WHIOCE PUBLISHING PTE. LTD.
PROVIDING FIRST-CLASS SCIENTIFIC INFORMATION FOR TOP SCHOLARS

2026 Volume 4, Issue 4
Lecture Notes in Education, Arts, Management and Social Science
ISSN:2705-053X

Mediating Test of Enterprise Assistance in Industrial Upgrade under Firm-sponsored Rural Revitalization

Jyh-Harng Shyng*
Life Sciences College, Zhaoqing University, Zhaoqing 526000, Guangdong, China

***Corresponding author:** Jyh-Harng Shyng, hidosing@outlook.com

Abstract: This study investigates the transmission mechanism of firm resource input, enterprise assistance effort, and industrial-driven performance under China's "Thousand Enterprises Help Thousand Towns" initiative. Using a PLS-SEM approach with 170 valid questionnaires collected from nine districts and counties in Zhaoqing, the study empirically tests direct effects, indirect effects, and mediating effects in a unified framework. Results show that: (1) Firm resource input significantly and positively improves enterprise assistance effort; (2) Enterprise assistance effort significantly promotes industrial-driven benefits; (3) Enterprise assistance effort does not play a significant mediating role between resource input and industrial performance; (4) Firm resource input directly drives industrial upgrading more effectively and stably. These findings enrich the theoretical framework of "government-enterprise-village" coordinated governance and provide empirical implications for rural industrial revitalization in China and similar regions worldwide.

Keywords: Thousand Enterprises Help Thousand Towns; Firm-assisted revitalization; Industrial upgrading; PLS-SEM; Mediating effect

Online publication: April 26, 2026

1. Introduction

In the global context of inclusive growth and sustainable development, rural revitalization has become a key strategic task for narrowing urban-rural gaps and promoting balanced regional development [1]. As the material foundation of rural revitalization, industrial revitalization determines the sustainability and quality of rural development [2]. In China, a series of policies have been launched to encourage enterprises to participate in rural construction, among which the "Thousand Enterprises Help Thousand Towns" policy is a large-scale and typical institutional arrangement [3].

Since 2020, Zhaoqing City has fully promoted the pairing assistance between enterprises and towns. By 2024, more than 1,200 enterprises had paired with 104 towns, with a cumulative investment of 3.27 billion yuan and 586 industrial projects launched [4–5]. However, in practice, the driving effects of enterprise participation are quite different among towns. Some projects achieve significant industrial upgrading, while others show weak sustainability and low efficiency. Existing studies focus more on policy interpretation, case description, and benefit summary, but rarely clarify the internal transmission mechanism from firm resource input to industrial upgrading through scientific quantitative models [6–7].

In academic research, the relationship between firm support and rural development has been discussed from resource

dependence, institutional environment, and social network perspectives [8–10]. However, few studies integrate resource input, assistance behavior, and industrial performance into a unified model to test whether enterprise assistance plays a mediating role. Meanwhile, the applicability of PLS-SEM in policy effect evaluation needs more empirical support [11–13].

Against this background, this study takes Zhaoqing's "Thousand Enterprises Help Thousand Towns" policy as the research scene, uses PLS-SEM to construct a structural model, and reveals the driving path from firm resource input to industrial upgrading. The contributions are twofold. First, it clarifies the direct and indirect effects of firm behavior, proving that direct resource input is more efficient. Second, it provides evidence-based implications for optimizing government-enterprise-village collaboration and improving the precision of rural revitalization policies.

2. Literature review and hypotheses

2.1. Firm resource input and enterprise assistance effort

According to resource dependence theory, organizations' strategic choices and behavioral intensity depend on their resource endowment [14]. Firms with more capital, technology, talent, market, and industrial chain resources usually have stronger willingness and capability to carry out long-term and in-depth assistance activities [15–16].

When firms invest more in scale expansion, diversified structure, technological innovation, and sustainable operation, they can provide stronger support in industrial docking, talent training, technical guidance, capital supply, and cooperation mechanism construction [17–18]. Therefore, the level of resource input directly determines the intensity of enterprise assistance effort.

H1: Firm resource input positively and significantly affects enterprise assistance effort.

2.2. Enterprise assistance effort and industrial-driven performance

Enterprise assistance effort covers multiple dimensions such as industrial participation, talent support, capital support, technology introduction, and cooperation mechanism construction [19–20]. Such comprehensive support can effectively make up for the shortcomings of rural areas in industrial foundation, talent supply, infrastructure, and governance capacity [21–22].

With the improvement of enterprise assistance effort, rural industries can achieve scale expansion, efficiency improvement, structure optimization, and capacity enhancement [23]. Empirical studies have confirmed that enterprise participation helps improve the modernization level of rural industries and promote high-quality development [24].

H2: Enterprise assistance effort positively and significantly promotes industrial-driven performance.

2.3. Direct effect of firm resource input on industrial-driven performance

Firm resource input can directly act on rural industrial development without completely relying on daily assistance behavior. For example, capital injections can directly expand production scale; technological investment can directly improve production efficiency; market access can directly enhance product competitiveness; and industrial chain integration can directly optimize industrial structure.

Compared with indirect assistance, direct resource input has the advantages of fast effect, strong controllability, and high stability. Therefore, firm resource input may directly and significantly drive industrial-driven performance.

H3: Firm resource input directly and significantly improves industrial-driven performance.

2.4. Mediating effect of enterprise assistance effort

Although firm resource input can enhance assistance effort, and assistance effort can promote industrial performance, the indirect path may be weakened or covered due to the strong direct effect [23–24]. In the policy practice of rural revitalization, many enterprises directly invest resources in key projects such as infrastructure, industrial parks, and technical transformation, rather than transferring effects through daily assistance activities [24].

Therefore, the mediating effect of enterprise assistance effort may not be statistically significant.

H4: Enterprise assistance effort does not mediate the relationship between firm resource input and industrial-driven performance.

As illustrated in **Figure 1**, this study constructs a three-variable mediation framework including the independent variable (Firm Resource Input, X), the mediator (Enterprise Assistance, M), and the dependent variable (Industrial-driven Performance, Y), covering four research hypotheses from H1 to H4.

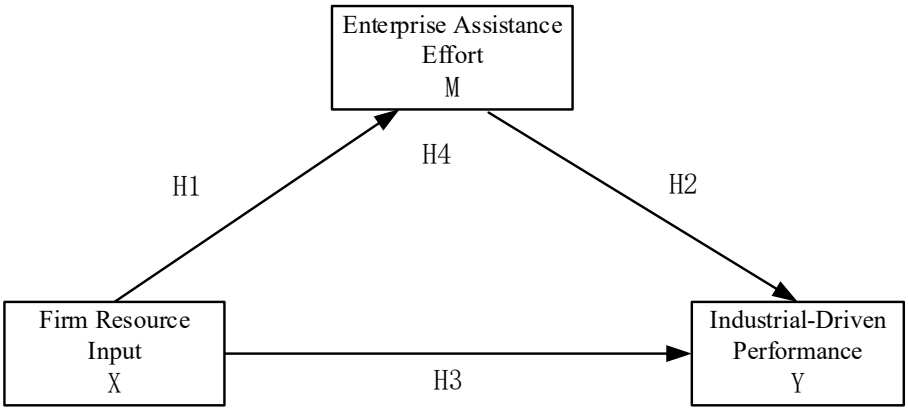

Figure 1. Conceptual research framework of resource input, enterprise assistance and industrial-driven performance

3. Methodology

3.1. Research design

This study adopts a quantitative research design based on PLS-SEM. PLS-SEM has obvious advantages in exploratory research, small-to-medium sample size, complex predictive relationships, and formative indicator models, which are suitable for this study

3.2. Data collection

The questionnaire survey was conducted in nine districts and counties of Zhaoqing from May to July 2025, including Duanzhou, Gaoyao, Sihui, Dinghu, High-tech Zone, Huaiji, Guangning, Deqing, and Fengkai. Stratified random sampling was used to cover enterprise representatives, village cadres, cooperative managers, and rural residents. A total of 170 valid questionnaires were obtained, with an effective recovery rate of 95%.

3.3. Variables and measurement

All variables were measured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

(1) Firm Resource Input (X): scale expansion, diversified structure, economic benefit, technological content, sustainable capacity.

(2) Enterprise Assistance Effort (M): industrial participation, talent support, capital support, technology introduction, cooperation mechanism.

(3) Industrial-Driven Performance (Y): industrial foundation, talent function, participation willingness, infrastructure improvement, policy support.

3.4. Reliability and validity

As shown in **Table 1**, all Cronbach's α values are higher than 0.9, composite reliability (CR) is higher than 0.9, and average variance extracted (AVE) is higher than 0.9, indicating excellent reliability and convergent validity. HTMT values are all lower than 0.85, confirming good discriminant validity.

Table 1. Reliability and validity test results

Construct	Cronbach's Alpha	Composite Reliability	AVE
Firm Resource Input	0.983	0.987	0.937
Enterprise Assistance Effort	0.977	0.982	0.917
Industrial-Driven Performance	0.975	0.980	0.908

Note: All values meet the standard (α>0.7, CR>0.7, AVE>0.5).

4. Empirical results

4.1. Direct effect test

Bootstrap test was conducted with 5000 iterations. Results are shown in **Table 2**.

Table 2. Direct effect hypothesis testing

Hypothesis	Path	Original Sample	T-Value	*P*-Value	Result
H1	X→M	0.835	20.261	0.000	Supported
H2	M→Y	0.833	20.350	0.000	Supported
H3	X→Y	0.957	71.267	0.000	Supported

Note: *** $P<0.001$.

4.2. Mediating effect test

The indirect effect of X→M→Y is 0.695, p = 0.178, and the 95% confidence interval includes 0. Therefore, the mediating effect is not significant, and H4 is supported.

4.3. Model fitness

The model has high explanatory power. The path coefficients are stable, and the dominant role of direct effects is confirmed.

5. Discussion and implications

5.1. Main findings

(1) Firm resource input significantly improves enterprise assistance effort, indicating that resource endowment is a decisive condition of assistance behavior.

(2) Enterprise assistance effort significantly promotes industrial-driven performance, which means enterprise participation effectively supports industrial revitalization.

(3) The mediating effect is not significant, showing that the transmission path of "resource input → assistance effort → industrial performance" is not stable. Fourth, the direct effect of firm resource input is stronger, which means direct investment and project intervention are more efficient.

5.2. Theoretical implications

This study enriches the theoretical framework of government-enterprise-village coordinated governance and verifies the primacy of direct resource input. It also expands the application of PLS-SEM in rural policy evaluation and provides a replicable analytical paradigm for similar research.

5.3. Practical implications

(1) Prioritize the introduction of high-quality firm resource investment, focusing on capital, technology, industrial chain, and market resources.
(2) Strengthen government guidance to improve the matching efficiency between enterprises and villages.
(3) Establish a performance evaluation system oriented by industrial upgrading effects.
(4) Strengthen the sustainability of investment to avoid short-term "blood transfusion" projects.

6. Conclusion

This study confirms that under the "Thousand Enterprises Help Thousand Towns" policy, firm resource input can directly and effectively drive rural industrial upgrading, while enterprise assistance effort plays a positive but non-mediating role. The direct effect is stronger and more stable. In the future, policy design should focus on direct industrial investment, precise resource matching, and long-term mechanism construction to promote high-quality and sustainable rural revitalization.

Funding

This study was supported by the Zhaoqing Philosophy and Social Sciences Planning Key Project (Project No.: 25ZD-04).

Disclosure statement

The author declares no conflict of interest.

References

[1] Deng X, Wang G, Song W, et al., 2022, An Analytical Framework on Utilizing Natural Resources and Promoting Urban–Rural Development for Increasing Farmers' Income Through Industrial Development in Rural China. Frontiers in Environmental Science, 2022(10): 865883. https://doi.org/10.3389/fenvs.2022.865883

[2] Yang Z, Solangi YA, 2024, Analyzing the Relationship between Natural Resource Management, Environmental Protection, and Agricultural Economics for Sustainable Development in China. Journal of Cleaner Production, 2024(450): 141862. https://doi.org/10.1016/j.jclepro.2024.141862

[3] Yang Y, Kidokoro T, Seta F, et al., 2024, An Attempt to Open Up a New Path of Rural Development? Rural Transformational Development under the Characteristic Town Strategy in China. Geografisk Tidsskrift—Danish Journal of Geography, 123(2): 104–129. https://doi.org/10.1080/00167223.2024.2352131

[4] Zhang M, Xu J, 2024, Central–Local State Strategic Coupling Towards Making Entrepreneurial Cities in China. Political Geography, 2024(109): 103062. https://doi.org/10.1016/j.polgeo.2024.103062

[5] Wu F, 2018, Planning Centrality, Market Instruments: Governing Chinese Urban Transformation under State Entrepreneurialism. Urban Studies, 55(7): 1384–1399. https://doi.org/10.1177/0042098017721828

[6] Li Y, Liu W, 2023, Spatial Effects of Environmental Regulation on High-quality Economic Development: From the Perspective of Industrial Upgrading. Frontiers in Public Health, 2023(11): 1099887. https://doi.org/10.3389/fpubh.2023.1099887

[7] Ma X, Xu J, 2022, Impact of Environmental Regulation on High-Quality Economic Development. Frontiers in Environmental Science, 2022(10): 896892. https://doi.org/10.3389/fenvs.2022.896892

[8] Shongwe MA, Lukhele TM, Zulu HP, 2024, Exploring the Factors of Enabling Environments for Business Investment

Projects in Rural Communities: Stakeholders' Perspectives. Frontiers in Sustainable Cities, 2024(6): 1467635. https://doi.org/10.3389/frsc.2024.1467635

[9] Musinguzi P, Baker D, Villano RA, 2023, Interrelationships amongst Critical Success Factors and Rural Social Enterprises' Performance in a Developing Country Context. Journal of Rural Studies, 2023(100): 102995. https://doi.org/10.1016/j.jrurstud.2023.03.003

[10] Liu P, Han A, 2025, The Neo-endogenous Development Perspective of stakeholders and their Synergy in Rural Revitalization. Environment Development and Sustainability, published online, 1–24. https://doi.org/10.1007/s10668-025-06001-0

[11] Russo D, Stol KJ, 2021, PLS-SEM for Software Engineering Research: An Introduction and Survey. ACM Computing Surveys, 2021(78): 1–38. https://doi.org/10.1145/3447580

[12] Zhang L, Tian JH, Jiang J, et al., 2018, Empirical Research in Software Engineering—A Literature Survey. Journal of Computer Science and Technology, 33(5): 876–899. https://doi.org/10.1007/s11390-018-1864-x

[13] Ashill NJ, 2011, An Introduction to Structural Equation Modeling (SEM) and the Partial Least Squares (PLS) Methodology, in Student Satisfaction and Learning Outcomes in E-Learning: An Introduction to Empirical Research. IGI Global Scientific Publishing, Hershey, 110–129. https://doi.org/10.4018/978-1-60960-615-2.ch006

[14] Nemati A, Bhatti A, Muhammad M, et al., 2010, Impact of Resource Based View and Resource Dependence Theory on Strategic Decision Making. International Journal of Biometrics, 5(12): 110–115. https://doi.org/10.5539/ijbm.v5n12p110

[15] Iwaloye O, Kei IM, Olarewaju AD, et al., 2022, The Emergence of Resources Seeking Chinese Firms' Specific Advantages in Emerging Market. Sustainability, 14(14): 8345. https://doi.org/10.3390/su14148345

[16] Caiazza R, Chaudhuri S, 2019, Explaining Emerging-market Firms' Acquisitions of Developed-market Firms: A Resource-based Perspective. Trends in Food Science & Technology, 2019(91): 662–669. https://doi.org/10.1016/j.tifs.2019.07.026

[17] Wang Q, Zeng G, 2019, Spatial Organization of Innovation in the Oil Equipment Manufacturing Industry: Case of Dongying, China. Chinese Geographical Science, 30(2): 324–339. https://doi.org/10.1007/s11769-019-1092-5

[18] Ma S, Zeng G, 2019, Effects of Network Closure on Cooperative Innovation: Evidence from Dongying's Petroleum Equipment Industry in China. Chinese Geographical Science, 29(3): 517–527. https://doi.org/10.1007/s11769-019-1046-y

[19] Henriques J, Ferrão P, Castro R, et al., 2021, Industrial Symbiosis: A Sectoral Analysis on Enablers and Barriers. Sustainability, 13(4): 1723. https://doi.org/10.3390/su13041723

[20] Neves A, Godina RG, Azevedo S, 2019, The Potential of Industrial Symbiosis: Case Analysis and Main Drivers and Barriers to Its Implementation. Sustainability, 11(24): 7095. https://doi.org/10.3390/su11247095

[21] Jiao Y, Cai WG, Du TT, 2023, Bridging National Policies with Practical Rural Construction and Development: Research on a Decision Support System Based on Multi-Source Big Data and Integrated Algorithms. Sustainability, 15(23): 16152. https://doi.org/10.3390/su152316152

[22] Huang GH, Qin XS, Sun W, et al., 2009, An Optimization-based Environmental Decision Support System for Sustainable Development in a Rural Area in China. Civil Engineering and Environmental Systems, 26(1): 65–83. https://doi.org/10.1080/10286600802003732

[23] Zhu T, Jia X, 2025, Rural Digital Economy Drives Rural Industrial Development through Quality, Efficiency, and Dynamism Transformations in China. Frontiers in Sustainable Food Systems, 2025(9): 1642097. https://doi.org/10.3389/fsufs.2025.1642097

[24] Sun J, Zhang C, Wang B, 2025, Consolidating Poverty Alleviation and Rural Revitalization from the Perspective of Industrial Assistance: China. Frontiers in Sustainable Food Systems, 2025(9) 1419410. https://doi.org/10.3389/fsufs.2025.1419410