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Boosting Hometown Entrepreneurship Performance: Insights from Entrepreneurial Ecosystem Theory

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Abstract: The pivotal entrepreneurial performance displayed by rural enterprises holds paramount importance for sustaining the vitality of entrepreneurial activities. Consequently, the pursuit of enhancing this performance has garnered escalating interest and extensive attention among rural entrepreneurs. Drawing upon the theoretical framework of entrepreneurial ecosystems, this paper meticulously integrates seven core elements and innovatively fuses two emerging analytical approaches, namely NCA(Necessary Condition Analysis) and fsQCA(fuzzy set Qualitative Comparative Analysis), to delve into the intricate causal nexuses within these ecosystems that propel entrepreneurial performance within the unique context of China's rural landscape. The findings reveal that: (1) individual components of the entrepreneurial ecosystem do not independently guarantee high-quality entrepreneurial decisions; rather, robust social norms emerge as a more ubiquitous factor in fostering such quality. (2) Three distinct pathways underpin high-quality entrepreneurial decisions: a cognitive-informational dual-propulsion mechanism, a cognitively inclined resource-driven approach, and a cognitively communal driver. (3) there is one path that drives non-high entrepreneurial decisions, and they are related to the entrepreneurial performance of high entrepreneurial performance. They are asymmetrically related to the entrepreneurial ecosystem that produces high entrepreneurial performance.

Keywords: Rural Revitalisation; Quality of Decision-Making; Entrepreneurial Ecosystems; fsQCA; NCA; Return to the Countryside; Entrepreneurship

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1. Introduction

Returning entrepreneurs have emerged as potent drivers of regional economic expansion[1], simultaneously serving as crucial avenues for bolstering rural economic development and revitalizing rural communities. Amidst this landscape, addressing the concerns of entrepreneurs to ensure their retention, business inception, and growth has become a matter of growing significance for both local governments and academic circles. Notably, the longevity and success of entrepreneurial endeavors hinge significantly on whether their performance is favorably recognized and rewarded. Consequently, fostering the proliferation of entrepreneurial performance has taken center stage as a paramount issue that resonates throughout society.

Performance stands as a pivotal indicator in business endeavors, where exceptional performance fosters sustainable development and propels industrial advancement. Conversely, underwhelming performance saps motivation and prompts individuals to adopt prompt stop-loss measures. Consequently, the entrepreneurial performance of ventures returning from previous endeavors is paramount to their sustained growth and prosperity. Entrepreneurial activity is an outcome stemming from the interplay between micro-level subjects and the external environment, a phenomenon that has garnered the attention of numerous scholars. These scholars have delved into the influence of factors such as financial capital and human capital on entrepreneurial performance. The majority of these studies, rooted in traditional methodologies, have primarily concentrated on the net benefits associated with individual factors. In reality, entrepreneurial performance is influenced by a multitude of factors. However, the current research on the synergistic effect of these multiple factors on entrepreneurial performance, viewed from a comprehensive perspective, remains inadequate. Therefore, it is imperative to analyze the coordinated impact of these factors on entrepreneurial performance from a holistic standpoint. In recent years, entrepreneurial ecosystems have garnered significant attention within the realm of entrepreneurship, and the theory of entrepreneurial ecosystems has found widespread application. Pertinent studies have delved into the causal nexus between entrepreneurial ecosystems and national aspirations for entrepreneurial development or the quality of entrepreneurship[2]. These studies, firmly rooted in the theory of entrepreneurial ecosystems, have carried out thorough analyses, examining the impacts of multiple factors on independent variables. This has provided invaluable insights that facilitate a more profound understanding of the complex antecedent mechanisms driving entrepreneurial performance. As such, this study likewise adopts the entrepreneurial ecosystem theory as its fundamental framework.

Building upon this foundation, this paper integrates the actual circumstances of rural entrepreneurship in China with the concept of entrepreneurial ecosystems. It proposes a comprehensive analytical framework designed to assess the quality of entrepreneurial decision-making. Utilizing three cities located in the Guanzhong region, northern, and southern Shaanxi Province as case studies, the paper employs Necessary Condition Analysis (NCA) and Fuzzy Set Qualitative Comparative Analysis (fsQCA) to dissect the intricate and multifaceted relationships between entrepreneurial ecosystems and decision-making quality.

The study is geared towards addressing the following pivotal questions:

(1) Which pathways lead to high entrepreneurial performance?

(2) Which pathways hinder entrepreneurial performance?

(3) What elements are indispensable for achieving high entrepreneurial performance?

By delving into these inquiries, this study strives to attain a more profound comprehension of the interplay between

entrepreneurial performance and the entrepreneurial ecosystem. Ultimately, it aims to offer more effective guidance and suggestions for future research endeavors and practical applications.

2. Literature Review and Theoretical Modelling

This study builds upon the framework of the entrepreneurial ecosystem theory, which posits that it is an organic whole comprising multiple entrepreneurial participant subjects and their respective environments, marked by characteristics such as symbiosis, competitiveness, networking, regionality, and diversity[3] With a particular emphasis on returning entrepreneurship, the study acknowledges the unique rural Chinese context where returning entrepreneurs often work as self-employed individuals[4], and the preponderance of individual entrepreneurs [5], juxtaposed against the regional environmental dependence inherent in the entrepreneurial ecosystem [3].

By integrating Isenberg's original six elements of the entrepreneurial ecosystem with the distinct realities of rural return entrepreneurship in China, this study introduces decision-making quality as a seventh crucial element. Consequently, the ecosystem is segmented into seven key facets: financial capital, market environment, human capital, infrastructure, government services, social norms, and decision-making quality. This theoretical foundation enables a comprehensive investigation into the interplay of multiple factors influencing entrepreneurial performance. By delving into the impact of the entrepreneurial ecosystem, shaped by these combined elements, on entrepreneurial performance, this study seeks to offer insightful perspectives on the complex dynamics at work within this ecosystem.

2.1 Entrepreneurial Ecosystems in Context

Over time, scholars have categorized the understanding of entrepreneurial ecosystems into two primary perspectives: "environmentalism," which asserts that entrepreneurial ecosystems represent the utmost complexity and intricacy, viewing them as the external environment in which entrepreneurs operate; and the "subject-environment view," which considers the entrepreneurial ecosystem as an integrated system encompassing both entrepreneurs and their external environment [6]. This study centers on the entrepreneurial system aimed at enhancing entrepreneurial performance within the context of returning entrepreneurship, adopting the "subject-environment view" connotation.

Taking into account the unique research context and the specific nature of returning entrepreneurship, we have incorporated the personal characteristics of returning entrepreneurs as an additional element. Consequently, we have segmented the entrepreneurial ecosystem into seven key components: financial capital, infrastructure, government services, social norms, human capital, market environment, and personal characteristics.

Existing research has primarily relied on traditional approaches that concentrate on the net benefits of individual elements within the entrepreneurial ecosystem. These studies contend that a comprehensive understanding of high-level, complex

entrepreneurial ecosystems can be achieved by analyzing their lower-level, simpler elements [7] This provides a foundation for the subsequent in-depth exploration of the intricate causal relationship between entrepreneurial ecosystems and entrepreneurial performance, which is detailed in the following section, elucidating the connection between individual elements and entrepreneurial performance.

(1) Decision Quality and Entrepreneurial Performance in Returnee Entrepreneurship

Due to the unique nature of returnee entrepreneurship, where the majority of businesses are self-initiated, entrepreneurial performance becomes intrinsically tied to the personal characteristics of the entrepreneurs. Entrepreneurial performance serves as a reflection of these personal attributes, as entrepreneurs assess and interpret their surroundings based on their individual traits.

Individual risk propensity, a personal characteristic that remains stable over time and independent of external environmental factors[8], plays a crucial role in shaping entrepreneurs' identification of opportunities. Variations in risk propensity among entrepreneurs lead to differences in the recognition of entrepreneurial prospects, which subsequently impact their overall performance . This suggests a significant correlation between risk propensity and corporate entrepreneurial performance [8].

(2) Human Capital and the Generation of Entrepreneurial Performance

In the realm of entrepreneurship, information has been widely acknowledged as a pivotal resource. However, the utility of these information resources, which entrepreneurship heavily relies on, is realized only through the proactive information-seeking behaviors of entrepreneurs[9]. Research has highlighted that access to information resources serves as a mediating factor in social networks for farmers' entrepreneurial endeavors, enhancing their opportunities and capabilities. Consequently, possessing robust information competence has become an integral component of human capital.

Studies have demonstrated that information competence exerts a driving force on entrepreneurial performance. Specifically, a stronger information capability enables farmers to more accurately grasp market trends, adapt flexibly to market shifts, and secure policy support, thereby enhancing their entrepreneurial outcomes [10]. It is anticipated that information capability can address the issue of information resource scarcity[11], thus fostering the growth of entrepreneurial performance.

(3) Social Norms and Entrepreneurial Performance

In rural society, the closed network fosters a robust cooperative environment. The social norms and collective oversight that emerge from trust and commitment serve as catalysts for enhancing entrepreneurial performance [12]. A strong adherence to social norms elevates the awareness of entrepreneurship throughout the community, fostering a vibrant entrepreneurial spirit that attracts more individuals to join the ranks of entrepreneurs. This, in turn, cultivates a powerful entrepreneurial atmosphere, leading to an overall improvement in entrepreneurial success. Furthermore, these social norms significantly impact

entrepreneurs' capacity to identify opportunities[13], empowering them to capitalize on profitable ventures and further bolster their entrepreneurial achievements.

(4) Government Services and Entrepreneurial Performance

Science and technology-based entrepreneurial enterprises frequently require policy incentives and government services during their initial establishment phase. The efficacy of government services and the satisfaction of entrepreneurs with these policies play a pivotal role in enhancing entrepreneurial performance[14]. Superior government services ensure a fair and just market environment, thereby enabling enterprises to reap greater investment returns during production and operation. This, in turn, stimulates entrepreneurial behavior while also minimizing entrepreneurial costs [15] and transaction expenses. By optimizing the efficiency of market resource allocation and business transactions, high-quality government services are estimated to further propel the growth of entrepreneurial success.

(5) Financial Capital and Entrepreneurial Performance

Returning entrepreneurs typically require a certain amount of start-up capital to initiate their businesses, and financial capital serves as a vital source of financial support. A robust rural financial system not only fosters healthy competition among financial institutions, thereby facilitating easier access to external funds for enterprises, but it also reduces the cost of loans, ultimately enhancing entrepreneurial performance[16]. Prior research has revealed that both formal finance (such as bank loans) and informal finance (like loans from friends and relatives) exert a positive impact on the performance of returning entrepreneurs . Consequently, financial capital is pivotal to entrepreneurial success and exerts a favorable influence on overall performance. In summary, a well-developed rural financial system not only promotes healthy competition among financial institutions and eases the process of obtaining external funds for enterprises but also lowers loan costs, thereby further promoting the growth of entrepreneurial performance.

(6) Infrastructure and Entrepreneurial Performance

On the one hand, rural infrastructure plays a crucial role in ensuring the seamless execution of entrepreneurial activities. Well-developed infrastructure optimizes the entrepreneurial environment and positively influences the performance of new-generation rural workers[17]. Enhanced transportation facilities bridge the gap between urban and rural resources, enabling entrepreneurs to access necessary resources more easily and reducing business costs, thereby boosting entrepreneurial performance. Thus, transportation facilities are integral to entrepreneurial endeavors.

On the other hand, the convenience and affordability of the Internet empower the new generation of migrant workers to expand and maintain their social networks, thereby amplifying the value of social capital in identifying entrepreneurial opportunities. Through the Internet, individuals from disadvantaged backgrounds can explore a wider range of entrepreneurial options and

enhance their performance by adopting innovative business models. Additionally, leveraging the Internet to gather information pertinent to entrepreneurial decision-making enables rural residents to accurately grasp market dynamics and policy shifts, facilitating their decision-making processes and ultimately improving entrepreneurial performance[18]. In conclusion, infrastructure exerts a facilitating effect on entrepreneurial success.

(7) Market Environment and Entrepreneurial Performance

Environmental dynamics significantly influence the entrepreneurial activities of firms to varying extents, and a superior market environment is instrumental in enhancing the entrepreneurial income and performance of farmers. The market environment furnishes entrepreneurs with invaluable resources, transparent information, and a plethora of entrepreneurial opportunities[19] It also exerts a profound influence on the identification of entrepreneurial opportunities and the utilization of resources, which are pivotal determinants of entrepreneurship. A fair and competitive market environment stimulates farmers' enthusiasm for innovation and entrepreneurship, enabling them to identify more entrepreneurial prospects[20]. It is noteworthy that entrepreneurship is a process rooted in the identification and understanding of entrepreneurial opportunities, which leads to outputs, i.e., entrepreneurial performance, through the integration of resources and the cultivation of core competencies and dynamic capabilities essential for the development of entrepreneurial enterprises. Valuable entrepreneurial opportunities continue to exert a significantly positive influence on entrepreneurial performance[21].Consequently, a favorable market environment has a facilitating effect on entrepreneurial performance.

In conclusion, the study underscores that the impact of individual elements of the entrepreneurial ecosystem on entrepreneurial performance provides the foundation for the selection of conditions in this research. However, the intricate causal relationships between the elements of the entrepreneurial ecosystem and their coordinated impact on entrepreneurial performance have yet to be fully elucidated from a holistic perspective. A comprehensive exploration of these relationships would significantly contribute to a deeper understanding of the pathways that shape entrepreneurial performance.

3. Research Methodology

3.1 The Relationship between Entrepreneurial Ecosystems and Entrepreneurial Performance: A Theoretical Model

Reductionist perspectives posit that complex, high-level entrepreneurial ecosystems can be broken down into simpler, low-level elements[22]. Consequently, these studies often concentrate on investigating the linear relationship between a single element and decision quality, or the moderating role of that relationship. However, the symbiotic and competitive interactions among ecosystem elements have not been thoroughly examined from a holistic viewpoint.

In light of these perspectives, this study adopts a group perspective to develop a portfolio model of entrepreneurial ecosystem

elements. This model aims to explore how these elements collaborate and interconnect to enhance the quality of entrepreneurial decisions. By adopting this approach, the study seeks to provide a more comprehensive understanding of the intricate dynamics within entrepreneurial ecosystems and their impact on decision-making quality.

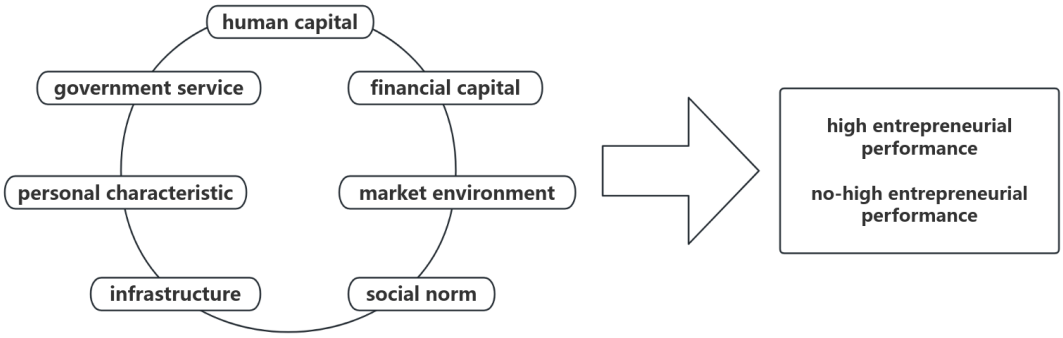

Fig.1 Theoretical model

Note: Solid boxes indicate conditions or outcomes that are operationalized, dashed boxes indicate mechanisms that are not operationalized, and "×" represents the combination relationship between potential mechanisms.

3.2 Samples and Data

Stratified random sampling was employed to select the samples, which were categorized into three regions: southern Shaanxi, northern Shaanxi, and Guanzhong. From each region, one city was chosen: Baoji, Suide, and Ankang, respectively. A total of 194 samples were gathered, and after excluding data lacking entrepreneurial actions, excessive missing values, and data deviating from a normal distribution, 94 samples remained.

3.4 Measurement & Calibration

3.4.1 Outcome variables

In academia, it is widely acknowledged that entrepreneurial performance encompasses the degree to which entrepreneurs accomplish their tasks and objectives within entrepreneurial endeavors. Three primary methods of measurement are employed: combining non-financial and subjective performance, objective and financial performance, and survival and growth performance. These approaches collectively provide a comprehensive evaluation of entrepreneurial performance[23].

Furthermore, given that a majority of returnee entrepreneurs opt to operate their businesses as self-employed entities, these ventures are typically small and in their nascent stages. During fieldwork, it was also observed that many returnees were hesitant to disclose financial data to researchers, rendering it impractical to solely rely on financial indicators for assessing their entrepreneurial performance. Consequently, when evaluating the performance of returning entrepreneurs, it is imperative to consider additional non-financial indicators and other dimensions to gain a comprehensive understanding of their business status and development. Therefore, a combination of subjective and non-financial performance measures was selected to

analyze dimensions such as revenue growth rate, fixed assets growth rate, expected target profit level, and operations. Accordingly, the Tongxin scale was adapted for this purpose.

3.4.2 Conditional Variables

(1) Financial Capital: The accessibility of financial capital is of utmost importance. Entrepreneurs typically secure financial capital through loans or borrowings, and the ease of obtaining such capital significantly influences their decision-making processes[24] To address this, the study has chosen to measure financial capital using "formal loan fluency" and "family and friends borrowing fluency" as indicators [25]. The scale comprises two items, and financial capital is assessed on a seven-point Likert scale. A higher total score on these items indicates a lower difficulty in acquiring financial capital.

(2) Infrastructure: When assessing satisfaction with infrastructure, numerous studies have relied on subjective perceptions as a measure. It is crucial to recognize that as the quality of infrastructure improves, satisfaction levels tend to rise accordingly. In today's rapidly evolving technological landscape, infrastructure extends beyond physical structures to include telecommunication networks. Therefore, this study has deliberately chosen "Physical Infrastructure Satisfaction" and "Telecommunication Infrastructure Satisfaction" as the dimensions for measuring infrastructure.

(3) Market Prospects: When conducting a subjective evaluation of the market environment, it is essential to acknowledge the challenges in measuring the specific market conditions for returning entrepreneurs. To address this, we have opted to assess the market environment through an individual's subjective perception. In the existing literature, the market environment is frequently evaluated based on dimensions such as the ease of accessing market information and the market potential of products. Consequently, this study has identified these two factors – the ease of obtaining market information and the market prospect of the product – as the dimensions for measuring the market environment. We have employed a seven-point Likert scale for the assessment, where a higher score indicates a more favorable market environment.

(4) Government Services: Within the realm of subjective evaluations of government services, entrepreneurship services emerge as a pivotal branch, exerting a significant influence. They not only foster a conducive environment for startups but also provide vital support for the growth and success of entrepreneurs[26]. Recognizing this, our study has chosen to utilize entrepreneurship services as a primary indicator for assessing government services, offering a comprehensive analysis from a subjective perspective. Specifically, we have selected two aspects – "the provision of one-stop services for entrepreneurship by the local government" and "the efficiency of the local government" – to measure the quality of government services. For the measurement, we have adopted a seven-point Likert scale, where higher scores denote superior quality of government services

(5) Personal Traits: Risk characteristics constitute a vital aspect of personal traits. Given their inherent difficulty in objective quantification, they are typically assessed through individuals' subjective self-evaluation. To this end, our study has adopted the

statement "I am willing to undertake greater risks if starting a business promises profitability" as a means to measure personal traits[27].

(6) Social Norms: At the level of social norm perception, social norms – the widely accepted codes of conduct and values within a particular society – exert a profound influence on individual behavior. Entrepreneurial culture, as an integral part of social culture, not only shapes individuals' perceptions of opportunities and fosters the development of entrepreneurial activities but also influences entrepreneurs' decision-making and actions[28]. To capture this, our study measures social norms through the lens of entrepreneurial culture, specifically utilizing the statement "The entrepreneurial atmosphere of the workplace has an incentive effect on one's own entrepreneurship when returning to one's hometown" as a measure of social norms. We employed a seven-point Likert scale for this measurement, where higher scores signify a stronger entrepreneurial culture and, consequently, stronger social norms.

(7) Human Capital Self-Efficacy: Human capital encompasses the entrepreneur's education level, work ability, experience, and information-seeking ability, with the latter also being classified as a component of the entrepreneur's work ability. Building on this foundation, our study assesses human capital through the lens of self-efficacy. Consequently, we have selected the statements "I will strive to obtain more information about the industry" and "I am willing to dedicate more time to gathering industry-related information" as indicators of human capitalbelowbelow[29].

3.4.3 Variable Calibration

Variable calibration is a crucial step in the fsQCA method. Typically, the original data do not meet the Boolean logic sharing condition inherent in fsQCA [30]. Therefore, it becomes necessary to convert the original values of the causal variables into fuzzy scores and calibrate the data accordingly. This process involves assigning the original case data to a set of affiliations . Given that the conditions of the elements within the entrepreneurial ecosystem and entrepreneurial performance are all linkage variables, this study opts for the direct calibration method among the three available calibration methods. This method is employed to assign fuzzy affiliation scores to the raw data. Specifically, the fifth quartile of the sample data serves as the threshold for complete non-affiliation, the median acts as the crossover point, and the ninety-fifth quartile is used as the threshold for complete affiliation [31]. These thresholds and their corresponding assignments are summarized in Table 1.

Table 1. Collection and Calibration

Set	Fuzzy-Set Calibration		
	Full Affiliation（affiliation = 0.95）	Intersection (affiliation = 0.5)	Completely Unaffiliated (degree of affiliation = 0.05)

entrepreneurial performance	5.544	4.000	1.750
financial capital	7.000	5.000	3.000
infrastructure	7.000	5.000	1.825
market environment	6.675	5.000	2.825
government service	7.000	5.000	2.325
risk profile	7.000	5.000	1.650
social norm	7.000	5.000	3.000
human capital	7.000	5.000	3.500

4. Analysis of Results

4.1 Conditional Configuration Analysis

The adequacy analysis of grouping is a pivotal aspect of the QCA method. Therefore, fsQCA is employed to investigate which combinations of antecedents within the entrepreneurial ecosystem lead to high versus non-high entrepreneurial performance. Drawing upon existing research, we set the original consistency threshold at 0.8, the PRI consistency threshold at 0.7, and the frequency number at 1. Adhering to the principle of "using the intermediate solution as the primary solution and the parsimonious solution as a secondary reference"[32], we have identified four paths leading to high entrepreneurial performance and one path resulting in non-high entrepreneurial performance.

(1) Sufficiency Analysis of High Entrepreneurial Performance

The results in Table 5 show 4 driving paths that reveal high entrepreneurial performance (groupings S1 to S4), and a cross-sectional analysis of each grouping reveals that S1 and S3 have the same core condition, i.e., the market environment, but the 2 groupings differ in their peripheral conditions. In group state S1 government services, social norms, and the presence of information capabilities and the absence of infrastructure play a supporting role. Whereas in group state S3, government services, individual characteristics, social norms and information capabilities play a supporting role and infrastructure is an irrelevant condition. In group state S2. The presence of social norms and human capital and the absence of financial capital are core conditions, the market environment, the presence of individual characteristics and the absence of infrastructure are peripheral conditions, and government services are insignificant. In group state S4, the presence of financial capital and the absence of infrastructure and social norms are core conditions, while the market environment, government services and the presence of human capital and the absence of personal characteristics are marginal conditions.

In conclusion, grounded on the core conditions of these four groupings and the underlying explanatory logic, this paper delineates three pivotal driving paths that lead to high entrepreneurial performance.

(1) Resource-Supported and Cognitively Driven Paths

The resource-supported and cognitively driven paths, evident in groupings S1 and S3, highlight scenarios where entrepreneurial performance is primarily fueled by a conducive market environment. Irrespective of whether an individual's risk-taking propensity is high or low, the presence of a supportive market environment, government services, social norms, and human capital, even amidst limited financial capital and infrastructure, can lead to high entrepreneurial performance. This phenomenon can be attributed to the fact that financial infrastructure in rural areas is notably weaker compared to urban regions[33]. Additionally, financial awareness and literacy are relatively lacking. While infrastructure deficiencies are more pronounced in rural areas compared to urban ones, the unique geography of Shaanxi Province, particularly the arid regions of northern Shaanxi, exacerbates these issues. Besides networks and transportation, water infrastructure is a critical concern, yet local areas frequently lack such essential facilities.

(2) Resource-Awareness Dual Driver

The Resource Cognition Driven path, observed in grouping S2, emphasizes that high entrepreneurial performance is primarily fueled by robust social norms and abundant human capital. This path underscores the crucial role that social norms and human capital play in enhancing entrepreneurial outcomes. As human capital fosters cognitive enhancement, an individual's cognitive level often correlates with their information search capabilities Entrepreneurial cognition refers to the knowledge framework individuals utilize to evaluate, judge, and make decisions regarding entrepreneurial endeavors. To effectively leverage the information they gather to support and guide their entrepreneurial projects, entrepreneurs must possess the ability to analyze problems, discern the credibility of information, and make sound decisions[34].

(3) Resource- and Public-Driven Path with Financial Support

The resource- and public-driven path with financial support, identified in Grouping S4, highlights that entrepreneurial performance is propelled by a synergy of social norms and human capital. Social norms steer entrepreneurial behavior and aid in establishing reputation and trust, while abundant human capital bolsters entrepreneurs' capacity to navigate challenges. These two factors reinforce each other. Concurrently, advantageous financial capital support can counteract the limiting effects of personal characteristics and social norms. This may be attributed to the liquidity of funds, grounded in robust financial capital, which enables entrepreneurs to allocate resources more flexibly. Consequently, the entrepreneur's personal characteristics and social norms cease to be paramount; instead, the strength of ample capital and favorable market conditions takes precedence.

Table 2. Antecedent groupings of states that produce high or non-high decision quality

Parameterisation

parameterizationc	High entrepreneurial performance				Non-high entrepreneurial performance
conditions	S1	S2	S3	S4	NS1
financial capital	⊗	⊗	⊗	●	⊗
infrastructure	⊗	⊗		⊗	⊗
market environment	●	●	●	●	⊗
government service	●		●	●	⊗
personal characteristic		●	●	⊗	●
social norm	●	●	●	⊗	●
human capital	●	●	●	●	⊗
original coverage	0.308652	0.293516	0.323584	0.293312	0.329195
unique coverage	0.0247495	0.0224995	0.0525671	0.0818164	0.329195
consistency	0.927474	0.945323	0.969363	0.931774	0.922933
overall coverage	0.465535				0.329195
overall consistency	0.921085				0.922933

Note: ● indicates that the core condition is present, ⊗ indicates that the core condition is missing, ● indicates that the edge condition is present, ⊗ indicates that the edge condition is missing, and blank indicates that the condition is missing.

4.3 Robustness Tests

The robustness test methods for fsQCA primarily encompass altering the frequency of case occurrences, enhancing consistency, modifying the calibration data anchors, and adjusting the calibration intersections. In this study, two distinct approaches were employed for testing purposes.

Firstly, the original consistency threshold was adjusted to 0.85resulting in four groupings that aligned with the original groupings. Secondly, the original anchor point crosspoints were increased by 5 percent，which also led to four groupings consistent with the original ones.

In summary, following these adjustments, the overall results did not exhibit significant variations, thereby indicating that the findings of this study are relatively robust.

Table 3. Robustness test for generating high entrepreneurial performance

parameterizationc	increase consistency to 0.85				Intersection +5%			
conditions	S1	S2	S3	S4	S1	S2	S3	S4

financial capital	⊗	⊗	⊗	●	⊗	⊗	⊗	●
infrastructure	⊗	⊗		⊗	⊗	⊗		⊗
market environment	●	●	●	●	●	●	●	●
government service	●		●	●	●		●	●
personal characteristic		●	●	⊗		●	●	⊗
social norm	●	●	●	⊗	●	●	●	⊗
human capital	●	●	●	●	●	●	●	●
original coverage	0.305466	0.290486	0.320243	0.290284	0.308652	0.293516	0.323584	0.293312
unique coverage	0.024494	0.0222672	0.0520244	0.0809717	0.0247495	0.0224995	0.0525671	0.0818164
consistency	0.927474	0.945323	0.969363	0.931774	0.927474	0.945323	0.969363	0.931774
overall coverage	0.460729				0.465535			
overall consistency	0.921085				0.921085			

Note:●indicates that core conditions are present,⊗indicates that core conditions are missing, ●indicates that borderline conditions are present,⊗indicates that borderline conditions are missing, and blank indicates that conditions are missing.

5. Conclusions and insights

5.1. Conclusions of the study

The study's findings reveal several key points. On the one hand, the elements within the entrepreneurial ecosystem are not prerequisites for achieving entrepreneurial performance. Furthermore, human capital emerges as a pivotal factor that generally stimulates high entrepreneurial performance, which is a particular focus of this study.

On the other hand, the study uncovers that the pathways leading to non-high entrepreneurial performance are of a single type and exhibit an asymmetric relationship with the entrepreneurial ecosystems that produce high entrepreneurial performance.

5.2. Revelations

Firstly, support resources play a pivotal and widespread role in boosting entrepreneurial performance. Therefore, it is imperative to monitor the market and foster a conducive market environment that facilitates the seamless flow and redistribution of resources. The entrepreneurial success of returnee entrepreneurs is influenced by a synergistic interplay of multiple factors, with no single element being indispensable for achieving high performance. Consequently, greater emphasis should be placed

on the holistic coordination within the entrepreneurial ecosystem.

It is important to acknowledge that resources are finite, and striving for comprehensive and balanced development in all aspects may be overwhelming. Hence, it is critical to select the most appropriate driving path based on the actual circumstances. Once again, it is vital to highlight the key roles of the market environment and human resources in fostering high entrepreneurial performance. By focusing on these crucial elements, we can effectively enhance the entrepreneurial success of returnee entrepreneurs and establish a virtuous cycle.

5.3. Research Shortcomings and Prospects

The group analysis of entrepreneurial performance presented in this study has certain limitations and requires enhancement in future research endeavors:

(1) The study's sampling method, which includes only one city from southern Shaanxi, northern Shaanxi, and central Guanzhong within Shaanxi Province, may limit the generalizability of the findings. To enhance the applicability of the results, future studies should consider a more diverse and representative sample.

(2) This paper does not differentiate between the types of firms that return to their home towns to initiate their own businesses. Given that the paths to achieving high entrepreneurial performance may vary depending on the type of firm, future research could benefit from further refining the types of firms involved.

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