Research on Policy Environment, Entrepreneurial Altertness, and Innovative Entrepreneurial Decision-Making

Xiujuan Gao[1,*], Xia Zhang[1], Xiaojing Liu[2]

[1]Management Department, China Women's University, Beijing 100101, China
[2]Human Resources Department, China Logistics Co., Ltd, Beijing 100073, China

Abstract: The ability to make innovative entrepreneurial decisions in entrepreneurship is crucial for firms to participate in the highly competitive market. Whether the government policy environment influences innovation and entrepreneurship decisions and what the mechanism is remains to be explored. Based on the theory of entrepreneurial cognition, a moderated mediation model is constructed and the mechanism of this influence is explored. The results show that the policy environment can trigger innovative entrepreneurship decisions, and further results show that both protective and promotional policy environments significantly promote the use and exploration of innovative entrepreneurship decisions. The mediating effect of entrepreneurial alertness is significant, i.e., the policy environment triggers entrepreneurial alertness that promotes innovative entrepreneurial decisions. Positive personality positively moderates exploitative innovative entrepreneurial decisions and does not significantly moderate exploratory innovative entrepreneurial decisions. Positive personality reinforces the indirect effect of policy perceptions on innovative entrepreneurial decisions by enhancing the role of entrepreneurial alertness on innovative entrepreneurial decisions. The managerial insights and policy implications include: first, promoting entrepreneurial alertness through resource-based and patent-protection policies to increase the likelihood of entrepreneurs making exploratory and exploitative innovative entrepreneurial decisions; second, diversification to enhance entrepreneurial alertness and to exercise entrepreneurs' sensitivity to cognitive information in an externally diverse, inclusive, and highly dynamic environment; and finally, shaping entrepreneurs' positive personalities to facilitate their exploratory and exploitative innovative entrepreneurial decisions.

Keywords: Policy Environment; Entrepreneurship Awareness; Innovative Entrepreneurial Decision-Making; Positive Personality

DOI: 10.57237/j.wjeb.2024.01.003

Funding: Beijing Philosophy and Social Science Foundation "Research on Women's Entrepreneurial Activity in Beijing as a Result of Digital Economy Development" (Project No. 22JCC090); Central Universities Basic Scientific Research Business Fund Project "Research on Women's Political and Economic Participation in the 'Four Histories" (Project No. ZKY201020216); Central Universities Basic Scientific Research Business Fund Project "Research on Government Support Policies, Women's Entrepreneurship and Their Driving Mechanisms" (Project No. 2022QN0102).

*Corresponding author: Xiujuan Gao, imgxj@163.com

Received: 23 February 2024; Accepted: 18 April 2024; Published Online: 24 April 2024 http://www.wjeconbus.com

1 Introduction

At present, China is in a new stage of economic restructuring, and the rapid development of the digital economy urgently requires entrepreneurial activities to reshape the industrial structure and form a new engine of economic growth. Among them, the innovation activities of startups play a pivotal role, *Baron, Shane and Venkataraman* and *Short et al.* mentioned that the emergence of new ideas and how they bring commercialization opportunities is the core of the entrepreneurial field [4, 32, 33]. Entrepreneurial firms, in turn, must step out of the exploratory and innovative path of development in the face of fierce competition from rapidly iterating technologies, which requires entrepreneurs to be equipped with innovative entrepreneurial decision-making skills. The concept of innovative entrepreneurial decision-making reflects the importance of technological innovation in entrepreneurial activities and high-quality entrepreneurial activities of entrepreneurial enterprises, and the results of the decision-making will produce innovative patents, inventions, new products or new business models, which implies the importance of technological innovation in entrepreneurial activities. Innovative entrepreneurship is more likely to create new demand and new market opportunities than imitative entrepreneurship, and its results are more rewarding, as *Schumpeter* and *Aghion & Howitt* have noted, and it can be a source of wealth generation for individuals and regions, as well as social progress [30, 3].

Despite the many advantages of innovative entrepreneurship, many entrepreneurial enterprises may still tend to imitate entrepreneurship, and one of the key reasons is that innovation is characterized by high costs, high failure rates, and knowledge externalities, which puts resource-poor entrepreneurial enterprises at a disadvantage in market competition. Even if the innovation is successful, the externalities will cause the input costs of the firm to be much higher than the social returns, ultimately leaving the firm with the dilemma of "to innovate or not to innovate?" dilemma. In order to encourage firms to make innovative decisions, the State has issued an innovation-driven development strategy, which has been translated into a range of local government policies, such as business advice, subsidies, provision of market information and patent protection, to support and guide entrepreneurial firms to take more innovative actions.

In order to more effectively stimulate innovative action, policymakers and researchers have been trying to explore entrepreneurial decision-making and behavioral genesis. So why do individuals, who ultimately generate decisions, form differentiated decisions in the face of the policy environment? If the mechanisms and pathways of action are to be unlocked, it is necessary to further explore, the mediating mechanisms by which the policy environment supports innovative entrepreneurial decisions, and the moderating mechanisms that influence their functioning.

First, the cognitive theory of entrepreneurship suggests that changes in the policy regime trigger sensitivity to opportunities or risks arising from entrepreneurial policies, i.e., entrepreneurial alertness, which leads to innovative or non-innovative (e.g., imitative) decisions. For example, *Baron* found that the entrepreneurial environment affects entrepreneurs' level of alertness, which in turn affects entrepreneurs' activities in developing opportunities and using forecasts to plan new business activities [5]. Entrepreneurial alertness reflects an entrepreneur's cognitive ability and skill to remain sensitive to opportunities by matching their own perceptions with critical knowledge *(Baron, 2006)*, which guides the process of identifying opportunities in the policy-institutional environment. Alert entrepreneurs can realize timely information search, integration, utilization, and discover new opportunities through "creating something from nothing", and this sensitive thinking will be conducive to the survival and growth of the enterprise [1, 28]. In this regard, *Roundy et al.* suggested that alertness is closely related to decision making [29]. However, there are few studies on the effect of alertness on the decision-making process [9]. As a result, this study introduces entrepreneurial alertness and tests its mediating role to clarify the intrinsic mechanism of the role of policy support in innovation and entrepreneurship decision-making. Second, the extent to which policy regimes work depends on whether entrepreneurs understand and accept a given policy positively or negatively from an individual cognitive perspective when faced with it. Positive personality, which is associated with an individual's proactive attempts to change the environment, can enable entrepreneurs to identify opportunities and take the right action at the right time [10], thus influencing the attitude of firms to seek opportunities. Therefore, based on the cognitive theory of entrepreneurship, it is argued that positive personality may influence the effectiveness of the policy environment to work.

In summary, from the perspective of entrepreneurial

cognition theory, we form the research paradigm of "situation-cognition-result", construct the theoretical model of policy environment, entrepreneurial alertness and innovative entrepreneurial decision-making, explore the internal mechanism of different dimensions of policy environment and entrepreneurial alertness on innovative entrepreneurial decision-making from the micro-level, analyze the moderating role of entrepreneurs' personality traits in the relationship between policy system and innovative entrepreneurial decision-making, and provide theoretical references to entrepreneurial firms to make innovative entrepreneurial decisions.

2 Theoretical Analysis and Research Hypotheses

2.1 Policy Environment and Innovative Entrepreneurial Decision-Making

Due to complex and changing business environments, most decisions made in the real world are made in situations where the decision maker cannot know all the facts and consequences [39], and understanding how entrepreneurial entrepreneurs make decisions is critical to entrepreneurial success. Whereas decision-making cognition is not entirely an internal process, it may also be altered by the social environment [18], which provides a theoretical basis for the study of the relationship between the policy environment and innovative entrepreneurial decision-making. *Perez-Luno et al.* classified entrepreneurship into two categories: innovative and imitative entrepreneurship, in which innovative entrepreneurship is oriented to the creation of new knowledge, and its degree of risk and innovation is higher than that of imitative entrepreneurship [27]. *Mom et al.* further subdivided the innovative entrepreneurship into exploitative and exploratory innovations [26]. Exploitation innovation is mainly about "improving existing knowledge and ideas" and making local improvements to complete the renewal of products and services; exploration innovation is mainly about "searching for new ideas that have not yet been used on the basis of new knowledge" to present new and different [26, 17]. Innovative entrepreneurial decision-making should thus be categorized into exploitative and exploratory innovative entrepreneurial decision-making.

Government support policies refer to laws, regulations, and government policies that provide support for new businesses, reduce individual entrepreneurial risk, and encourage entrepreneurs to acquire resources for their endeavors [2, 23]. Policy regimes change over time, which may affect entrepreneurial decisions, the outcome of which depends on the nature of the environment. *Bowen and Clercq* categorize entrepreneurship policies into protective policies and promotional policies [15]. Among them, protective policies include intellectual property protection, patent protection, trademark and copyright protection for innovation and entrepreneurship achievements, as well as the protection of invention rights, fully respecting and protecting the intellectual achievements of innovative entrepreneurship; Promotional policies mainly include improving the business environment, lowering the cost of taxation, and maintaining the consistency of the government's management of start-ups, etc., which can create a favorable environmental atmosphere for the reduction of the cost of entrepreneurial enterprises, increase efficiency and stimulate entrepreneurial willingness. It can create a favorable environment for entrepreneurial enterprises to reduce costs and increase efficiency, as well as stimulate entrepreneurial willingness. Based on this, this paper proposes the following hypotheses:

H_1: The policy environment has a facilitating effect on innovative entrepreneurial decision-making.

H_{1a}: Protective policy environment has a facilitating effect on exploratory innovative entrepreneurial decision-making.

H_{1b}: Protective policy environments have a facilitating effect on exploitative innovative entrepreneurial decisions.

H_{1c}: Promotional policy environment has a facilitating effect on exploratory innovative entrepreneurial decision making.

H_{1d}: Protective policy environment has a facilitating role for exploitative innovative entrepreneurial decisions.

2.2 The Mediating Role of Entrepreneurial Alertness

"Why do some people and not others recognize opportunities for new products and services that can be profitable?" [5], entrepreneurial vigilance is an important factor. as a key psychological construct, first defined by *Kirzner* as an individual's ability to perceive new opportunities that others overlook [19]. Entrepreneurial alertness has been conceptualized as a tendency to be sensitive to in-

formation such as events and behavioral patterns in the environment [25]. Entrepreneurs who are entrepreneurially alert are able to detect signals from their surroundings, recognize stimuli associated with opportunities, and are able to capture signals more quickly [20]. This allows entrepreneurs to be sensitive to the complex policy environment to detect information that is critical to entrepreneurial decision making, and to recognize and utilize that information. It is by virtue of their alertness that highly alert entrepreneurs identify and capitalize on opportunities [16]. *Martin et al.* argue that as a meta-skill, entrepreneurial vigilance is critical for the occurrence of innovative behaviors [24], which is manifested in at least two ways, first, the unpredictability of the profitability of an innovative product, and the fact that entrepreneurial alertness helps in identifying key decision-making information to realize the profitability of new products; secondly, entrepreneurial alertness helps entrepreneurs to creatively utilize information from external stimuli and can enable decision makers to acquire new information from the external environment, connect the information in a unique way, and creatively process it into an idea for developing a new product.

As a result, this study proposes the following hypothesis:

H_2: Policy environment has a direct effect on entrepreneurial alertness.

H_{2a}: Protective entrepreneurship policies have a direct effect on entrepreneurial alertness.

H_{2b}: Promotional entrepreneurship policies have a direct impact on entrepreneurial alertness.

H_3: Entrepreneurial alertness has a direct effect on innovative entrepreneurial decisions.

H_{3a}: Entrepreneurial alertness has a direct impact on exploratory innovative entrepreneurial decisions.

H_{3b}: Entrepreneurial alertness has a direct impact on exploitative innovative entrepreneurial decisions.

H_4: Entrepreneurial alertness plays a mediating role in the process of policy environment influencing innovative entrepreneurial decisions.

2.3 The Moderating role of Positive Entrepreneurial Personality

Emotions and cognition have a great influence on decision making [22]. Based on personality trait theory, personality traits refer to "characteristic patterns and psychological mechanisms of an individual's thoughts, emotions, and actions" [14], which are the basis for explaining an individual's various behaviors, characterize behaviors that can be predicted and influence an individual's behaviors and performance [6]. Personality traits can be categorized as positive and negative, where positive personality refers to the positive enthusiasm, initiative and openness traits of an individual [36], and this emotion strongly affects the process of cognition, and the entry of information into memory [13]. Entrepreneurs with this trait are positively open to a variety of experiences and values, seek out new experiences, explore new ideas, and can be characterized as "creative," "innovative," "imaginative," "insightful," and "creative" [37, 11]. Positive personality is important in entrepreneurship because entrepreneurs with positive personalities "seek out opportunities, show initiative, take action, and persevere," and entrepreneurial endeavors require this kind of personality perseverance [7]. *Foo* found that entrepreneurs with higher levels of positive emotions preferred decisions that led to higher value (high competitive advantage and returns) when the outcome was uncertain [12]. Given that exploratory-based decision making is the search for new ideas based on new knowledge that has never been used before, entrepreneurs with positive personalities may be more likely to make exploratory innovative activities. As a result, the following hypotheses are proposed in this study:

H_5: Entrepreneurs' positive personality moderates the relationship between entrepreneurial alertness and innovative entrepreneurial decision-making, i.e., the more pronounced the positive personality, the more significant the positive relationship between entrepreneurial alertness and innovative entrepreneurial decision-making.

2.4 The Moderating Role of Entrepreneurial Positive Personality on the Mediating Role of Entrepreneurial Alertness

Based on the above analysis of the direct moderating role of positive personality, the mechanism of the role of positive personality in enhancing the relationship between policy environment and innovative entrepreneurial decision-making is further explored. Based on hypotheses H_2 and H_5, this study further infers that entrepreneurs with pronounced positive personality will show higher entrepreneurial alertness when faced with the same policy environment and thus make innovative entrepreneurial deci-

sions. This is also indicated by *Valliere's* study, which shows that entrepreneurial alertness increases when entrepreneurs' personalities exemplify creativity and optimism, as well as positive emotions [35]. This suggests that positive personality moderates the mediating role of entrepreneurial alertness. As a result, the following hypotheses are proposed in this study:

H_6: Positive personality strengthens the indirect effect of policy environment on innovation and entrepreneurship decisions by enhancing the direct effect of entrepreneurial vigilance on innovation and entrepreneurship decisions.

In summary, this study constructs a model with moderated mediation, as shown in Figure 1.

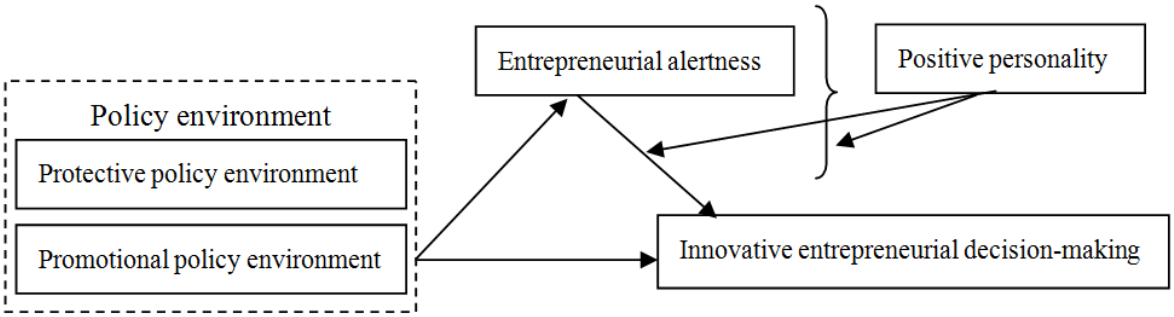

Figure 1 Theoretical Model

3 Research Design

3.1 Questionnaire Design

Through the search of existing literature, this study defines the concept of relevant variables and initially proposes variable indicators, including four key concepts: policy environment, entrepreneurial alertness, innovative entrepreneurial decision-making, and entrepreneurs' positive personality. Based on the mature measurement scales, through two rounds of expert calibration and revision, and personal interviews with three entrepreneurs, we adjusted the relevant measurement items according to the interview context and expert opinions, and finally determined the measurement dimensions of the variables.

(1) Policy Environment (PE). The PE measure draws on the work of *Harry and Dirk* [15] and contains 11 measures of both the protective and promotional policy environments. The protective policy environment consists of five measures, including the comprehensiveness of IP legislation and the effective enforcement of IP regulations. The promotional policy environment consists of six measures, including the fact that new firms can obtain most licenses and permits quickly, and that the government has implemented policies that are conducive to business operations, such as factory buildings, office space, and tax breaks.

(2) Entrepreneurial Alertness (EA). The variable of Entrepreneurial Alertness is designed as a 13-item scale with reference to the classic study of *Tang et al.*, which includes the following items: "I often interact with others to obtain new information"; "When searching for information, I am always on the lookout for new business ideas.", etc [34].

(3) Innovative Entrepreneurial Decision (IED). The variable of Innovative Entrepreneurial Decision (IED) was measured by *Kostopoulos and Bozionelos* [21], and was designed to contain 11 measurement questions related to utilizing and exploring IED, including "I more often make some improvements to existing products or concepts"; "I more often make some improvements to existing technologies and know-how", etc.

(4) Positive Personality (PP). The design of PP variables is based on *Seibert, Crant, and Kraimer* [31], and the scale consists of 10 items, including "I am always looking for new ways to improve my life"; "I am a driving force for constructive change wherever I am"; and so on. I am a force for constructive change wherever I am", etc.

Regarding the control variables, referring to *Boris Urban's* [8], control variables are set at the organizational level and individual level respectively, in which the control variables at the organizational level include the number of years of business founding and the size of the business; and at the individual level, the control variables are the gender of entrepreneurs, the age of entrepreneurs, and the educational level of entrepreneurs. The above variables were controlled with a view to obtaining more accurate test results.

3.2 Sample and Data

Two rounds of questionnaire distribution and data research were conducted in August-September 2022 and July 2023, with the target respondents mainly being the management of entrepreneurial enterprises as well as company employees engaged in innovative entrepreneurial decision-making. After the questionnaire design was completed, 40 entrepreneurial enterprises in Beijing, Zhejiang, and Gansu were randomly selected for the pre-survey, in order to make the measurement items of the questionnaire more in line with the actual operation of China's entrepreneurial enterprises and to ensure the reliability and validity of the questionnaire. In the formal research stage, the questionnaire was distributed to enterprises in Beijing, Shanghai, Zhejiang, Gansu, Shenzhen, etc., and a total of 117 valid samples were recovered. And through the professional survey company platform for questionnaire supplement distribution, a total of 345 recovered questionnaires. The final total number of recovered questionnaires from the two questionnaire distributions was 462, of which 130 questionnaires were eliminated due to incomplete filling of measurement indicators and other reasons, and finally 332 valid questionnaires were identified, with the validity rate of the questionnaires being 71.9%, and the specifics of the samples are shown in Table 1.

Table 1 Basic Information of Samples (N=332)

items	categorization	quantities	percentage (%)	items	categorization	quantities	percentage (%)
Founding Years	Within 2 years	85	25.6%	Interviewee's position	Founders	98	29.5%
	2-5 years	150	45.2%		manager	146	44%
	6-10 years	61	18.4%				
	Above 10 years	36	10.8%				
Enterprise size	Up to 10 people	69	20.8%	age	18-30	124	37.3%
	10-50 persons	114	34.3%		31-50	199	60%
	51-100 persons	81	24.4%		Above 51	9	2.7%
	Above 100	68	20.5%				
gender	male	239	72%	education	High school and below	40	12%
	female	93	28%		University and above	292	88%

4 Data Analysis and Results

4.1 Reliability, Validity Test and Common Method Bias Test

The reliability and validity of the scales are the basis for the reliability and validity of the subsequent study, and the data were analyzed and processed using SPSS 26.0 as well as the Process plug-in. Table 2 shows that the Cronbach alpha coefficients of each construct scale reached above 0.85, and the combined reliability CR was also higher than 0.85, indicating that the selected scales for each measure had good reliability. Through the validation factor analysis, the average variance extraction rate AVE was not less than 0.5, indicating that each measurement scale has good convergent validity.

Table 2 Reliability and validity analysis of each scale

Scale conceptualization	Number of items	factor loading	AVE	CR	Cronbach Alpha
Entrepreneurial Alertness	13	0.569-0.787	0.583	0.923	0.923
Policy Environment	11	0.450-0.828	0.511	0.918	0.915
-Protective Policy	5	0.508-0.823	0.500	0.828	0.814
-Promotional Policy	6	0.572-0.867	0.582	0.892	0.890
Innovative entrepreneurial decision-making	11	0.551-0.719	0.500	0.912	0.910
-Exploitative Innovative Entrepreneurial Decisions	5	0.656-0.809	0.520	0.843	0.841
-Exploratory Innovative Entrepreneurial Decisions.	6	0.557-0.803	0.504	0.858	0.853
Positive Personality	10	0.688-0.803	0.552	0.925	0.924
reference point	-	≧0.45	≧0.5	≧0.6	≧0.7

4.2 Hypothesis Testing

This paper utilizes stratified regression methods to verify the direct and moderating effects of the model, and the results are shown in Table 3. Models F1 and M1 test the effect of control variables on entrepreneurial alertness and innovative entrepreneurial decision-making, respectively; Models F2 and M2 verify whether the direct effect of policy environment on innovative entrepreneurial decision-making and entrepreneurial alertness is valid, respectively; Models F3 and F4 test the direct effect of protective and promotional policies on exploratory innovative entrepreneurial decision-making and exploitative innovative entrepreneurial decision-making, respectively; Model F5 tests the direct effect of entrepreneurial alertness on innovative entrepreneurial decision-making, models F6-F8 test the significance of the moderating effect of positive personality, where F6 tests the moderating effect on innovative entrepreneurial decision-making, F7 tests the moderating effect on Exploitative innovative entrepreneurial decision-making, and F8 tests the moderating effect on exploratory innovative entrepreneurial decision-making. In order to ensure the robustness of the results, the independent variable entrepreneurial alertness, the moderating variable positive personality, and the interaction term of the two are included into the model in turn, to test the regression coefficients of the interaction term. model to test the significance of the regression coefficients of the interaction term to determine whether positive personality plays a moderating role.

Model F1 tests the effect of control variables on dependent variables, the empirical results in Table 3 show that gender and years of business experience have no significant effect on innovative entrepreneurial decision-making, and age, education, and business size have a significant effect, and the results of model M1 show that gender, education, and years of business experience do not have a significant effect on entrepreneurial alertness, and age and business size have a significant effect; model F2 tests the direct effect of entrepreneurship policy perception on innovative entrepreneurial decision-making influence, the test results regression coefficient $\beta = 0.746$ and show significance ($t = 21.442$, $p = 0.000<0.01$), the hypothesis H1 is supported; model M2 test the direct influence of policy environment on entrepreneurial alertness, the test results regression coefficient $\beta = 0.650$ and show significance ($t = 15.323$, $p = 0.000<0.01$), the hypothesis H2 is supported; Model F3 tests the direct impact of protective and promotional policies on exploratory innovative entrepreneurial decision-making, and the test results show that the regression coefficient value of protective entrepreneurial policies is $\beta=0.230$ and shows significance ($t=3.872$, $p=0.000<0.01$), implying that protective entrepreneurial policies will have an impact on exploratory innovative entrepreneurial decision-making; promotional entrepreneurial policy has a regression coefficient value of $\beta=0.485$ and shows significance ($t=8.155$, $p=0.000<0.01$), implying that the promotional entrepreneurship policy will have a significant positive influence relationship on exploratory innovative entrepreneurial decision-making, and thus hypothesis H1a and hypothesis H1c are supported; Model F4 tests the direct effect of protective and promotional policies on exploitative innovative entrepreneurial decisions, and the test results show that the regression coefficient value of protective entrepreneurship policies is $\beta=0.412$ and presents significance ($t=8.01$, $p=0.000<0.01$), which implies that protective entrepreneurship policies will have an influential relationship on exploitative innovative entrepreneurial decisions; the regression coefficient of promotional entrepreneurship policies value is $\beta=0.376$ and shows significance ($t=7.318$, $p=0.000<0.01$), implying that the promotional entrepreneurship policy will have a significant positive influence relationship on the exploitative innovative entrepreneurship decision, thus the hypotheses H1b and H1d have been verified; Model F5 examines the direct influence of entrepreneurial alertness on innovative entrepreneurship decision, and the results of the test show that the regression coefficient value of entrepreneurial alertness is $\beta=0.721$ and showed significance ($t=19.997$, $p=0.000<0.01$), implying that entrepreneurial alertness will have a significant positive influence on innovative entrepreneurial decision-making, from which hypothesis H3 is supported; Model F6 tests the moderating effect of positive personality, and the regression coefficient value of positive personality is $\beta=0.641$ and showed significance ($t=15.845$, $p = 0.000<0.01$), and introducing the interaction term Entrepreneurial Alertness * Positive Personality, the regression coefficient $\beta = -0.003$ and did not show significance ($t = 0.123$, $p = 0.902>0.05$). Model F7 further tests the moderating effect of positive personality on exploitative innovative entrepreneurial decisions, the regression coefficient of the interaction term entrepreneurial alertness*positive personality $\beta=0.080$ and presents significance ($t=2.864$, $p=0.004<0.01$), i.e., positive personality positively moderates exploitative innovative entrepreneurial decisions, and model F8 further tests the

moderating effect of positive personality on exploratory innovative entrepreneurial decisions, the regression coefficient of the interaction term entrepreneurial alertness * positive personality β = 0.009, did not show significance, and the hypothesis H5 was partially supported by the results of the models F6-F8 test.

Table 3 Regression results of direct and regulatory effects

	variant	**Innovative entrepreneurial decision-making**								**Entrepreneurial Alertness**	
		F_1	**F_2**	**F_3**	**F_4**	**F_5**	**F_6**	**F_7**	**F_8**	**M_1**	**M_2**
control variable	Gender	0.088	0.056	0.046	0.062	0.047	0.107	0.054	0.017	0.057	0.029
	Age	-0.251**	-0.082*	-0.041	-0.119	-0.141**	-0.224*	-0.157**	-0.024	-0.152**	-0.004
	Education	0.113*	0.080*	0.067	0.083	0.069	-0.148	0.117	0.010	0.061	0.032
	Founding Years	0.053	0.070	0.058	0.075	0.032	0.045	0.039	0.022	0.028	0.043
	Enterprise Size	0.207**	0.069	0.084	0.043	-0.048	-0.021	0.002	0.026	0.220**	0.100*
independent variable	Policy Environment		0.746**								0.650**
	-Protective Policy			0.485***	0.376***						
	-Promotional Policy			0.230***	0.412***						
	Entrepreneurial Alertness					0.721**	0.418**	0.093	0.131		
moderator variable	Positive Personality						0.613**	0.211**	0.072		
interaction term	Entrepreneurial Alertness*Positive Personality						-0.046	0.080**	0.009		
R^2		0.136	0.642	0.521	0.642	0.612	0.702	0.740	0.757	0.083	0.467
Adj-R^2		0.122	0.635	0.511	0.634	0.605	0.679	0.732	0.750	0.069	0.458
F		10.228**	97.145***	50.392***	83.019***	85.601***	31.738***	102.015***	111.506***	5.884***	47.554***

Note: Coefficients are standardized regression coefficients

Further, equations F2a and F2b were used to verify the direct effect of protective and promotional policy environments on entrepreneurial alertness, and equations F3a and F3b were used to verify the direct effect of entrepreneurial alertness on exploratory innovative entrepreneurial decision-making and exploitative innovative entrepreneurial decision-making, and the results of the regression are shown in Table 5. The regression results show that the protective policy environments and promotional policy environments are significant for entrepreneurial alertness, and hypotheses F2a and F2b were verified; entrepreneurial alertness has a significant effect on exploratory innovation and entrepreneurial policy and exploitative innovative entrepreneurial policy, and hypotheses H3a and H3b are supported (see table 4).

Table 4 Regression results of Entrepreneurial Alertness

variant	**protective policy**	**promotional policy**	**Exploratory Innovative Entrepreneurial Decision Making**	**exploitative innovative entrepreneurial decision-making**
	F_{2a}	F_{2b}	F_{3a}	F_{3b}
Gender	0.041	0.053	0.057	0.088
Age	-0.017	-0.038	-0.112*	-0.248**
Education	0.105	0.048	0.122	0.155
Founding years	0.026	0.032	0.016	0.031
Enterprise size	0.072	0.074	0.038	0.021
Entrepreneur alertness	0.559***	0.038***	0.707***	0.726***
R^2	0.434	0.406	0536	0.561
Adj-R^2	0.423	0.395	0.528	0.553
F	41.513***	37.008***	62.608**	69.137***

Note: Coefficients are standardized regression coefficients

In order to test the mediating effect and the mediation model with moderation, this paper uses Process for SPSS

(V3.3) as the test tool, and applies Bootstrap method (non-parametric percentile of non-bias corrected, bias corrected) to test the mediating effect of entrepreneurial alertness, setting a 95% confidence interval, with a sampling number of 5000 (i.e., 5000 of the Bootstrap sample size), the mediation effect analysis results show that the mediation effect index effect=0.268 (indicating that the indirect effect of policy environment on innovative entrepreneurial decision-making through entrepreneurial alertness is 0.268), the standard error BootSE=0.048, and the 95% confidence interval is [0.196, 0.385] (BootLLCL = 0.196, BootULCI=0.385), indicating a significant mediating effect of entrepreneurial alertness, thus, hypothesis H4 was supported. Moreover, the mediating effect of entrepreneurial alertness in policy environments of different intensities (M-SD, M, and M+SD) is 0.261, 0.288, and 0.315, each with 95% confidence intervals of [0.193, 0.329], [0.225, 0.351], and [0.245, 0.384], respectively, which do not include zero, thus indicating that the entrepreneurial alertness mediation effect is significant (see table 5).

Table 5 Test Results of Mediated Effect with Regulation

conditional mediation effect	policy environment	Effect	BootSE	BootLLCI	BootULCI
Entrepreneurial Alertness	*M-SD*	0.261	0.035	0.193	0.329
Entrepreneurial Alertness	*M*	0.288	0.032	0.225	0.351
Entrepreneurial Alertness	*M+SD*	0.315	0.035	0.245	0.384

Note: M denotes the mean, SD denotes the variance, Effect denotes the mediation effect index, BootSE denotes the standard error, BootLLCI and BootULCI are the lowest and highest values of the 95% confidence interval, respectively.

In order to verify whether there is a difference between the role of entrepreneurial alertness on innovative entrepreneurial decisions at different policy environment intensities, two tests were conducted to test whether positive personality moderates entrepreneurial alertness on exploitative innovative entrepreneurial decisions at different policy environment intensities (see Table 6), and to test whether positive personality moderates entrepreneurial alertness on exploratory innovative entrepreneurial decisions at different policy environment intensities (see Table 7). The test results in Table 6 show 95% confidence intervals of [0.269, 0.451], [0.331, 0.498], [0.378, 0.561], suggesting a moderating mediating effect when the policy environment is at different intensities, and the test results in Table 7 show 95% confidence intervals of [0.078, 0.246], 0.092, 0.246], [0.090, 0.260], indicating that the mediating role is not consistent when the policy environment is at different levels, indicating that there is a moderating mediating role, thus supporting hypothesis H6.

Table 6 Conditional Indirect Effect 1

Level	Level value	Effect	BootSE	BootLLCI	BootULCI
Low level	3.343	0.360	0.046	0.269	0.451
Average level	4.029	0.415	0.043	0.331	0.498
High level	4.715	0.469	0.047	0.378	0.561

Table 7 Conditional Indirect Effect 2

Level	Level value	Effect	BootSE	BootLLCI	BootULCI
Low level	3.343	0.162	0.043	0.078	0.246
Average level	4.029	0.169	0.039	0.092	0.246
High level	4.715	0.175	0.043	0.090	0.260

5 Conclusion and Contribution

5.1 Conclusion

This paper takes entrepreneurs and business partners, management personnel etc. involved in innovative entrepreneurial decision-making in China as the research objects, takes entrepreneurial cognition theory as the support, takes the policy environment as the antecedent variable, explores the mechanism of the policy environment's influence on innovative entrepreneurial decision-making, focuses on analyzing the mediating role of entrepreneurial alertness between the policy environment and innovative entrepreneurial decision-making, as well as the moderating role of positive personality on entrepreneurial alert-

ness and innovative entrepreneurial decision-making, and constructed a moderated mediating role model. The theoretical model was validated by survey data from 332 entrepreneurs, and the results showed that:

The mechanism of policy environment on innovative entrepreneurial decision-making. The policy environment influences innovative entrepreneurial decision-making through direct and indirect paths, and the policy environment has a positive effect on innovative entrepreneurial decision-making in general. Among them, the promotional policy environment can promote exploitative innovative entrepreneurial decision-making, and the promotional policy environment can promote exploration innovative entrepreneurial decision-making; the protective policy environment can promote exploitative innovative entrepreneurial decision-making, and the protective policy environment can promote exploration innovative entrepreneurial decision-making.

Mediating effects of entrepreneurial alertness. Entrepreneurial alertness mediates support for the positive effect of policy environment on innovative entrepreneurial decision-making, i.e., on the policy environment's ability to mobilize entrepreneurs' entrepreneurial alertness, thus facilitating their innovative entrepreneurial decision-making;

The moderating effect of positive personality. Positive personality positively moderates exploitative innovative entrepreneurial decision-making and does not significantly moderates exploratory innovative entrepreneurial decision-making. Moreover, there is a difference in the role of entrepreneurial alertness in regulating exploitative entrepreneurial decision-making through positive personality under different policy environment intensities, i.e., positive personality strengthens the indirect effect of policy environment on innovative entrepreneurial decision-making by enhancing the role of entrepreneurial alertness on exploitative innovative entrepreneurial decision-making.

5.2 Contribution

The theoretical contributions of this paper include 3 main aspects:

(1) This paper explores the role path between policy environment to innovation and entrepreneurship decision-making, and reveals the effect of the national entrepreneurship policy release, the entrepreneurs' perception of the policy's protective and promotional environments on the exploitative and exploratory innovative entrepreneurial decision-making, and the study finds that the policy environment can promote innovative entrepreneurial decision-making very well, and the promotional policies such as finance and taxation and the policies such as patent protection can significantly promote exploratory and exploitative innovative entrepreneurial decisions. The related analysis falls into the theoretical realm of legitimacy of entrepreneurship and new firm growth, which is an extension of related studies by scholars such as *Zimmerman and Zeitz* [38].

(2) Through the introduction of the concept of entrepreneurial alertness as an entrepreneurial psychological trait, this paper examines the mediating role of entrepreneurial alertness between the policy environment and innovative entrepreneurial decision-making, reveals the role path of the policy environment in influencing innovative entrepreneurial decision-making through entrepreneurial alertness, and finds that the policy environment not only directly affects innovative entrepreneurial decision-making, but also indirectly by influencing the entrepreneurial psychological trait, and concludes that the study expands on *Tang et al.* 's study on the relationship between entrepreneurial alertness and firms' innovative behaviors in a mature economic environment is extended [34], and identifies the path by which entrepreneurs' perceived situation of the policy environment ultimately affects innovative entrepreneurial decision-making through mediation and different moderating effects in a transitional economic environment, which is a deepening of *Tang et al.*'s study [34].

(3) By introducing the concept of positive personality, this paper breaks through the previous limitation of using positive personality only as an antecedent variable, and verifies the moderating role of positive personality between entrepreneurial alertness and innovative entrepreneurial decision-making, as well as the moderating role of positive personality on the mediating effect of policy environment on innovative entrepreneurial decision-making. From the findings, on the one hand, positive personality positively moderates exploitative innovative entrepreneurial decision-making, and on the other hand, high policy and low policy perceptions will have a role in exploratory and exploitative innovative en-

trepreneurial decision-making by moderating the mediating effect, concepts introduced from related studies on the effect of optimism on entrepreneurial performance.

Conflicts of Interest/Competing Interests (Include Appropriate Disclosures)

Funding has been disclosed as above. There are no employment conflicts. There are no financial or nonfinancial conflicts of interest.

Availability of Data and Material (Data Transparency)

The data come from investigation and are available.

Author's Contribution

Gao Xiujuan is responsible for the paper design and writing, and Zhang Xia and Liu Xiaojing are responsible for the translation and revision.

Ethics/Informed Consent

All the research was performed in accordance with relevant guidelines/regulations.

Ethical Statement

Informed consent was obtained from all participants and/or their legal guardians.

References

[1] Chen, D. L., and XinRui Mao. (2021). The relationship between entrepreneurial alertness, resource patchwork and entrepreneurial firm performance, East China Economic Management, 35(7): 46-55.

[2] Gu Chen, Wang Yingjun, Cui Lianguang, Yu Jun. (2019). Influence mechanism of entrepreneurial institutional environment on entrepreneurial decision-making. Research in Science, 37(4): 711-720.

[3] Aghion, P., P. Howitt. (1992). A model of growth through creative destruction. *Econometrica*, 60(2): 323-351.

[4] Baron, R. A. (2006). Opportunity recognition as pattern recognition: how entrepreneurs" connect the dots" to identify new business opportunities. *Academy of Management Perspective*, 20(1): 104-119.

[5] Baron R. A. (2004). The cognitive perspective: a valuable tool for answering entrepreneurship's basic 'why' questions. *Journal of Business Venturing*, 19(2): 221-239.

[6] Barrick, M. R., Mount, M. K., Li, N. (2013). The theory of purposeful work behavior: the role of personality, higher-order goals and job characteristics. *Academy Management Review*, 38: 132-153.

[7] Bateman, T. S, Crant, J. M. (1993). The proactive component of organizational behavior: a measure and correlates. *Journal of Organizational Behavior*, 14(2): 103-118.

[8] Boris Urban. Corporate entrepreneurship in South Africa: the role of organizational factors and entrepreneurial alertness in advancing innovativeness [J]. Journal of Developmental Entrepreneurship. 2017, 22(3): 1-20.

[9] Chavoushi, Z. H., Zali, M. R., Valliere, D., Faghih, N., Hejazi, R., & Dehkordi, A. M. (2020). Entrepreneurial alertness: a systematic literature view. *Journal of Small Business & Entrepreneurship*.

[10] Delle, E., Amadu, I. M. (2015). Proactive personality and entrepreneurial intention: employment status and student level as moderators. *International Journal of Small Business and Entrepreneurship Research*, 3(4): 1–13.

[11] Dragoni, L, Oh, I., Vankatwyk, P. Tesluk, P. E. (2011). Developing executive leaders: the relative contribution of cognitive ability, personality, and the accumulation of work experience in predicting strategic thinking competency. *Pers. Psychol*, 64: 829-864.

[12] Foo, M. D. (2011). Emotions and entrepreneurial opportunity evaluation. *Entrepreneurship Theory and Practice*, 35: 375–393.

[13] Forgas, J. P. (1995). Mood and judgment: the affect infusion model (AIM). *Psychological Bulletin*, 117, 39–66.

[14] Funder, D. C. (2001). Personality. *Annu. Rev. Psychol*, 52: 197-221.

[15] Harry P Bowen, Dirk De Clercq. (2008). Institutional Context and the Allocation of Entrepreneurial Effort. *Journal of International Business Studies*, 39: 747-767.

[16] Hu, R., Ye, Y. (2017). Do entrepreneurial alertness and self-efficacy predict Chinese sports major students' entrepreneurial intention?. *Social Behavior and Personality*, 4(7): 1187–1196.

[17] Jansen, J. J. P, Van den Bosch, F. A. J, Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: effects of organizational antecedents and environmental moderators. *Manag. Sci*, 52: 1661-1674.

[18] K. D. Winnaar, F. Scholtz. (2020). Entrepreneurial decision-making: new conceptual perspectives. *Management Decision*, 58(7): 1283-1300.

[19] Kirzner, I. M. (1979). Perception, opportunity, and profit. *Chicago: University of Chicago Press.*

[20] Kirzner, I. M. (2009). The alert and creative entrepreneur: a clarification. *Small Business Economics*, 32(2): 145-152.

[21] Kostopoulos, K. C.; Bozionelos, N. (2011). Team Exploratory and Exploitative Learning: Psychological Safety, Task Conflict, and Team Performance. *Group Organ. Manag*, 36: 385-415.

[22] Lerner, J. S., Li, Y., Valdesolo, P. and Kassam, K. S.. (2015). Emotion and decision making. *Annual Review of Psychology*, 66(1): 799-823.

[23] Manolova, T. S, Eunni, R. V., Gyoshev, B. S. (2008). Institutional environments for entrepreneurship: evidence from emerging economics in eastern Europe. *Entrepreneurship Theory&Practice*, 3(1): 203-218.

[24] Martin Obschonka; Kai Hakkarainen; Kirsti Lonka; Katariina Salmela-Aro. Entrepreneurship as a twenty-first century skill: entrepreneurial alertness and intention in the transition to adulthood [J]. Small Business Economics. 2017, 48(3): 487-501.

[25] McCaffrey, M. (2014). On the theory of entrepreneurial incentives and alertness. *Entrepreneurship Theory and Practice*, 38(8), 891–911.

[26] Mom, T. J. M.; van den Bosch, F. A. J.; Volberda, H. W. (2009). Understanding variation in managers' ambidexterity: Investigating direct and interaction effects of formal structural and personal coordination mechanisms. *Organ. Sci*, 20: 812-828.

[27] Perez-Luno A, Wiklund J, Cabrera R. V. (2011). The dual nature of innovative activity: how entrepreneurial orientation influnces innovation generation and adoption. *Journal of Business Venturing*, 26(5): 555-571.

[28] Phillip, T. R, David, A. H. (2017). Entrepreneurial alertness as pathway to strategic decisions and organizational performance. *Strategic Organization*, 2: 1-35.

[29] Roundy, P. T., Harrison, D. A., Khavul, S., Pérez-Nordtvedt, L., & Mcgee, J. E. (2018). Entrepreneurial alertness as a pathway to strategic decisions and organizational performance. *Strategic Organization*, 16(2), 192-226.

[30] Schumpeter, J. (1942). Capitalism, socialism and democracy. *New York: Harper*.

[31] Seibert, S. E, Crant, J. M., Kraimer, M. L. (1999). Proactive Personality and Career Success. *Journal of Applied Psychology*, 84(3): 416-427.

[32] Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1): 217-226.

[33] Short, J. C., Ketchen, D. J., Jr., Shook, C. L., & Ireland, R. D. (2010). The concept of "opportunity" in entrepreneurship research: past accomplishments and future challenges. *Journal of Management*, 36(1): 40-65.

[34] Tang, J., Kacmar, K. M., & Busenitz, L. (2011). Entrepreneurial alertness in the pursuit of new opportunities. *Journal of Business Venturing*, 27(1), 77–94.

[35] Valliere, D. (2013). Toward a schematic theory of entrepreneurial alertness. *Journal of Business Venturing*, 28(3), 430–42.

[36] Watson, D., Clark, L. A., Tellegen, A. (1998). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54: 1063–1070.

[37] Zhao, H, Seivert S, E, (2006). The big five personality dimensions and entrepreneurial status: a meta-analytical review. *J. Appl. Psychol*, 91: 259-271.

[38] Zimmerman M A, Zeitz G J. (2002). Beyond Survival: Achieving New Venture Growth by Building Legitimacy. *Academy of Management Review*, 27(3): 414-431.

[39] Zimmermann, H. J. (2011). Fuzzy set theory-and its applications. *Springer Science & Business Media*, Heidelberg, DE.