variety of marketing tools. The most relevant in Kangyang are click farms and livestreaming by social media influencers. Click farming can inflate transaction volumes and create false ratings and reviews. It is used when e-tailers launch new products, when sales volumes of existing products stall and when products' ratings or reviews deteriorate. Click farming is common in e-commerce in China, and platforms crack down on it at best half-heartedly. The costs of click farming include payments to click farms, to fake buyers and for goods and logistics. Depending on the resemblance between real and click-farming transactions, in 2021, such costs varied between 5 and 25 yuan per transaction for fruit in Kangyang. Click-farming hundreds of orders to launch a new product was common in Kangyang, even among small farmer e-tailers.

Social media influencers capitalize on their popularity to sell goods and services. While some e-tailers are influencers themselves, this is rarely the case in Kangyang, where e-tailers hire influencers. Hiring influencers to sell fruit through livestreaming on platforms is expensive. In Kangyang in 2021, e-tailers had to pay influencers 20% of revenues and sometimes a fee for showing up and also had to reimburse the travelling and accommodation costs of outside influencers who came to livestream in local orchards.

E-tailers in Kangyang formerly thrived on free traffic, but almost all e-tailers we interviewed complained that in recent years, free traffic had dropped on all the major shopping platforms, forcing them to pay for traffic. A small farmer e-tailer shared his experience:

I set up one store on Taobao in 2016 ... There was little competition ... I asked friends to write positive reviews for my products and relied on free traffic. I had at least 100 orders every day in the kiwifruit season ... At that time, the better the quality of the product, the higher ranking it would have ... In 2018, it was standard practice to launch a new product by using click farming to boost sales ... I also spent money on keyword search ads every day. The more one spends on such ads, the higher ranking one will have. At first, I spent 30 yuan per day, then 50–60 yuan, and then 100 yuan ... I could not stop paying for such ads, because sales would drop if I stopped.

Worse, paid traffic has become increasingly expensive. An informant reported that in 2011, when he started to sell garments online in Hangzhou, he spent at most 200 yuan per day on keyword search advertisements. He then returned to Kangyang and began to sell fruit online. To make comparable profits in 2021, he spent 5000 to 8000 yuan per day on such advertisements. Another informant reported that on Tmall, bidding for the same keyword cost less than 1 yuan per click in 2017 but 2 to 4 yuan in 2021.

Spending on paid traffic significantly squeezes e-tailers' income. According to a local official, the profit margins of Kangyang fruit e-tailers commonly dropped from nearly 30% in 2016 to 5–10% in 2020. A major reason for this decrease was spending on Internet traffic. For small farmer e-tailers remaining on Alibaba platforms, the proportion of revenues spent on Internet traffic payments increased from negligible levels in 2016 to around 20% in 2020, depressing their income. For example, in 2016, a small farmer e-tailer sold kiwifruit on Taobao for 2 months full-time and earned an income of 20,000–30,000 yuan (e-tailing revenues minus revenues when sold at the farm gate and e-tailing costs, excluding e-tailing labour costs) with little spending on traffic. In 2020, he sold mandarins and kiwifruit through Tmall for 5 months full-time; he spent 60,000–70,000 yuan on paid traffic to achieve revenues of 300,000 yuan, leaving him with an income of 30,000–40,000 yuan. In both years, he achieved this income with full-time help from his wife and occasional help from his parents. Excluding his parents' labour input, the average monthly income for his wife and himself was 5000–6000 yuan in 2016 and 3000–4000 yuan in 2020. As payments

to cybermediaries for Internet traffic generally exceeded e-tailing income, e-tailers in Kangyang commonly felt that 'It is the platform that makes the most money' or 'The platform makes money; we do not'.

7 | COMPARATIVE DISADVANTAGES OF SMALL FARMER E-TAILERS

Compared with corporate e-tailers, small farmer e-tailers are disadvantaged in several respects. First, they cannot compete on skills with corporate e-tailers. The skills needed to operate an e-store can be roughly divided into two types: offline skills, including product acquisition, quality control, sorting, cold storage, packaging and logistics, are low-skill and easily accessible, whereas online skills, including computer use, webpage design, image and video shooting and editing, online marketing and customer services, have become increasingly complicated. In the early years of e-commerce, e-tailers could achieve good sales with basic skills. Escalating competition between e-stores and the sophistication of platform algorithms have increased the skills required to run e-stores, forcing e-tailers to either exit or invest in skills. A small farmer e-tailer reported his difficulty when Taobao changed its methods of promotion:

All users used to be shown the same products. Then Taobao collected user data, and customized the products shown on each user's page ... This forced sellers to spend money promoting their products to target consumers ... I had to choose consumers to show my ads to according to their tags provided by the platform, for example, age, gender, and level of spending ... I had no idea how to cope that year.

In Kangyang, advanced webpage design was generally outsourced to professionals, but this was costly. A corporate e-tailer reported that he had spent 100,000 yuan (approximately three times Kangyang farmers' average annual disposable income) on the design of an e-store webpage in 2017 and another 28,000 yuan on the design of a WeChat mini programme for marketing in 2018. However, small farmer e-tailers mainly use the free store webpage design provided by platforms. With regard to skills in image and video shooting and editing and online marketing, corporate e-tailers in Kangyang hired professionals on monthly wages of at least 10,000 yuan and paid for their commercial training, while small farmer e-tailers managed their stores themselves and acquired these skills mainly through learning by doing and free training offered by the government. Commercial e-commerce training offered by private providers is generally more practical than free training. Corporate e-tailer informants reported that they paid for individual training sessions commonly costing at least 100,000 yuan. One reported that her teacher had spent 450,000 yuan on a 3-day training course provided by Alibaba. However, small farmer e-tailers seldom attended commercial training, and few reported spending 10,000 yuan on individual commercial training sessions.

A second disadvantage is that small farmer e-tailers cannot compete with corporate e-tailers in capital. Corporate e-tailers' relative abundance of capital allows them to employ different professionals for different e-commerce operations, whereas small farmer e-tailers generally multi-task. As previously mentioned, e-tailers must increasingly pay for traffic. In Kangyang, corporate e-tailers often spent tens of thousands of yuan per day on Internet traffic, whereas small farmer e-tailers generally spent hundreds of yuan at most. Lack of capital constrains small farmer e-tailers' ability to invest in skills, while ever-changing platform algorithms call for constant investment in these skills.

Lack of capital also prevents small farmer e-tailers from expanding their businesses. The expansion of e-commerce increases e-tailers' reliance on fruit suppliers. In Kangyang, respondents reported that the time gap between paying suppliers and receiving money from platforms after sales was typically 15 to 30 days, challenging e-tailers' working capital. Generally, e-tailers with weekly revenues of 100,000 yuan would need working capital of 300,000 yuan. The prevailing e-marketing strategy resulting from price competition, featuring high volume with low margins, taxes sellers' working capital and is particularly unfavourable for small farmer e-tailers.

The third disadvantage of small farmer e-tailers is that they face discrimination by platforms. For example, on Alibaba platforms, traffic has been increasingly diverted from Taobao to Tmall. Admission to Tmall entails fulfilling

requirements pertaining to one's legal status, the amount of registered capital and registration of trademarks, among others. One must also achieve a certain revenue level to avoid service charges. As a result, small farmers in Kangyang operated mainly on Taobao and were thus discriminated against in traffic allocations on Alibaba platforms. On Pinduoduo, a corporate e-tailer estimated that 80% of the largest kiwifruit seller's traffic was free of charge, while only 50% of the second-largest seller's traffic was free: The lower the ranking, the lower the percentage of free traffic available. However, becoming a top seller requires making significant initial losses, which farmer e-tailers can rarely afford.

The fourth disadvantage of small farmer e-tailers is discrimination by the local government. Government support is often linked to revenues. Between 2016 and 2019, businesses with larger online revenues were able to claim larger cash handouts from the Kangyang government. Large e-tailers were also more likely to receive government subsidies. For example, the local government in Kangyang offered subsidies for building refrigerated warehouses, but these were too costly for small farmers, so large e-tailers tended to be the ones subsidized.

The fifth disadvantage is the limited size of small farmers' e-commerce operations, which is disadvantageous in bargaining with suppliers. Small e-tailers have to pay higher prices than large e-tailers for the same service. For example, a fast mail worker reported that in his company in 2021, the cost of shipping a 3-kg fruit parcel from Kangyang to Beijing was 5.6 yuan for those sending fewer than 200 parcels per day, 4 yuan for those sending 200 to 500 parcels and 3.5 yuan for those sending over 500 parcels. Small farmers also found it more difficult to secure good payment terms from suppliers. Moreover, large e-tailers in Kangyang were able to raise working capital from banks, suppliers and even institutional investors, whereas farmers relied on their relatives and friends for emergency money.

8 | COPING STRATEGIES OF SMALL FARMER E-TAILERS

In response to their predicament, some small farmer e-tailers have chosen to exit. They have either stepped back to become suppliers of large e-tailers or simply quit e-commerce altogether. We visited a village with about 900 rural households where over half of its fruit had been sold online by its own e-tailers, mostly small farmers, between 2016 and 2018. However, in 2021, most of its fruit was sold either offline or online by large e-tailers outside the village. In 2016 and 2017, about 70 households had operated e-stores on platforms, but in 2021, only about a dozen did so.

Those remaining in business had exploited the merits of small farmers and developed several coping strategies. However, these had limitations and could not reverse the trend to exclude small farmers from e-tailing. Compared with corporate e-tailers, small farmer e-tailers have some merits. First, they are more flexible. In Kangyang, they had ad hoc relationships with suppliers, which enabled them to enter and exit particular business opportunities relatively easily. In contrast, large e-tailers fix their purchase amounts months before harvest time with down payments to suppliers.

Similarly, farmer e-tailers put down lower deposits with platforms and invested less in their e-stores, which allowed them to switch platforms with relatively little cost. In light of this, their most common coping strategy was to take advantage of competition among shopping platforms and migrate between them. Newly launched platforms tend to be friendly to farmer e-tailers before growing big enough to bully them. In Kangyang, most e-tailers had started their e-commerce on Taobao between 2016 and 2018, switched to Pinduoduo in large numbers in 2019 and 2020 and began to switch to TikTok in 2021. Swift migration across platforms allows farmers to exploit windows of opportunity offered by new platforms but tests their learning capability. Another way to take advantage of their flexibility is to retreat from over-crowded markets and embrace less crowded ones. For example, a small farmer e-tailer had stopped selling fruit online and shifted to selling dry flowers, a product with much fewer competitors. However, as a farmer's son, he still faced the problem of selling family-produced fruit.

Farmer e-tailers are also better able to control the quality of their produce. Therefore, some have strived to improve the quality of fruit and enter niche markets for quality-sensitive consumers. Compared with mainstream

fruit e-commerce featuring high-volume transactions with low margins and paid traffic, this strategy features low volumes with high margins, and free traffic enabled by word-of-mouth recommendations. However, it takes skills, capital and time to produce high-quality fruit and build a product image and a customer base.

Furthermore, small farmer e-tailers relentlessly exploit their health and agency to remain in business. One reported that he worked from 6 AM to 11 PM in busy seasons. Another said that her record was 2 h of sleep per day for 5 days consecutively. A more ingenious way is to reduce reliance on paid traffic by building private traffic. Although it is difficult to become a social media influencer, social networks can be used to reach consumers, and measures can be taken to expand and capitalize on one's network. For example, before returning to Kangyang and getting into e-commerce in 2017, one respondent had worked in a property management company for 6 years and an insurance agency for 2 years, which had allowed him to befriend over 2000 people on WeChat. In his spare time, he had been a driver on ride-hailing platforms and had also befriended those customers on WeChat. When we interviewed him, he had over 4000 friends on WeChat to whom he sold most of his fruit. This strategy represents a step back from Model 2 to Model 1 and relies on the quality of fruit and the breadth of one's social network.

In addition, cooperatives may theoretically relieve the plight of small farmer e-tailers. In Kangyang, village leaders had made some attempts to organize cooperatives, and they or capable cooperative members had set up e-stores to sell other members' fruit. However, because these cooperatives were loosely organized, they could control neither the planting nor the marketing of their members' fruit, nor were they able to conquer the skills and capital barriers to e-commerce.

9 | CONCLUSION AND DISCUSSION

In expanding into e-marketing by becoming e-tailers, farmers seek to achieve vertical coordination to increase their autonomy and income. Using qualitative data collected in China, in this article, we examine the experiences of small farmer e-tailers in agricultural e-commerce to shed light on agrarian change in the digital age, especially in the sphere of circulation. We find that agricultural e-commerce does benefit farmers, by providing an alternative marketing channel and a larger customer base, increasing the efficiency of local produce distribution, and allowing farmer e-tailers to retain a greater share of the value they produce which would otherwise be taken by traditional middlemen.

However, on the other hand, small farmer e-tailers are controlled, exploited, and increasingly excluded from agricultural e-commerce, primarily by platforms. E-tailers', including small farmers', reliance on platforms for transactions allows platforms to wield enormous power over them. This is aggravated by the quasi-monopolistic status of major platforms in China's e-commerce market. Platforms use this power to closely control e-tailers' marketing activities and increasingly exploit them by forcing them to pay for Internet traffic provided mainly by platforms, but also by click farms and social media influencers. Such control is costlier for agricultural than other e-tailers owing to certain features of agricultural products, and exploitation severely squeezes e-tailers' income. Platforms' control and exploitation of e-tailers are facilitated by their collection and analysis of user data.

Furthermore, while offline markets offer farmers inclusivity, e-commerce in China is increasingly excluding them from e-tailing. At the national level, although the dominant business model is for farmers to engage in agricultural e-commerce as e-tailers, models that exclude them are sought after by capital. Moreover, small farmer e-tailers simply cannot compete with corporate e-tailers in skills or capital. They face discrimination by shopping platforms, local governments and suppliers. In response, some small farmer e-tailers in Kangyang have stepped back to become suppliers to large e-tailers, or have quit e-commerce, while others have managed to remain in business by migrating across shopping platforms, diversifying and building private traffic.

Thus, e-commerce fails to challenge small farmers' subsumption to commercial capital and creates a new form of subsumption in which small farmers are more powerless relative to commercial capital. Agricultural e-commerce uses cybermediaries, particularly platforms, to supplant traditional intermediaries involved in offline marketing of

agricultural products. The power asymmetry between farmers and intermediaries is more acute in e-commerce than in offline marketing. Platforms' quasi-monopolistic market status and their ability to collect and analyse big data enable them to control and exploit farmer e-tailers more advantageously than traditional intermediaries.

Agricultural e-commerce has clearly become a new driver of social differentiation in China. Initially, only digitally literate farmers could seize the opportunities it offers and sell their family produce online at higher prices than to offline brokers, while digital laggard farmers could not. Small farmer e-tailers have since been increasingly excluded from e-tailing because they cannot compete with corporate and platform e-tailers. Meanwhile, both large and small e-tailers are increasingly exploited by cybermediaries led by quasi-monopolistic shopping platforms. This strong bias towards big commercial capital in the development of agricultural e-commerce will only aggravate social inequality in China.

This Chinese study offers lessons for other countries seeking to develop agricultural e-commerce. We show that agricultural e-commerce can be exploitative and exclusionary, raising the question of how to create more supportive and inclusive forms of agricultural e-commerce. Effective anti-monopoly regulation of shopping platforms, low-cost, high-quality e-commerce training and accessible financial support are key to this endeavour.

ACKNOWLEDGEMENTS

The authors would like to thank Hangying Chen, Yiyuan Chen, Xi She and two anonymous reviewers at the *Journal of Agrarian Change* for their helpful comments. The research on which this article is based was funded by the National Social Sciences Foundation of China (Grant No. 21ZDA058).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Xiaojun Feng  <https://orcid.org/0000-0001-6738-4422>

REFERENCES

- AliResearch. (2014). *The 2013 white paper of agricultural e-commerce on Alibaba*. AliResearch.
- AliResearch. (2015). *The 2014 white paper of agricultural e-commerce on Alibaba*. AliResearch.
- AliResearch. (2016). *The 2015 white paper of agricultural e-commerce on Alibaba*. AliResearch.
- Arboleda, M. (2020). Towards an agrarian question of circulation: Walmart's expansion in Chile and the agrarian political economy of supply chain capitalism. *Journal of Agrarian Change*, 20(3), 345–363. <https://doi.org/10.1111/joac.12356>
- Ball, T., & Duval, Y. L. (2001). Direct marketing of farm products via the Internet: A survey of smallfarms.com members. *Farm Management-Institute of Agricultural Management*, 11(2), 123–129.
- Banaji, J. (2002). The metamorphoses of agrarian capitalism. *Journal of Agrarian Change*, 2(1), 96–119. <https://doi.org/10.1111/1471-0366.00026>
- Banaji, J. (2016). Merchant capitalism, peasant households and industrial accumulation: Integration of a model. *Journal of Agrarian Change*, 16(3), 410–431. <https://doi.org/10.1111/joac.12175>
- Barrett, C. B. (2008). Smallholder market participation: Concepts and evidence from Eastern and Southern Africa. *Food Policy*, 33(4), 299–317. <https://doi.org/10.1016/j.foodpol.2007.10.005>
- Bernstein, H. (1977). Notes on capital and peasantry. *Review of African Political Economy*, 4(10), 60–73. <https://doi.org/10.1080/03056247708703339>
- Bernstein, H. (2004). Considering Africa's agrarian questions. *Historical Materialism*, 12(4), 115–144. <https://doi.org/10.1163/1569206043505158>
- Bernstein, H. (2010). *Class dynamics of agrarian change*. Kumarian Press.
- Chayanov, A. V. (1966 [1925]). *The theory of peasant economy*. Richard D. Irwin, Inc.
- Chen, C. (2021a). Missfresh doesn't want to burn cash anymore. Retrieved December 16, 2021, from <https://wallstreetcn.com/articles/3633284>
- Chen, C. (2021b). With GMV growing by 19 times in three years, the leapfrogging Dingdong Maicai is still anxious. Retrieved December 16, 2021, from <https://wallstreetcn.com/articles/3632747>

- Chen, Y. (2016). Capital going to the countryside: The hidden employment relations and capital accumulation in agriculture. *Open Times*, (5), 92–112.
- Chen, Y. (2020). Land outsourcing and labour contracting: Labour management in China's capitalist farms. *Journal of Agrarian Change*, 20(2), 238–254. <https://doi.org/10.1111/joac.12353>
- China Academy of Information and Communications Technology. (2019). The white paper on China's digital economy development and employment. Retrieved April 27, 2023, from <http://www.caict.ac.cn/kxyj/qwfb/bps/201904/P020190417344468720243.pdf>
- China Agricultural University, & iiMedia. (2021). The 2021 China agricultural products retail development research report. Retrieved December 16, 2021, from <https://xncfz.cau.edu.cn/module/download/downfile.jsp?classid=0&filename=7e6ad0765a214395a91c06d457ff7233.pdf>
- Chinese Academy of Agricultural Sciences. (2020). A report on the online retail market of agricultural products and key online products in China. Retrieved December 16, 2021, from <http://agri.ckcest.cn/specialtyresources/industryreport/detail/ddff62d7-fde6-44ec-ba24-104879c294f0.html>
- Chintagunta, P. K., Chu, J., & Cebollada, J. (2012). Quantifying transaction costs in online/off-line grocery channel choice. *Marketing Science*, 31(1), 96–114. <https://doi.org/10.1287/mksc.1110.0678>
- Choudary, P. S. (2015). *Platform scale: How an emerging business model helps startups build large empires with minimum investment*. Platform Thinking Labs.
- Circulation Promotion Centre of the Ministry of Commerce. (2009). A report on the circulation of agricultural product in China (Part I). *China Circulation Economy*, 23(1), 13–17.
- Couture, V., Faber, B., Gu, Y., & Liu, L. (2021 [2018]). Connecting the countryside via e-commerce: Evidence from China. *American Economic Review: Insights*, 3(1), 35–50. <https://doi.org/10.1257/aeri.20190382>
- Cutolo, D., & Kenney, M. (2021). Platform-dependent entrepreneurs: Power asymmetries, risks, and strategies in the platform economy. *Academy of Management Perspectives*, 35(4), 584–605. <https://doi.org/10.5465/amp.2019.0103>
- E-commerce News. (2022). The new market share of e-commerce platforms are released. Retrieved April 27, 2023, from https://www.sohu.com/a/524246709_465282
- Food and Agriculture Organization. & Zhejiang University. (2021). Digital agriculture report: Rural e-commerce development experience from China. Retrieved December 16, 2021, from <https://www.fao.org/3/cb4960en/cb4960en.pdf>
- Fu, W. (2021). Agricultural e-commerce is accelerating, community e-commerce deserves special attention. Retrieved December 16, 2021, from <https://finance.sina.com.cn/roll/2021-07-16/doc-ikqcfmca7252230.shtml?cref=cj>
- Han, Y. (2021). The status quo, problems, and trends of the food system in China. Retrieved December 16, 2021, from <http://www.farmchina.org.cn/ShowArticles.php?url=BjpTNI4%2BADVVZANnVWUHYUx>
- He, X. (2013). *The small peasant stance*. China University of Political Science and Law Press.
- Henderson, J., Dooley, F., & Akridge, J. (2004). Internet and e-commerce adoption by agricultural input firms. *Review of Agricultural Economics*, 26(4), 505–520. <https://doi.org/10.1111/j.1467-9353.2004.00196.x>
- Huang, P. C. (2011). China's new-age small farms and their vertical integration: Agribusiness or co-ops? *Modern China*, 37(2), 107–134. <https://doi.org/10.1177/0097700410396476>
- Huang, P. C. (2012). The unequal exchange between small farmers and big commercial capital: The characteristics of China's modern agriculture. *Open Times*, (3), 88–99.
- Huang, P. C., Yuan, G., & Peng, Y. (2012). Capitalization without proletarianization in China's agricultural development. *Modern China*, 38(2), 139–173. <https://doi.org/10.1177/0097700411435620>
- Huang, Y. (2015). Can capitalist farms defeat family farms? The dynamics of capitalist accumulation in shrimp aquaculture in South China. *Journal of Agrarian Change*, 15(3), 392–412. <https://doi.org/10.1111/joac.12118>
- Joiner, J., & Okeleke, K. (2019). E-Commerce in agriculture: New business models for smallholders' inclusion into the formal economy. Retrieved April 27, 2023, from <https://data.gsmaintelligence.com/api-web/v2/research-file-download?id=42565642&file=2761-280519-Agri-e-commerce.pdf>
- Langlely, P., & Leyshon, A. (2017). Platform capitalism: The intermediation and capitalization of digital economic circulation. *Finance and Society*, 3(1), 11–31. <https://doi.org/10.2218/finsoc.v3i1.1936>
- Latepost. (2020). The third battlefield of Alibaba: The business unit of Tmall Supermarket upgraded into one of local retail. Retrieved December 16, 2021, from <https://new.qq.com/omn/20200518/20200518A08MFE00.html>
- Lenin, V. I. (1964 [1899]). *The development of capitalism in Russia*. Progress Publishers.
- Li, X., Guo, H., Jin, S., Ma, W., & Zeng, Y. (2021). Do farmers gain Internet dividends from e-commerce adoption? Evidence from China. *Food Policy*, 101, 102024. <https://doi.org/10.1016/j.foodpol.2021.102024>
- Liu, F. (2023). Zhangjing, the director of Meituan Maicai, vows to help 1,000 new brands achieve revenue of 10 million yuan. Retrieved June 4, 2023, from <https://www.dsb.cn/213045.html>
- Liu, L. (2010). The practice and indigenous evaluation criteria of cooperatives. *Open Times*, (12), 53–67.
- Liu, M., Min, S., Ma, W., & Liu, T. (2021). The adoption and impact of e-commerce in rural China: Application of an endogenous switching regression model. *Journal of Rural Studies*, 83, 106–116. <https://doi.org/10.1016/j.jrurstud.2021.02.021>

- Marx, K. (1996 [1867]). *Capital, Volume I*. Lawrence & Wishart Ltd.
- Ministry of Agriculture and Rural Affairs of China. (2020). The plan for the development of digital agriculture and countryside. Retrieved December 16, 2021, from http://www.moa.gov.cn/govpublic/FZJHS/202001/t20200120_6336316.htm
- Nan, L. (2021). Is Pinduoduo ready to compete with China's biggest players? Retrieved June 4, 2023, from <https://jingdaily.com/pinduoduo-daily-active-users-taobao/>
- National Bureau of Statistics of China. (2015). Retail sales of consumer goods in December 2014. Retrieved December 16, 2021, from http://www.stats.gov.cn/english/PressRelease/201501/t20150120_671534.html
- National Bureau of Statistics of China. (2021). Total retail sales of consumer goods went up by 4.6% in December 2020. Retrieved December 16, 2021, from http://www.stats.gov.cn/english/PressRelease/202101/t20210119_1812515.html
- National Bureau of Statistics of China. (2023). State data. Retrieved April 27, 2023, from <https://data.stats.gov.cn/easyquery.htm?cn=C01>
- Nie, Z., & Wang, Y. (2021). Linking and breaking: A study on the linkage mechanism between small farmers and the Internet market: Taking the business practice of rural e-commerce as an example. *Journal of Agricultural Economy*, 1, 132–143.
- Peterson, R. A., Balasubramanian, S., & Bronnenberg, B. J. (1997). Exploring the implications of the Internet for consumer marketing. *Journal of the Academy of Marketing Science*, 25, 329–346. <https://doi.org/10.1177/0092070397254005>
- Pinduoduo. (2019). 2018 annual report. Retrieved December 16, 2021, from <https://investor.pinduoduo.com/static-files/c31e3bee-b5f8-4c0d-9ef8-436781be0fc9>
- Pinduoduo. (2021). 2020 annual report. Retrieved December 16, 2021, from <https://investor.pinduoduo.com/static-files/9b7956e8-e2bc-46f0-8fc2-b6e57bd7079b>
- Qichacha. (2021). Ten years of fresh food e-commerce. Retrieved December 16, 2021, from <https://new.qq.com/omn/20210415/20210415A02W7H00.html>
- Roy, D., & Thorat, A. (2008). Success in high value horticultural export markets for the small farmers: The case of Mahagrapes in India. *World Development*, 36(10), 1874–1890. <https://doi.org/10.1016/j.worlddev.2007.09.009>
- Shao, Z. (2017). Regulation and the logic of capital: The formation mechanism of peasant's e-stores in Taobao villages. *Journal of Northwest Agriculture and Forest University, Social Science Edition*, 17(4), 74–82.
- Shao, Z. (2020). The dependence of peasant e-tailors on shopping platforms and its formation mechanism. *Journal of Shanghai University of International Business and Economics*, 27(3), 47–55.
- Sivramkrishna, S., & Jyotishi, A. (2008). Monopsonistic exploitation in contract farming: Articulating a strategy for grower cooperation. *Journal of International Development*, 20(3), 280–296. <https://doi.org/10.1002/jid.1411>
- Sundararajan, A. (2016). *The sharing economy: The end of employment and the rise of crowd-based capitalism*. MIT Press.
- Vallas, S., & Schor, J. B. (2020). What do platforms do? Understanding the gig economy. *Annual Review of Sociology*, 46, 273–294. <https://doi.org/10.1146/annurev-soc-121919-054857>
- Van der Ploeg, J. D., & Ye, J. (2016). *China's peasant agriculture and rural society*. Routledge.
- Wang, C. C., Miao, J. T., Phelps, N. A., & Zhang, J. (2021). E-commerce and the transformation of the rural: The Taobao village phenomenon in Zhejiang Province, China. *Journal of Rural Studies*, 81, 159–169. <https://doi.org/10.1016/j.jrurstud.2020.10.017>
- Wang, Y. (2021). Varieties of mandarins in 2021. *Marketing*, 36, 64–68.
- Wangzai. (2022). Missfresh, a 'perfect' failure. Retrieved June 4, 2023, from <https://36kr.com/p/1848237668715656>
- Wei, Y. D., Lin, J., & Zhang, L. (2020). E-commerce, Taobao villages and regional development in China. *Geographical Review*, 110(3), 380–405. <https://doi.org/10.1111/gere.12367>
- Wu, G. (2012). The model of "middlemen plus peasants" and the semi-proletarianization of peasants. *Open Times*, (3), 100–111.
- Xinhuanet. (2019). Over 98% of agricultural entities nationwide are still small farmers. Retrieved April 27, 2023, from http://www.xinhuanet.com/politics/2019-03/01/c_1210071071.htm
- Xu, Y. (2021). The number of newly-added active merchants to Taobao is the highest in five years. Retrieved December 16, 2021, from <https://new.qq.com/omn/20210406/20210406A0BVUS00.html>
- Yan, H., & Chen, Y. (2015). Agrarian capitalization without capitalism? Capitalist dynamics from above and below in China. *Journal of Agrarian Change*, 15(3), 366–391. <https://doi.org/10.1111/joac.12121>
- Ye, J., & He, C. (2019). Theoretical exploration and poverty alleviation practice based on smallholder production: A smallholder poverty alleviation trial with nested markets. *Social Sciences in China*, 2, 137–158.
- Yu, H., & Cui, L. (2019). China's e-commerce: Empowering rural women? *The China Quarterly*, 238, 418–437. <https://doi.org/10.1017/S0305741018001819>

- Zhang, Q. F., & Donaldson, J. A. (2010). From peasants to farmers: Peasant differentiation, labor regimes, and land-rights institutions in China's agrarian transition. *Politics and Society*, 38(4), 458–489. <https://doi.org/10.1177/0032329210381236>
- Zhuang, S. (2021). Various models of fresh food e-commerce have emerged, will supply chain capabilities determine which will win? Retrieved December 16, 2021, from <https://www.jiemian.com/article/5507278.html>
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. Profile Books.

How to cite this article: Feng, X. (2023). Control, exploitation and exclusion: Experiences of small farmer e-tailers in agricultural e-commerce in China. *Journal of Agrarian Change*, e12567. <https://doi.org/10.1111/joac.12567>