

RESEARCH ARTICLE

Interplay of entrepreneurial failure experience, entrepreneurial resilience, and re-entrepreneurship performance: Evidence from China

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Abstract

In the 21st-century global economy, entrepreneurship is a key driver of economic development, innovation, and job opportunities. This paper aims to analyze the impact of entrepreneurial failure experiences on re-entrepreneurship performance and the mediating role of entrepreneurial resilience. This study employs a quantitative approach, collecting 451 valid questionnaires in various regions of China. Data analysis includes regression and mediation analysis. Entrepreneurial failure experiences positively influence re-entrepreneurship performance, as they trigger entrepreneurial resilience. Resilience enables entrepreneurs to recover from failure, promoting personal growth and subsequent success. This research uncovers the positive effects of entrepreneurial failure experiences on re-entrepreneurship performance and highlights the role of entrepreneurial resilience. These findings inform entrepreneurial processes, enhance success rates, and guide policy-making. Future research should consider additional mediators and adopt a multidisciplinary approach for a comprehensive understanding of entrepreneurial failure's impact.

Keywords: failure experience; entrepreneurial resilience; re-entrepreneurship performance

1. Introduction

In the global economy of the 21st century, entrepreneurship is regarded as a crucial driving force for economic development, innovation, and employment opportunities. Currently, China's economy has shifted from a phase of rapid growth to a stage of high-quality development. With the transformation of the economic structure, a large number of entrepreneurial opportunities have emerged throughout the country. Under the backdrop of "mass entrepreneurship and innovation," various levels of the Chinese government have successively introduced a series of policies to stimulate and support innovation and entrepreneurship, leading to a continuous improvement in the entrepreneurial environment and a thriving state of innovation and entrepreneurship. However, the entrepreneurial process is not always smooth. Entrepreneurial activities are fraught with risks and uncertainties, leading to frequent failures. The failure rate of entrepreneurship among Chinese enterprises is around 80%, and the rate among college students is as high as 95%. According to data from the U.S. Bureau of Labor Statistics (2020), approximately 50% of new companies cease operations within five years of establishment. These failed entrepreneurial attempts may have significant negative impacts on entrepreneurs, including financial loss, career interruption, and psychological stress. Some scholars have also applied the Expectancy Theory and Institutional Theory to research and found that in underdeveloped trade

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regions like the China-Pakistan Economic Corridor, three entrepreneurial motives among small business owners play a crucial role in the growth of family-owned small businesses^[1].

Despite the undeniable negative effects of failure, people often say that “failure is the mother of success.” Some scholars have also proposed that failure experiences may have positive effects. Failure may foster learning, provide valuable lessons, and guide future entrepreneurial behavior^[2,3]. Psychologically, failure experiences may also reinforce resilience and adaptability. Facing failure requires cultivating stronger psychological resilience to overcome setbacks, a process that may contribute to personal growth and emotional intelligence. This view aligns with experiential learning theory, which advocates learning and knowledge construction through specific experiences, including successes and failures^[4]. Additionally, scholars have noted the potential role of entrepreneurial resilience when entrepreneurs face failure and frustration. Entrepreneurial resilience can be understood as the ability of entrepreneurs to persist and recover to a normal state when faced with difficulties and failures^[5]. Entrepreneurs with this resilience may be better able to bounce back from failure, accumulate experience, and prepare for re-entrepreneurship. However, there is still no clear consensus in academia about the relationship between entrepreneurial failure experience, entrepreneurial resilience, and re-entrepreneurial performance, especially in specific entrepreneurial environments like China’s “mass entrepreneurship and innovation.” For instance, some researchers have argued that in an environment that encourages trial and tolerates failure, failure experiences may be more likely to translate into valuable learning resources^[6]. In such an environment, entrepreneurial resilience may play a greater role in helping entrepreneurs recover from failure and attempt entrepreneurship again. On the other hand, existing policies and regulations might have negative effects on entrepreneurial activities. For example, Smith^[7] noted that high taxes and complex registration processes could stifle entrepreneurial enthusiasm. Additionally, Jones^[8] showed that entrepreneurs often face greater difficulties when lacking financing channels, possibly leading to higher failure rates in the early stages^[9]. Furthermore, social and cultural pressures, such as opposition from family and friends, may create unease in entrepreneurial decision-making^[10]. Moreover, intense market competition can be a serious challenge for startups^[11], particularly in saturated markets where newcomers may find it hard to identify market positioning and competitive advantages. Also, entrepreneurs may face challenges in recruiting and retaining high-quality talent^[12].

The experience of entrepreneurial failure, as a prior experience, can significantly influence subsequent re-entrepreneurial performance^[13,14]. However, scholars are divided on whether the impact of entrepreneurial failure is positive or negative. Experiential learning theory suggests that entrepreneurial failure positively influences re-entrepreneurial performance by providing valuable learning opportunities, helping to increase entrepreneurial knowledge, enhance entrepreneurial skills, and improve re-entrepreneurial readiness, thereby enhancing re-entrepreneurial performance^[15]. Cognitive theory, however, argues that entrepreneurial failure is traumatic, causing financial loss and negative emotions such as sadness and pain, adversely affecting cognitive abilities and subsequent re-entrepreneurial performance^[16]. This may be due to the multidimensionality and heterogeneity of entrepreneurial failure, as failures with different characteristics have markedly different impacts on re-entrepreneurial behavior^[17]. Existing research often characterizes entrepreneurial failure simply by the number of failures, leading to an overly simplistic and one-sided understanding. The degree of failure also has heterogeneous effects on re-entrepreneurial performance, yet literature generally overlooks this aspect, thereby failing to fully reveal the direction and extent of the impact of entrepreneurial failure on re-entrepreneurial performance. Moreover, existing literature exploring the link between previous entrepreneurial failure and subsequent entrepreneurial behavior is often limited to single perspectives like re-entrepreneurial intention, failure learning, or re-entrepreneurial decision-making, without systematically considering the dynamic process of entrepreneurship and the recovery process after failure.

Based on the foregoing discussion, this paper first approaches the multidimensional characteristics of entrepreneurial failure experiences by utilizing the number and degree of failures to explain such experiences. It then analyzes the overall impact of entrepreneurial failure on re-entrepreneurship, dissecting the degree of failure through three dimensions: economic, social, and psychological. Subsequently, drawing on entrepreneurial process theory and referring to social cognitive theory and experiential learning theory, this study constructs a theoretical analysis framework with mediating effects to comprehensively examine the intermediary paths and conditions of how entrepreneurial failure experiences influence Re-Entrepreneurship, with the aim of probing the underlying mechanisms of their effect on re-entrepreneurial outcomes. This research focuses on a problem that has not yet been fully resolved, namely the specific effect of entrepreneurial failure experiences on re-entrepreneurship and its underlying impact mechanisms. It attempts to answer the following questions: (1) Does entrepreneurial failure experience affect re-entrepreneurial performance? (2) How does entrepreneurial failure experience influence re-entrepreneurial performance?

2. Review of literature

2.1. The relationship between entrepreneurial failure experience and re-entrepreneurial performance

In Chinese entrepreneurship research, terms such as “entrepreneurial experience” are often derived from English translations. In specific research, entrepreneurial experience is defined as the firsthand experience of directly observing or participating in entrepreneurial activities. In summary, the constructive influence of entrepreneurial failures on re-entrepreneurial performance can be analyzed through two interrelated dimensions: the frequency and severity of failures. Multiple failures provide entrepreneurs with a reservoir of experiential knowledge, enhancing their comprehension of intricate business challenges. This accumulation facilitates prudent re-entrepreneurial decision-making, adept risk management, and the avoidance of recurring errors through reflective practices. Moreover, enduring numerous failures fosters entrepreneurs’ resilience and adaptability, fortifying their tenacity in the face of adversity. Concurrently, the magnitude of entrepreneurial failure also shapes re-entrepreneurial performance. Entrepreneurs navigating more strenuous paths often grapple with heightened financial pressures, resource depletion, and reputational risks. Nonetheless, such experiences stimulate intrinsic motivation, propelling entrepreneurs to vigorously pursue success in re-entrepreneurship. Entrepreneurs enriched by profound failure experiences internalize pivotal lessons, meticulously crafting re-entrepreneurial strategies. Their nuanced comprehension of market dynamics and business models augments re-entrepreneurial efficacy. In summation, entrepreneurial failures emerge as catalysts for enhanced re-entrepreneurial performance. The accumulation of knowledge, augmented adaptability, and the reduction of mistakes due to multiple failures and substantial failure degrees synergistically contribute to this effect. These attributes collectively converge to elevate re-entrepreneurial outcomes^[15-17]. Qiu et al. investigate the manner in which entrepreneurial failures influence the subsequent intention for sustained entrepreneurial pursuits through the process of learning from said failures^[18]. The study posits that entrepreneurial failures have a favorable impact on the acquisition of insights from these failures, consequently exerting a constructive influence on the inclination towards persistent entrepreneurial endeavors. Additionally, the research suggests a constructive association wherein entrepreneurial failures positively correlate with the inclination for successive entrepreneurial undertakings^[18]. However, entrepreneurs must adeptly transform failures into instructive lessons and exhibit flexibility in adjusting strategies to harness the full potential of this facilitating impact. Based on this, the paper proposes the following hypotheses:

- H1: The number of entrepreneurial failures will positively affect re-entrepreneurial performance.
- H2: The degree of entrepreneurial failure will positively affect re-entrepreneurial performance.

- H2A: The economic degree will positively affect re-entrepreneurial performance.
- H2B: The social degree will positively affect re-entrepreneurial performance.
- H2C: The psychological degree will positively affect re-entrepreneurial performance.

2.2. The mediating role of entrepreneurial resilience

Research on individual resilience indicates that challenges or risks are indispensable conditions for the development of resilience^[19]. Adversities and stresses encountered early in one's life can affect their subsequent ways and capabilities to handle crises, as resilience largely stems from experiences in successfully addressing stress, dangers, and other adversities. In entrepreneurship, previous failures can be considered as processes of building entrepreneurial resilience. This is because individuals break through initial resilience mechanisms, turning stress stimuli into challenge coping skills, thus aiding their recovery from setbacks^[20]. Early entrepreneurial activities can shape entrepreneurs with strong entrepreneurial resilience, as discovered by Duchek^[21] in a resilience study of eight distinguished entrepreneurs. However, if members of the entrepreneurial team lack experience in handling dangerous situations, resilience might not come into play in perilous circumstances^[22]. Therefore, past failure experiences of entrepreneurs can be transformed into entrepreneurial experience through self-reflection and summarization, positively impacting the development of entrepreneurial resilience, especially past experiences overcoming obstacles and solving difficult challenges. After experiencing past failures, when entrepreneurs adapt well, it encourages them to engage in new activities, displaying stronger entrepreneurial resilience when faced with subsequent failures^[23]. Positive psychology also posits that resilience is one of the psychological capitals, and some scholars suggest that business competitive advantages should shift from traditional economic, human, and social capital to psychological capital^[24]. Resilience has been confirmed in multiple fields to have a positive effect on success^[25]. The research within the entrepreneurial field is increasingly focusing on the impact of entrepreneurial resilience on entrepreneurial success. Entrepreneurial processes are filled with uncertainties, and the information available to entrepreneurs is often ambiguous and ever-changing. Resilient entrepreneurs generally have a higher tolerance for uncertainty, proactively addressing rather than resisting changes, continually improving themselves to adapt to a changing environment^[26]. Xu et al.^[27] developed a theoretical model to elucidate the mechanism through which entrepreneurial failure learning influences subsequent entrepreneurial success. The findings indicate that entrepreneurial failure learning contributes to facilitating subsequent entrepreneurial success, with entrepreneurial resilience serving as a mediator between entrepreneurial failure learning and subsequent entrepreneurial success. Some scholars also found in their 2023 research that employee resilience plays a mediating role between task challenges and employee performance^[28].

In summary, referring to the definition of entrepreneurial resilience by domestic scholars, we consider entrepreneurial resilience as a dynamic adaptive process in which entrepreneurs can recover from adversity, such as difficulties, stress, and failures, and achieve a good adaptation, bounce back higher to successfully meet challenges, and demonstrate the ability to achieve positive outcomes in adversity. In simpler terms, it refers to the recovery and bounce-back ability of entrepreneurs in the face of difficulties and challenges^[29]. Entrepreneurial failure is seen as a highly stressful event, likely to have profound negative impacts on entrepreneurs, such as emotional distress, decreased self-efficacy, and doubt regarding re-entrepreneurial capabilities. However, entrepreneurial resilience can assist entrepreneurs in dealing with these pressures and challenges. Highly resilient entrepreneurs can maintain a tenacious attitude in the face of difficulties, keep a positive mindset, and actively seek solutions. Secondly, entrepreneurial resilience may affect the ability to learn from failure. Failure offers a learning opportunity, helping entrepreneurs avoid the same mistakes in the future. Yet, this learning process might be hindered by negative emotions and self-doubt arising from failure. Entrepreneurial resilience helps overcome these barriers, treating failure with a more objective, positive

attitude, enabling learning from it. Lastly, entrepreneurial resilience may influence entrepreneurs’ motivation and decision-making, which in turn may affect their re-entrepreneurial performance. The fear and uncertainty of failure might obstruct the willingness and decision-making for re-entrepreneurship. However, entrepreneurs with high resilience may better withstand these uncertainties and risks, leading to more effective decisions, possibly affecting their re-entrepreneurial performance. Therefore, entrepreneurial resilience might mediate the relationship between entrepreneurial failure experience and re-entrepreneurial performance. Based on this, the following hypotheses are proposed:

- H3: Entrepreneurial resilience plays a mediating role between the number of entrepreneurial failures and re-entrepreneurial performance.
- H4: Entrepreneurial resilience plays a mediating role between the degree of entrepreneurial failure and re-entrepreneurial performance.
- H4A: Entrepreneurial resilience plays a mediating role between the economic degree and re-entrepreneurial performance.
- H4B: Entrepreneurial resilience plays a mediating role between the social degree and re-entrepreneurial performance.
- H4C: Entrepreneurial resilience plays a mediating role between the psychological degree and re-entrepreneurial performance.

Based on the above hypotheses, the research framework of this paper is illustrated in **Figure 1**.

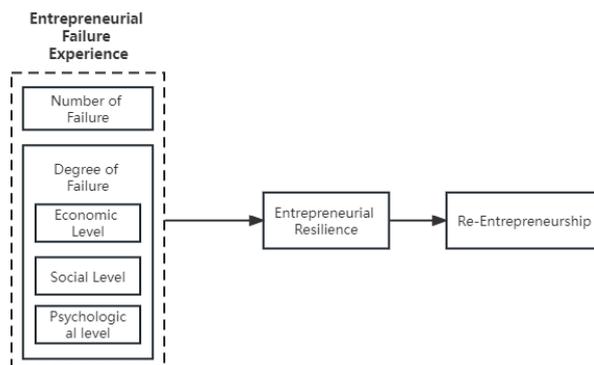


Figure 1. Conceptual model.

3. Methodology

3.1. Research design

The design of the questionnaire for this study is primarily based on well-established scales both domestically and internationally. Deep interview methods and expert opinion are employed to refine the questionnaire. The main components of this study’s questionnaire include basic information about the entrepreneurs, experiences of entrepreneurial failure, innovation resilience, and re-entrepreneurial performance. All parts are measured using a Likert 5-point scale. This study utilizes the number of entrepreneurial failures and the degree of entrepreneurial failure to measure entrepreneurs’ experiences with failure. The count of entrepreneurial failures draws on previous research and is directly obtained from respondents based on their past experiences with entrepreneurial failure. An example query might include: “In the businesses you have either founded or acquired, please specify the number of enterprises (or projects) that have failed to meet your expectations and were consequently forced to cease operations.” The concept of entrepreneurial failure degree is explored through the previous works, and builds upon the research conducted by Wei et al.^[30]. These studies employ a tripartite framework encompassing economic, social, and

psychological dimensions to assess entrepreneurial failure. Each dimension consists of three criteria, amounting to a total of nine assessment clauses. In this research, the well-established entrepreneurial resilience scale is adopted, drawing insights from the contributions of Fatoki^[26] and Zhang Xiue^[29], to gauge the mediating factor of entrepreneurial resilience. This scale, with a singular dimension, comprises a total of ten items. Based on the scale devised by Wei et al.^[30], this study evaluates re-entrepreneurial performance across three key dimensions: survival performance, satisfaction performance, and growth performance. Refer to previous studies, such as scholars' 2021 study on entrepreneurial resilience using the gender and education of entrepreneurs as control variables, and other relevant studies^[31,32]. The control variables in this paper include gender, age, education, company age, company size, industry type, and identity.

Following this, the initial questionnaire underwent refinement via a limited sample survey aimed at removing unsatisfactory responses, culminating in the final version of the questionnaire. This study selects small and medium-sized start-up enterprises as the research subjects, specifically targeting entrepreneurial businesses that are recently established and not large in scale, encompassing various industries such as manufacturing and services. From an individual perspective, the specific interviewees are the entrepreneurs, co-founders, or core members of the entrepreneurial team of these companies. These respondents align with the research objectives of this paper and are well-versed in the specific operations of the business, ensuring that the survey can obtain accurate information. Starting from late June 2023, the distribution of questionnaires was carried out over nearly a month, relying on financial investment companies and venture capital firms in various places such as Chengdu, Shenzhen, and Shanghai. A total of 545 questionnaires were distributed. By filtering out those without entrepreneurial experience or those filled out in less than a minute and other invalid questionnaires, the final number of valid questionnaires amounted to 451, with a valid questionnaire recovery rate of 82.75%.

3.2. Reliability and validity testing

This study employed SPSS to test the reliability of each scale and its dimensions. Through the analysis, it was discovered that the overall scale's reliability, as indicated by the Cronbach's Alpha value, was 0.929. The Cronbach's Alpha values for the failure degree scale, entrepreneurial resilience scale, and re-entrepreneurial performance scale were 0.806, 0.918, and 0.779, respectively, all of which are greater than 0.7. Moreover, the Cronbach's Alpha values for each dimension of failure degree and re-entrepreneurial performance were also greater than 0.7, thus demonstrating that the scales used in this research possess good reliability. The KMO values for entrepreneurial failure experience, entrepreneurial resilience, and re-entrepreneurial performance are all greater than 0.7, and the significance levels are all less than 0.001. Therefore, the variables in this study can undergo factor analysis. For failure degree, three factors were extracted, consistent with the theoretical dimension division. The variance explanation values for these three factors were 25.895%, 23.974%, and 23.189%, respectively, and the cumulative variance explanation after rotation was 73.059%, greater than 50%. For entrepreneurial resilience, one factor was extracted, with a variance explanation value of 57.643%, and the cumulative variance explanation after rotation was 57.643%, greater than 50%. For re-entrepreneurial performance, three factors were extracted, consistent with the theoretical dimension division. The variance explanation values for these three factors were 24.911%, 22.091%, and 21.157%, respectively, and the cumulative variance explanation after rotation was 68.160%, greater than 50%.

4. Results

4.1. Descriptive statistics

This study collected a total of 451 valid questionnaires. Among these respondents, males accounted for 48.56%, while females constituted 51.44% of the sample. The age distribution of the surveyed entrepreneurs is as follows: 43.46% of entrepreneurs fall within the age range of 31–40, 30.60% are aged 21–30, 19.29% are between 41–50, 3.33% are 51 years or older, and 3.33% are under 20 years old. Regarding the educational background of the surveyed entrepreneurs, 45.68% held a bachelor’s degree, 28.16% had an associate degree, and 21.73% held a master’s degree. The majority of entrepreneurs had businesses with an age distribution of 3–4 years (37.25%), 1–2 years (31.26%), or less than 1 year (22.17%), while 5–6 years represented 7.54%, and 7 years or more constituted only 1.77%. In addition, the scale of businesses where entrepreneurs were located was as follows: 47.01% were in companies with 21–50 employees, 21.06% in companies with 51–100 employees, and 19.51% in companies with 1–20 employees. Those in companies with 101–200 employees accounted for 8.87%, while those with over 200 employees were only 3.55%. The primary industry sectors where entrepreneurs were situated included the service industry (22.84%), wholesale and retail (21.06%), and information technology, computers, and software (20.84%). Furthermore, the manufacturing sector represented 11.75%, and accommodation and catering accounted for 4.88%. Concerning the entrepreneurs’ roles within their businesses, the majority were co-founders, comprising 62.08% of the sample. In addition, this study also conducted a descriptive statistical analysis of relevant variables such as the frequency and severity of entrepreneurial failure (economic, social, and psychological level), entrepreneurial resilience, and re-entrepreneurship performance to understand the data distribution of the sample. Descriptive statistics for each variable are presented in **Table 1**.

Table 1. Stratified regression analysis results.

Name	N	Min	Max	Mean	SD	Med
Number of Failures	451	1.000	6.000	3.796	1.184	4.000
Degree of Failure	451	1.444	5.000	3.771	0.683	3.889
Economic Level	451	1.000	5.000	3.646	0.932	3.667
Social Level	451	1.000	5.000	4.067	0.815	4.333
Psychological Level	451	1.000	5.000	3.599	1.044	4.000
Entrepreneurial Resilience	451	1.000	5.000	4.011	0.758	4.200
Re-Entrepreneurship	451	1.889	4.889	3.798	0.633	3.889

4.2. Main effect test

Based on existing theoretical research and literature review, this study explores the relationship between the dimensions of the number of failures and the degree of failure in entrepreneurial failure experiences and the performance of subsequent entrepreneurship. The hypothesis of a positive impact is proposed. This study constructs Model 1, Model 2, Model 3, Model 4, Model 5, and Model 6 to verify the hypothesis using hierarchical regression analysis. Model 1 reflects the relationship between control variables and Re-Entrepreneurship as the baseline model. Model 2 includes the variable of the number of entrepreneurial failures, and Model 3 includes the variable of the degree of failure. Model 4 includes the variable of economic level; Model 5 includes the variable of social level; Model 6 includes the variable of psychological level, aimed at examining the relationship between the number of entrepreneurial failures, the degree of failure, and Re-Entrepreneurship. From the results, the regression coefficient value for the number of failures is 0.113, and it exhibits significance ($t = 5.290, p = 0.000 < 0.01$), indicating that the number of failures has a significant positive impact on Re-Entrepreneurship. Hypothesis H1 is confirmed. The regression coefficient value for the degree of failure is 0.402, and it shows significance ($t = 11.786, p = 0.000 < 0.01$), suggesting that the degree of failure has a significant positive impact on Re-Entrepreneurship. Hypothesis H2 is confirmed. The

regression coefficient value for economic level is 0.215, and it exhibits significance ($t = 8.246, p = 0.000 < 0.01$), implying that economic level has a significant positive impact on Re-Entrepreneurship. Hypothesis H2A is confirmed. The regression coefficient value for social level is 0.255, and it shows significance ($t = 8.592, p = 0.000 < 0.01$), indicating that social level has a significant positive impact on Re-Entrepreneurship. Hypothesis H2B is confirmed. The regression coefficient value for psychological level is 0.167, and it demonstrates significance ($t = 7.035, p = 0.000 < 0.01$), suggesting that psychological level has a significant positive impact on Re-Entrepreneurship. Hypothesis H2C is confirmed. All variable correlations are shown in **Table 2**.

Table 2. Stratified regression analysis results.

	Model1	Model2	Model3	Model4	Model5	Model6
Constant	4.939** (29.772)	4.488** (24.638)	3.144** (14.962)	4.016** (21.048)	3.819** (18.951)	4.152** (21.494)
Gender	-0.688** (-13.505)	-0.629** (-12.409)	-0.513** (-10.939)	-0.600** (-12.335)	-0.588** (-12.112)	-0.603** (-12.099)
Age	-0.037 (-1.262)	-0.037 (-1.290)	-0.016 (-0.602)	-0.017 (-0.634)	-0.028 (-1.030)	-0.031 (-1.124)
Education	0.028 (0.919)	0.014 (0.476)	0.024 (0.893)	0.023 (0.811)	0.018 (0.651)	0.033 (1.136)
Company Age	0.014 (0.528)	0.002 (0.095)	0.013 (0.565)	0.017 (0.669)	0.002 (0.069)	0.019 (0.753)
Company Size	0.007 (0.275)	0.003 (0.132)	-0.010 (-0.429)	0.005 (0.211)	-0.003 (-0.115)	-0.006 (-0.237)
Industry Type	-0.020 (-1.380)	-0.023 (-1.622)	-0.024 (-1.913)	-0.026 (-1.950)	-0.019 (-1.442)	-0.021 (-1.505)
Identity	-0.016 (-0.365)	-0.013 (-0.310)	-0.008 (-0.205)	-0.026 (-0.659)	-0.029 (-0.739)	0.012 (0.284)
Number of Failures		0.113** (5.290)				
Degree of Failure			0.402** (11.786)			
Economic Level				0.215** (8.246)		
Social Level					0.255** (8.592)	
Psychological Level						0.167** (7.035)
Sample Size	451	451	451	451	451	451
R ²	0.296	0.338	0.464	0.390	0.397	0.367
Adjusted R ²	0.285	0.326	0.454	0.379	0.386	0.355
F-value	F (7.443) = 26.577, p = 0.000	F (8.442) = 28.170, p = 0.000	F (8.442) = 47.856, p = 0.000	F (8.442) = 35.273, p = 0.000	F (8.442) = 36.306, p = 0.000	F (8.442) = 31.988, p = 0.000
ΔR ²	0.296	0.042	0.168	0.094	0.101	0.071
ΔF	F (7.443) = 26.577, p = 0.000	F (1.442) = 27.987, p = 0.000	F (1.442) = 138.899, p = 0.000	F (1.442) = 68.004, p = 0.000	F (1.442) = 73.825, p = 0.000	F (1.442) = 49.497, p = 0.000

DV: Re-entrepreneurial Performance.

* $p < 0.05$ ** $p < 0.01$ (t -values in parentheses).

4.3. Mediation analysis

Based on existing theoretical research and literature review, this study investigates the mediating role of entrepreneurial resilience in the relationships between the number of entrepreneurial failures, the degree of failure, and Re-Entrepreneurship. Relevant hypotheses are proposed. To examine this, the present research will employ the bootstrap method with a sample size of 1000 and a confidence interval of 95%. In terms of the

results, it can be observed that entrepreneurial resilience plays a partial mediating role between the number of entrepreneurial failures and Re-Entrepreneurship. Hypothesis H3 is confirmed. Entrepreneurial resilience also demonstrates a partial mediating effect between the degree of failure and Re-Entrepreneurship. Hypothesis H4 is confirmed. Furthermore, entrepreneurial resilience serves as a partial mediator between economic level, social level, psychological level, and Re-Entrepreneurship. Hypotheses H4A, H4B, and H4C are all confirmed. The mediation effect is shown in **Table 3**.

Table 3. Summary of mediation analysis results.

Item	c Total Effect	a	b	a*b Mediation Effect Value	a*b (Boot SE)	a*b (z)	a*b (p)	a*b (95% BootCI)	c' Direct Effect	Test Conclusion
Number of Failures => Entrepreneurial Resilience => Re-Entrepreneurship	0.113**	0.124**	0.430**	0.053	0.030	1.752	0.080	0.045 ~ 0.163	0.060**	Partial Mediation
Degree of Failure => Entrepreneurial Resilience => Re-Entrepreneurship	0.402**	0.448**	0.363**	0.163	0.029	5.665	0.000	0.121 ~ 0.233	0.240**	Partial Mediation
Economic Level => Entrepreneurial Resilience => Re-Entrepreneurship	0.145**	0.166**	0.359**	0.060	0.022	2.741	0.006	0.045 ~ 0.130	0.085**	Partial Mediation
Social Level => Entrepreneurial Resilience => Re-Entrepreneurship	0.180**	0.200**	0.359**	0.072	0.024	2.953	0.003	0.048 ~ 0.144	0.109**	Partial Mediation
Psychological Level => Entrepreneurial Resilience => Re-Entrepreneurship	0.093**	0.100**	0.359**	0.036	0.025	1.451	0.147	0.014 ~ 0.114	0.057**	Partial Mediation

* $p < 0.05$ ** $p < 0.01$.

Bootstrap Type: Percentile Bootstrap Method.

5. Discussion

This study aims to analyze the direct and indirect effects of entrepreneurial failure experiences on Re-Entrepreneurship to address the following questions:

- 1) Does entrepreneurial failure experience affect Re-Entrepreneurship?
- 2) How does entrepreneurial failure experience impact Re-Entrepreneurship?

Building upon theoretical analysis and existing literature research, this study measures entrepreneurial failure experiences from the perspectives of frequency and severity, and explores their effects on entrepreneurial resilience and Re-Entrepreneurship. Based on theoretical and literature analysis, this study constructs a research model and proposes research hypotheses. Utilizing a large-scale questionnaire survey involving entrepreneurs who have experienced entrepreneurial failures from various regions across the country, empirical analysis is conducted to test the research hypotheses and answer the research questions. The results of the data analysis indicate that the research hypotheses put forward in this study have all been verified by empirical evidence. This study was conducted against the backdrop of the recent conclusion of the COVID-19 pandemic. This unforeseen event led to the failure of some entrepreneurs due to non-human and non-market-related factors beyond their control. For most entrepreneurs, this type of situation is not willingly accepted, thus resulting in a relatively greater willingness and likelihood for such groups to engage in subsequent entrepreneurial endeavors. Furthermore, the subjects of this study are entrepreneurs of small and medium-sized enterprises (SMEs). For these entrepreneurs, due to limited resources such as investment capital, technology, and emotional support, the degree of failure often remains within manageable limits. When stimulated by sources of pressure, entrepreneurs can utilize their ability to effectively respond to risks, adapt,

and rebound from crises to achieve Re-Entrepreneurship. In essence, entrepreneurs have the opportunity to develop strong resilience and reverse the effects of failure, thus achieving new entrepreneurial outcomes. To provide a more logical explanation of this process, the article thus delves deeply into exploring the pathway mechanism between entrepreneurial failure experiences and Re-Entrepreneurship. Specifically, it investigates how entrepreneurial failures can lead to enhanced entrepreneurial resilience, thereby driving the development of Re-Entrepreneurship. Entrepreneurial resilience is a significant psychological factor in facing risks and overcoming challenges throughout the entrepreneurial process. It also serves as a crucial mechanism for transforming failures into success. This study, in conjunction with the influence of entrepreneurial failure on entrepreneurial resilience after failure, deeply analyzes and examines the process mechanism of the pathway from failure experiences to Re-Entrepreneurship. This is empirically validated by testing hypotheses H3, H4, H4A, H4B, and H4C. The analysis reveals that entrepreneurial resilience mediates the effects of the number of entrepreneurial failures and the degree of failure on Re-Entrepreneurship. This finding suggests that entrepreneurial resilience functions as an underlying mechanism for entrepreneurs to achieve higher Re-Entrepreneurship after experiencing failure.

6. Conclusion

This study addresses the research question of the relationship between entrepreneurial failure, entrepreneurial resilience, and re-entrepreneurship performance. It specifically examines the impact of entrepreneurial failure experiences on re-entrepreneurship performance and investigates the mediating role of entrepreneurial resilience. The study has successfully resolved the initial research queries and has yielded the following research conclusions.

The study verifies a positive relationship between entrepreneurial failure experiences and re-entrepreneurship performance. Despite the potential high costs associated with entrepreneurial failure, this unique personal experience is a crucial factor in effectively stimulating entrepreneurial resilience. This process leads entrepreneurs to reevaluate their behaviors and attitudes, enhance their level of self-awareness, overcome the challenges of failure, and achieve personal growth. This resilience becomes a significant factor in enabling entrepreneurs to achieve subsequent success, motivating them to exert greater effort in their subsequent entrepreneurial endeavors and thereby enhancing re-entrepreneurship performance. Building upon this, entrepreneurial resilience further mediates the relationship between the costs of entrepreneurial failure and re-entrepreneurship performance. According to the Triadic Reciprocal Determinism theory of social cognition, entrepreneurial resilience primarily arises from individuals experiencing and successfully coping with stress and danger in adverse situations. The experience of entrepreneurial failure provides the conditions for the development of resilience. Entrepreneurs who experience failure can actively resist crises through self-regulation mechanisms, recover and surpass themselves in adversity, thereby cultivating robust entrepreneurial resilience that drives the subsequent successful development of their businesses.

6.1. Contributions

In terms of theoretical contributions, this study enriches the understanding of entrepreneurial failure experiences by delving into their multi-dimensional characteristics, including the frequency and severity of failures. It further explores the direct and indirect impacts of entrepreneurial failure experiences on re-entrepreneurship performance. This study extends the localized theoretical framework of entrepreneurial failure in China, providing supplementary insights into the debate in existing literature on whether entrepreneurial failure has positive or negative effects on re-entrepreneurship performance. Additionally, by introducing entrepreneurial resilience as a mediating variable, this study uncovers how entrepreneurial resilience plays a positive role in the relationship between entrepreneurial failure experiences and re-

entrepreneurship performance. Constructing a theoretical path from entrepreneurial failure experiences to entrepreneurial resilience and subsequently to re-entrepreneurship performance based on the Triadic Reciprocal Determinism theory of social cognition, this study addresses the underexplored aspects of the impact mechanisms, thus expanding the scope of entrepreneurial failure research. In practical terms, the findings of this research offer significant guidance for entrepreneurial practice. Despite the potential negative consequences of entrepreneurial failure, it is emphasized that failure provides valuable learning opportunities, which can contribute to future entrepreneurial success. Therefore, entrepreneurs are encouraged to recognize the value inherent in failure and actively seek and integrate beneficial experiences.

6.2. Contributions

Although this study has made significant progress in the exploration of entrepreneurial failure experiences, it is not without limitations. Firstly, the generalizability of the findings is limited due to the concentration of the sample on small and medium-sized enterprises. Secondly, the study did not investigate threshold effects regarding the number of failures and the degree of failure on re-entrepreneurship performance and entrepreneurial resilience. Lastly, the research did not uncover the dynamic relationships among the variables as it relied on cross-sectional data. Future research can take several directions to address these limitations and build upon the current study. Firstly, there is room to further enrich and refine the understanding of entrepreneurial failure experiences by exploring their nuances and dimensions and developing improved measurement tools. Secondly, the exploration of additional mediating variables between entrepreneurial failure experiences and re-entrepreneurship performance can provide a more comprehensive understanding of the impact mechanisms. Lastly, interdisciplinary collaborative research can be conducted, considering the widespread application of artificial intelligence, especially its role in enterprises^[33], using diverse research methods from different disciplines to study entrepreneurs' experiences of failure. This will enrich theoretical research and provide practical guidance for entrepreneurial practice. These efforts will contribute to the advancement of the innovation and entrepreneurship economy.

Conflict of interest

The author declares no conflict of interest.

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