

# Linking social capital as mediated by self-efficacy and its impact on farmers' well-being: The case of Guizhou Province, China

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**Abstract:** In recent years, how farmers leverage social capital to improve their well-being has become a crucial question in post-poverty alleviation China. This study assessed the impact of 'linking social capital' on farmers' well-being, as mediated by self-efficacy. The study was conducted using data collected from 443 randomly selected farmers from two villages in Guizhou Province, China. The Partial Least Squares Structural Equation Model (PLS-SEM) was employed to analyze the proposed relationships in the study. The results indicate that linking social capital, when mediated by self-efficacy, positively impacted farmers' well-being. This suggests that policymakers and implementers exercising hierarchical power in social improvement programs in disadvantaged provinces, such as Guizhou, should take full advantage of linking social capital to effectively improve farmers' well-being. In doing so, the study concludes, they should consider the positive role farmers' self-efficacy can play in the process.

**Keywords:** farmers' well-being; linking social capital; farmer's self-efficacy; mediator; Guizhou

## 1. Introduction

The pathways to human well-being are diverse, encompassing economic and sociocultural aspects, and even spiritual dimensions. Yet, well-being is often used synonymously with happiness and a meaningful life based on personal assessment (Williams et al., 2022). Moreover, the term "well-being" in development literature suggests the core welfare goals pursued by governments, aiming not only for social gains but also for individual material benefits. Hence, humans engage in productive activities to seek more wealth and happiness (Zhang, 2022). Previous research has categorized human well-being into four aspects: (1) Health status, concerning wellness and longevity; (2) Economic status, related to work and income capabilities; (3) Social relations, addressing our sense of belonging; and (4) Personal values, pertaining to what individuals deem worthy of pursuit in life (Diener and Ryan, 2008).

Given this study's focus on linking social capital and well-being, it is essential to note that the term "social capital" was initially introduced by Hanifan (1916) and has garnered interdisciplinary attention since the early part of this century (Rani et al., 2021; Shiell et al., 2020). The essence of social capital lies in the social networks of human society (Lin, 2001). According to Bourdieu (2018), social capital represents the sum of existing and potential relationships formed by individuals due to their identity and status. Since Putnam's publication of "Bowling Alone," social capital has increasingly been recognized as a crucial factor in national development, particularly

in relation to farmers' well-being (Li et al., 2022). It is considered a more suitable approach for development than the current overemphasis on physical capital (Ma et al., 2020). Lack of social capital often leads to negative emotions such as anxiety and stress, which can produce adverse health outcomes and undermine the overall well-being of actors such as farmers in the development process (Yeshey et al., 2022). For instance, the Food and Agricultural Organization (FAO), in a report titled "Global Review of Good Agricultural Extension and Advisory Service Practices," highlighted the role of social capital in aiding farmers to achieve higher levels of well-being (Swanson, 2008).

Despite this, linking social capital is seldom mentioned in the developed and developing countries, including China. However, as one of the fastest-developing countries globally, China has historically shown progress in social capital formation (Huang et al., 2023). Indeed, bonding and bridging social capital seem stronger than linking social capital (Lin, 2018; Lu, 2016). Therefore, this study focuses on the relationship between linking social capital and farmers' well-being, which is highlighted by the Chinese government's growing interest in consolidating its poverty alleviation achievements and advancing its new rural revitalization program. In both scenarios, China's socio-historical context in rural development management requires a more serious consideration of the relationship between linking social capital and farmers' well-being.

Chinese scholars like Qiu et al. (2022) and Lin (2018) noted that the year 2000 marked a turning point for farmers' well-being in the country. Before that year, farmers' well-being was primarily based on collective resources and self-responsibility. Specifically, the urban-rural divide was significant, with deliberate state-driven rural support for cities creating a vast gap in the quality of life in favor of urban dwellers. This led to farmers being significantly behind city residents in terms of income, employment, education, healthcare, and public facilities (Lu, 2016; Qiu et al., 2022). In effect, farmers' well-being was compromised and excluded.

To survive, farmers had to rely on mutual assistance and support from relatives and neighbors within the village to improve their well-being. This exemplifies the role of bonding social capital, reflecting strong ties with family, friends, and close associates. On the other hand, evidence suggests that establishing bridging social capital in rural areas is more challenging than bonding social capital due to the imbalance between resource-rich and resource-scarce parties significantly weakening reciprocity (Putnam, 2000). Consequently, farmers struggle to benefit from the weak and limited bridging social capital.

By the end of the 20th century, the problems faced by rural farmers in China had become so severe and widespread that it became apparent that bonding and bridging social capital had not played as significant a role in improving the well-being of most farmers as initially assumed. In contrast, entering the 21st century, linking social capital became more relevant than ever before, improving and enhancing farmers' well-being and playing a key role in stabilizing agriculture and rural areas. The shift in state policy towards using urban areas to nurture rural areas paved the way for the intervention of linking social capital. The relationship between hierarchical authorities and farmers gradually emerged, with policies towards farmers becoming more inclusive and public finance increasingly supporting rural development. As a result,

the situation in rural China began to improve. However, the long-term impact of past urban bias remains evident. Thus, enhancing farmers' well-being and their ability to form productive linkages with provincial state authorities continues to be a challenge (Chan and Wei, 2019; Liu et al., 2019).

According to existing literature, the well-being of farmers in Guizhou Province remains a concern. As assessed by Tan et al. (2022), from 2010 to 2020, Guizhou ranked 30th among China's 31 provinces, autonomous regions, and municipalities in terms of the common prosperity level of farmers. Among the five provinces in Southwest China (Guizhou, Tibet, Chongqing, Sichuan, Yunnan), Guizhou's provision of rural public goods is the most worrying (Jiang et al., 2023; Ji, 2013).

Hence, improving well-being poses a greater challenge for farmers in Guizhou Province. First, Guizhou is the only province in China without the support of plains. Nature has endowed the province with mountains and hills (92.5% of its land area), of which 61.9% are karst landforms (Guizhou Local Chronicles Compilation Committee, 2017), affecting farmers' agricultural output and income. Secondly, the province's economic ranking places it at the bottom of the national development ladder. According to statistics, the per capita GDP of Guizhou province in 2022 was RMB 52,300, only 36.22% of that of Jiangsu, the wealthiest province in the country for the same period (Guizhou Provincial Bureau of Statistics, 2023), ranking fourth from the bottom nationwide. Moreover, its proportion of rural poor people is significant. The absolute poverty population in 2015 reached 4.93 million, accounting for 8.7% of the total poverty population in China (Li, 2018). Lastly, some farmers, due to an over-reliance on past ways of doing things, exhibit weaker initiative. Self-efficacy is seen as part of their behavioral deficit (Xin, 2021).

Therefore, this study aims to: 1) Investigate the impact of linking social capital on farmers' well-being; 2) Examine the impact of linking social capital on farmers' self-efficacy; 3) Confirm whether self-efficacy mediates the relationship between linking social capital and farmers' well-being.

In summary, this study focuses on rural areas in Guizhou Province, China, post-poverty alleviation, providing a new case study for revealing the internal mechanisms of the impact of social capital, self-efficacy, and farmers' well-being. Additionally, current research on social capital primarily focuses on bonding and bridging social capital, severely lacking in attention to linking social capital (İzmen and Üçdoğruk Gürel, 2020; Rani et al., 2021). Similarly, literature on linking social capital related to China is insufficient (Li et al., 2022). Furthermore, the mediating role of farmers' self-efficacy offers a new perspective for understanding the mechanisms of social capital's impact on farmers' well-being.

Moreover, the organization of the entire article is as follows: introduction, materials and methods, research methodology, results, discussion, conclusion and policy recommendations, and limitations.

### **1.1. The impact of linking social capital on farmers' well-being**

The connection between social capital and well-being is well-established in the literature (Xu et al., 2023). This correlation is widely recognized across fields ranging from development studies to sociology and management science literature (Beausaert

et al., 2023). However, treatments of the concepts of social capital and well-being exhibit both similarities and differences. For instance, Bourdieu (2018), Lin (2002) and Putnam (2000) all acknowledge the value of social relationships and their capacity to motivate action. Each, however, emphasizes different aspects in their definitions, highlighting social status (Bourdieu, 2018), cross-boundary connections (Lin, 2002), and norms of reciprocity (Putnam, 2000), respectively.

Putnam (2000) categorizes social capital into two widely accepted types based on the nature of social networks and the flow of resources: bonding social capital (involving connections with family, relatives, and close friends), and bridging social capital (encompassing connections with occasional friends, community-based organizations, and hobby club networks).

Building on Putnam's categorization, Woolcock and Narayan (2000) introduced "linking social capital" as vertical social relations between individuals or groups and higher-level authority institutions that facilitate access to resources and decision-making influence. This type of capital is characterized by vertical power relations within and between organizations (Woolcock and Narayan, 2000), emphasizing "who you know" rather than "what you know". In other words, linking social capital provides access to individuals, institutions, and power structures at the community level. Such linkages are evident in access to healthcare, justice, banking, and other agencies that yield the most favorable outcomes for social actors (Horwitz and Lascar, 2021). Therefore, Woolcock and Narayan's (2000) definition of linking social capital is broadly accepted and considered highly measurable, making it a powerful tool for studying well-being. This paper adopts Woolcock and Narayan's (2000) definition.

Linking social capital is seen as an essential factor influencing well-being and social cohesion, including among farmers (Iqbal et al., 2023). Recent studies demonstrate that farmers with linking social capital have improved access to government microfinance to enhance agricultural production and address pressing farm issues (Kos et al., 2023). Moreover, the more linking social capital available to farmers, the greater their likelihood of accessing new technologies and external sources of practical experience to enhance production efficiency and farm management capacity (Cofré-bravo et al., 2019). Furthermore, Kyne and Aldrich (2020) highlight the critical role of linking individuals to resource leaders or controllers at different levels of formal authority during emergencies such as natural disasters and epidemics (Kyne and Aldrich, 2020). Simply put, access to life-saving resources at this stage can mean the difference between life and death for farmers. Another dimension of research on linking social capital concerns its accessibility; namely, the social capital encompassing privileged information and resources correlates with its attainability (Cofré-bravo et al., 2019). In other words, minority groups lacking linking social capital are at a significant distance from accessing resources that could improve their well-being.

Despite the growing academic effort to explore the relationship between linking social capital and well-being, empirical research on farmers' social linkages at the community level in developing countries like China remains scarce (Rani et al., 2021). Furthermore, the few studies that have drawn empirical connections between social capital and farmers' well-being often rely on national-level data, such as the Chinese General Social Survey (CGSS) and the China Family Panel Studies (CFPS), showing

significant impacts of linking social capital on farmers' well-being and emphasizing the need for a more balanced distribution of educational and healthcare resources (Shen and Jia, 2016; Xu et al., 2023). In fact, research investigating the situation in developing countries has identified farmers as one of the most vulnerable groups whose well-being heavily depends on support from government institutions (Azadi et al., 2019), making the development of linking social capital at the community level a necessity for their overall well-being. Given the above reviews, the primary research hypothesis of this paper is formulated as follows:

H1. Linking social capital has a positive impact on farmers' well-being.

### **1.2. The impact of linking social capital on farmers' self-efficacy**

Self-efficacy is described as an individual's belief in their ability to achieve goals (Bandura, 1989). Bandura (1989) stated that the stronger the belief in one's capabilities, the more persistent the individual's efforts. Furthermore, high self-efficacy aids individuals in escaping from difficulties. In this study, self-efficacy is interpreted as farmers' beliefs in their ability to improve their well-being in post-poverty rural China.

As a motivational concept, the broad application of self-efficacy theory across a wide range of domains and contextual settings (Travis et al., 2020) allows for its application in rural China, with farming groups as the subject of study. Studies have shown a positive correlation between linking social capital and self-efficacy in various contexts (Andersson, 2021). Based on the Pearson correlation coefficient, Moghadam et al. (2020) concluded that there is a strong positive correlation between linking social capital and self-efficacy, particularly in terms of coping with agricultural production and life challenges, through the adoption of new technologies and methods (Doran et al., 2022; Okeke et al., 2023).

In China, the government's extension of education in rural areas has increased farmers' capacity to adapt to technology, apply it, and access markets as they are exposed to better knowledge, techniques, and resource allocation efficiencies (Kendall et al., 2022). Therefore, in relation to self-efficacy, this study proposes the following hypothesis:

H2. Linking social capital has a positive effect on farmers' self-efficacy.

### **1.3. The impact of farmers' self-efficacy on farmers' well-being**

Generally, high self-efficacy is often associated with more positive outcomes. For example, self-efficacy typically increases stress tolerance, improves resilience, and enhances physical and mental health (Caliendo et al., 2023; Pant et al., 2022). This is supported by studies finding that farmers who adopt the contract farming model reported increased self-efficacy and belief in their ability to achieve better well-being (Wuepper and Sauer, 2016). Additionally, farmers with higher self-efficacy tend to make more significant investments, such as adopting climate-smart technologies and mitigating potential losses from adverse weather conditions, thereby significantly increasing their income and welfare compared with other farmers (Wuepper et al., 2020). In contrast, individuals with low self-efficacy tend to be skeptical about their ability to achieve goals, making it difficult to cope with and control potential threats and difficulties in the environment. This passivity or inaction can lead to anxiety and

stress (Sharma and Kumra, 2022). As mentioned earlier, farmers’ self-efficacy will vary based on individual perceptions and motivations. Given the above analysis, the following research hypothesis is put forward:

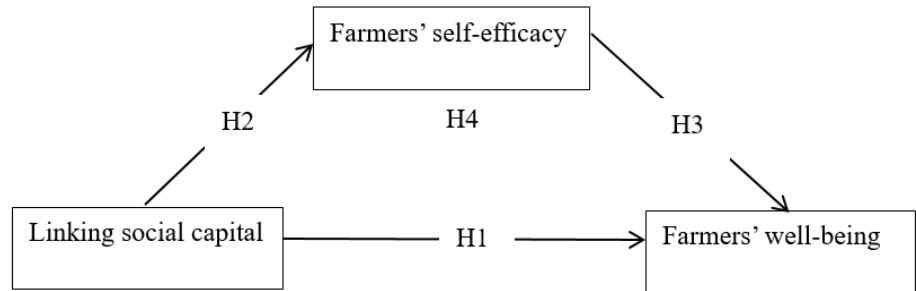
H3. Farmers’ self-efficacy has a positive effect on farmers’ well-being.

**1.4. The mediating role of farmers’ self-efficacy**

This study hypothesized an indirect link between linking social capital and farmers’ well-being. Moreover, this study hypothesized that self-efficacy plays a mediating role, which is reflected in several other studies with different constructs (Bardhoshi and Um, 2021; Werner et al., 2021). Given the above arguments, this study proposed the following hypothesis.

H4. Farmers’ self-efficacy mediates the relationship between linking social capital and farmers’ well-being.

Based on the review and analysis of relevant relationships in existing literature, **Figure 1** shows the model of this study.



**Figure 1.** Research model.

**2. Materials and methods**

**2.1. Data collection**

Data were collected from two villages in two counties of Guizhou Province, which were among the last areas to emerge from poverty, representing the forefront of national efforts to alleviate poverty and enhance farmers’ well-being. It should be noted that due to cultural differences and the characteristics of the survey subjects, the questionnaire for this study underwent expert validity review to ensure it met research objectives and was appropriately adjusted in terms of wording. Before the large-scale survey, a pre-testing was conducted among 33 farmers in these two villages. The Cronbach’s alpha values for Linking Social Capital, Farmers’ Self-efficacy, and Farmers’ Well-being were 0.737, 0.873, and 0.821, respectively. Values above the 0.7 threshold indicate good item reliability (Hair et al., 2010). Besides, KMO was 0.909, and the value of Bartlett test was 0.000. After appropriate adjustments were made to the wording, the questionnaires were distributed and collected within village by trained village cadres and personnel assisting with the survey. The farmers who completed the questionnaire all met the criteria of being 18 years or older and having farmer status. Notably, in accordance with the National Bureau of Statistics of China’s definition, migrant workers engaged in non-agricultural labor for more than six months outside the village (National Bureau of Statistics of People’s Republic of

China, 2017), were not included in the survey scope of this study.

The basis for selecting these two villages was their representativeness and the convenience of official access to the communities involved in the study. Without such official access, the research would not have been possible and would have been unethical. Furthermore, due to limitations in government permissions, financial, and logistical constraints, access to other villages was restricted, and the field staff of the study could only reach the two villages. Therefore, the key factors were to ensure the representativeness of the sample, ethical access, and consent of participants. Moreover, through observed village characteristics and the known occupations of the villagers: primarily agriculture; migrant work; household handcrafts and related activities, Guizhou villages were in several respects similar to most others in China.

Data collection for this study was conducted from May to August 2023. A total of 443 questionnaires were collected. Among these, 57 villagers did not respond to the questions due to low literacy levels, difficulty in using electronic products, and sheer unwillingness to cooperate in completing the questionnaire.

## **2.2. Sampling procedure**

The study employed a combination of convenience sampling and within-village random sampling to determine the sample size. The minimum sample size of 384 individuals was established based on Krejcie and Morgan's (1970) Table.

## **2.3. Measurement of variables**

The questionnaire for this study consists of two parts: demographic information and variable measurement. Firstly, demographic information includes age, gender, education level, and family size. Secondly, variable measurement employed a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). For measuring farmers' well-being, the scale from Chakrabarti et al. (2020) was used. Farmers' self-efficacy was measured using the scale from Pant et al., (2022). Linking social capital was measured using the scale from Liu and Pan (2020), Zhang and Jiang (2019), and Ben-Hador et al. (2021).

## **2.4. Data analysis**

This study initially used SPSS 21.0 software to analyze the frequency distribution and percentage of subjects' basic information. Then, the Smart PLS 4.0 structural equation modeling tool was used to assess the convergent and discriminant validity of the measurement model and to verify the overall model fit. Finally, based on the assessment results, the research hypotheses were examined for their validity, and the potential existence of mediating effects was further explored.

# **3. Results**

## **3.1. Demographic information**

According to demographic information (**Table 1**) statistics, out of a total of 443 respondents, more than half (52.4%) were male. The majority of respondents (54%) were between the ages of 18 and 29. 73.4% had received high school education or

higher. More than half of the respondents (54%) had a family size of 4–5 people. The data shows that the young rural farm population seem to have been underestimated by the conventional wisdom and popular literature. Our study, although affected by the immediated post COVID-19 context and older farmer reluctance to engage in face-to-face contact at the time, did reflect the youthful nature of the farm community at the time. Yet this strong youthful presence cannot be treated as typical, universal or all pervasive. If anything, it is contextual, unstable, and transitional, reflecting the emerging and rapidly changing nature of the rural community in Guizhou province, if not all of China in the post COVID-19 and rural revitalisation period.

**Table 1.** Demographics.

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>		
Male	232	52.4
Female	211	47.6
Total	443	100.0
<b>Age</b>		
18-29	239	54.0
30-39	100	22.6
40-49	56	12.6
50-59	40	9.0
60 and above	8	1.8
Total	443	100.0
<b>Educational Level</b>		
Middle School and below	118	26.6
High School (Technical Secondary School) and above	325	73.4
Total	443	100.0
<b>Family Size</b>		
3 and below	79	17.8
4–5	248	56.0
6–7	98	22.1
8 and above	18	4.1
Total	443	100.0

### 3.2. Measurement model

The results of the measurement model in this study are listed in **Tables 2** and **3**. Firstly, in **Table 2**, all values of Cronbach’s alpha (CA) and Composite Reliability (CR) exceeded the baseline of 0.70, indicating high internal consistency of the items (J. F. Hair et al., 2019). The minimum values of Average Variance Extracted (AVE) and indicator loadings in this study were 0.579 and 0.642, respectively, exceeding the recommended values of 0.5 and 0.6, thus strongly confirming the validity of convergence (Hair et al., 2016). The Variance Inflation Factor (VIF) values for all items were significantly below the critical threshold of 5, indicating no severe multicollinearity issues among predictive constructs in the structural model.



**Table 2.** Convergent validity.

Structure	Items	Loadings	VIF	CA	CR	AVE
LKC	LKC1	0.798	2.428	0.892	0.916	0.612
	LKC2	0.837	3.025			
	LKC3	0.823	3.301			
	LKC4	0.835	3.465			
	LKC5	0.822	2.338			
	LKC6	0.694	1.973			
	LKC7	0.642	1.805			
FSE	FSE1	0.687	1.932	0.919	0.932	0.579
	FSE2	0.79	2.409			
	FSE3	0.781	2.188			
	FSE4	0.816	2.460			
	FSE5	0.725	1.964			
	FSE6	0.744	2.114			
	FSE7	0.817	2.687			
	FSE8	0.757	2.138			
	FSE9	0.718	1.928			
	FSE10	0.761	1.992			
FWB	FWB1	0.797	2.059	0.889	0.913	0.600
	FWB2	0.761	2.091			
	FWB3	0.824	2.456			
	FWB4	0.804	2.388			
	FWB5	0.755	1.997			
	FWB6	0.717	1.808			
	FWB7	0.758	2.060			

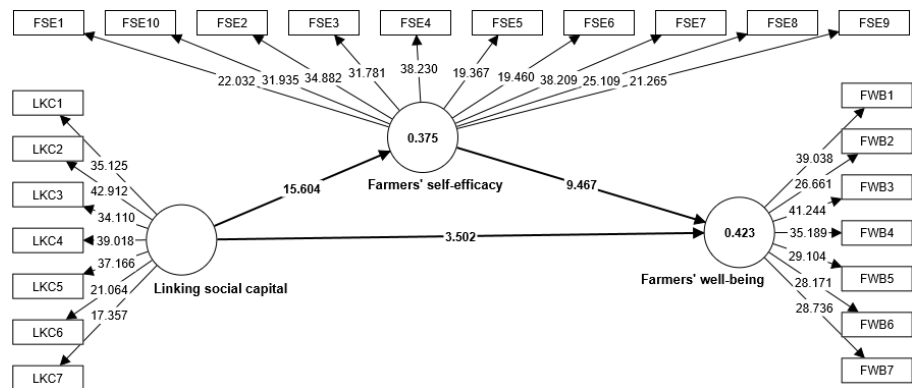
Furthermore, the function of discriminant validity is to detect the uniqueness of items within a given structure compared to items in other structures within the same model. **Table 3** shows that the Fornell and Larcker criterion values on the diagonal (bolded) (the square root of AVE) are greater than the values on the non-diagonal, confirming satisfactory discriminant validity (Hair, et al., 2016). Additionally, the heterotrait-monotrait (HTMT) ratios are all below the critical value of 0.85, indicating no ambiguity or overlap in the discriminant validity of this study (J. F. Hair et al., 2019).

**Table 3.** Discriminant validity.

Constructs	Fornell and Larcker criteria			Constructs	HTMT		
	FSE	FWB	LSC		FSE	FWB	LSC
FSE	<b>0.761</b>			FSE			
FWB	0.632	<b>0.774</b>		FWB	0.681		
LSC	0.612	0.507	<b>0.782</b>	LSC	0.669	0.563	

### 3.3. Structural model

**Table 4** and **Figure 2** present the outcomes of direct and indirect relationships within the study. Initially, the hypotheses asserting a positive correlation between linking social capital and farmers’ well-being, linking social capital and farmers’ self-efficacy, and farmers’ self-efficacy and farmers’ well-being are all supported, with respective values of (H1:  $\beta = 0.191$ ,  $t = 3.502$ ,  $p < 0.001$ ), (H2:  $\beta = 0.612$ ,  $t = 15.604$ ,  $p < 0.001$ ), and (H3:  $\beta = 0.515$ ,  $t = 9.467$ ,  $p < 0.001$ ). Additionally, the significant mediating effect of farmers’ self-efficacy (H4:  $\beta = 0.316$ ,  $t = 7.836$ ,  $p < 0.001$ ) was confirmed. The mediation test was conducted through a bootstrap procedure with 10,000 resamples as recommended by Hair et al. (2021). Furthermore, the  $R^2$  values, which denote the composite effect of exogenous latent variables on endogenous latent variables, are considered substantial, moderate, or weak when they are at 0.75, 0.50, or 0.25, respectively (Hair et al., 2011; Henseler et al., 2009). In this study, the exogenous variables Linking Social Capital and Farmers’ Self-Efficacy together explain 42.3% of Farmers’ Well-being variance. The exogenous variable Linking Social Capital explains 37.5% of Farmers’ Self-efficacy variance. Finally, the  $f^2$  values, representing the effect size of exogenous variables on the  $R^2$  value of endogenous variables (Chin, 1998), are considered to have a small, medium, and large effect at 0.02, 0.15, and 0.35, respectively, with values below 0.02 indicating no effect (Cohen, 1992). In this study, the effect size ( $f^2$ ) for Linking Social Capital  $\rightarrow$  Farmers’ Well-being is 0.040, indicating a medium to large effect size; for Linking Social Capital  $\rightarrow$  Farmers’ Self-efficacy, the  $f^2$  effect size is 0.600, indicating a large effect size; and for Farmers’ Self-efficacy  $\rightarrow$  Farmers’ Well-being, the  $f^2$  effect size is 0.287, also indicating a medium to large effect size.



**Figure 2.** Structural model.

**Table 4.** Hypotheses testing (direct and indirect).

Hypo.	Relationships	Std. bata	Std. Dev.	t-values	p-values	R <sup>2</sup>	f <sup>2</sup>	Decision
H1	LSC $\rightarrow$ FWB	0.191	0.055	3.502	0.000**	0.423	0.040	Supported
H2	LSC $\rightarrow$ FSE	0.612	0.039	15.604	0.000**	0.375	0.600	Supported
H3	FSE $\rightarrow$ FWB	0.515	0.054	9.467	0.000**		0.287	Supported
H4	LSC $\rightarrow$ FSE $\rightarrow$ FWB	0.316	0.040	7.836	0.000**			Supported

## **4. Discussion**

The objectives of this study were to: 1) investigate the impact of linking social capital on farmers' well-being; 2) validate the relationship between linking social capital and farmers' self-efficacy; and 3) determine whether self-efficacy mediates the relationship between linking social capital and farmers' well-being. The findings demonstrate that linking social capital positively impacts farmers' well-being, and the mediating effect of self-efficacy is confirmed.

Hypothesis (H1) confirmed that linking social capital has a significant positive effect on farmers' well-being. This finding resonates with prior research (Cofré-bravo et al., 2019; Fitzpatrick et al., 2023; Kos et al., 2023; Kyne and Aldrich, 2020), highlighting the importance of vertical relationships between different social strata or groups, particularly with organizations or individuals holding resources, power, or influence.

For the farming community, firstly, accessing vital resources in information, knowledge, technical support, and finance significantly influences farmers' well-being. Secondly, linking social capital provides a pathway for farmers to influence policy-making. Once connections with policymakers are established, farming communities can more effectively voice their needs and opinions, thereby advocating for policies conducive to rural development.

In the Chinese context, this can be understood from three observation points. First, the historical backdrop of China demonstrates the positive impact of linking social capital on farmers' well-being. As earlier noted, inclusive policies post-2000, contrasted with pre-2000 state-supported urban-centric policies, have favored rural areas, thereby improving farmers' well-being (Lin, 2018). Notably, since 2014, the Chinese government's poverty alleviation efforts through policy-making and resource allocation have directly enhanced farmers' well-being, making linking social capital a crucial factor (Qiu et al., 2022). Second, the effect of linking social capital on farmers' well-being in production and life, from technical training and loans to agricultural supplies and managing neighborhood relations, significantly impacted and sometimes decisively affected farmers' well-being. Furthermore, post-poverty alleviation rural areas continue to face numerous challenges. Assisting farmers in building, accumulating, and utilizing linking social capital to avoid relapse into poverty, will further enhance living standards, and enable farmers to cope with external risks, leading to their enhanced well-being.

Hypothesis (H2) established a positive significant relationship between linking social capital and farmers' self-efficacy, suggesting that social connections with government, social organizations, and other agricultural stakeholders can enhance farmers' confidence and capacity to achieve goals. This aligns with previous studies (Doran et al., 2022; Okeke et al., 2023; Su, 2022). Farmers with more linking social capital are adept at seizing new opportunities for resource acquisition and capability enhancement, including resilience against adversities. For instance, Doran et al. (2022) highlighted how farmers acquiring new agricultural technologies and methods enhanced their management abilities and self-efficacy. Similarly, in Guizhou's rural areas, local governments have organized initiatives like bringing technology to the countryside, where experts have educated farmers on practices like disease prevention

in cattle raising, thereby boosting their confidence in managing agricultural endeavors.

Hypothesis (H3) confirmed that farmers' self-efficacy significantly positively affects their well-being. This study aligns with previous findings (Caliendo et al., 2023; Pant et al., 2022; Su, 2022; Wuepper et al., 2020). As noted by Wuepper and Sauer (2016), farmers who recognized their capabilities for better agricultural production and management due to increased self-efficacy also saw an enhancement in their well-being. Moreover, improved self-efficacy motivates farmers to invest in their agricultural operations, leading to better outcomes.

Hypothesis (H4) highlighted that farmers' self-efficacy plays a significant mediating role between social capital and farmers' well-being. This implies that social capital improves farmers' well-being levels by boosting their self-efficacy. This mirrors the findings of Pant et al. (2022), who concluded that higher levels of social capital and self-efficacy correlate with better performance in farming producer organizations. However, they viewed "relational social capital" as a dimension of social capital without differentiating between relationship types. Therefore, further investigation into H4 is warranted, as this mediating relationship adds new insights to the literature.

This study offers invaluable insights into farmers' well-being. The linking social capital examined in this study, while not unique to China (Zhang et al., 2020), is common in both developed and developing countries, characterized by vertical power dynamics (Hou and Zhu, 2020). In the context of the current global food crisis and frequent exits from agriculture, enabling farmers to access more resources and improve their well-being through linking social capital becomes increasingly important. This form of social capital provides strong, rapid, and effective channels for farmers to improve access to necessary resources such as improved seeds, updated agricultural techniques and technology, healthcare, education, and public services. Moreover, it's important to note that for disadvantaged groups outside the formal system, establishing and developing linking social capital poses more challenges than other types of social capital (bonding and bridging) (Woolcock and Narayan, 2000; Zihnioğlu and Dalkıran, 2022). Even when connections are established, challenges such as alienation and instability in interpersonal relationships exist. Additionally, farmers living in relatively underdeveloped areas tend to be more sensitive to well-being (Xu et al., 2023), raising higher demands for policymakers and implementers when using linking social capital to provide benefits to farmers.

## **5. Conclusion and policy recommendations**

How farmers leverage social capital to improve their well-being in the post-poverty alleviation era in China is a critical question. This study, diverging from the mainstream research in the existing social capital literature on bonding and bridging social capital, chose to explore linking social capital based on research objectives and conditions, adding new knowledge to the severely lagging research on linking social capital. This paper delved into the relationship between linking social capital, farmers' self-efficacy, and farmers' well-being, especially in the context of post-poverty alleviation in rural Guizhou Province, China. It found that linking social capital has a significant positive impact on enhancing farmers' well-being, partly through boosting

farmers' self-efficacy.

Based on the findings of this study, policy recommendations are proposed from two aspects. One is to strengthen the construction of linking social capital. Specifically, the government should enhance direct communication with farmers through various channels (such as social media, mobile apps, and on-site meetings) to ensure effective transmission of policy information, technical guidance, and financial assistance information. Further, the provincial government should encourage and support the establishment and development of agricultural cooperatives, farmers' associations, and other farmers' organizations as bridges connecting farmers with the government, academic institutions, and the private sector. It should also create a platform for dialogue and cooperation involving government departments, agricultural research institutions, businesses, and farmers' representatives so that jointly they can explore and implement strategies to improve farmers' well-being. All levels of farm households, village cadres, party officials, and provincial authorities should take the initiative to build linking social capital to promote overall farmers' well-being. It is emphasized that formal institutions should make their governance frameworks simple and transparent, publicly disclosing the allocation and use of resources and information. These practices can enhance farmers' sense of inclusiveness and fairness.

On the other hand, it is necessary to enhance farmers' self-efficacy. For example, carry out customized training projects for farmers, including modern agricultural technology, agricultural product marketing, agricultural financial knowledge, etc., to improve farmers' knowledge and skills, and enhance their self-efficacy. In addition, there is need to collect and publicize cases of farmers' innovative successes and experience sharing, to encourage more farmers to actively try and improve through positive motivation and demonstration effects.

Overall, policymakers and implementers should fully utilize the advantages of linking social capital to effectively improve farmers' well-being. In doing so, they should consider the positive role farmers' self-efficacy can play in the process, through effectively enhancing farmers' productive capacities and well-being for sustained development and prosperity in rural areas.

## **6. Limitations**

This study's limitations are as follows: First, this study used a cross-sectional design to conduct a correlational research, from which causal conclusions cannot be drawn. Future research could utilize longitudinal designs to explore causal relationships. Second, this paper is limited to quantitative research methods. Third, the questionnaires were distributed and collected just after China's prolonged Covid-19 total shutdown, which influenced the behaviour of elderly farmers towards face-to-face contact with hired survey professionals. Thus, the study results may affect the generalizability. Lastly, this study has a specific context: it focused on farmers in rural areas of Guizhou Province, China. Future research could include different groups in urban areas, such as businesspeople, educators, students, and even civil servants. Next is that this study primarily investigated well-being's positive outcomes. However, another dimension of linking social capital is that it can harm well-being, for example, power abuse. Exploring these aspects may be a valuable direction for future research.

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