

The Influence of Prior Experience on Entrepreneurs' Decision-making Logic: The Moderating Effect of Environmental Uncertainty

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Abstract: The effectiveness of entrepreneurs' decision-making significantly influences the outcomes of their ventures. Therefore, understanding how entrepreneurs enhance entrepreneurial performance through effective decision-making has become a focal point in academic research. This study investigates the role of experience in shaping entrepreneurs' decision-making approaches in uncertain environments, specifically examining three aspects of experience: entrepreneurial experience, managerial experience, and industry experience. Utilizing a research sample of 203 domestic entrepreneurs, we explore the nature of experience and its impact on decision-making logic. The findings indicate that entrepreneurs with substantial entrepreneurial experience tend to employ both causation and effectuation in the entrepreneurial process. On the other hand, entrepreneurs with extensive managerial experience predominantly adopt a causation-based decision-making approach. Interestingly, industry experience does not significantly influence the decision-making logic of entrepreneurs. Additionally, we observe that environmental uncertainty negatively moderates the relationship between management experience and the use of causation and effectuation.

1. Introduction

In the realm of entrepreneurship, any misjudgment in entrepreneurial decisions can lead to irreversible consequences for entrepreneurs. The efficacy of entrepreneurs' decision-making directly impacts the success or failure of their entrepreneurial endeavors [1]. The decision-making process of entrepreneurs is contingent upon the type of decision-making logic they adopt. This entrepreneurial decision-making logic serves as a critical determinant affecting the survival and development of enterprises [2].

Within the market environment, the traditional decision-making method is causation. Causation is goal-oriented and employs forecasting as a means to maximize expected returns. Nevertheless, the high level of environmental uncertainty in the entrepreneurial context prompts questions about the effectiveness of conventional management decision-making methods. Consequently, Sarasvathy integrates Simon's decision-making theory with the specificities of entrepreneurship and introduces

a novel decision-making logic for entrepreneurs known as "effectuation." Effectuation relies on leveraging existing resources, utilizing the acceptance of bearable losses as a decision criterion, and meticulously considering the potential outcomes that strategic alliances can bring. There is no more effective between causation and effectuation. Entrepreneurs choose the appropriate decision-making logic according to the specific situation [3].

Effectuation highlights the uniqueness of entrepreneurial situation and entrepreneurial behavior. Many scholars regard decision-making logic as a key breakthrough point for entrepreneurship research to seek academic contributions. However, the analysis of its antecedents is still in its infancy [4]. Prior experience has a significant impact on the cognitive formation and resource acquisition of entrepreneurs, which further influences their decision-making logic [5]. Entrepreneurial experience, as one of the dimensions of prior experience, is the most significant difference between expert entrepreneurs and new entrepreneurs. Previous studies have focused on the impact of entrepreneurial experience on entrepreneurial decision-making logic. However, the research results are not the same, and even contradictory [6-8]. Therefore, it is necessary to further subdivide prior experiences and deeply analyze the influence of different types of experience on the logic of entrepreneurial decision-making. In order to analyze the internal mechanism of entrepreneurial decision-making. In addition, the logic of entrepreneurial decision-making is "a unique thinking and cognitive process induced by the particularity of the entrepreneurial situation"[9] Social cognitive theory suggests that individuals perceive the uncertainty in the environment through themselves and make corresponding behavioral decisions [10]. The high environmental uncertainty makes causation method based on predicting the future invalid. Expert entrepreneurs tend to rely on the rich knowledge and resources from prior experience to carry out their entrepreneurial activities with effectuation when environmental uncertainty is high. And the insensitivity of novice entrepreneurs to environmental changes makes them continue to use causation [11]. It has been shown that environmental uncertainty has no significant effect in regulating the choice mechanism of entrepreneurial decision-making logic [12]. The role of environmental uncertainty in existing research needs to be further explored.

This paper explores how entrepreneurs' prior experience influences their logical decision-making in entrepreneurship, considering the moderating role of environmental uncertainty. It makes three main contributions. The first contribution is the deepening of research on the antecedents of logical decision-making in entrepreneurship. The second contribution is facilitating entrepreneurs in the rational examination and utilization of their experience in the entrepreneurial context. Lastly, the third contribution is offering theoretical guidance to entrepreneurs to enhance the quality of decision-making in entrepreneurial practice and achieve entrepreneurial success.

2. Theoretical Basis

2.1. Entrepreneurs' Decision-making Logic

The fundamental differences in entrepreneurial behavior stem from the varying decision-making logic employed by entrepreneurs. Sarasvathy referred to the process of evaluating multiple solutions to achieve the "optimal solution" for a given goal as causation, which centers on identifying the required resources to accomplish the specific goal. Causation is most applicable in stable market environments, relying significantly on the availability and predictability of decision-making information. However, in the entrepreneurial process, entrepreneurs face high environmental uncertainty, making it challenging for them to acquire decision-relevant information and predict future outcomes.

Building on limited rational decision-making theory and Knight's uncertainty theory, Sarasvathy introduced the concept of effectuation. Unlike causation, effectuation focuses on commencing with the available means and exploring the diverse potential outcomes arising from these means.

Entrepreneurs select the most satisfactory outcome from among the feasible options. Causation and effectuation are not entirely opposing approaches; they can coexist and interact simultaneously [13].

Early research on entrepreneurial decision-making logic primarily focused on examining the disparities between the two decision-making logics and their dimensions. It involved analyzing the impact of different decision-making logics on entrepreneurial performance [14]. As the research on entrepreneurial decision-making logic deepened, scholars started investigating its influencing factors.

The research is primarily conducted from two perspectives. The first perspective aims to explore the impact of environmental uncertainty on decision-making logic. The majority of studies assert that high environmental uncertainty encourages entrepreneurs to adopt effectuation. The second perspective examines the influence of entrepreneurial experience on the selection of decision-making logic. Previous research generally concluded that novice entrepreneurs are inclined to adopt causation, while entrepreneurial experience tends to encourage entrepreneurs to embrace effectuation. However, subsequent scholars have arrived at different findings [15].

2.2. Prior Experience

The concept of prior experience was first proposed by MacMillan in 1986[16]. MacMillan described it as the knowledge, skills, and concepts that entrepreneurs acquire through their past experiences. Prior experiences are formed through individuals' interactions with the environment, encompassing the knowledge and skills acquired from past experiences, thereby influencing future behavioral decisions.

On one hand, continuous accumulation of prior experience enables entrepreneurs to build their knowledge structure. This process assists in sifting and evaluating confusing information in entrepreneurial situations, thereby enhancing the ability to identify and seize opportunities. Additionally, prior experience facilitates entrepreneurs in swiftly acquiring material resources and social networks, allowing them to avoid risks and handle problems more promptly and effectively.

On the other hand, experienced entrepreneurs may develop inertial thinking and fixed behavior patterns. This could lead entrepreneurs to develop cognitive path dependency, potentially causing them to overlook new opportunities. Consequently, this could jeopardize the innovation and flexibility of subsequent activities and hinder enterprise development.

In the study of the entrepreneurial learning process, Politis classified prior experience into three categories: entrepreneurial experience, management experience, and relevant industry experience. Subsequent research has largely adopted this dimension division standard. This paper adopts Politis's classification, which includes entrepreneurial experience, management experience, and relevant industry experience as categories of prior experience. The study aims to explore the mechanisms through which prior experience influences decision logic.

Specifically, entrepreneurial experience is derived from the past experiences entrepreneurs have gained while establishing their businesses. It aids entrepreneurs in swiftly accessing physical resources and social networks, which proves beneficial during the early stages of new business creation [17]. Management experience generally encompasses the knowledge and skills that entrepreneurs have accumulated from previous managerial roles. It positively influences the survival of new enterprises [18]. Relevant industry experience involves the knowledge entrepreneurs have acquired from prior work in industries related to their current start-up, as well as the knowledge gained through thorough research in the relevant industry. Industry experience can aid entrepreneurs in gaining a better understanding of market demand and avoiding chaos during the early stages of entrepreneurship [19].

Existing research primarily emphasizes entrepreneurial experience while overlooking the impact of other types of prior experience on decision-making logic. Previous studies, represented by scholars

Politis and Dew et al., have found that novice entrepreneurs tend to adopt causation, whereas expert entrepreneurs with extensive entrepreneurial experience are more likely to adopt effectuation. However, Brettel et al. found that novice entrepreneurs are more inclined to use effectuation in the decision-making process, while entrepreneurial experts tend to adopt decision-making methods based on causation. Müller's research indicates that expert entrepreneurs tend to use effectuation, while novice entrepreneurs tend to employ both decision-making logics simultaneously, rather than relying on a single logic. The inconsistency of the findings suggests that prior experience has a complex mechanism of influence on the logic of entrepreneurial decision-making. Entrepreneurial experience alone does not fully explain entrepreneurs' choice of decision-making logic. Based on this observation, the study further subdivides prior experience to explore the mechanisms that influence the logic of entrepreneurial decision-making.

3. Research Hypothesis

The entrepreneurial process is characterized by a combination of uncertainty and risk. The inability of entrepreneurs to access relevant information when making decisions creates a barrier for them to set clear goals [11]. Additionally, the complexity and variability of the entrepreneurial situation make it challenging for entrepreneurs to identify the option with the highest expected return. Consequently, experienced entrepreneurs are less dependent on their goals and are less likely to implement methods based solely on maximizing expected returns [20]. Moreover, the high level of uncertainty in the entrepreneurial process makes it difficult to obtain sufficient and effective information for competitive analysis. Nevertheless, the tacit knowledge that entrepreneurial experience brings to the table can help entrepreneurs be better prepared for the unexpected, rather than solely focusing on the negative aspects. Hypothesis 1a is formulated accordingly:

H1a: Entrepreneurial experience has a negative impact on the use of causation by entrepreneurs.

The fledgling weakness of start-ups often hinders their access to the resources needed to initiate a business. Entrepreneurial experience provides entrepreneurs with a more rational understanding of the entrepreneurial process and better equips them to comprehend the difficulties of resource access in the early stage of entrepreneurship. This understanding urges them to place more emphasis on means orientation [21]. Entrepreneurs with experience in entrepreneurship can mitigate risk by forming strategic alliances with stakeholders, leveraging the social networks developed during their past experiences [20]. Moreover, entrepreneurs with extensive entrepreneurial experience prioritize cost analysis. This reduces the necessity for them to precisely identify and assess the risks involved in starting a business but rather enables them to respond actively within the limits of what they can afford to lose [15]. Past entrepreneurial experiences enable entrepreneurs to view unexpected events in the entrepreneurial process positively through analogical reasoning, transforming them into entrepreneurial opportunities [6]. Hypothesis 1b is formulated accordingly:

H1b: Entrepreneurial experience has a positive effect on the use of effectuation by entrepreneurs.

The company will gradually standardize its management principles and planning cycles as it develops. Every decision needs to be carefully planned and executed. For managers, the highest priority is the achievement of predetermined goals. Therefore, entrepreneurs with extensive management experience place more emphasis on collecting and analyzing a wide range of information about the market, industry, and competitors to determine desired goals [20]. Simultaneously, they develop business plans to obtain venture capital, easing the pressure on resources and financing. This inertia of thinking leads entrepreneurs to follow previous problem-solving approaches when they encounter difficulties. Moreover, past experience as a manager makes entrepreneurs place more emphasis on controlling the process and tends to avoid unexpected events [22]. Hypothesis 2a is formulated accordingly:

H2a: Management experience has a positive effect on the use of causation by entrepreneurs.

Entrepreneurs with management experience typically possess strong exploratory skills [21]. In the past, these abilities for exploration were hindered by the standardized management of enterprises, which compelled them to progress steadily towards their goals. However, when engaged in entrepreneurship, this capacity for exploration can be fully exercised. It empowers entrepreneurs to proactively tap into and utilize existing resources and tools [23]. Additionally, entrepreneurs with management experience often make more deliberate decisions, drawing from their experience of being involved in performance reviews in their corporate work. Throughout the entrepreneurial process, they continue to apply their cautious approach and opt to develop new products to establish the core competitiveness of their enterprises through continuous trial and error, operating within the boundaries of affordable losses. Hypothesis 2b is formulated accordingly:

H2b: Management experience has a positive effect on the use of effectuation by entrepreneurs.

Relevant industry experience deepens entrepreneurs' understanding of industry trends, thereby reducing the uncertainty of decision outcomes through targeted information collection and analysis [15]. This understanding enhances their ability to perform competitive analysis and set appropriate desired goals [22]. Experienced entrepreneurs' knowledge of the market and products in the relevant industry allows for a better assessment of the average rate of return in the industry. Consequently, they can identify options with the highest expected return and allocate resources wisely for implementation [24]. Additionally, relevant industry experience enables entrepreneurs to better assess unforeseen events that arise during entrepreneurial activities. When unexpected events become unmanageable or unhelpful to the business, entrepreneurs will either take a passive or proactive approach to avoid them [25]. Hypothesis 3a is formulated accordingly:

H3a: Relevant industry experience has a positive effect on the use of causation by entrepreneurs.

Relevant industry experience provides entrepreneurs with additional resources and tools, such as social networks in the industry and the ability to assess opportunities. This advantage aids entrepreneurs in better developing their entrepreneurial activities [26]. Consequently, experienced entrepreneurs in related industries form strategic alliances by actively engaging with stakeholders in their social networks and securing their pre-commitment. They also leverage available resources and means to carry out their entrepreneurial activities more efficiently. Moreover, entrepreneurs' previous relevant industry experience equips them with a comprehensive understanding of various market segments and products within the industries, as well as a clearer understanding of the costs associated with entrepreneurial activity [14]. Furthermore, extensive relevant industry experience helps entrepreneurs identify and evaluate unexpected events and transform them into entrepreneurial opportunities. Hypothesis 3b is formulated accordingly:

H3b: Relevant industry experience has a positive effect on the use of effectuation by entrepreneurs.

High environmental uncertainty denotes an unpredictable future condition [27]. Entrepreneurs with extensive entrepreneurial experience in such circumstances quickly realize the challenges of conducting market research and gathering information, rendering market information-based forecasting tools and competitive analysis methods ineffective. Consequently, they tend to conserve resources and time by relying less on goal orientation and competitive analysis. Instead, they rely on intuition developed from past experiences and accumulated knowledge to make heuristic decisions. Hypothesis 4a is formulated as follows:

H4a: Environmental uncertainty positively moderates the negative relationship between entrepreneurial experience and causation.

High environmental uncertainty indicates an unpredictable future and low entrepreneurial success [3]. In situations of high environmental uncertainty, entrepreneurs with extensive entrepreneurial experience tend to utilize their existing means and invest resources up to a manageable level. Simultaneously, they remain alert to opportunities [27] and examine environmental elements to

mitigate the adverse effects of entrepreneurial failure. The presence of high environmental uncertainty prompts experienced entrepreneurs to form strategic alliances with stakeholders to adapt to the dynamic environment and spread risk [13]. Furthermore, experienced entrepreneurs gain tacit knowledge from past entrepreneurial endeavors, aiding them in viewing unexpected events in the entrepreneurial process optimistically and positively. These unforeseen events are transformed into entrepreneurial opportunities. Hypothesis 4b is formulated as follows:

H4b: Environmental uncertainty positively moderates the positive relationship between entrepreneurial experience and effectuation.

The advantage of management experience lies in its ability to enable entrepreneurs to quickly and efficiently gather and analyze information to achieve predetermined goals [20]. However, in an environment with a high level of uncertainty, obtaining relevant information for decision-making becomes challenging, making it difficult to set clear goals for current entrepreneurial activities in advance. Consequently, entrepreneurs tend to reduce their reliance on setting expectations in advance and pursuing the highest expected returns. High environmental uncertainty also hampers entrepreneurs' ability to comprehensively analyze the competitive landscape they face and to anticipate all potential contingencies. As a result, they decrease the use of competitive analysis methods and tend to avoid risks. Hypothesis 5a is formulated as follows:

H5a: Environmental uncertainty negatively moderates the positive relationship between management experience and causation.

Entrepreneurs with extensive management experience possess strong exploratory abilities. High environmental uncertainty compels them to actively explore and integrate existing resources while identifying additional potential actions. Start-ups face higher risks of entrepreneurial failure in volatile market environments [27]. Therefore, experienced entrepreneurs with management backgrounds prioritize cost analysis and opt to carry out entrepreneurial activities within an affordable range to cope with environmental uncertainty. They mitigate entrepreneurial risks and reduce the cost of such activities through strategic alliances [23]. In the early stages of entrepreneurship, resource shortages are often encountered. Entrepreneurs' management experience helps them identify and assess the benefits of contingencies in the face of limited resources. Hypothesis 5b is formulated accordingly:

H5b: Environmental uncertainty positively moderates the positive relationship between management experience and effectuation.

Relevant industry experience empowers entrepreneurs to access vital information about customers, suppliers, and market dynamics within the industry. However, in situations of high environmental uncertainty, the insights gained from experience in related industries may become irrelevant. Entrepreneurs find it challenging to identify appropriate goals aligning with their current entrepreneurial endeavors or accurately assess the competitive landscape. Consequently, entrepreneurs with extensive experience in relevant industries rely less on goal orientation and adopt fewer competitive analysis methods. In high uncertainty environments, unexpected events are inevitable [27], and entrepreneurs tend to adopt a more passive approach in trying to avoid them. Hypothesis 6a is formulated accordingly:

H6a: Environmental uncertainty negatively moderates the positive relationship between relevant industry experience and causation.

Relevant industry experience serves as a unique intangible resource for entrepreneurs, facilitating the identification of opportunities and anticipation of challenges. When entrepreneurs encounter a high level of environmental uncertainty, they tend to allocate their limited business resources efficiently towards entrepreneurial activities [21]. Additionally, they establish strategic alliances with stakeholders to mitigate the failure rate of start-up entrepreneurial endeavors. The opportunity recognition capability and foresight ability arising from experience in relevant industries empower

entrepreneurs to respond flexibly to unexpected events, even transforming them into valuable enterprise resources. Hypothesis 6b is formulated accordingly:

H6b: Environmental uncertainty positively moderates the positive relationship between relevant industry experience and effectuation.

In summary, the theoretical model depicted in Figure 1 outlines the framework proposed in this study.

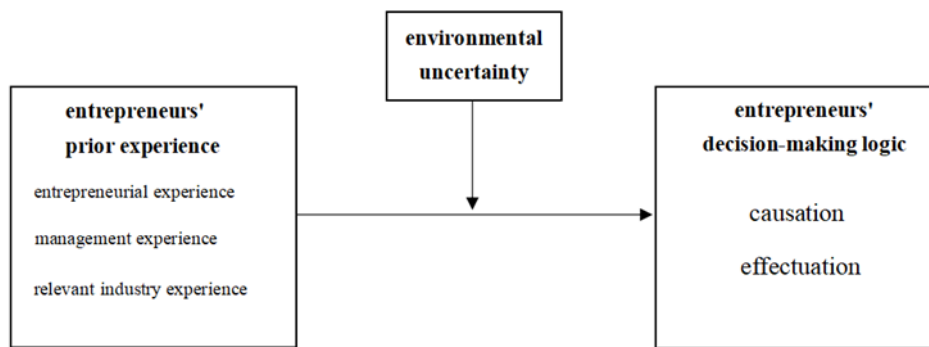


Figure 1: Theoretical model

4. Research Design

4.1. Research Sample and Data Collection

Table 1: Statistical analysis of the basic characteristics of the sample

	Attribute	Sample	Percentage(%)		Attribute	Sample	Percentage(%)
Gender	Male	131	64.50%	Education	Junior high or below	25	12.30%
	Female	72	35.50%		Senior high	13	6.40%
Age	Under 25	4	2.00%	Junior college	40	19.70%	
	26-35	92	45.30%	Bachelor	88	43.30%	
	36-45	64	31.50%	Master's or above	37	18.20%	
	46 or over	43	21.20%	Industry	Wholesale and retail trade	31	15.30%
Region	Anhui	55	27.10%		Professional Services	24	11.80%
	Ningxia	28	13.80%		Manufacturing industry	22	10.80%
	Hebei	16	7.90%		Agriculture, forestry, animal husbandry and fisheries	17	8.40%
	Jiangsu	15	7.40%		Restaurants, hotels and guest houses	12	5.90%
	Guangdong	13	6.40%		Construction industry	7	3.40%
	Beijing	12	5.90%		Advertising industry	6	3.00%
	Jiangxi	11	5.40%		Banking / Finance	6	3.00%
	Tianjin	9	4.40%		Communication industry	5	2.50%
	Others	44	21.70%		Others	62	30.50%

This paper employed a questionnaire to collect data, following the steps proposed by Churchill for measuring research variables [28]. Firstly, the original questionnaire was designed by considering the widely recognized maturity scale at home and abroad and adapting it to the Chinese context. Secondly, the questionnaire underwent further refinement through communication with relevant scholars in the field. To ensure its validity and feasibility, a pilot survey was conducted with 10 entrepreneurs, leading to additional improvements. Most of the questionnaires were designed using the Likert-7 scale. Data was collected through questionnaires distributed to several groups of entrepreneurs via an Internet platform. A total of 336 questionnaires were collected. After excluding responses from

individuals who did not meet the definition of entrepreneurs and removing unusual samples with missing crucial data, 203 valid samples remained. The effective response rate was 60.4%. Table 1 presents the distribution characteristics of the sample in this research.

4.2. Measurement of Variables

4.2.1. Causation (Cau) and Effectuation (Eff)

The scales used were primarily adopted from the work of Brettel et al. Causation was measured using a total of 18 items encompassing four dimensions: goal orientation, expected return, competitive analysis, and avoidance of surprises. Effectuation was measured with a total of 17 items covering four dimensions: means orientation, affordable losses, strategic alliances, and exploiting the unexpected.

4.2.2. Prior Experience

Entrepreneurial Experience (EE) measurement largely followed the research by Stuart et al [29]. Respondents indicated the number of times they have initiated a business based on their actual experiences. Management Experience (ME) was measured by referencing the study by Gartner et al., wherein the managerial rank was selected as an indicator of management experience. The highest managerial position held by a manager was categorized into four levels from lowest to highest. Relevant Industry Experience (IE) was assessed by the number of years spent working in the industry related to the current entrepreneurial industry. Respondents provided the number of years of relevant industry work based on their actual circumstances.

4.2.3. Environmental Uncertainty (EU)

The measurement scale for environmental uncertainty was based on the proposal by Jaworski. It included three dimensions comprising 14 items [30].

Based on a review of the research literature related to entrepreneurial decision-making logic, factors potentially influencing entrepreneurial decision-making logic were selected as control variables. The primary control variables are Gender, Age, and Education.

5. Results and Analysis

5.1. Test of Reliability and Validity

The study found that all variables had Cronbach's alpha (CA) values exceeding 0.8, the Composite Reliability (CR) value surpassed the accepted standard of 0.8, and the Average Variance Extracted (AVE) was higher than 0.5. To mitigate common method bias, the Harman single-factor test was utilized. Un-rotated exploratory factor analysis revealed 10 factors with characteristic roots greater than 1. The variance explanation rate of the largest factor was 38.7% (slightly below 40%). These results indicate strong reliability and validity for the scale. Detailed findings are presented in Table 2.

Confirmatory factor analysis (CFA) was conducted for each variable using AMOS software, and the results are presented in Table 3. The χ^2/df values for the Causation four-factor model, effectuation four-factor model, and environmental uncertainty three-factor model were all below 3, indicating an acceptable model fit. Additionally, the Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and Normed Fit Index (NFI) all exceeded 0.9, further supporting the adequacy of the models. The Root Mean Square Error of Approximation (RMSEA) values were all below 0.08, affirming the robustness of the data fit for the main variable models and demonstrating

good discriminant validity among the variables.

Table 2: Reliability and validity test results

Variables	Dimensionality	CA	CR	AVE
Causation	Goal oriented	0.88	0.914	0.68
	Expected return	0.854	0.902	0.696
	Competitive analysis	0.874	0.914	0.726
	Avoidance of surprises	0.757	0.84	0.513
Effectuation	Means orientation	0.864	0.908	0.713
	Affordable losses	0.833	0.889	0.667
	Strategic alliances	0.823	0.886	0.663
	Exploiting the unexpected	0.773	0.847	0.528
Environmental uncertainty	Market turbulence	0.819	0.871	0.534
	Competitive intensity	0.807	0.861	0.512
	Technological change	0.741	0.886	0.796

Table 3: Results of validated factor analysis for key variables

Variables	χ^2/df	IFI	TLI	CFI	NFI	RMSEA
Causation	1.702	0.958	0.947	0.957	0.903	0.059
Effectuation	1.681	0.957	0.945	0.956	0.900	0.058
Environmental uncertainty	1.688	0.962	0.946	0.961	0.911	0.058

5.2. Descriptive Statistics and Correlation Analysis

Table 4 presents the descriptive statistics and correlation analysis results. Entrepreneurial experience showed a significant positive correlation with both causation ($r=0.162$, $p<0.05$) and effectuation ($r=0.147$, $p<0.05$). Similarly, management experience exhibited significant positive correlations with causation ($r=0.227$, $p<0.01$) and effectuation ($r=0.227$, $p<0.01$). These findings strongly suggest a meaningful correlation between the research variables.

Table 4: Descriptive statistics and correlation coefficients

Variables	Means	Standard deviations	1	2	3	4	5	6	7	8	9
1 Gender	0.65	0.48	1								
2 Age	38.11	8.40	0.123*	1							
3 Edu	2.49	1.22	0.272***	-0.038	1						
4 EE	1.03	1.57	0.213***	0.235***	-0.029	1					
5 ME	1.6	1.01	0.391***	0.107	0.379***	0.273***	1				
6 IE	2.44	4.24	0.216***	0.172**	0.164**	0.086	0.240***	1			
7 Cau	4.92	1.09	0.04	-0.089	0.207***	0.162**	0.227***	0.081	1		
8 Eff	5.08	1.09	0.107	-0.123*	0.312***	0.147**	0.227***	0.093	0.899***	1	
9 EU	5.00	1.12	0.112	-0.054	0.156**	0.180**	0.248***	0.058	0.729***	0.713***	1

5.3. Hypothesis Testing

The results of the hypothesis testing are presented in Table 5. Model 2 and Model 8 analyses indicate that entrepreneurial experience significantly and positively influences the use of causation by entrepreneurs (Model 2, $\beta=0.119$, $p<0.05$), supporting Hypothesis H1a in the reverse direction. Additionally, entrepreneurial experience also significantly and positively affects the use of effectuation by entrepreneurs (Model 8, $\beta=0.119$, $p<0.05$), confirming Hypothesis H1b.

Furthermore, the study finds that management experience has a significant positive impact on

entrepreneurs' adoption of causation (Model 2, $\beta=0.171$, $p<0.1$), thus validating Hypothesis H2a. In contrast, management experience is not significantly associated with effectuation (Model 8, $\beta=0.103$, $p>0.1$), thereby failing to support Hypothesis H2b.

Regarding entrepreneurial relevant industry experience, the findings show no significant relationship with causation (Model 2, $\beta=0.012$, $p>0.1$). Consequently, it can be inferred that relevant industry experience does not influence entrepreneurs' decision-making regarding causation. Hypothesis H3a is rejected. Similarly, there is no significant correlation between relevant industry experience and effectuation (Model 8, $\beta=0.012$, $p>0.1$), leading to the rejection of Hypothesis H3b.

In summary, the study reveals that entrepreneurially experienced expert entrepreneurs employ both causation and effectuation in their decision-making process. Managerially experienced entrepreneurs tend to favor causation over effectuation in their decision-making. On the other hand, the entrepreneur's industry experience does not significantly impact the choice and application of decision-making logic.

Models 4 to 6 and Models 10 to 12 incorporate interaction terms to examine the moderating effect of environmental uncertainty on the relationships between different prior experiences of entrepreneurs, their decision-making logic (causation and effectuation), and independent variables. The analysis of moderating mechanisms was performed separately for the three types of prior experiences.

The results of Model 4 and Model 10 indicate that environmental uncertainty does not play a significant moderating role in the relationship between entrepreneurial experience and causation (Model 4, $\beta= -0.014$, $p>0.1$). Therefore, Hypothesis H4a is rejected. Additionally, the moderating role of environmental uncertainty in the relationship between entrepreneurial experience and effectuation is also not significant (Model 10, $\beta=-0.044$, $p>0.1$), leading to the rejection of Hypothesis H4b.

Model 5 and Model 11 show that environmental uncertainty has a significant negative moderating effect on the relationship between management experience and causation (Model 5, $\beta= -0.11$, $p<0.05$), supporting Hypothesis H5a. Moreover, environmental uncertainty negatively moderates the positive relationship between management experience and effectuation (Model 11, $\beta=-0.119$, $p<0.01$), confirming Hypothesis H5b in reverse.

Table 5: Results of hypothesis testing

Variables	Cau						Eff					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Gender	-0.014	-0.220	-0.212*	-0.216*	-0.210*	-0.213*	0.092	-0.071	-0.063	-0.076	-0.061	-0.064
Edu	0.184***	0.149**	0.094*	0.094*	0.062	0.092*	0.266***	0.247***	0.194***	0.194***	0.160***	0.194***
Age	-0.010	-0.018*	-0.008	-0.008	-0.008	-0.008	-0.015*	-0.022*	-0.012*	-0.012*	-0.012*	-0.012*
EE		0.119**	0.043	0.047	0.038	0.043		0.119**	0.046	0.059	0.040	0.046
ME		0.171*	0.032	0.030	0.050	0.032		0.103	-0.030	-0.036	-0.011	-0.030
IE		0.012	0.011	0.011	0.011	0.011		0.012	0.011	0.011	0.011	0.011
EU			0.679***	0.674***	0.647***	0.677***			0.651***	0.638***	0.617***	0.651***
EU*EE				-0.014						-0.044		
EU*ME					-0.11**						-0.119***	
EU*IE						-0.003						-0.001
R ²	0.050	0.110	0.553	0.553	0.566	0.553	0.111	0.154	0.561	0.564	0.576	0.561
Adj-R ²	0.035	0.083	0.537	0.535	0.549	0.535	0.098	0.128	0.545	0.546	0.559	0.543
F	3.464*	4.040**	34.466***	30.049***	31.678***	30.023***	8.291***	5.953**	35.541***	31.402***	32.972***	30.942**
VIF (max)	1.101	1.420	1.458	1.464	1.478	1.458	1.101	1.420	1.458	1.464	1.478	1.458

¹*** $p<0.01$; ** $p<0.05$; * $p<0.1$

In contrast, Model 6 and Model 12 demonstrate that the moderating effect of environmental

uncertainty on the relationship between relevant industry experience and causation is not significant (Model 6, $\beta = -0.003$, $p > 0.1$). Consequently, Hypothesis H6a is rejected. Similarly, the moderating effect of environmental uncertainty on the relationship between relevant industry experience and causal logic is also not significant (Model 12, $\beta = -0.001$, $p > 0.1$), leading to the rejection of Hypothesis H6b.

In summary, Hypotheses H4a and H4b are rejected, indicating that environmental uncertainty does not significantly moderate the relationship between entrepreneurs' prior entrepreneurial experience and decision-making logic. The level of environmental uncertainty does not influence the preferences for decision-making logic based on entrepreneurs' prior entrepreneurial experience. However, Hypothesis H5a is supported, while Hypothesis H5b is confirmed in reverse. This suggests that as the level of environmental uncertainty increases, experienced entrepreneurs in management tend to reduce their reliance on both decision-making logics.

6. Conclusions

This paper examines the influence of different types of prior experience on entrepreneurs' decision-making logic under conditions of environmental uncertainty, using a sample of 203 entrepreneurs. The research results reveal that entrepreneurs with entrepreneurial experience employ both causation and effectuation in their entrepreneurial process. In contrast, entrepreneurs with management experience tend to lean towards causation in their decision-making. Additionally, the richness of relevant industry experience does not significantly impact entrepreneurs' use of entrepreneurial decision-making logic. Moreover, with higher environmental uncertainty, experienced entrepreneurs with management backgrounds tend to reduce their reliance on both causation and effectuation. Notably, environmental uncertainty does not significantly moderate the selection mechanism of entrepreneurial experience and industry experience on entrepreneurs' decision-making logic.

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