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The Impact of Government Support on Family Farm - A Chain Mediation Model: Empirical Evidence from China

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Abstract

The aim of this research is to use a conceptual model to experimentally evaluate the mediating impact of government financial and training support on structural social capital and non-financial performance of family farms. Questionnaires were used to collect data from family farms in Guangxi, China, from August 25th to September 8th, 2021. There were 759 valid responses, accounting for 94.99 percent of the total number of respondents. The scales' reliability and validity, and the research's mediating effects and hypotheses, are tested using SPSS 22.0 and AMOS 26.0. The findings suggest that the impact of government financial assistance on family farms' non-financial performance cannot be substantiated. The intermediary chain connection of financial and training support, on the other hand, has a significant mediating effect between structural social capital and family farm non-financial performance. Direct financial assistance could be thought to encourage family farms to rely too much on funding, making them less competitive in market competition, innovation, and long-term operations. According to the conclusions of the study, government assistance to family farms could take a variety of forms, including providing diversified skills training programs in farming practices, managerial skills, and other areas.

Keywords: Family Farms, Structural Social Capital, Financial Support, Training Support, Non-financial Performance

JEL Classification Code: Q12, Q18, O13

1. Introduction

Family farming or family farms have historically been the core units of global agriculture (Lemons, 1986; Garner & O'Campos, 2014; Graeb et al., 2016; Agarwal, 2018; Lowder et al., 2019), as family forms of agricultural production organization (Bosc et al., 2018) and land-labor institution (Ye & Pan, 2016). The productive logic of family farms includes natural resource protection, and their wide range of agricultural activities puts them as a major participant in ensuring the long-term viability of food

systems and ensuring food security (FAO, 2014; Graeb et al., 2016).

However, the significance of family farms is still under-recognized. Family farms were thought to be an outdated kind of production organization that would eventually give way to corporate agribusiness, according to economists (Brookfield & Parsons, 2007). Furthermore, public debates on agricultural business have tended to favor the needs and expansion of corporate agriculture or commercial farms over traditional family farms in recent decades (Dimitri et al., 2005; Whitt et al., 2020). The future of family farms appears to be more difficult than ever, with experts questioning whether they should or could continue (Sung & Woo, 2017; Whitt et al., 2020).

Family farms still exist in various forms around the world today as a response to concerns about the survival of family farming. They range from modest farms in the mountains to large farms with great mechanization and skill throughout Europe and North America, depending on their location and main industry (FAO, 2014). There are still 570 million farms in the globe, with 513 million (90 percent) of them being family farms (FAO, 2014). It is undeniable that family farms, as flexible and resilient agricultural production

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units, have a strong tendency to survive and thrive all over the world. (Brookfield & Parsons, 2007; Fuller et al., 2021).

Various studies have been undertaken to explore the factors that influence the success or long-term operational performance of family farms, with a focus on the impact of social capital (in the form of social networks) and government support, particularly subsidies. However, there is still a lack of actual research on family farms. Additionally, the role of government help (in the form of financial and training assistance) as mediating factors should be investigated further. As a result, we develop a conceptual model based on structural social capital, government financial and training assistance, and non-financial operational performance of family farms to experimentally study the mediating mechanism.

2. Literature Review

In its framework, social capital includes the social ties of institutions (Coleman, 1988). Closely connected social networks are seen to be the source of social capital, but only those networks that “can be employed successfully” are considered social capital (Bourdieu, 1986). Social capital can be characterized as resources entrenched in a social structure that can be earned via deliberate acts since it is anchored in social networks and social relations (Lin, 1999).

Physical inputs and human capital have less of an impact on the performance of economic organizations than social capital (Fafchamps & Minten, 1999). In agricultural environments, the level of social capital may also have a positive impact on the performance of institutions (Ahlerup et al., 2009; Santosa et al., 2020). We used structural social capital as the explanatory variable in our study because of the importance of social networks in the long-term development of family farms. It is made up of network size and diversity, as well as network strength and stability.

In this study, the operational performance of a family farm will be compared to the operational performance of small and medium-sized businesses (SMEs). The reason for this is that family farms are exclusively responsible for risks in the production, management, and sale of agricultural products with a small labor pool, which are similar to SMEs (Whitman et al., 2012; Dimitriu & Manta, 2016; Calabr & Mussolino, 2013). This study will concentrate on the non-financial performance of family farms over the long term.

Because of agriculture’s critical role in the national economy of any country, as well as its vulnerability, government assistance for farming is unavoidable (Olesen & Bindi, 2002; Nguyen et al., 2020). In this study, the term “government support” refers to government assistance to family farms, which is regarded as the most important element determining their efficiency (Lowder et al., 2019; FAO, 2019). A family farm is described in Korea as a legal

person or agricultural business entity that incorporates business elements into agriculture, separates commercial assets from personal assets, and operates as a separate business entity (MAFRA of Korea, 2021).

It is similar to SMEs in certain ways. According to the Ministry of SMEs and Startups of Korea’s 2012 Annual Report (MSS of Korea, 2012), government support, such as financial and training support, may not be highly crucial for small enterprises in enhancing their viability and competitiveness (Kim, 2013; Kim & Hwnag, 2015; Salfiya Ummah et al., 2021). As a result, in the study, financial and training support are adopted as the contents of government support.

3. Data and Methods

3.1. Data Collection and Analysis Method

We conducted an empirical study to look at the impact of a family farm’s structural social capital on its non-financial performance. Questionnaires were used to gather data from Guangxi, China, from August 25th to September 28th, 2021, where the majority of family farms are small and medium-sized, as reported in the FAO (2014) study on global family farms (Lowder et al., 2019). A total of 793 responses were received, with 34 invalid responses accounting for 5.01 percent of the total, and 759 valid responses accounting for 94.99 percent of the total.

The questionnaire follows the 5-point Likert method, with five options ranging from strongly disagree to strongly agree. The lower the score (1 point), the more strongly the respondent disagrees with the statement. The greater the score (5 points), the more agreeable the respondent. SPSS 22.0 is used to assess the scales’ and data’s reliability and validity. AMOS 26.0 verifies factor analysis, path analysis, mediating effect analysis, and research hypothesis.

3.2. Measurement Scales

Measurement scales used in this research are adopted from previous empirical research. The social capital scale is based on the study of Wei (2005), which investigates the impact of social capital of enterprises on technological innovation performance. The government support scale is based on the study of Kim (2013), which evaluates the impact of government support on the business strategies and performance of SMEs. The operational performance scale is based on the study of Jeon (2017), which examines the effect of SME managers’ entrepreneurship and CEO capabilities on Corporate Sustainability via improved management performance. The reliability and validity of the measurement scales have been validated in their studies and thus are adopted in this research.

3.3. Research Model and Hypothesis

A conceptual model (Figure 1) is established based on a literature review to explore the impact of structural social capital (SSC) of family farms on their operational performance (NP), and the mediating roles of financial support (FS) and training support (TS) from the government.

Independent variable: Structural social capital of family farms, including the three dimensions: network size and diversity (NSd), network strength (NSr), and network stability (NSa).

Dependent variable: Non-financial performance of family farms.

Mediating variables: Financial support and training support provided by the government to family farms.

Based on the research model, nine hypotheses are proposed:

H1: SSC has a positive (+) impact on NP.

H2: SSC has a positive (+) impact on FS.

H3: SSC has a positive (+) impact on GG.

H4: FS has a positive (+) impact on TS.

H5: The impact of FS on NP cannot be validated, and the mediating role of FS between SSC and NP might not be observed.

H6: TS has a positive (+) impact on NP.

H7: FS has a mediating effect between SSC and NP.

H8: TS has a mediating effect between SSC and NP.

H9: The chain connection of TS and FS has a significant mediating effect between SSC and NP.

4. Results

4.1. Descriptive Statistics

Among the samples in the research, 188 farms have been in operation for less than three years, 296 for three to five years, 175 for five to ten years, and 99 for more

than ten years. It is consistent with the observation of FAO (2014) and Lowder et al. (2019) on global family farms that the majority of the surveyed samples should be small and medium-sized farms. In addition, 188 farms have been in operation for less than three years, 296 farms have been in operation for three to five years, 175 farms have been in operation for five to ten years, and 99 farms have been in operation for more than ten years. The majority of the farms in the samples had a short-to-medium operational year, indicating that the samples are likewise in accordance with predictions.

4.2. Reliability and Validity Analysis

SPSS is used to obtain the results of reliability and validity testing. The Cronbach's of the respective scales are all greater than 0.7, the CITC values obtained are also greater than 0.4, and the Cronbach's if Item Deleted and the total Cronbach's value are not significantly different. It denotes a high level of trustworthiness. Furthermore, each dimension's composition reliability is greater than 0.7, indicating that each factor's internal indicators are consistent and have good composition dependability. It demonstrates that the samples collected in this survey have a high level of reliability and can be used for further examination.

In terms of validity test findings, the KMO is 0.876, and the sig of Bartlett's sphericity test is 0.000 (df is 120). Furthermore, all unstandardized factors have positive loading, the ratio Z is greater than 1.96, and the *p*-value is significant.

The results show that the items in the four categories of variables have a substantial correlation, implying that the scales are reliable. Furthermore, the total variance of SSC and TS is 63.226 and 70.957, respectively, showing that the scales' validity is good. However, in factor distributions, the relationship between FS and TS differs from the relationship between SSC and NP. As a result, path analysis would be performed to determine if FS and TS have a chain mediating influence on SSC and NP.

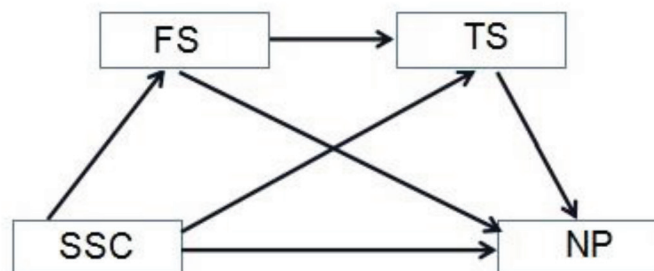


Figure 1: Research Model

4.3. Path Analysis

A structural equation model (SEM) is established by AMOS 26.0 and presented in Figure 2. The χ^2 of the SEM model is 273.429, and the df is 98 (Figure 2). The χ^2 and df ratio is 2.790, which is less than 3, indicating that the research model's goodness-of-fit is outstanding.

Model fit indices values: RMSEA is 0.049 (less than 0.05). GFI and AGFI are both greater than 0.9 at 0.954 and 0.937, respectively. The model fit indices are excellent, indicating that the conceptual model could be confirmed.

The findings of the study model's scalar estimations are shown in Table 1. The non-standard and standard estimated values of the research model can be obtained and the verification of each hypothesis can be observed intuitively in the results (Carmines & McIver, 1981).

In path analysis, the significance between FS and NP cannot be proven, as shown in Table 1. The value is 0.17 (the standard is 0.33), and the p -value is 0.678 (>0.5), implying that there is no statistically significant relationship between them. The correlations between other variables, on the other hand, have been found to be significant, confirming the majority of the research hypotheses.

4.4. Mediating Effects Analysis

The research used a bootstrap sampling strategy to examine the mediating effects of the latent variables. To check total effects, direct effects, and indirect effects, a sampling test is conducted with a 95% confidence interval (using the percentile method with 5000 resamples). Table 2 summarizes the results of the mediating effect test.

Table 2 shows that there is only a direct correlation (0.307) between SSC and FS. SSC and TS have both direct and indirect effects, with equivalent values of 0.228 and 0.288. Furthermore, there are direct repercussions between them due to FS (the value is 0.698). Second, there are direct and indirect effects between SSC and NP, with values of 0.489 and 0.229, respectively. Finally, there is a direct impact (0.33) between FS and NP, with a Bias-corrected two-tailed significance value of 0.694, indicating that there is no significant effect.

In AMOS, the mediating effects of FS and TS are examined again to see if a distal mediation link exists. Table 3 shows the findings of the distal mediation test.

The mediating effect of SSC-FS-NP is not significant (p -value = 0.663, >0.05) (Table 3), which is consistent with

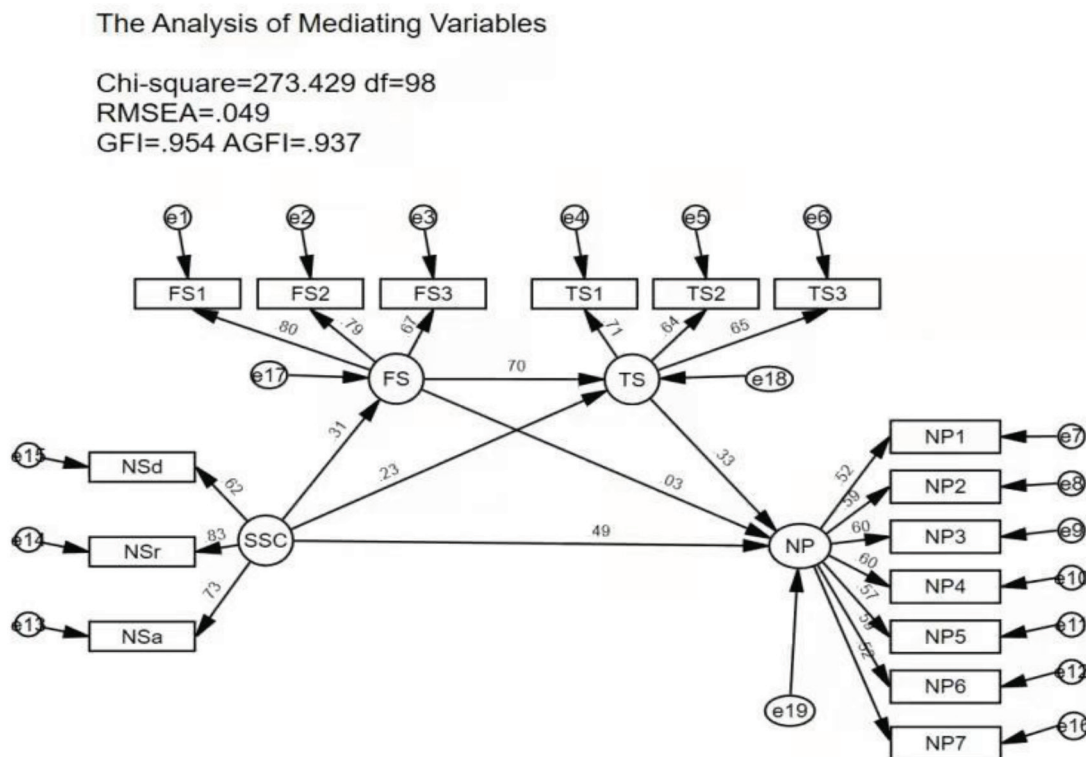


Figure 2: Path Analysis

Table 1: Scalar Estimates of Research Model

	Estimate	S.E.	C.R.	P	Standardized
FS ← SSC	0.484	0.073	6.649	***	0.307
TS ← SSC	0.316	0.059	5.321	***	0.228
TS ← FS	0.613	0.046	13.416	***	0.698
NP ← TS	0.198	0.056	3.519	***	0.331
NP ← SSC	0.406	0.048	8.374	***	0.489
NP ← FS	0.017	0.042	0.415	0.678	0.033
FS1 ← FS	1.000				0.797
FS2 ← FS	1.107	0.054	19.884	***	0.790
FS3 ← FS	0.815	0.047	17.406	***	0.671
TS1 ← TS	1.000				0.709
TS2 ← TS	0.853	0.058	14.595	***	0.643
TS3 ← TS	0.834	0.057	14.753	***	0.652
NP1 ← NP	1.000				0.520
NP2 ← NP	1.109	0.098	11.289	***	0.590
NP3 ← NP	1.132	0.100	11.350	***	0.596
NP4 ← NP	1.062	0.093	11.370	***	0.598
NP5 ← NP	1.089	0.098	11.099	***	0.574
NP6 ← NP	1.119	0.099	11.332	***	0.594
NP7 ← NP	1.039	0.099	10.464	***	0.517
NSd ← SSC	1.000				0.729
NSr ← SSC	1.089	0.062	17.436	***	0.828
NSa ← SSC	0.868	0.059	14.861	***	0.616

Table 2: Standardized Coefficients of Mediating Effects

	Total Effects			Direct Effects			Indirect Effects		
	SSC	FS	TS	SSC	FS	TS	SSC	FS	TS
FS	0.307 (0.001)			0.307 (0.001)					
TS	0.443 (0.001)	0.698 (0.002)		0.228 (0.001)	0.698 (0.002)		0.288 (0.001)		
NP	0.646 (0.001)	0.264 (0.001)	0.331 (0.001)	0.489 (0.001)	0.033 (0.694)	0.331 (0.001)	0.229 (0.001)	0.383 (0.001)	

the findings in Tables 1 and 2. Furthermore, the indirect effects of SSC-TS-NP have a value of 0.130, showing that they have a strong indirect effect. Furthermore, the direct effect has a value of 0.406, indicating that it is significant. Furthermore, the value of the total effect is 0.536, the upper and lower confidence intervals do not contain zero, and the

p-value is significant. The results show that the SSC-TS-NP mediating impact is significant, as is the chain mediating effect, both of which are in agreement with the results in Tables 1 and 2. Based on the data, it's possible to conclude that the conceptual model contains a chain mediating effect that acts as a partial intermediate.

Table 3: Results of Distal Mediation Test

Mediation Effects		Estimate	Lower	Upper	P-value
SSC → FS → NP	a1*b1	0.008	−0.033	0.050	0.663
SSC → TS → NP	a2*b2	0.063	0.029	0.118	0.000
SSC → FS → TS → NP	a1*d1*b2	0.059	0.024	0.113	0.001
Total Indirect Effects		0.130	0.083	0.199	0.000
Total Direct Effects		0.406	0.295	0.538	0.000
Total Effects		0.536	0.420	0.665	0.000

Table 4: Summary of Hypothesis Test

Hypothesis	Relationship	Results
H1	SSC has a positive (+) impact on NP.	Supported
H2	SSC has a positive (+) impact on FS.	Supported
H3	SSC has a positive (+) impact on TS.	Supported
H4	FS has a positive (+) impact on TS.	Supported
H5	The impact of FS on NP cannot be validated, and the mediating role of FS between SSC and NP might not be observed.	Supported
H6	TS has a positive (+) impact on NP.	Supported
H7	FS has a mediating effect between SSC and NP.	Supported
H8	TS has a mediating effect between SSC and NP.	Supported
H9	The chain connection of TS and FS has a significant mediating effect between SSC and NP.	Supported

4.5. Summary of Hypothesis Test

Based on earlier empirical investigation, the findings of the hypothesis test can be derived. Table 4 shows a summary of the findings.

5. Conclusion

The study proposes a structural equation model and experimentally explores the chain mediation of government financial assistance and training assistance between structural social capital and non-financial agricultural performance. The empirical findings support our hypotheses, and the conceptual model has been confirmed. The research's findings and recommendations are summarized as follows:

The impact of financial assistance on non-financial performance could not be validated, and the mediating role of financial support between structural social capital and non-financial performance could not be observed in the study. However, the mediating effect of training support between structural social capital and non-financial performance of

family farms is statistically significant. It is possible that ongoing direct support has led family farms to become excessively reliant on funding, making them less capable of innovation and long-term operations. Government assistance to family farms could take several forms, including skill training programs in farming techniques, managerial skills, and other topics.

Secondly, the structural social capital has a positive impact on the non-financial performance of family farms. It could be presumed that the expansion of the social network of family farms would improve the long-term performance of family farms. Establishing information exchange and service platforms to assist family farms in expanding their social networks, improving the opportunities and efficiency of communication with industry partners, and promoting the long-term and stable development of family farms would be beneficial for policymakers. Simultaneously, family farm practitioners should actively broaden and share their social networks to improve their own competitiveness, increase interactions between family farms and other individuals, organizations, and institutions in the network, and acquire more valuable information, resources, and skills.

Furthermore, the intermediary chain of government financial and training support has a significant mediating influence between structural social capital and family farm non-financial performance. Although financial assistance has no direct impact on family farms' long-term operational performance, the government could indirectly assist family farms through various agricultural skills or management practices training programs. Furthermore, family farms with a high level of structural social capital will find it simpler to get more effective government support and improve their long-term operational efficiency.

Sample sizes might be increased in future studies, or samples from certain farming industries or other places could be requested to enrich relevant studies. Furthermore, to improve the operational performance of family farms, decision-making processes or practical demands for financial help, training support, or other forms of government support could be further studied.

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