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Producer-oriented and consumer-oriented alternative food networks and rural revitalization in China: Distinct trajectories and variegated impacts

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ABSTRACT

Alternative food networks (AFNs) have been increasingly perceived as an engine for rural revitalization, yet AFNs can differ in their founding motivations, operational methods, and organizational forms, which thus produce varying economic, social, and environmental outcomes. Despite this, the complexity of AFNs in the role of rural revitalization remains surprisingly under-researched. This study, drawing a distinction between producer-oriented and consumer-oriented AFNs in China, explores the dynamics of how producer-oriented and consumer-oriented AFNs are formed and give rise to distinct trajectories of rural revitalization. When AFNs prioritize producers' pursuit of alternatives to conventional agrifood systems over merely catering to urban consumers' instrumental needs, AFNs can then become a catalyst for rural revitalization by driving the transformation of the agrifood economy, the benefits of which are subsequently leveraged to enhance the living environment and community fabric. This study has significant implications for the role of AFNs in facilitating rural development.

1. Introduction

Alternative food networks (AFNs) are a diverse array of practices concerning food provisioning that typically differ from the mainstream food systems (Murdoch et al., 2000). AFNs have been increasingly regarded as an engine for rural revitalization (Chen et al., 2022; Renting et al., 2003; Si & Scott, 2016), as they reintroduce economic viability, social justice, and ecological sensitivity into food production and consumption (Jarosz, 2008; Marsden et al., 2000; Tregear, 2011). However, studies have shown that the impacts of AFNs on driving rural development are heterogeneous. While consumer-oriented AFNs are likely to be operated by agribusinesses and develop a loyal customer base (Martindale, 2021), producer-oriented AFNs may achieve greater social and ecological goals in addition to serving economic interests (Qi, 2024; Zhang, 2024; Zoll et al., 2021). This raises the question of what factors might have contributed to such divergence.

In most case studies, consumer-oriented AFNs, which prioritize the needs and values of consumers and emphasize food quality, origin, and taste, often manage to produce high-quality alternative food at affordable costs and have well-established short supply chains (Guthman, 2004; Poças et al., 2021). However, mixed results from a growing body of literature cast doubt on the potential of these AFNs to revitalize or transform the declining or disadvantaged rural communities (Barkley & Wilson, 1992). Studies have shown that consumer-oriented AFNs may inhibit rather than amplify the benefits of AFNs for farmers and rural development when an excessive focus is on catering to consumer demand for alternative foods with local farmers neglected (Hayden & Buck, 2012; Jarosz, 2008). Consumer-oriented AFNs, especially large-scale alternative agribusinesses equipped with technology and capital often pushed small-scale and family farmers out of alternative agriculture (Rover et al., 2020). The promise for rural revitalization is compromised when AFNs are dominated by non-local agribusinesses which extract most of the benefits from alternative agriculture and then transfer it out of the local economy.

As the reality of consumer-oriented AFNs in promoting rural revitalization may challenge or complicate expectations, proponents have shifted their focus to producer-oriented AFNs, whose actions and services are primarily targeting producers (Ballamingie & Walker, 2013). These AFNs have high-level engagement of local producers that begins with agricultural practices and extends to socio-cultural and environmental dimensions, such as the building of rural communities and the advancement of local farmers' capacity in alternative agriculture

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(Blumberg, 2018). In this regard, producer-oriented AFNs may transcend the limitations of consumer-oriented AFNs and play a more impactful role in rural revitalization by facilitating the growth of an alternative economy and fostering new social-cultural values (Si & Scott, 2016).

An explicit comparison between consumer-oriented and producer-oriented AFNs and their variegated impact on rural development, however, is still missing in the literature. It remains unclear how specific features, actions, and rationales of producer- and consumer-oriented AFNs shape distinct trajectories of rural revitalization. Against this backdrop, this study explores how producer-oriented and consumer-oriented AFNs are structured and the distinctive trajectories of rural revitalization that they each give rise to. This study not only contributes to unravelling the underlying dynamics that structure AFNs, but also offers new insights into the variegated impacts of AFNs on rural development.

This study firstly provides an overview of the relationship between AFNs and rural development, followed by the examinations of producer-oriented AFNs and consumer-oriented AFNs, and rural revitalization in China. We then draw on cases across China to compare how the two types of AFNs give rise to distinctive trajectories of rural revitalization and conclude the paper with findings.

2. Literature review

2.1. AFNs and rural development paradigm

In the post-World War II era, the significance of agriculture in rural development has been founded on a productivist logic. Productivist agriculture configures rural space primarily as a base for agricultural production. It prioritizes intensive farming techniques and industrial inputs to achieve high levels of productivity (Lowe et al., 1993; Ward, 1993). Productivist agriculture follows the logic of economies of scale with standardized and highly specialized agriculture production segregated from other rural activities (Van Der Ploeg, 2010). The rationale of productivist agriculture as an approach to rural development has been increasingly criticized for its negative impacts on the environment, ecology, and socio-economic justice (Potter & Tilzey, 2005).

Since the 1990s, rural development studies have advocated for "territorialized and ecologically embedded" patterns as a response to critiques of the productivist development model (Goodman, 2004; Van Der Ploeg, 2010). This new paradigm reshapes the relationship between agriculture and rural development by re-organizing food supply chains (Marsden, 2008) and re-embedding agriculture into local socio-economic and ecological contexts (Marsden, 2012; Zhang, 2024). A variety of alternatives to productivist agriculture aim to transform the production system by substituting industrial inputs with organic and locally sourced alternatives and reshape the relationship between consumers and producers through building shorter and localized supply chains (Martindale, 2021; Xie, 2021). Rural communities attempt to build a new agrarian economy by tapping into the potential of alternatives to productivist agriculture that can curb the economic instability as well as the growing ecological and social inequalities rooted in productivist agriculture (Wu et al., 2024). This rural development model is reflected in emerging practices and broad food-related networks aimed at fostering a new "eco-economy", which restructures the dynamics of the productivist agro-industry.

AFNs is defined as a broad term to cover newly emerging networks of producers, consumers, and other actors who seek alternatives to the standardized industrial mode of food production and consumption supply (Murdoch et al., 2000). The alternatives can be achieved through attempts to "re-socialize" and "re-localize" food (Martindale et al, 2018), which underpins the transition of rural development from a productivist model to a territorially and ecologically oriented one (Si & Scott, 2016; Zhang, 2024). Re-localization of food production and consumption occurs in two ways. First, it involves producing food with cultural or geographic significance using local artisanal methods, the expertise of farmers, and culinary traditions (Costa & Besio, 2011; Sage, 2011). Second, it establishes short food supply chains, such as farmers' markets, community-supported agriculture, and buying clubs (Watts et al., 2005). The re-socialization of food shifts the focus from economic self-interest to balancing market dynamics with social ties, urban-rural connections, and ethical considerations (Hinrichs, 2000; Martindale et al., 2018; Zhong et al., 2022). The re-socialization and re-localization can reshape the relationship between food and place, as well as between stakeholders, which serves as a driving force for rural development. Positive impacts that AFNs can potentially bring to rural areas are well known, including the creation of new employment opportunities, the diversification of local income, and the enhancement of skills and capacities in alternative agriculture (Argüelles, 2021; Jarosz, 2008; Moore & Donaldson, 2023). They strengthen rural-urban connections, support agritourism, and foster moral economies that reconnect producers, consumers, and communities (Mettepenningen et al., 2012; Rosol, 2020). AFNs, however, should not be treated as a monolithic whole; instead, their impact on rural revitalization depends on their relationship with the rural economy and local communities (Zhang, 2024). One type of distinction that is widely drawn in the literature is that between producer-oriented and consumer-oriented AFNs.

2.2. Producer- and consumer-oriented AFNs

Existing studies on producer- and consumer-oriented AFNs have focused on how producers' or consumers' demands drive the emergence and development of AFNs. Producers are motivated by pragmatic reasons, such as the desire to avoid the financial pressures in conventional markets caused by increasing production costs and decreasing revenues (Renting et al., 2003), or by social movements that seek alternatives to conventional agriculture (Jarosz, 2008). Establishing producer-oriented AFNs aligns with the principles of re-localizing and re-socializing food production and consumption. Producer-oriented AFNs promote the localization by addressing producers' needs to shorten supply chains and by emphasizing local identity through local branding. The re-socialization of producer-oriented food systems focuses on fostering communities rooted in shared values, with a particular emphasis on strengthening or rebuilding producer communities (Zhang, 2024). Producers adopt alternative agricultural methods to cultivate local produce and establish short supply chains that reduce numerous intermediaries between producers with consumers (Costa & Besio, 2011; Forssell & Lankoski, 2015). In producer-oriented AFNs, producers play a dominant role in shaping the practices and operations of these networks.

Consumers-oriented AFNs are more likely to be geared toward economic viability just like conventional agriculture enterprises. They treat alternative agriculture products as commodity and seek to make profits from them (Wu, 2024). Establishing consumer-oriented AFNs focuses much on addressing consumers' needs to re-localize and re-socialize food systems. Consumer-oriented AFNs re-localize food systems by emphasizing local sourcing, promoting "Buy local" campaigns, and supporting urban food hubs that link consumers with nearby producers (Jarosz, 2008). They re-socialize food systems by promoting ethical consumption and fostering trust through transparent supply chains, with a strong focus on building consumer communities (Zhong et al., 2022). Most consumer-oriented AFNs establish short food supply chains by situating their farms on the outskirts of cities. The primary intent of consumer-oriented AFNs is to cater to the demands of consumers in seeking local food, through establishing robust connections with consumers and thereby strengthening consumer loyalty (Goodman, 2004). Local farmers are not the primary target, and their welfare takes a secondary position to consumers.

The organization and development of producer- or consumer-oriented AFNs demonstrate different forms, actions, and priorities. While studies have shown the positive impacts of both types of AFNs, they lack precision in fully identifying how the distinctive motivations

and practices of producer- and customer-oriented AFNs give rise to divergent trajectories of rural revitalization and different impacts on economic and socio-ecological environments. This study uses AFNs in rural China to investigate how these two types of AFNs are created for different motivations, operate differently, form different relationships with local rural communities, and produce different impacts.

2.3. AFNs and rural revitalization in China

Since the late 1990s, China's rural development has faced significant challenges due to the rapid growth of productivist agriculture and urbanization (Li et al., 2020). Over the past two decades, the state has pursued an intensive, industry-focused agricultural model, as demonstrated by policies like the removal of agricultural taxes, subsidies for farm machinery and large-scale producers, and state-facilitated land consolidation (Zhang, 2022; Zhang & Zeng, 2021). However, excessive intensification of agriculture has led to issues such as reduced food quality and safety (Si et al., 2015), overuse of agrochemicals, and increased crop vulnerability to diseases (Zhang et al., 2020). Unfavorable policies and competition from agribusiness have also forced smallholder farmers out of agriculture, causing rural exodus and social decline (Li et al., 2022; Zhang & Wu, 2024). Since the 1980s, China's industrialization and urbanization have relied on extracting rural resources for urban development (Ye, 2015). This urban-centric strategy has intensified rural depopulation, environmental degradation, farm abandonment, and community decline, all of which have plagued rural development.

The changes described posed significant challenges to the sustainable development of rural areas in China. In response, the national government has implemented initiatives to promote integrated urban-rural development. Key initiatives include the "three rural" policy (Wen et al., 2012), the "cities support the countryside" initiative in 2004 (Long et al., 2009), the abolition of the agricultural tax in 2006 (Chen, 2014), and campaigns for constructing a "New Socialist Countryside" (Looney, 2015). Since 2013, the state has prioritized rural revitalization as part of its integrated urban-rural development strategy. Supporting measures include new urbanization policies (Chen et al., 2018), beautiful countryside construction (Ye et al., 2018), structural reform of the agricultural supply side (Wang & Wei, 2017), and precision poverty reduction (Zhou et al., 2021).

In 2017, the state officially launched the rural revitalization movement. According to China's Strategic Plan for Rural Revitalization (2018–2022), the overall goal of rural revitalization is to achieve the modernization of agriculture and rural areas. Five pathways to rural revitalization involve revitalizing *rural industries, talent, culture, living environment, and community organizations* (Xinhua News, 2018). AFNs, with their potential to optimize or transform the social, economic, cultural, and environmental dimensions of rural areas, have been recognized as effective tools for enhancing rural revitalization in China (Chen et al., 2022; Li et al., 2022).

The internal logic of how AFNs contribute to rural revitalization can be explained as follows. First, *revitalizing rural industries* to achieve economic vitality involves developing an integrated alternative agriculture system that supports multiple local economic pillars and aligns agriculture with related industrial and hospitality sectors (Long et al., 2022; Zhang et al., 2018). Second, *revitalizing rural talent* depends on cultivating high-quality farmers skilled in alternative agriculture, relevant technologies, management, and marketing (Chen et al., 2022). Third, *revitalizing culture* is in line with principles of alternative agriculture, such as respect for nature and opposition to chemical inputs, which resonate with traditional agricultural practices in China. This alignment helps revive traditional agricultural knowledge and practices (Zhong et al., 2022). AFNs foster the development of farmer communities that emphasize cultural values such as family solidarity, collective sharing, and cooperation (Qi, 2024; Zhang, 2024). Fourth, AFNs address the environmental degradation caused by productivist agriculture by promoting practices that preserve the environment and ensure high-quality food, thereby *enhancing the rural living environment* (Song et al., 2022). Lastly, *revitalizing community organizations* through AFNs often involves establishing farm-related economic entities, such as farmers' cooperatives (Hu & Zhang, 2024), which offer economic and social services to members and enhance the benefits of participating in AFNs.

To this end, this study, through examining the role of different types of AFNs in the rural revitalization movement at the village level, illustrates how producer-oriented and consumer-oriented AFNs are structured and the distinctive trajectories of rural revitalization that they each give rise to.

3. Methodology

This study primarily relies on qualitative data from representative cases that the authors collected through fieldwork. This study draws on producer- and consumer-oriented AFNs. We managed to identify renowned AFNs cases in several regions in China - including the Pearl River Delta, north China, and Yunnan - by reviewing secondary sources. Among these cases, we conducted site visits to 24 AFNs over a two-year period (June 2023 to October 2024). Our analysis below focuses on five cases, but also draw on two others.[1]

3.1. Case contexts

This study drew on two cases of producer-oriented AFNs located in diverse regions across China. The first is an AFN in Creek Village and Light Village, siutated in Pearl River Delta, near Guangzhou. Both villages have seen economic regression since the late 1990s as a result of youth migration. Although Creek village has over 400 registered residents, only about 120 villagers still reside in the village. Similarly, of the 700 registered residents of Light Village, only 200 villagers now live there. Villagers who now remain in both villages are mostly elderly people, as the young generations have left for Conghua District or downtown Guangzhou for better employment or educational opportunities. The population exodus has led to the decline of conventional agriculture since the early 2000s. There was a revival in local agriculture from 2005 to 2013, when local farmers, supported by Conghua government, cultivated tangerines on a large scale. These farmers brought in more than CNY 100,000 a year from their crops. However, starting in 2011, the two villages' tangerine harvest fell victim to the highly infectious "yellow dragon" disease - in no small part due to the persistent overuse of synthetic fertilizers and pesticides - which eventually killed all of the tangerine trees. Young farmers left the villages once again in 2013. To alleviate the poverty in the two villages, the Guangzhou Municipality's Civil Affairs Bureau backed the establishment of Luking, an urban-rural mutual help organization, in 2009 and saw organic farming and agritourism as the new venues for engaging local farmers and reducing poverty in these two villages.

Cases similar to the Pearl River Delta case described above can be found in other parts of China. Riverbend Cooperative is located in southern Shanxi Province and operates one of the most successful producer-oriented AFNs in the country. The cooperative has a membership of over 3000 farming households from 43 natural villages and was formed as a result of a decade-long process of community building and social mobilization.[2] While the cooperative has received help and guidance from external activist groups and scholars, most initiatives were home-grown and led by a group of local women villagers.

This study selected three cases of consumer-oriented AFNs from different regions across China (see Fig. 1). Plough Farm is located in

[1] All names used in this study are pseudonyms.

[2] Details of Riverbend's experiences have been reported elsewhere (Hu & Zhang, 2024; Zhang, 2024).

Fig. 1. The locations of cases (Source: Authors).

Huizhou, Guangdong province. A non-local businessman named Mr. L invested in Plough Farm in an effort to implement his eco-friendly visions and healthy lifestyle. To acquire a total of 200 mu[3] of farmland, Mr. L and the Village Committee signed a twenty-year land-leasing agreement in 2012. The organic certification of Plough Farm's goods was granted in 2015. There are a wide variety of thirty organic goods cultivated at the farm, and consumers are mostly from metropolitan areas in the Pearl River Delta. Mr. L's team attempted to embark on the hospitality business in order to diversify agricultural revenue - Plough Farm is advertised as an organic farm, offering visitors the opportunity to participate in organic farming. Roadside Farm is one of the best-known CSA farms in the Pearl River Delta region. In 2013, Roadside Farm was founded by Mr. Z, a non-local entrepreneur. In 2014, Mr. Z obtained 300 mu of farmland in Zhuhai, Guangdong province, with the assistance of the Zhuhai government. Roadside Farm currently has more than 2200 consumer members. Given the substantial risks in organic farming, such as vulnerability to weather conditions and market fluctuations, similar to Plough Farm, Mr Z and his team also diversified the farm's business in order to minimize these risks.

Greenway Farm, like Roadside and Plough, is a consumer-oriented AFN and located on the outskirts of a major city - Kunming, the provincial capital of Yunnan Province. It was founded by a group of non-local college graduates, who, similar to Mr. L, were committed to visions of eco-friendly agriculture and healthy lifestyle. They rented 260 mu of slope land, a former orchard, from the village collective on five-year leases. It now hires a staff of 30, 13 of whom were rural farmers from other villages in the area and who conduct the agricultural production in family units. Its main products include carrots, beet roots, tomatoes, and some fruits.

The above two cases of producer-oriented AFNs are established to address the challenges local producers encounter within the conventional agricultural system, while the three cases of consumer-oriented AFNs are formed to meet the growing demand among food consumers for alternative food products. These cases align closely with the core principles of producer-oriented and consumer-oriented AFNs. Apart from that, these cases, spanning diverse regions across the country - from the Pearl River Delta to Yunnan and Shanxi - demonstrate a high degree of generalizability beyond specific geographic contexts. These villages serve as representative cases for exploring the significance of AFNs in facilitating rural revitalization.

3.2. Data collection and analysis

This study employed a qualitative methodology to produce a comparative analysis of how specific features, actions, and rationales of

[3] One mu is approximately 666.667 square meters.

producer- and consumer-oriented AFNs shape the distinct trajectories of rural revitalization. Qualitative methodology can be used to interpret the meanings and interpretations that individuals attribute to behaviors, events, and objects (Kelle, 2006). Qualitative methods - mainly in-depth interviews for data collection and thematic analysis for data analysis - were adopted for this study. The fieldwork for this study was conducted over a period of nine years: Shanxi fieldwork was conducted since October 2015 and included multiple field trips and follow-up interviews over the years. Pearl River Delta region fieldwork was conducted in June and July 2023 and in May 2024, and Yunnan fieldwork in October 2024.

In this study, semi-structured interviews were chosen to investigate the emergence and growth of producer-oriented and consumer-oriented AFNs, the interactions among actors involved in AFNs, and the perceptions of actors regarding the impacts of AFNs on rural communities. Interviewees included farm employees, local villagers, and village committee members, and Luking employees. The snowball technique was employed as the method for approaching potential interviewees in all five cases. This approach is widely recognized as one of the primary and most effective tools for accessing informants (Noy, 2008). The research team was introduced to one of the respondents at the case site through an acquaintance, who subsequently facilitated connections with other respondents. Semi-structured interviews conducted in the four cases were characterized by a conversational approach, with durations ranging from 20 min to 2 h. To ensure data validity, all interview data were cross-validated through interviews.

4. Producer-oriented AFNs: Transition to alternative agriculture and rural revitalization

4.1. Organizing producer-oriented AFNs

4.1.1. Re-localizing food: Producing food with geographic connections and building a producer-dominant supply chain

Organizing the AFN in Creek Village and Light Village started with the selection of produce with local characteristics for organic farming. The main crops cultivated through organic methods include plums, passion fruit, turmeric, and roselle. In both villages, plums are the crop with the strongest connection with local traditions. The tradition of cultivating green plums in the two villages traces back to the late 1990s. Due to their low economic value, villagers used to devote little effort to cultivating them, but plum yields were often satisfactory. In this case, villagers and Luking staff recognized the suitability of plums for organic farming due to their minimal need for the inputs of fertilizers, pesticides, and labor. This selection logic is also applied to other organic products.

Engaging local farmers into organic farming is key to strengthen the geographic connections of organic food (Sage, 2011). In both villages, villagers are organized into small groups to participate in alternative agriculture, with group sizes varying based on the scale of crop production and processing. The plum group consists of 40 villagers, the passion fruit group comprises five members, the turmeric group includes three individuals, and the roselle group consists of six participants. Effective division of labor and collaboration within each group is key to the efficient production of high-quality goods. For instance, the 40 villagers in the plum group respectively assume the roles of including cultivation, harvesting, processing, and distribution. Group participation in organic farming provides a monitoring mechanism that ensures participant farmers' adherence to the principles of organic agriculture, such as using organic fertilizers, hand-weeding, and using greenhouses for pest control. Each team member is responsible for monitoring their peers' adherence to these principles throughout the stages of growing and processing.

Establishing a locally dominant food supply chain that eliminates intermediaries and maximizes benefits for local farmers is also a crucial component of developing AFNs. Luking established an online shop for retailing agricultural goods and handed its operation over to local farmers. In general, customers learn about these organic products through friends' recommendations, articles on WeChat, or prior visits to the villages. These consumers, who seek affordable organic produce or support local organic farming, place orders through the online shop. Upon receiving an order, local farmers arrange for the packing of the ordered goods. A villager, who commutes between Creek Village and Conghua Town, bring the packaged items to a courier station in Conghua Town for shipment. A direct and producer-dominant supply chain is thus established, with approximately one-third of the goods distributed through this channel. However, locals remain open to collaborating with other organic food companies or farms, such as Wotu and Roadside Farm, to establish a local supply chain to other surrounding cities in Pearl River Delta. Approximately two-thirds of agricultural products are distributed through this channel.

These practices of intentionally localizing food production and consumption are also observed in Riverbend Cooperative. The cooperative asked members to shift back from the commercial production of a cash crop - asparagus - to multi-cropping of a host of local traditional crops, including wheat, sesame, persimmon, and vegetables. The cooperative also established a distributive network in the two nearby cities, where many of the members' relatives lived. All distribution was done by rural members of the cooperative, while urban consumer members participated regularly in farm visits and leisure activities in the villages. Other similar cases have been also reported in the literature (Hu & Zhang, 2024; Ye & He, 2019).

4.1.2. Re-socializing food: Connecting local communities to diverse food-related actors and building local capacities in organic farming

In Creek Village and Light Village, organizing the AFN through re-socializing food involves connecting local farmers with a variety of food-related actors to enhance their capabilities in alternative agriculture. As with many smallholders transitioning to alternative agriculture (Moore & Donaldson, 2023), local farmers in the two villages lack knowledge and practical experience in organic farming, as evidenced in the inconsistent quality and quantity of organic products. To address this issue, Luking regularly invites agricultural experts and practitioners to share their experiences in organic farming with local farmers. The topics covered range from organic cultivation to food processing, marketing, and the development of agritourism. As indicated by Fonte and Cucco (2017), other actors and organizations within the broader social movement and value chain often play a crucial role in assisting conventional farmers to transition to alternative farming. Luking occasionally sponsors local villagers to visit other locations to study organic farming. For example, in September 2020, organic smallholders from Creek Village and Light Village participated in a knowledge exchange trip to Guangxi Autonomous Region. These activities enable them to share their knowledge and experience with other alternative agricultural farmers. Such exchanges also provide psychological support to local farmers in addressing the concerns about organic farming prospects, which are common uncertainties faced by new alternative farmers (Bruce, 2019). An organic smallholder from Creek Village shared his experience of the Guangxi trip:

> *We formed a Guangxi trip group with nearby organic small farmers, with whom we spent half a week exchanging experiences of organic farming and seeking support and encouragement from each other - it became evident that this predicament was not unique to me. Through an extensive discussion, we proposed several measures for improvement. (Organic farmer from Creek Village, June 22, 2023)*

A thriving community of organic smallholders is gradually emerging in Creek Village and Light Village. This can be manifested through an organic farmers' school operated by local alternative farmers, aimed at sharing their experience and knowledge with more locals. For instance, classes on using peanut bran as fertilizer have been particularly impactful, establishing it as the preferred choice for organic fertilizers. A student from the farmers' school demonstrated that using peanut bran as a fertilizer reduced his planting expenses by 50% compared to using

animal manure. This organic farmer community has earned a positive reputation in the Pearl River Delta region - many government and private organizations, as well as school teachers and students, visit the two villages to exchange knowledge with locals.

Similarly, Riverbend Cooperative, in addition to doing organic farming and running the alternative food networks, devoted concerted efforts to organizing social activities, providing social services such as old-age care and childcare, and conducting moral education in the villages. In fact, the social mobilization and moral reconstruction preceded the agricultural cooperation and provided the indispensable social capital that ensured the success of the AFN. The AFN, the profit from which provided funding to support the social services, in this case is a means that served the interests of the rural community.

4.2. The ripple effects of organic agriculture growth: cultivating revitalized community

Alternative agriculture as an engine of rural revitalization lies much in upgrading traditional agricultural practices to ensure economic viability and livelihoods (Chen et al., 2022). This applies to Creek Village and Light Village where alternative agriculture offers flexible employment and income diversification for left-behind villagers. Organic farming as a new income source is underscored by the revenues generated from alternative products between 2010 and 2018 (see Fig. 2). For local villagers, prior incomes from working in urban factories ranged from 2000 to 4000 yuan per month (including meals and accommodation). Transitioning to organic farming has notably increased their earnings. For example, farmers involved in the processing and marketing of green plums can now earn between 5000 and 7000 yuan, with similar income levels achieved through the production of other organic products. The annual income of organic farmers has risen dramatically, reaching between 120,000 and 200,000 yuan per year. Villagers participate in profit-sharing from organic produce based on their involvement in production, processing, and distribution. Transitioning to alternative agriculture allowed most of the profits to be captured by local farmers in both villages, rather than being extracted by external parties, a scenario often observed in the conventional commodity chain.

In Creek Village and Light Village, organic farming helps mitigate the ecological impacts associated with conventional agriculture. Organic crops are grown and processed without the use of pesticides and synthetic fertilizers. The strict adherence of local farmers to the principle prevents the environmental degradation previously caused by excessive pesticide and synthetic fertilizer use in tangerine cultivation. In this regard, alternative agricultural practices, contextualized in local history and situations, enable local farmers to bypass the failures of conventional agriculture and seek new opportunities to thrive in a rapidly changing agricultural sector.

The growth of organic farming in both villages has led to the formation of new community-based organizations that encourage the wider engagement of local farmers in organic farming, particularly marginalized locals. This inclusive strategy is crucial for cultivating the community of alternative agriculture that is rooted in trust and reciprocity rather than self-interest and market relationships. The various organic farm produce groups in the two villages may be the best manifestations. Apart from that, in 2010, a group of seven left-behind women, locally known as the “Seven Fairies”, was formed to offer accommodation and dining services for visitors seeking an immersive rural living experience. Another community-based organization, a guided tour group composed of four returning youths, was formed to offer tour services to urban tourists in 2015. This community-based organization not only provides new avenues for local farmers to capture more economic benefits of organic farming, but leads to greater socio-economic effects by reinforcing the agriculture-tourism nexus. This is evident in the steady increase in revenues from the rural hostel and organic agritourism activities from 2013 to 2018, as shown in Fig. 3. By participating in and providing tourism hospitality services, villagers can earn as much as 25,000 yuan or more annually.

Producer-oriented AFNs in both villages are not purely directed by profit motives, but attempt to address social issues such as the decline of local community. This can be mostly evidenced through the beautification and renovation of abandoned public halls and the building of village kitchen in both villages, both of which were partly financed by the profit from organic farming.[4] Luking invited a professor and his team from the South China University of Technology to develop a Village Environment Enhancement Project, which consisted of the restoration of a historic walled house (*Xin long wei*) and the building of a village square (See Figs. 4 and 5). With adequate funding, the renovation of the historic house was completed by late 2021. The village kitchen project was led by a team from the Hong Kong Polytechnic University, with members of the Seven Fairies and a small group of other villagers responsible for its construction. Both public halls and the village kitchen are primary venues of the interactions and exchanges among villagers and for village celebrations. The availability of public space and its significance on revitalizing community life underscores the broad significance of AFNs in community development (Qian et al., 2024).

5. Consumer-oriented AFNs and rural revitalization: Farmland leasing and wage work

5.1. Organizing consumer-oriented AFNs

5.1.1. Re-localizing food: Building short supply chains for proximity to markets

The re-localization of food at Plough Farm and Roadside Farm lies in situating production sites near markets and thus ensure consumers have access to fresh and local produce. To achieve this, the founders of the two farms approached the village committees of Maxi and Dahu, respectively, both of which located within 30 km from the city centre and approximately one and a half hours by car from neighboring cities. They sought to lease farmland from the villagers to establish their farms. The Maxi village committee negotiated with villagers and consolidated a total of 200 mu of farmland to lease to Plough Farm, while Roadside Farm leased 300 mu of farmland from the Dahu villagers. The geographical proximity to customers is a key marketing strategy for both farms, as highlighted in their advertisements: “Farms at your doorstep, food in sight!” This proximity makes it convenient for consumers to visit the farms. According to interviews with employees from both farms, a significant portion of customers visited the farms before initiating their membership. Both farms also designate membership days for conducting farm tours for members. This direct engagement helps reduce prevalent skepticism about food safety and strengthens bonds with consumers (Wang et al., 2015).

Re-localizing food involves establishing short supply chains that reduces distribution intermediaries to enhance the relationship between producers and consumers. This is achieved by setting up their own online store, allowing consumers to directly place orders for organic produce. In this case, there is no intermediary between consumers and producers. The managers of Plough Farm and Roadside Farm have established their own WeChat public accounts to promote the farms and recruit customers through social media. They not only distribute flyers in mid- to upper-class residential complexes, but host free farm tours for potential consumers. Both farm managers encourage customer engagement in their WeChat groups, where they regularly post information about sales. In these groups, consumers can provide feedback on organic produce, allowing farm staff to promptly address product issues. This facilitates direct communication between producers and consumers, addressing the challenges of conventional agriculture where producers

[4] Five percentage of the gains from organic farming would be used for community building.

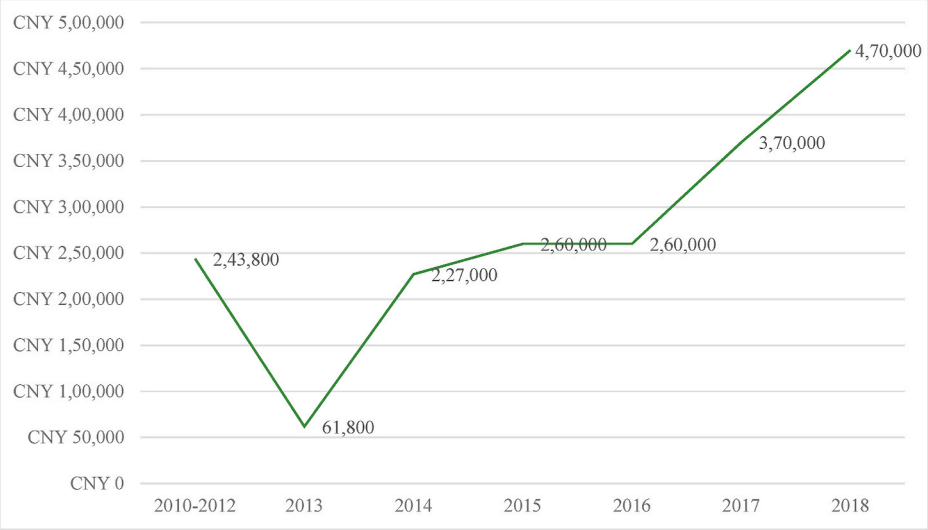

Fig. 2. The revenues of alternative agriculture from 2010 to 2018 (Source: Luking).

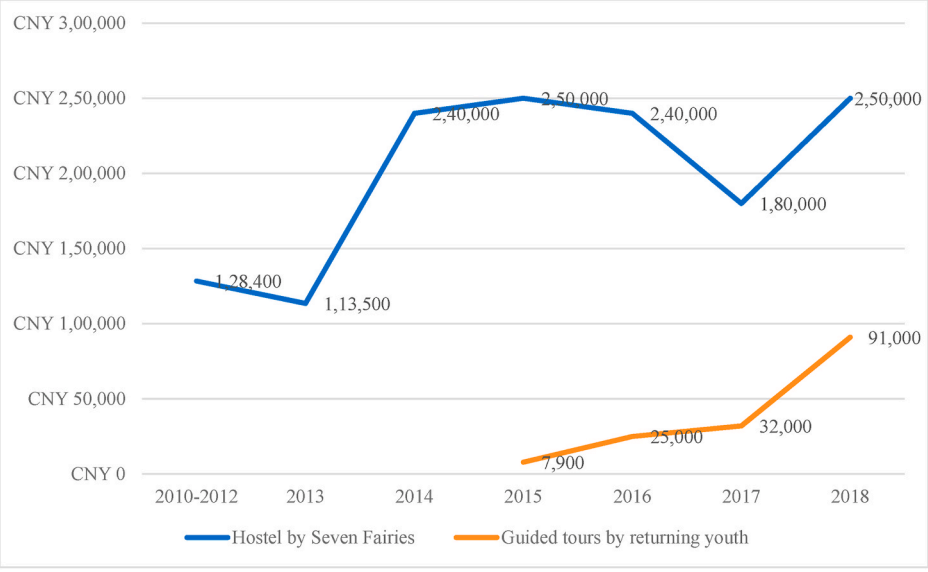

Fig. 3. The revenues of the hostel and guided tours from 2010 to 2018 (Source: Luking).

are distanced from consumers (Martindale et al., 2018).

Short supply chains have proven effective, with 50% of the organic produce from both farms being sold through this channel. However, localizing production was only a means to reduce cost and gain consumer trust. If there are consumer interests from afar, these AFNs did not hesitate to pursue those. The limited number of individual consumers and the relatively small volume of their organic purchases made both farms reliant on indirect marketing channels to sell their organic goods to the wider market. Both farms have established partnerships with prominent supermarkets such as Huarun Supermarket and Hema Supermarket. Plough Farm also supplies organic food to institutional customers in the nearby megacity of Shenzhen, including Minsheng Bank, China Merchants Bank, Ningbo Bank, Industrial Bank, and Nongshang Bank. Approximately 50% of organic goods from both farms are distributed through conventional supply chains. In Greenway's case, there is very limited demand from the local Yunnan market for their organic produce. Instead, they have to sell most products through e-commerce to the national market. This explains why half of the staff is employed in marketing, sales and packaging. They run daily live-streaming sessions across multiple platforms to sell directly to consumers, as well as placing their products on third-party organic food e-shops. None of their main products have any connection with the local tradition or environment. They (carrots, beet roots, and tomatoes) were selected for their ability to survive long-distance transportation.

5.1.2. Re-socialize the food: Cultivating connections with consumers and local governments

Farm managers of Plough Farm and Roadside Farm are devoted to the socialization efforts to convincing consumers. While concerns about food safety in China have prompted many consumers to embrace organic agriculture, the majority of the consumers are still not familiar with fundamental principles behind organic farming, such as environmental conservation and living in harmony with nature. Both farm managers offer a series of farm tours and agricultural education events. These initiatives aim to showcase their achievements in ecological stewardship through organic farming practices and educate visitors about the principles of organic farming and lifestyle (See Figs. 6 and 7). In most cases, these performances of competence and integrity in their farm's organic

Fig. 4. Village square in Creek Village (Source: Authors).

Fig. 5. A "xin long wei" in Creek Village (Source: Authors).

Fig. 6. Restaurant in Roadside Farm (Source: Authors).

Fig. 7. Signage in Roadside Farm (Source: Authors).

practices are primarily aimed at reinforcing consumer trust in their products (Li, 2024). Beyond promoting the core values of alternative agriculture, a key objective of these events is to diversify the farms' business activities and improve their farm income. To capture greater economic benefits from these agritourism events, Plough Farm has established a 27-room bed-and-breakfast (B&B), while Roadside Farm operates an organic restaurant and bar. The high profitability of these hospitality events is undermining their initial purpose: agritourism has now become the core business for Plough Farm, while Roadside Farm manager positions the farm as a versatile small-scale organic farm. In Greenway's case, the socialization is done through live-streaming and storytelling through social media, in which consumers can see not only their products but also observe the daily farming operations.

Another key aspect of the socialization of Plough Farm and Roadside Farm lies in maintaining strong relationships with local government authorities to secure formal support for their farming businesses. For example, Roadside Farm secured a long-term lease on 300 mu of land through the intervention of the Zhuhai municipal government, which have resolved recurrent issues related to the breaching of farmland lease contracts by farmers. Both farms have received honors for outstanding performance at provincial and municipal levels. Roadside Farm was awarded the title of a dragon-head enterprise. Companies with these honors are expected to lead local villagers to increase their income and facilitate the agriculture transition (Zhang et al., 2015). However, these accolades are mostly manipulated by both farms to apply for government incentives and support, which ranged from 100,000 to several million yuan. Local government authorities also constantly inform both farm managers about opportunities to apply for agricultural subsidies, such as those for constructing greenhouses. Government support has been crucial in enhancing the economic viability of both farms, especially during their initial stages of farming business. This support comes with conditions. As leading agricultural enterprises, both farms' managers need to host visits by national, provincial, or municipal governments, which serve to validate the success of local governments in rural revitalization.

The re-socialization of food in both farms is also marked by a lack of efforts to engage with local communities. Driven by consumer demand for organic products, Plough Farm and Roadside Farm managers collaborate with non-local organic farms and smallholders to expand their market reach and product range. They partner with these entities to retail organic produce and fruits through their platform, earning a platform fee. Their online shops feature sections highlighting the stories of these organic farms and smallholders to promote their products. While this collaboration helps build organic smallholder communities, farmers from nearby villages are excluded because their products do not

meet the quality standards of the two farms.

5.2. Prosperity of organic business and the marginalization of local farmers

The organic farming business of Plough Farm and Roadside Farm has been a huge success: Plough Farm currently has an annual turnover of three million yuan from organic farming, while Roadside Farm exceeds 20 million yuan annually, with over 500 long-term members and nearly 1000 intermittent members. However, most of the revenues from these farms are captured by the farm owners rather than being dispersed locally.

The rapid growth of this type of AFNs facilitates the diversification of local income - agribusinesses lead the transformation of farmland into an asset, from which local villagers can receive rental incomes. Ploughing Farm possesses a total of 200 mu of farmland, with an initial annual rent averaging around 800 yuan per mu. The farmland rental fee increases by five percent every two years. Roadside Farm has around 300 mu of farmland, with rental fees ranging from 600 yuan to 800 yuan per mu. Farmland transfer seems to generate lower returns compared to farming, as annual incomes from farming typically range from 10,000 yuan to 15,000 yuan per mu. But labor inputs and the procurement of seeds, pesticides, and fertilizers, as well as fluctuations in product prices significantly affect the profitability of farming. Farmland transfer enables more villagers to move out of farming and seek urban employment, whereby they may earn more than in farming. In this instance, the growth of agribusinesses exacerbates the steep decline in rural populations, which contrasts with the prevalent belief that AFNs are an effective solution to addressing the challenges of rural population decline (Chen et al., 2022). As an employee of Plough Farm explained:

> *Local villagers willingly lease out their land, despite the fact that the income generated from land leasing is comparatively lower than farming. However, this allows them to seek employment opportunities outside of agriculture, which can result in significantly higher earnings. In fact, one couple can earn up to 100,000 annually if they work in cities, which is often less physically demanding compared to farming. (Plough Farm employee, July 03, 2023*)

The rapid growth of alternative agriculture also generates limited employment opportunities for local farmers. One of the prerequisites for farmland lease set by village committees is to employ locals as farm workers. Given the urgent need for farmland, both agricultural managers consented to this prerequisite. But the number of new local employment opportunities derived appears to be modest - approximately 40 local villagers work at Plough Farm and 80 at Roadside Farm. Their salaries range from 3000 yuan to 4500 yuan per month. This aligns with the argument of Forssell and Lankoski (2015) regarding the economic benefits that the growth of AFNs can bring to rural communities.

However, the superficial engagement of local farmers in organic farming - through farmland leasing and wage work - prevents organic farming from being territorially embedded. Local farm workers primarily engage in daily agricultural tasks such as plowing, fertilizing, weeding, harvesting, and packing produce, which closely resembles the work performed on conventional farms. As the business of organic farming grew, Roadside Farm expanded its workforce. Due to the lack of education, skills, and experience of local villagers, the manager of Roadside Farm hired approximately 60 non-local employees - often referred to as new farmers in the countryside (Laforge & McLachlan, 2018) - who assumed the crucial roles in marketing, farm management, and finance. In contrast, local employees predominantly engage in manual agricultural tasks. Both farm management teams are not concerned with enhancing the skills and knowledge of local farmers in alternative agricultural practices. There is a clear segregation between the two organic farms, which use sustainable farming techniques, and local villagers, whose farming practices still rely on chemical fertilizers and pesticides.

Both Plough Farm and Roadside Farm operate diversified agricultural businesses that encompass farm tours, restaurants, cafes, and shops, thereby fostering a symbiotic relationship between alternative agriculture and agritourism. Plough Farm has effectively attained its objective of deriving 60% of its revenue from agritourism, whereas Roadside Farm has welcomed approximately 2000 tourists in 2023. These strategies are not groundbreaking in the advancement of AFNs, as agritourism is widely acknowledged as a principal approach for diversifying farm income and has been implemented across diverse rural settings (Mettepenningen et al., 2012). While these “innovative” activities align well with alternative agriculture, there is a weak connection between local farmers and these tourism activities - neither specific partnership arrangements between the farms and local farmers are made, nor are local farmers actively involved in these activities. But ironically, the landscapes of local farmers’ farmland and the village houses where they live serve as attractions for these activities.

6. Discussion and conclusions

This study aimed to explore the dynamics of how producer-oriented and consumer-oriented AFNs are structured and evolved, along with the derived trajectories of rural revitalization. This study suggests that when AFNs prioritize producers’ pursuit of alternatives to the conventional agrifood system over solely catering to urban consumers’ instrumental needs, AFNs can then become an engine for rural revitalization by facilitating the transformation of the agricultural economy, the benefits of which further enhance the living environment and community fabric, as shown in Table 1.

Both producer-oriented and consumer-oriented AFNs contributed to the goal of restoring economic vitality in rural areas, as manifested in the boom of alternative agriculture and agritourism. In this regard, the development of AFNs in rural areas can provide new employment opportunities and enhance the diversification of local income source. At producer-oriented cases, the transition to organic farming presents local farmers with a viable solution in the evolving agricultural sector, as well as enables them to capture its economic benefits. In contrast, at consumer-oriented cases, local farmers participate in alternative agriculture through farmland rental or wage work, while most economic gains from organic farming flow to the agribusiness. This aligns with the prevailing criticism of China’s AFNs as having minimal engagement of local farmers (Si et al., 2015; Zhang, 2024; Zhong et al., 2022).

AFNs are perceived optimistically as a vehicle for fostering talent development in alternative farming (Chen et al., 2022), but the producer- and consumer-oriented AFNs studied demonstrate different impacts on rural talent development. At producer-oriented cases, the interactions between non-local professionals or smallholders and local farmers facilitate the transfer of knowledge and experience in organic farming, thereby enhancing local capacity in this agricultural practice (Drottberger et al., 2021). The influx of new farmers (non-local employees) into villages are found in all consumer-oriented cases. However, the division between new and local farmers - where local farmers handle basic tasks while urban talents play a key role in farm management - makes it difficult to improve the local expertise in alternative agriculture and produce significant impacts on the conventional agriculture practices of local farmers.

Aligned with the ecological goals of AFNs for rural revitalization (Chen et al., 2022), organic agriculture in both producer- and consumer-oriented AFNs reduces agriculture’s negative impacts on local environments. The improvements in landscape and environmental facilitated by producer-oriented AFNs also extend to the reconfiguration of public spaces, which has ripple effects on revitalizing community life. In this regard, AFNs fulfil its mission of rural revitalization by channeling economic resources to support community life and relationships (Si & Scott, 2016). The two consumer-oriented farms highly value the agricultural principles of organic farming, as evidenced by their efforts to disseminate these principles. Their efforts to *perform* the culture and

Table 1
Producer- and consumer-oriented AFNs as an engine of rural revitalization.

		Producer-oriented AFNs	*Consumer-oriented AFNs*
Motivation		Enhancing rural economic viability, ecological sustainability, and social equity	Meeting urban consumers' demand for quality food.
Approach to engage local farmers into AFNs		Organizing local farmers to transition to alternative agrifood practices	Leasing farmland and hiring wage workers
Organizing AFNs	*Food re-localization*	Producing food with geographic and cultural connections Building a producer-dominant supply chain	Use geographic proximity to consumers to build short supply chains
	Food re-socialization	Improving local capacities in organic farming Strengthening local communities	Gaining trust from consumers and maintaining relationship with governments
Rural revitalization	*Economic vitality*	Growth of alternative agriculture and agritourism, new employment opportunities, and local income diversification Economic gains kept locally	Economic gains mostly captured by agribusinesses
	Talent development	Training local organic farmers through knowledge exchange	The influx of new farmers (non-local farm employees) into villages
	Living environment	Alleviating the pressure on local ecosystems and environment from productivist agriculture Improving public spaces and housing	–
	Culture	Revitalizing community life	Dissemination of values and principles of organic farming to agro-tourists
AFNs as an engine of rural revitalization	*Organization*	The establishment of community-based organizations by local farmers	The establishment of alternative agribusinesses
		The transformation of the local agrifood system, improvement in living environment, and strengthening of community	The growth of organic farming and certain related businesses

principles of organic farming primarily target consumers (Li, 2024), with local farmers taking a secondary position.

In both producer- and consumer-oriented AFNs, the expansion of organic agriculture facilitates the formation of new economic entities, managed by locals or non-locals. In producer-oriented cases, community-based organizations are key to enhancing local farmers' participation in alternative agriculture. While practical reasons drive most villagers to establish and join these organizations (Hinrichs, 2000), local farmers receive support and training for transitioning to alternative agriculture (Hu & Zhang, 2024), which strengthens the socio-economic foundation of alternative agriculture in these villages. Plough Farm and Roadside Farm are officially recognized as leading enterprises expected to promote rural development by sharing organic farming techniques, information, and market opportunities with local farmers. However, their strong ties with local government primarily serve to secure more formal support, rather than integrating local farmers into their operations or building "interest coupling" with them (Schneider, 2017, p. 8). The potential of these new agricultural organizations to contribute to organizational revitalization is thus diminished.

This case study adds to the scholarship on AFNs in two ways. First, this study contributes to the understanding of varying forms, actions, and rationales in organizing and developing AFNs. The essence of organizing producer-oriented AFNs lies in re-localizing food production through addressing producers' considerations to shorten supply chains and highlighting local identity through local branding, as well as re-socializing food through enhancing local capacities in alternative farming practices. The primary objective of producer-oriented AFNs is to facilitate the transition of local farmers towards alternative agriculture as a way of addressing social and economic issues of rural communities. Consumer-oriented AFNs prioritize meeting the instrumental needs of urban consumers while involving local rural communities minimally, with the goal of maximizing benefits from organic farming. The diverse forms, actions, and rationales behind structuring producer- and consumer-oriented AFNs result in distinct relationships between alternative agriculture and local farmers, which are crucial for understanding different trajectories to the revitalization impacts of AFNs on rural communities.

Second, this study contributes to unpacking the complexity of AFNs as an engine for driving rural economic viability, ecological sustainability, and social equity. The current literature takes the potential of AFNs for granted and underestimates the heterogeneity of AFNs in facilitating rural development (Goszczyński & Wróblewski, 2020; Poças et al., 2021). The experience of producer- and consumer-oriented AFNs underscores the crucial role of local farmers' participation in AFNs for promoting broad rural development. Integrating local farmers into AFNs involves more than their roles as land renters or laborers; local farmers can shift to alternative agriculture through capacity building and external resource support. It is only with the deep involvement of local farmers that most economic benefits of alternative agriculture can be shared locally and used to improve the living environment and community fabric. This contrasts with the high instrumentalism of consumer-oriented AFNs, which are likely to promote the development of agribusinesses and certain related businesses, leaving local farmers and non-economic aspects of rural life neglected (Martindale, 2021; Xie, 2021).

This study offers policy implications to enhance local farmers' participation in AFNs. First, local governments could provide subsidies or low-interest loans to farmers transitioning to alternative agriculture, which may help cover initial costs and reduce financial risks. Second, governments can support projects that develop and transfer alternative agricultural techniques to smallholders. Through this, smallholders may make a more successful transition and adopt more sustainable agricultural practices. Third, improving market access for alternative farmers, such as through farmers' markets and food festivals, can connect local producers with consumers and encourage greater participation in AFNs.

While AFNs have been increasingly regarded as an initiative for rural development (Marsden et al., 2000; Si & Scott, 2016), many AFN practices are consumer-oriented and initiated by agribusiness and new urban farmers rather than rural communities. Interactions between new farmers/agribusinesses and rural communities may be a focus for future research, as the relationships between AFNs and rural communities are key to unlock the potential of AFNs in ultimately facilitating rural development.

CRediT authorship contribution statement

Meiling Wu: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Qian Forrest Zhang:** Writing – review & editing, Writing – original draft, Funding acquisition, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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