Proceedings of the 3rd International Conference on Business and Policy Studies
DOI: 10.54254/2754-1169/106/20241589

Analyzing the Economic Viability of the Shared Farming Model

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Abstract: Innovative agricultural models have emerged in recent decades, with the shared farming model gaining prominence for its cooperative approach to resource sharing and mutual benefits among stakeholders. This research focuses on conducting an empirical investigation of the shared farming model involving farmers in the context of sustainable agricultural development. It investigates farmers' experiences with the shared farming model as well as the shared farming model's economic viability. The study was conducted in the Shanghai region, involving 40 participants who were sampled purposely. Findings revealed that shared farming has the potential to promote farmers' income, with most respondents reporting satisfaction with the economic returns. Resource access, risk-sharing, and market expansion were recognized as major drivers of this success. Challenges, including resource allocation disputes, are acknowledged, highlighting the need for structured agreements and conflict resolution mechanisms. This research highlights the economic potential of shared farming models, suggesting that they offer an avenue for promoting agricultural sustainability and rural development.

Keywords: Agriculture, Economic Viability, Commercial Feasibility, Sustainable Development, Financial Costs.

1. Introduction

The shared farming model in China is intended to sustain farm income to have a balanced, profitable agribusiness in the long run. The comparatively recent goal for a green China seeks mutual reciprocity in a variety of areas, with a concentration on the ecosystem. Nonetheless, in the context of new policy objectives, the economic sustainability of agricultural companies cannot be overlooked. It's crucial to delve into the perceptions of the farmers who engage with it and to gauge the economic returns they experience. This research, therefore, seeks to investigate the shared farming model from the perspective of those directly involved: the farmers.

1.1. Background

Shared Harvest, according to The Food and Land Use Coalition, is an organic farm that promotes the community-shared agriculture model (CSA Model). Until the project's inception in May 2012, shared harvest has grown to occupy 66 acres in Beijing's Tongzhou and Shunyi municipalities [1]. These plots of land, which follow a community-shared agronomic framework, are cultivated with organic

DOI: 10.54254/2754-1169/106/20241589

produce, fruits, and cereals, as well as cattle breeding. Unlike traditional farming, shared farming encourages collaboration and resource-sharing among multiple stakeholders, with the aim of optimizing land use, diversifying production, and achieving higher economic returns. The shared farming model is multifaceted, with potential implications for transforming agricultural landscapes, enhancing economic sustainability, and improving the overall welfare of farming communities. It presents a unique opportunity to address resource limitations and promote more efficient land use, making it an attractive prospect for policymakers and agricultural practitioners seeking sustainable solutions.

1.2. Problem Statement

Traditional agricultural practices face various challenges in the contemporary landscape, ranging from the pressures of climate change to evolving demographics. In response, innovative farming models like shared farming have emerged, emphasizing cooperation, resource-sharing, and mutual benefits among stakeholders. However, a critical knowledge gap exists regarding the economic viability of this model, as perceived by farmers and in terms of their actual economic returns. To address this gap, this research seeks to comprehensively assess the economic sustainability and farmer perceptions of the shared farming model to inform policymakers, agricultural practitioners, and stakeholders about its potential as a transformative agricultural approach.

1.3. Objectives

The study objectives are outlined as follows:

a. To investigate farmers' perceptions towards the shared farming model.

b. To investigate the economic returns sustainability of shared farming from the farmers' perspective

2. Research Methodology

Structured questionnaires were used to collect data for the study among participants in Shanghai. A survey design was considered appropriate for this study as it is cost-effective and manages to collect data from a sizeable number of participants within a short period of time. The questionnaire was made up of a series of questions designed to elicit information from respondents regarding their perspectives, interactions, or personal views about the economic sustainability of the shared farming model. The structure of the questionnaire comprises three sections: The first section requires the participants to provide their information, which is useful for gaining knowledge about the participants. The second section captures participants' perspectives regarding shared farming models, their motivation, and the challenges associated with shared farming models. The third section outlines participants' perspectives about the model's economic viability.

Participants for this study were sampled using a purposive technique. The purposive sampling technique was appropriate for this study as it sought to obtain participants who had prior experience with the shared farming model. A sample size of 40 participants was deemed appropriate for providing useful information for the study. Upon distribution and receipt of the filled questionnaires from the participants, the data was physically scrutinized, and those numerous gaps were discarded. Collected data was analyzed using MS Excel analysis tools, and results were presented in the form of visualizations. The presentations took the form of pie charts and bar graphs to visualize trends and attributes of collected data, providing useful information.

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3. Literature Review

3.1. Shared Farming Model Challenges

Shared farming models have gained attention as innovative approaches to address the complexities and challenges facing modern agriculture. While these models offer numerous advantages, a growing body of literature recognizes that they are not without their share of challenges. Resource allocation and management issues have been noted in various studies [2,3]. Disputes may arise regarding the fair and efficient distribution of land, equipment, and resources among participants. Effective communication and coordination are also critical, and the lack of clear protocols in this regard is acknowledged as a significant challenge [4]. In a shared farming arrangement, risk-sharing mechanisms can be complex to establish. While shared farming can help distribute risk among participants, it can also lead to complex risk-sharing arrangements [5]. Managing differing goals and expectations among participants, including financial returns and sustainability objectives, is another challenge acknowledged in the literature [2,6].

Li and Wang studied the trust problem of the sharing economy and found that the trust mechanism between partners tends to pose a significant challenge [7]. Hence, it's important to establish a clear trust mechanism to better implement the sharing economy and maintain loyal customer relationships. Lai et al. acknowledged that shared farms are a new form of the sharing economy and a manifestation of the sharing economy in the agricultural economy [8]. Its essence is a shared agricultural production and consumption model that weakens "ownership" and strengthens "use rights." However, the associated shortcomings of shared farms are rational planning and confusion of functions [9]. A significant misunderstanding lies in focusing on construction and neglecting operation. However, with better planning the partners can engage in profit-oriented techniques that can guarantee returns, including selling agricultural products, revitalizing the limited resources in rural areas, renting and sharing, and setting online platform for marketing.

3.2. Economic Viability

Shared farming can be regarded as a means to promote sustainable and economically viable agricultural practices. Scholars have conducted a corresponding study on the sharing-economy operation concept and projected financial benefits. They determined that sales revenue, resource sharing, value enhancement, and concept commercialization are the primary profit strategies of existing shared farming in international and domestic markets. According to Metta, there are four ongoing development patterns of shared farms overseas, comprising farm-community partnerships, sightseeing holidays, complete openness, and extensiveness [10]. Li and Wang concluded three types of domestic collective farm operation models, including simple sharing models such as agricultural product acknowledgment, framework shared farm models based on the building works of a connectivity credit facility, and smart shared farm designs based on the Internet of Things (IoT), machine learning, and big data [7]. These models may be accompanied by different levels of economic returns with respect to the robustness of the techniques implemented.

Studies have emphasized the potential for shared farming to enhance the economic sustainability of farming operations. In their analysis of farmers' partnerships in Australia, Githui found that the model led to significant cost savings, as participants could collectively invest in modern equipment, reducing individual capital outlays [11]. Garcia and Miller's study also acknowledged that the risk-sharing aspect of shared farming played a significant role in protecting individual farmers from the adverse effects of weather events and market fluctuations, leading to more consistent and reliable profits [12]. Shared farming can also facilitate economies of scale, allowing smaller farms to access markets that might otherwise be out of reach. Kobrich et al. explored shared farming in the context

DOI: 10.54254/2754-1169/106/20241589

of organic produce and found that participants collectively gained entry into higher-value markets, increasing overall profitability [13]. It is also worth noting that knowledge exchange and innovation are often considered essential components of shared farming. Paltasingh highlighted that shared farming may be useful in providing continuous learning and experimentation, leading to improved crop yields and increased profits [14]. Farmers may be confident in exploring various techniques and implementing ones with profitable outputs. Some researchers have raised concerns about the long-term viability of shared farming models. Coble noted that while shared farming can offer initial profitability benefits, sustaining these benefits over time requires robust governance structures and conflict resolution mechanisms [15]. It is essential to note that the profitability of shared farming models can vary depending on regional factors and the specific context. Therefore, this study will seek to evaluate the economic potential of the shared farming model within the Shanghai context.

4. Findings and Discussion

4.1. Sample Characteristics

After collecting data from the participants, it was identified that 33 (82.5%) were male while 7(17.5%) were female. Among these participants, 15% reached primary school or below, 27.5% attained high school level, 32.5% attained college or vocational, 20% attained bachelor's degree, and 5% at the postgraduate level. The monthly household income ranged from 7.5% (below 5000 RMB), 27.5% (5001-10000 RMB), 25% (10001-15000 RMB), 32.5% (15001 – 20000 RMB) to 7.5% (Above 20000RMB)

4.2. Perceptions of farmers on share farming

In order to gain deeper insights into the practicability and operationalization of the shared farming model, the participants were asked to share their perspectives of the model.

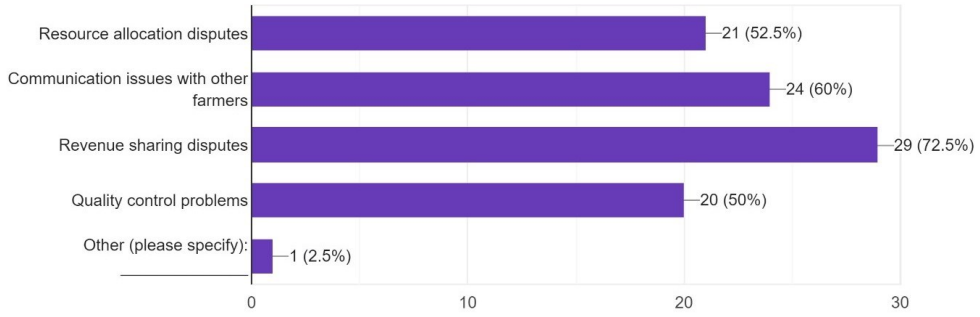

Figure 1: Revenue sharing challenges.

A question asking about the challenges experienced revealed that revenue sharing, resource allocation, and communication are significant barriers with respect to the share farming model. From the data, revenue sharing disputes were highly rated (72.5%), followed by communication issues with other farmers (60%), resource allocation disputes (52.5%), and lastly, quality control problems (50%) as shown in figure 1 above.

DOI: 10.54254/2754-1169/106/20241589

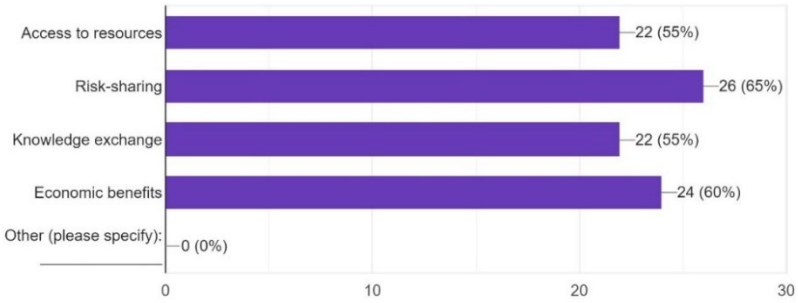

Figure 2: Motivation factors for the Share farming model

The findings highlight the challenges faced within the shared farming model and provide valuable insights into the specific issues that can hinder its successful implementation. These challenges are consistent with the existing literature, highlighting the importance of effective resource allocation and communication [15]. The high rating of revenue-sharing disputes signifies the complexity of this aspect within shared farming. In addition, the substantial percentage of participants citing communication issues reflects the need for clear and efficient communication protocols among stakeholders to address concerns and prevent conflicts. These findings emphasize the critical role of governance structures and conflict resolution mechanisms in the success of shared farming models, aligning with the insights provided by Ebli et al. [16]. The data also highlights that quality control problems, while significant, ranked slightly lower in comparison, suggesting that participants may be more inclined to address issues related to resource allocation and communication as primary concerns.

However, the farmers were motivated to engage in the share farming model, citing risk sharing and the associated economic returns as the main determinants. With respect to the findings, 65% of the respondents indicated that they are motivated by the risk-sharing aspect of shared farming, 60% indicated accompanying economic benefits, with 55% cited access to resources and knowledge exchange as significant motivators, as shown in Figure 2 above. Notably, these motivations align with their experience in the share farming model as 20% acknowledged having practiced this model for about 4 years. As indicated in figure 3 below, majority of respondents (70%) attributed their shared farming experience to 5 years and below whereas only 30% of these farmers have implemented shared farming for more than 6 years.

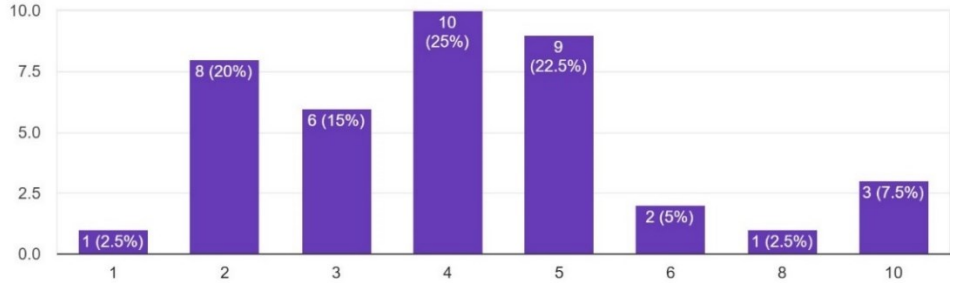

Figure 3: Share the farming model experience.

The findings shed light on the motivations that drive farmers to engage in shared farming models and reveal a clear alignment between these motivations and the practical experiences of participants. The prominence of risk-sharing as a primary motivator corresponds with the recognized importance of risk mitigation in shared farming models in prior research [14]. Similarly, the emphasis on economic benefits reflects the potential for cost savings and enhanced profitability that has been documented. The motivations also underline the appeal of shared farming models in terms of

DOI: 10.54254/2754-1169/106/20241589

accessing resources and knowledge exchange, which aligns with the principles of collective learning and resource pooling often associated with shared farming. Importantly, the distribution of respondents' experience within the shared farming model, with a majority practicing it for five years or less, suggests that the motivations reported here are grounded in their actual experiences. This indicates that the shared farming model is attractive in theory and translates into meaningful benefits and motivations for participants in practice.

4.3. Economic Returns and Viability

The study also sought to understand economic returns and gauge the economic viability of the shared farming model. When asked about the potential increase of income, 92.5% of the sample population agreed to ever record a substantial increase in their incomes since implementing the shared farming model into their agribusiness entities. To further investigate the economic viability of the shared farming model, participants were required to rate the likelihood of the model's potential to increase income. From the analyzed results (as indicated in Figure 4 below), 77.5% indicated high likelihood with only 10% lowly rating the potential increase.

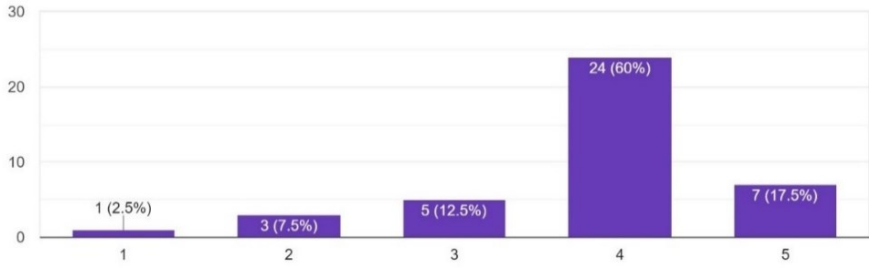

Figure 4: Potential increase in income.

Participants were also asked to estimate the amount generated from the shared farming practice. It is noted that 32.5% of the respondents recorded substantial earnings between 20,000RMB to 30,000RMB since their inception of the shared farming model into their agribusiness entities. Only a handful (10%) of these farmers have recorded less than 5,000 in annual income since the inception of the shared farming model (See figure 5).

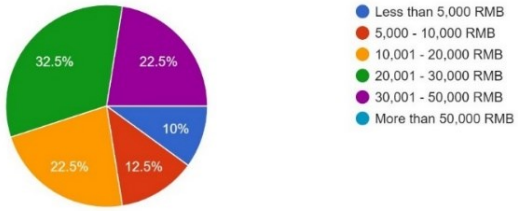

Figure 5: Average income from the shared farming model

Concerning an increase in farmers' income levels, the participants were tasked with providing their projection on what would be the reason for an increase in income levels after they implemented the shared farming model. 67.5% of these respondents believe that shared farming is a cost-saving strategy in agribusiness and 65% of the respondents outlined that the access to bigger markets for their produce is the reason behind an increase in their income levels. Other factors included government subsidies (62.5%) and improved crop yields (52.5%) as indicated in figure 6 below.

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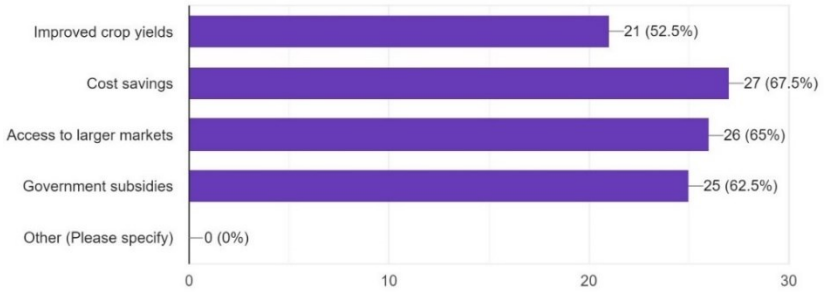

Figure 6: Primary sources of increased income in shared farming.

The findings from this study paint a highly positive picture of the economic viability of the shared farming model, with a substantial proportion of participants reporting increased incomes since implementing the model. These findings align with previous research emphasizing the economic benefits of shared farming [17], notably in terms of cost savings and access to larger markets. The ratings indicating a high likelihood of income increase reinforce the perceived economic viability of the shared farming model and suggest that it is seen as a promising strategy for income growth by the majority of participants. These findings reflect the potential of shared farming to not only enhance profitability but also to serve as a cost-effective and sustainable agribusiness approach.

5. Conclusion

5.1. Summary of Findings

The study sought to investigate the shared farm model's economic viability and highlight the potential challenges. Following the analysis, findings highlighted the nature of shared farming, with challenges revolving around revenue sharing, resource allocation, and communication playing significant roles. These challenges resonate with previous research, emphasizing the importance of effective resource allocation and communication, highlighting the critical role of governance structures and conflict resolution mechanisms in the success of shared farming models. However, despite these challenges, the study unveils a strong motivation among farmers to engage in shared farming. The prospect of risk sharing, economic benefits, and access to resources and knowledge exchange drives this motivation. These motivations align closely with the practical experiences of participants, indicating that shared farming is not just an attractive theory but a tangible source of benefits for those engaged in the model. Moreover, the economic returns from shared farming are highly favorable, with most participants reporting increased incomes since implementing the model. This economic viability is corroborated by the perceived potential of shared farming to increase income, with an overwhelming majority expressing confidence in this aspect. These findings emphasize the potential of shared farming as a cost-effective and sustainable agribusiness approach. Generally, this study's comprehensive insights into the challenges, motivations, and economic returns associated with shared farming contribute to a more in-depth understanding of this innovative model's dynamics and its potential to play a significant role in shaping the future of agriculture.

5.2. Recommendations and Suggestions for Future Research

Following this study's findings, the following recommendations are critical.

1. The policymakers and government should develop and implement policies that provide incentives for shared farming, such as tax benefits, access to resources, and infrastructure support. This can encourage more farmers to engage in shared farming practices.

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2. The government should invest in training programs and extension services to educate farmers about the benefits of shared farming and provide them with the necessary skills to participate effectively.

3. Farmers should seek to stay updated on best practices and innovations in shared farming and agriculture by attending training and workshops to enhance skills and knowledge.

4. Given that this study was based on farmers' perspective, future research should on long-term studies to track the economic performance of shared farming models over several years. This can provide a more comprehensive understanding of their sustainability and economic viability.

References

[1] *The Food and Land Use Coalition. (2022). China – Shared Harvest. Food and Land Use Coalition. https://www.foodandlandusecoalition.org/china-shared-harvest/#:~:text=Shared%20Harvest%20is%20an%20organic*

[2] *Smith, M.J., Daniels, N., del Pilar Guzmán Urrea, M., Rentmeester, C. A., Kotchian, S. A., Fontaine, S., Hernández-Aguado, I., ... & Viens, A. M. (2016). Resource allocation and priority setting. Public health ethics: cases spanning the globe, 61-94.*

[3] *Brown, P., & Johnson, J. (2019). Age, values, farming objectives, past management decisions, and future intentions in New Zealand agriculture. Journal of environmental management, 231, 110-120.*

[4] *Turner, B. L., Meyfroidt, P., Kuemmerle, T., Müller, D., & Roy Chowdhury, R. (2020). Framing the search for a theory of land use. Journal of Land Use Science, 15(4), 489-508.*

[5] *Robinson, N. J., Dahlhaus, P. G., Wong, M., MacLeod, A., Jones, D., & Nicholson, C. (2019). Testing the public–private soil data and information sharing model for sustainable soil management outcomes. Soil use and management, 35(1), 94-104.*

[6] *Garcia-Alvarez-Coque, J. M., Martinez-Gomez, V., & Tudela-Marco, L. (2021). Multi-actor arrangements for farmland management in Eastern Spain. Land Use Policy, 111, 105738.*

[7] *Li, L., & Wang, W. (2020). The Effects of Online Trust-Building Mechanisms on Trust in the Sharing Economy: The Perspective of Providers. Sustainability, 12(5), 1717. https://doi.org/10.3390/su12051717*

[8] *Lai, P.-H., Chuang, S.-T., Zhang, M.-C., & Nepal, S. K. (2020). The non-profit sharing economy from a social exchange theory perspective: a case from World Wide Opportunities on Organic Farms in Taiwan. Journal of Sustainable Tourism, 1–18. https://doi.org/10.1080/09669582.2020.1778709*

[9] *Idoje, G., Dagiuklas, T., & Iqbal, M. (2021). Survey for smart farming technologies: Challenges and issues. Computers & Electrical Engineering, 92, 107104. https://doi.org/10.1016/j.compeleceng.2021.107104*

[10] *Ma, L., Xin, M., Wang, Y. J., & Zhang, Y. (2022). Dynamic Scheduling Strategy for Shared Agricultural Machinery for On-Demand Farming Services. Mathematics, 10(21), 3933.*

[11] *Githui, F., Jha, V., Thayalakumaran, T., Christy, B. P., & O'Leary, G. J. (2023). Resource sharing in intercropping models and a case study with APSIM in southern Australia. European Journal of Agronomy, 142, 126680.*

[12] *Britz, W., Ciaian, P., Gocht, A., Kanellopoulos, A., Kremmydas, D., Müller, M., ... & Reidsma, P. (2021). A design for a generic and modular bio-economic farm model. Agricultural Systems, 191, 103133.*

[13] *Köbrich, C., Rehman, T., & Khan, M. (2013). Typification of farming systems for constructing representative farm models: two illustrations of the application of multi-variate analyses in Chile and Pakistan. Agricultural systems, 76(1), 141-157.*

[14] *Paltasingh, K. R., Basantaray, A. K., & Jena, P. K. (2022). Land tenure security and farm efficiency in Indian agriculture: Revisiting an old debate. Land Use Policy, 114, 105955. https://doi.org/10.1016/j.landusepol.2021.105955*

[15] *Coble, K. H., Mishra, A. K., Ferrell, S., & Griffin, T. (2018). Big data in agriculture: A challenge for the future. Applied Economic Perspectives and Policy, 40(1), 79-96.*

[16] *Egli, L., Rüschhoff, J., & Priess, J. (2023). A systematic review of the ecological, social, and economic sustainability effects of community-supported agriculture. 7. https://doi.org/10.3389/fsufs.2023.1136866*

[17] *Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing, and organizational innovation. Technology in Society, 66(1), 101635.*

DOI: 10.54254/2754-1169/106/20241589

Appendix

Questionnaire for Farmers
Economic Viability of the Shared Farming Model

You are invited to participate in a questionnaire for a thesis research project titled "Analyzing the Economic Viability of the Shared Farming Model." Your responses will provide valuable insights into the economic aspects of shared farming. Your participation is entirely voluntary, and your responses will remain confidential. By completing the questionnaire, you consent to the use of your data for research purposes. Thank you for your contribution to this study.

The objective of this questionnaire is to investigate the following.

- ✓ To investigate farmers' perceptions towards the shared farming model.
- ✓ To investigate the economic returns of shared farming from the farmers' perspective.

Section 1: Participant Information

1. What's your gender?
   - ☐ Male
   - ☐ Female
   - ☐ Prefer not to say
2. What's your age: _____
   - ☐ Under 25
   - ☐ 25-34
   - ☐ 35-44
   - ☐ 45-54
   - ☐ 55 and above
3. What is your educational level?
   - ☐ Primary school or lower
   - ☐ High school
   - ☐ College or vocational school
   - ☐ Bachelor's degree
   - ☐ Postgraduate degree

Section 2: Perceptions of Shared Farming

5. Are you currently involved in a shared farming arrangement?
   - ☐ Yes
   - ☐ No
6. If yes, how long have you been involved in shared farming? _____ years
7. What would motivate you to participate in shared farming? (Select all that apply)
   - ☐ Access to resources
   - ☐ Risk-sharing
   - ☐ Knowledge exchange
   - ☐ Economic benefits
   - ☐ Other (please specify): _____

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8. How do you perceive the environmental impact of shared farming?
    - ☐ Positive
    - ☐ Neutral
    - ☐ Negative
9. What challenges are encountered while participating in shared farming? (Select all that apply)
    - ☐ Resource allocation disputes
    - ☐ Communication issues with other farmers
    - ☐ Revenue sharing disputes
    - ☐ Quality control problems
    - ☐ Other (please specify): _____

Section 3: Economic Returns of Shared Farming

10. Have you experienced any increase in your income since participating in shared farming?
    - ☐ Yes
    - ☐ No
11. If yes, how would you rate the increase in income? (Scale of 1-5, with 1 being very minimal and 5 being significant)
    - ☐ 1
    - ☐ 2
    - ☐ 3
    - ☐ 4
    - ☐ 5
12. In your opinion, what are the primary sources of increased income in shared farming? (Select all that apply)
    - ☐ Improved crop yields
    - ☐ Cost savings
    - ☐ Access to larger markets
    - ☐ Government subsidies
    - ☐ Other (please specify): _____
13. Please estimate the average income you have earned from shared farming in the last year. Select the range that best represents your average annual income from shared farming:
    - ☐ Less than 5,000 RMB
    - ☐ 5,000 - 10,000 RMB
    - ☐ 10,001 - 20,000 RMB
    - ☐ 20,001 - 30,000 RMB
    - ☐ 30,001 - 50,000 RMB
    - ☐ More than 50,000 RMB
14. Is shared farming economically viable for the farmer? Please provide your opinion concerning the shared farming potential to sustain your income compared to traditional farming.

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- ☐ Completely Disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Completely Agree

15. How would you describe your overall satisfaction with shared farming in terms of economic returns?
    - ☐ Very Satisfied
    - ☐ Satisfied
    - ☐ Neutral
    - ☐ Dissatisfied
    - ☐ Very Dissatisfied
16. Please add any other relevant comment concerning the profitability and long-term returns of shared farming models.

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