



# Comparisons of entrepreneurial passion's structure and its antecedents: latent profile analyses in China and South Korea

Jingjing Li<sup>1</sup> · Jian Zhang<sup>2</sup> · Justin Paul<sup>3</sup> · Jihui Du<sup>2</sup>

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## Abstract

How to motivate entrepreneurial passion is an essential issue in entrepreneurship research. Although individual factors have been tested, national-level factors are overlooked. This study focuses on the national entrepreneurial environments in China and South Korea and employs a person-centred approach to identify the different types of entrepreneurs according to their passion level and structure and determine how entrepreneurial environments link to various profiles of entrepreneurial passion. The results showed that although non-passionate and explorative entrepreneurs exist in China and South Korea, expansive and mature entrepreneurs are unique in China, while conservative and growing entrepreneurs are unique to South Korea. To enhance entrepreneurial passion, the Chinese government should improve entrepreneurship education and training, and the South Korean government should provide better entrepreneurship policies and socioeconomic conditions.

**Keywords** Entrepreneurial passion · Entrepreneurial environment · Latent profile analysis · China · South Korea

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✉ Jian Zhang  
Zhangj67@manage.ustb.edu.cn

Jingjing Li  
lijj320@163.com; lij@bjut.edu.cn

Justin Paul  
profjust@gmail.com; justin.paul@upr.edu

Jihui Du  
dujh@ustb.edu.cn

<sup>1</sup> College of Economics and Management, Beijing University of Technology, 100 Pingleyuan, Chaoyang District, Beijing 100124, China

<sup>2</sup> Chair in Department of Enterprise Management, School of Economics and Management, University of Science and Technology Beijing, 30 Xueyuan Road, Haidian District, Beijing 100083, China

<sup>3</sup> Rollins College-Florida and Graduate School of Business Administration, University of Puerto Rico, Plaza Universitaria, Río Piedras, P. O. Box 23332, San Juan, Puerto Rico 00931, USA



## Introduction

Entrepreneurship is the process of creating new value, and it plays an important role in promoting employment and social innovation (Herrington and Kew 2017; Hisrich et al. 2007, 2005; Ma and Tan 2006). The entrepreneurial process is filled with complex challenges and obstacles that could force entrepreneurs to abandon and pursue other easier career paths (Folta et al. 2010; Stenholm and Nielsen 2019). However, entrepreneurial passion can help entrepreneurs overcome these challenges and facilitate creative problem solving (Cardon 2008; Frese and Gielnik 2014; Thorgren et al. 2014). Entrepreneurial passion is defined as an intense positive feeling that results from engagement in activities with identity meaning and salience to entrepreneurs (Cardon et al. 2009). To inspire entrepreneurial passion, the Chinese government has proposed a mass entrepreneurship and innovation strategy and a series of policies to provide positive and flexible entrepreneurship environments. This study aims to explore whether entrepreneurship environments and different combinations of government policies can enhance people's entrepreneurial passion.

According to the research of Stenholm and Nielson (2019), financial support from the government is perceived as emotional support that subsequently influences entrepreneurs' passion. Although their study provides a good example for exploring the associations between the outside entrepreneurship environment and entrepreneurial passion, their work did not consider broader environmental factors such as socioeconomic conditions and government policies and procedures. In addition, they did not distinguish among different types of entrepreneurial passion. Cardon et al. (2013) argue that there is a dominant type of passion at a specific stage according to what extent activities invoke entrepreneur's role or identity. Therefore, they suggest that researchers should not take the sum or average as the representative value of entrepreneurial passion but rather should separately explore the relationships between entrepreneurial passion and other variables. An entrepreneur may be passionate about two or three roles and thus would simultaneously have multiple types of passion with different configurations. For example, some entrepreneurs may have high passion for inventing and developing but low passion for founding, while other entrepreneurs may have high passion for all three types of passion. Therefore, this study explores the potential profiles of entrepreneurial passion and recognizes different groups of entrepreneurs.

Because entrepreneurship is a global activity, almost all nations encourage people to engage in entrepreneurship, and the Chinese government has even proposed a strategy of mass entrepreneurship and innovation. Addressing the environmental factors that promote individual entrepreneurship has important practical value for providing policy suggestions for governments. The second issue in this study is to explore how the national entrepreneurship environment impacts entrepreneurial passion profiles.

China and South Korea are the most influential economies in the Asia-Pacific region (Herrington and Kew 2017), although they are at different developmental phases (Hemmert et al. 2019). China has emerged as the fastest growing



economy in the world (Paul 2016). Specifically, China is in the efficiency-driven stage, while South Korea is in the innovation-driven stage. Moreover, the dominant economic patterns are different between China and South Korea. These distinctions may lead to differences in the entrepreneurial tendencies and structures of entrepreneurial passion. Chaebols are large private business groups in South Korea that have played a vital role in Korea's development, and they have partaken in the so-called East Asian miracle. Such groups represent a unique economic format for South Korea. The 10 biggest chaebols contribute almost 80% of Korea's gross domestic product (GDP), and the Samsung Group alone accounts for 20% of Korea's GDP (Kang 1996). Therefore, for Korean entrepreneurs, the dominance of chaebols is now suffocating the country's attempt to shift gears and support small businesses. Conversely, the Chinese government encourages people to engage in entrepreneurial activities and provides various services for small businesses. People have high passion to start businesses. China and South Korea show great differences in their entrepreneurial policies, entrepreneurial education, financial assistance, and socioeconomic environments. Therefore, comparing the differences in entrepreneurial passion profiles and antecedents between China and South Korea can provide suggestions about how to promote entrepreneurship for countries in similar phases and situations.

## Literature review

### Profiles of entrepreneurial passion

Baum and Locke (2004) initially considered passion as a personal trait and used it to examine the relationship between entrepreneurial passion and business growth. Since personal traits are relatively static, research from this perspective does not explain why some entrepreneurs have passion throughout their entrepreneurial careers, while others have passion that fades over time (Zhang et al. 2017). Cardon et al. (2009) define entrepreneurial passion from an emotional perspective and identify entrepreneurial passion as passion for inventing, founding and developing that depends on the entrepreneurs' role in their entrepreneurial activities. Passion for inventing means that entrepreneurs are passionate about inventing or exploring entrepreneurial opportunities; passion for founding means that entrepreneurs are passionate about founding a new venture or commercializing and exploiting opportunities; and passion for developing means that entrepreneurs are passionate about nurturing, growing and expanding the ventures (Cardon et al. 2009). In addition, Cardon et al. (2013) developed a measure of entrepreneurial passion based on this theory and proposed three subscales for measuring passion for inventing, founding, and developing. Cardon et al. (2013) provided a novel perspective relative to emotion for entrepreneurship research, constructed a relatively complete theoretical structure for entrepreneurship research from the individual level and developed a reliable measuring instrument. Therefore, the definition and measurement of entrepreneurial passion proposed by Cardon et al. (2009) have been widely accepted, and rich outcomes have been obtained. However, prior studies have found that the



three types of entrepreneurial passion are difficult to be separated or divided in real entrepreneurial activities (Ahsan et al. 2019; Zhang et al. 2017). Entrepreneurs may exhibit high passion in the three domains simultaneously. Therefore, the variable-centred approach cannot adequately present a person's holistic entrepreneurial passion. In addition, in the work passion research field, Li et al. (2020) have found that obsessive work passion and harmonious work passion can coexist based on a latent profile analysis and explained the inconsistent conclusions among current studies. Because entrepreneurial passion is a unique type of work passion in the entrepreneurial field, researchers should employ a person-centred approach to identify the potential configurations of entrepreneurial passion and distinguish the distinct sub-groups of entrepreneurs to comprehensively and holistically analyse entrepreneurs and enhance research effectiveness.

According to a Global Entrepreneurship Monitor (GEM) report, China is at the efficiency-driven development stage (Herrington and Kew 2017) in which the government provides as much support as possible for entrepreneurship. The entrepreneurial spirit can be found in the government and ordinary citizens and not just in business persons. According to the GEM, an average of 15,000 new enterprises was registered every day in 2016 and the total early-stage entrepreneurial activity accounted for the bulk of entrepreneurial activities in China (Bosma and Kelley 2019). People are full of passion to create and expand their own business. Therefore, founding passion is high for Chinese entrepreneurs. Necessity entrepreneurship accounts for a large proportion, and survival of the enterprise is a vital task of early-stage entrepreneurial activities (Bosma and Kelley 2019); thus, entrepreneurs may not have sufficient time and energy to pay attention to the long-term development of enterprise. Therefore, most Chinese entrepreneurs may exhibit much higher passion for inventing and founding and relatively lower passion for developing.

For South Korea, chaebols dominate its economy (Kang 1996), and the majority of people are more likely to take up safe jobs with reputed chaebol firms rather than create their own business; therefore, we expect that the majority of respondents may exhibit low entrepreneurial passion to set up new companies (founding dimension). The South Korean government has focused considerable attention on entrepreneurship education and skill training (Dai and Wang 2018) that allow entrepreneurs to obtain professional entrepreneurial training and master skills to explore and invent market opportunities. As a result, they may exhibit high passion for inventing. Additionally, South Korea is at the innovation-driven stage (Herrington and Kew 2017); hence, the fear for failures is higher than that in an efficiency-driven economy. Therefore, people are more likely to develop their current businesses rather than take the risk to create a new one, and the passion for developing among South Korean entrepreneurs is relatively higher. For China, passion for founding is relatively higher, while for South Korea, passion for inventing or developing is relatively higher. Of course, only a small number of entrepreneurs will present high or low levels for all types of passion in both China and South Korea. Therefore, we propose the following hypotheses.

**H1a** For China, the possible entrepreneur configurations appear to converge on profile characteristics that include a (a) high level of passion for inventing, medium or



low level of passion for founding, and low level of passion for developing; (b) high level of passion for founding, medium or low level of passion for inventing, and low level of passion for developing; (c) high level of passion for all three aspects of passion; and (d) low levels of passion for all three aspects of passion.

**H1b** For South Korea, the possible entrepreneur configurations appear to converge on profile characteristics that include a (a) high level of passion for inventing, low level of passion for founding, and medium level of passion for developing; (b) high level of passion for developing, medium or low level of passion for inventing, and low level of passion for founding; (c) high level of passion for all three aspects of passion; and (d) low levels of passion for all three aspects of passion.

### Source of entrepreneurial passion

Studies about the source of entrepreneurial passion mainly focus on individual-level factors. For example, Murnieks et al. (2012) pointed out that the experience of congruent appraisal and recognition of entrepreneurial activities can motivate positive emotions and self-identification in entrepreneurs, which leads to a greater willingness to engage in these activities, and this willingness results in entrepreneurial passion. Cardon and Glauser (2011) investigated 80 entrepreneurs and found that there are 6 major sources of entrepreneurial passion: passion for building/creating the venture, passion for people, passion for the product or service, passion for inventing, passion for competition, and passion for a social cause. Gielnik et al. (2015) based their research on goal setting theory and self-perception theory and suggested that a positive causal relationship occurs between entrepreneurial effort and entrepreneurial passion in both directions. Moreover, several studies on organizational-level factors have found that entrepreneurial education can help students construct entrepreneurial identities and stimulate their potential entrepreneurial passion (Donnellon et al. 2014).

Compared with personal factors, national-level factors are overlooked. The GEM argues that social, political, and economic factors are influential in creating unique business and entrepreneurial environments and constructing a favourable entrepreneurship ecosystem (Herrington and Kew 2017). In academic research, Gnyawali and Fogel (1994) explored and validated the frameworks and core elements of entrepreneurial environments, including government policies and procedures, socio-economic conditions, entrepreneurial and business skills, financial assistance, and non-financial assistance. Stenholm and Nielsen (2019) explored the emergence of entrepreneurial passion from perceptions of emotional support and individual competence, and they found that unexpected sources, such as government grants, represent an important source of entrepreneurial passion because a government grant is not only financial support but also a message that the entrepreneurs are cared for and accepted by others, which is perceived as emotional support. Accordingly, socialization and social support are vital impetuses of entrepreneurial passion.

According to social support theory, social support is the emotional, informational and tangible support from family, friends, colleagues, community, or



nation (Che et al. 2018). Entrepreneurship environments can provide various support for entrepreneurs. Hence, this study aims to explore the associations between broad entrepreneurship environments and entrepreneurial passion and employs the person-centred perspective to probe the relationship between entrepreneurship environment and different profiles of entrepreneurial passion.

Government policies and procedures refer to a set of rules and procedural requirements, and they can create an “enterprise culture” that enables firms to take reasonable risks and seek appropriate action (Gnyawali and Fogel 1994). Prior research has found that entrepreneurs might be discouraged to start a business if they have to obey many complex rules and procedures (Gnyawali and Fogel 1994). In China, the government has proposed and implemented a series of policies to simplify unnecessary procedures for enterprise and improve the transparency of government information. This policy is helpful for stimulating market activation and entrepreneurship desire (General Office of the State Council of China 2015). Therefore, we infer that government policies and procedures are positively related to the likelihood of adhering to the profiles characterized by high levels of passion for founding.

Socioeconomic conditions refer to the positive and favourable attitude of the society towards entrepreneurship (Gnyawali and Fogel 1994) that helps to convey a message to potential entrepreneurs that business is an attractive career option. According to social support theory, positive socioeconomic conditions mean the acceptance, understanding and recognition of entrepreneurial activities, thus leading to high passion for all entrepreneurial roles. Therefore, we infer that socioeconomic conditions are positively related to the likelihood of membership in profiles characterized by high levels of passion for founding, inventing and developing.

Entrepreneurial and business skills can help entrepreneurs overcome obstacles at different stages of business development. Donnellon et al. (2014) found that entrepreneurial training contributes to constructing students’ entrepreneurial identity and then enhancing entrepreneurial passion. Since entrepreneurial skills are necessary for every stage of entrepreneurship, we expect that entrepreneurial and business skills are positively related to the likelihood of membership in profiles characterized by high levels of passion for founding, inventing and developing.

Financial support to business is a major predictor of new business start-ups (Gnyawali and Fogel 1994), and it is indispensable for expanding current business ventures and ensuring the sustainable development of business. We expect that entrepreneurial and financial support for business is positively related to the likelihood of membership in profiles characterized by high levels of passion for founding and developing.

Non-financial support to business refers to networks with other entrepreneurs and related agencies (Gnyawali and Fogel 1994), such as role models. Steve Jobs, Mark Zuckerberg, and Ma Yun are well known entrepreneurs, and their entrepreneurial legends have inspired hundreds of young people to take risks and engage in entrepreneurship and inspire their entrepreneurial passion. Therefore, we infer that non-financial support to business is positively related to the likelihood of membership in profiles characterized by high levels of passion for founding.



In summary, we believe that entrepreneurial environments are essential to motivate and maintain entrepreneurial passion, and they may have different effects. We propose the following hypotheses.

**H2a** Government policies and procedures and non-financial support are positively related to the likelihood of membership in profiles characterized by high levels of passion for founding.

**H2b** Entrepreneurial and business skills, socioeconomic conditions, and financial assistance are positively related to the likelihood of membership in profiles characterized by high levels of passion for founding, inventing or developing.

### **Latent profile approach**

The basic assumption of a variable-centred approach is that samples are homogeneous, whereas the basic assumptions of a person-centred approach assume that samples are heterogeneous and the observed variables are often explained by several isolated potential categories (Morin et al. 2018; Vermunt 2010). Latent profile analysis is a commonly used method that concentrates on relationships among people, in which all variables are considered jointly because they define a distinct profile that explains the standings of multiple individuals (Zyphur 2009). This probabilistic approach can account for the maximum difference between profiles and the minimum difference within profiles, and it can also measure the accuracy and effectiveness of classification using objective statistical indicators (Graves et al. 2015; Litalien et al. 2019).

The person-centred approach and variable-centred approach are not absolutely opposite but rather are complementary to each other when explaining the different aspects of the same issue (Zyphur 2009). These two analytical approaches are always used in one study (Gabriel et al. 2015). For example, more researchers initially employ latent profile analysis to identify the potential profiles and then use a variable-centred approach to explore the antecedents and outcomes of these profiles (Isler et al. 2017; Merz and Roesch 2011).

Regarding passion research, Li et al. (2020) provided a good example for employing a person-centred approach and explored the different configurations of work passion via a latent profile analysis, and they found that obsessive work passion and harmonious work passion can coexist. Moreover, they identified three profiles of work passion. These results are novel and explain the inconsistent conclusions among current studies. Because entrepreneurial passion is a unique type of work passion in an entrepreneurship situation, the type of entrepreneurial passion depends on the extent that entrepreneurs recognize their entrepreneurial role (inventor, founder, or developer). Since entrepreneurs can engage in multiple roles in a specific entrepreneurial stage, latent profile analysis can help identify the potential configurations of entrepreneurial passion and distinguish the distinct subgroups of entrepreneurs to comprehensively and holistically analyse entrepreneurs and enhance research effectiveness.



Therefore, this study conducted a latent profile analysis to explore the distinct configurations of entrepreneurial passion. Because this study is an exploratory work, it is difficult to provide theoretical hypotheses. Based on interviews, this study predicted that one profile would present high passion in all three domains and other profiles would be high in one or two of the domains. In addition, this study compared the differences between the profiles of China and South Korea and explored the effects of entrepreneurship environment on entrepreneurial passion profiles. The results can provide guidance for researchers to propose suggestions for practitioners and policy makers.

## Methods

### Sample and procedure

This study used the convenience sampling method to invite 710 individuals from China and South Korea. For the printed questionnaires, these individuals were given prepaid envelopes and returned the completed questionnaires in sealed envelopes. For the online survey, a link was sent to participants, who only needed to submit the survey after completing it. Of the 400 Chinese participants, 325 completed the questionnaires (response rate 81.25%). Of the respondents, 55.69% were male; 24.19 years was the average age; and 46.46% held a bachelor's degree. Of the 310 South Korean participants, 250 completed the questionnaires (response rate 81.65%). Of the respondents, 39.60% were male; 29.50 years was the average age; and 52% held a bachelor's degree. All the respondents have entrepreneurship experience. More details are presented in Table 1.

**Table 1** Sample characteristics

Characteristics	China ( <i>N</i> =325)	South Korea ( <i>N</i> =250)
Age (years)		
Means	24.19	29.50
Gender		
Female (%)	55.69	39.60
Male (%)	44.21	60.40
Education		
High school/college (%)	24.62	20.40
Graduation (%)	46.46	48.00
Postgraduate and Ph.D. (%)	28.92	31.60
Year of birth		
2000– (%)	22.77	15.20
1990–1999 (%)	33.54	20.00
1980–1989 (%)	18.46	34.40
1970–1979 (%)	12.31	18.00
–1969 (%)	12.92	12.40



## Measures

### Entrepreneurial passion

Entrepreneurial passion is measured by the scale developed by Cardon et al. (2013), and it includes three subscales that measure passion for inventing, founding, and developing. In addition, each subscale has two dimensions: intense positive feeling and identity centrality. The feeling items were measured as follows: four items for passion for inventing (sample item: Scanning the environment for new opportunities really excites me); three items for passion for founding (sample item: Establishing a new company excites me); and three items for passion for developing (sample item: I really like finding the right people to market my product/service to). The identity centrality of each domain was measured by one item; for example, for passion for founding included the item "Being the founder of a business is an important part of who I am". The product of intense positive feeling and identity centrality is the value of entrepreneurial passion for each domain (inventing, founding, and developing) (Cardon and Kirk 2015; Santos and Cardon 2019). Respondents were required to rate each item on a five-point scale that ranged from 1 = strongly disagree to 5 = strongly agree.

### Entrepreneurial environments

Entrepreneurial environments are assessed by using the scale developed by Gnyawali and Fogel (1994), and it has 5 dimensions, i.e. government policies and procedures, socioeconomic conditions, entrepreneurial and business skills, financial assistance, and non-financial assistance, and 34 items. The respondents were required to rate each item based on the real situations in their own country, and one sample item is "In my country, counselling and support services are available". Their ratings were based on a seven-point scale that ranged from 1 = strongly disagree to 7 = strongly agree.

Before the formal test, the questionnaire was translated into Chinese and 30 Chinese Ph.D. and graduate students were invited to review each item. Then, two graduate students majoring in English translated it back into English. To ensure the accuracy of the translation, we invited a bilingual teacher to compare the Chinese and English versions and make revisions. A similar process was applied to the Korean version of the questionnaires. The reliabilities of the three subscales of entrepreneurial passion were 0.920, 0.917, and 0.922 in the Chinese samples and 0.955, 0.949, and 0.957 in the Korean samples. In the Chinese sample, the reliability of the total entrepreneurial environment scale was 0.926, and for each dimension, the reliabilities were 0.907, 0.914, 0.909, 0.922, and 0.901. In the Korean sample, the reliability for the total scale was 0.938, and for each dimension, the reliabilities were 0.903, 0.916, 0.905, 0.931, and 0.922. The validity of the scales is shown in Table 2, indicating that the two scales have good validity for both the China and South Korea respondents.



**Table 2** Validity of scales

Scale	Nation	$\chi^2/df$	CFI	TLI	RMSEA	SRMR
Entrepreneurial passion	China	33.696***	0.972	0.965	0.059	0.065
	South Korea	34.609***	0.966	0.954	0.079	0.079
Entrepreneurial environment	China	12.235***	0.930	0.923	0.052	0.046
	South Korea	11.166***	0.912	0.902	0.063	0.054

## Results

### Latent profile analysis of entrepreneurial passion

This study conducted a latent profile analysis by using Mplus 8.2 to identify the potential profiles based on entrepreneurial passion. Following the guidelines of Nylund et al. (2007), the analysis began by specifying two latent profiles, and then the number of latent profiles was increased until the optimal number of profiles was attained. The main fit indexes were the log-likelihood (LL), free parameters (FPs), Akaike information criterion (AIC), Bayesian information criterion (BIC), sample size adjusted BIC (SSA-BIC), Lo–Mendell–Rubin likelihood ratio test (LMR), bootstrap likelihood ratio test (BLRT), and entropy. Lower LL, AIC, BIC, and SSA-BIC scores indicated a better fit, and the  $p$ -values for the VLMR, LMR-A, and BLRT should be statistically significant. The entropy ranged from 0 to 1, and a larger value represented a better-quality classification. Entropy values above 0.80 were acceptable (Muthén and Muthén 2010).

As shown in Table 3, the AIC, BIC, and SSA-BIC values declined considerably from two-profile to three-profile, but the entropy value for the four-profile model was the highest. The  $p$ -value for the LMR in the five-profile model was not significant, which indicates that the four-profile model was a better solution than the other profiles. Altogether, the four-profile model was the optimal latent profile model.

Table 4 and Fig. 1 display the distributions and means of the four-profile model. Table 4 presents the profiles of entrepreneurial passion. The first profile had low passion for inventing ( $M=6.629$ ,  $SD=0.341$ ), low passion for founding ( $M=6.548$ ,

**Table 3** Results of the latent profile analysis for China

Number of profiles	LL	FP	AIC	BIC	SSA-BIC	LMR $p$ -value	BLRT $p$ -value	Entropy
2	−2830.075	10	5680.151	5717.989	5686.270	0.0002	0.0000	0.789
3	−2767.635	14	5563.270	5616.244	5571.837	0.0000	0.0000	0.808
4	−2734.733	18	5505.467	5573.576	5516.481	0.0009	0.0000	0.844
5	−2725.740	22	5495.481	5578.725	5508.943	0.1014	0.0200	0.830
6	−2715.512	26	5483.024	5581.404	5498.934	0.3382	0.0000	0.832

$N=325$

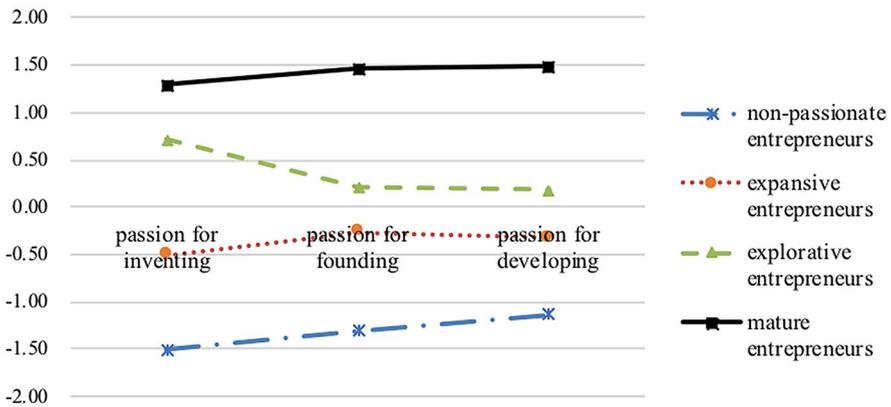


**Table 4** Means and standard deviations for the four-profile model for China

Profile	% of sample	Passion for inventing		Passion for founding		Passion for developing	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	15.08	6.629	0.341	6.548	0.445	7.119	0.234
2	39.08	11.510	0.246	12.129	0.353	11.139	0.378
3	29.54	17.467	0.267	14.596	0.629	13.686	0.559
4	16.31	20.214	0.359	21.312	0.494	20.437	0.643

*N* = 325

*M* mean, *SD* standard deviation



**Fig. 1** Latent profile analysis results for China

SD=0.445), and low passion for developing ( $M=7.119$ ,  $SD=0.234$ ). This profile was named “non-passionate entrepreneurs”, and it accounted for 15.08% of the sample. The second profile had medium passion for inventing ( $M=11.510$ ,  $SD=0.246$ ), medium passion for founding ( $M=12.129$ ,  $SD=0.353$ ), and medium passion for developing ( $M=11.139$ ,  $SD=0.378$ ). As shown in Fig. 1, this profile’s passion for founding was relatively higher than the other two types of passion; therefore, this profile was named “expansive entrepreneurs”, and it accounted for 39.08% of the sample. This finding indicates that for majority of entrepreneurs, their passion is at moderate level. The third profile had high passion for inventing ( $M=17.467$ ,  $SD=0.267$ ), medium passion for founding ( $M=14.596$ ,  $SD=0.629$ ), and medium passion for developing ( $M=13.686$ ,  $SD=0.559$ ). This profile was named “explorative entrepreneurs”, and it accounted for 29.54% of the sample. The last profile had high passion for inventing ( $M=20.214$ ,  $SD=0.359$ ), high passion for founding ( $M=21.312$ ,  $SD=0.494$ ), and high passion for developing ( $M=20.437$ ,  $SD=0.643$ ). This profile was named “mature entrepreneurs”, and it accounted for 16.31% of the sample. H1a was partially supported, and the profile with high passion



**Table 5** Results of the latent profile analysis for South Korea

Number of profiles	LL	FP	AIC	BIC	SSA-BIC	LMR $p$ -value	BLRT $p$ -value	Entropy
2	-2047.430	10	4114.861	4150.075	4118.374	0.0000	0.0000	0.899
3	-2005.034	14	4038.068	4087.368	4042.987	0.0000	0.0000	0.894
4	-1964.056	18	3964.112	4027.498	3970.436	0.0005	0.0000	0.915
5	-1953.991	22	3951.981	4029.453	3959.712	0.0546	0.0000	0.900
6	-1944.885	26	3941.770	4033.328	3950.906	0.3286	0.0000	0.890

$N=250$

**Table 6** Means and standard deviations for the four-profile model for South Korea

Profile	% of sample	Passion for inventing		Passion for founding		Passion for developing	
		$M$	$SD$	$M$	$SD$	$M$	$SD$
1	14.40	8.601	0.511	5.026	0.271	5.793	0.444
2	22.24	12.058	0.476	9.559	0.309	12.073	0.423
3	52.80	16.330	0.206	15.315	0.171	14.997	0.278
4	10.40	21.765	0.494	19.355	0.591	19.924	0.464

$N=250$

$M$  mean,  $SD$  standard deviation

for founding, medium or low passion for inventing, and low passion for developing was not found.

Using the same analysis process, we conducted another latent profile analysis of the entrepreneurial passion in the South Korean sample. Table 5 presents the results of the latent profile analysis, which show that the entropy for the four-profile model was the highest. The  $p$ -value for the LMR in the five-profile model was not significant, which indicates that the four-profile model was a better solution than the other profiles. Table 6 and Fig. 2 display the distributions and means of the four-profile model.

As shown in Table 6, the first profile had low passion for inventing ( $M=8.601$ ,  $SD=0.511$ ), low passion for founding ( $M=5.026$ ,  $SD=0.271$ ), and low passion for developing ( $M=5.793$ ,  $SD=0.444$ ). This profile was named “non-passionate entrepreneurs”, and it accounted for 14.40% of the sample. The second profile had medium passion for inventing ( $M=12.058$ ,  $SD=0.476$ ), medium passion for founding ( $M=9.559$ ,  $SD=0.309$ ), and medium passion for developing ( $M=12.073$ ,  $SD=0.423$ ). Based on Fig. 2 and the standardized passion scores, passion for developing was relatively higher for this group than for the other two types of passion, and all three types of passion were at average levels. Therefore, this profile was named “conservative entrepreneurs”, and it accounted for 22.24% of the sample. The third profile had medium passion for



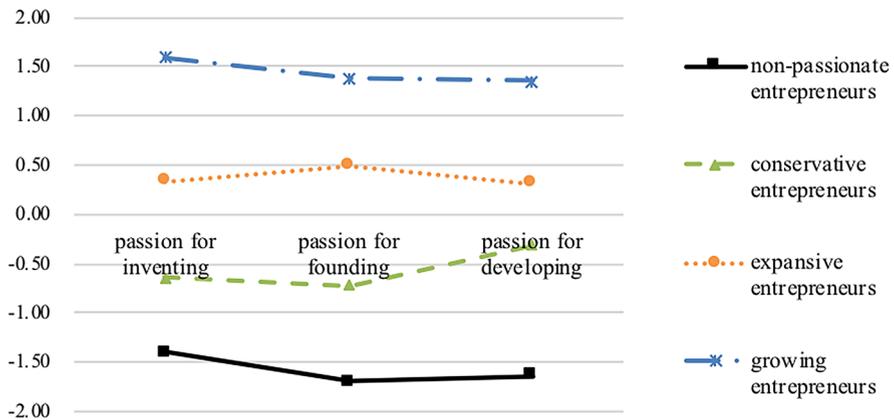


Fig. 2 Latent profile analysis results for South Korea

inventing ( $M = 16.330$ ,  $SD = 0.206$ ), medium passion for founding ( $M = 15.315$ ,  $SD = 0.171$ ), and medium passion for developing ( $M = 14.997$ ,  $SD = 0.278$ ). Figure 2 shows that passion for founding was relatively higher for this group than for the other two types of passion, which is similar to Profile 2 in the Chinese sample. Therefore, this profile was named “expansive entrepreneurs”, and it accounted for 52.80% of the sample. This result indicates that for a majority of entrepreneurs, passion is at a moderate level. The last profile had high passion for inventing ( $M = 21.765$ ,  $SD = 0.494$ ), high passion for founding ( $M = 19.355$ ,  $SD = 0.591$ ), and high passion for developing ( $M = 19.924$ ,  $SD = 0.464$ ). This profile was named “growing entrepreneurs”, and it accounted for 10.40% of the sample. H1b was partially supported, the profile with high passion for inventing, low passion for founding and high passion for developing was not observed. Rather a profile with relatively high passion for founding, and slightly lower passion for inventing and developing was observed, and it was named “expansive entrepreneurs”.

Figures 1 and 2 show that for Chinese entrepreneurs with the highest passion (mature entrepreneurs), their passion for founding is slightly higher than the other two types of passion. For the South Korean entrepreneurs with the highest passion (growing entrepreneurs), their passion for inventing is higher than the other two types. Overall, drastic differences were not observed among the three types of passion within each profile (except for the profile of the explorative entrepreneurs), although the difference was slightly more salient for the South Korean sample. To explain this difference, an auxiliary variable was employed and an R3STEP command was performed to analyse the predictive effect of the entrepreneurial environments (government policies and procedures, socio-economic conditions, entrepreneurial and business skills, financial assistance, and non-financial assistance) on the profiles.



## Associations between entrepreneurial passion profiles and their antecedents

Few studies have focused on the effects of national entrepreneurial environments on personal entrepreneurial passion. This study employed a latent profile analysis to explore the different impacts of the entrepreneurial environment on distinct profiles.

According to the study of Gnyawali and Fogel (1994), entrepreneurial environments have five dimensions: government policies and procedures (e.g. restrictions on imports and exports, entry barriers, and laws to protect proprietary rights), socioeconomic conditions (e.g. public attitude towards entrepreneurship and successful role models), entrepreneurial and business skills (e.g. technical and vocational education and entrepreneurial training programmes), financial assistance (e.g. low-cost loans and venture capital), and non-financial assistance (e.g. incubator facilities, tax incentives and exemptions).

As shown in Table 7, government policies and procedures, entrepreneurial and business skills, and financial assistance are more likely to positively promote entrepreneurs with high passion (mature entrepreneurs); socioeconomic conditions are more likely linked to expansive or explorative profiles than non-passionate profiles and show nonsignificant differences among the expansive, explorative, and mature profiles; and financial assistance exhibits no differences among non-passionate, expansive, and explorative entrepreneurs, although higher financial assistance shows a stronger positive correlation with mature entrepreneurs, while non-financial assistance shows a stronger positive correlation with non-passionate, expansive, and explorative entrepreneurs. In sum, government policies and procedures, entrepreneurial and business skills, and financial assistance are more likely to promote mature entrepreneurs who have high passion for all three passions, while socioeconomic conditions and non-financial assistance are more likely to promote non-passionate, expansive, and explorative entrepreneurs. These results partially supported H2a and H2b.

As shown in Table 8, in contrast to the Chinese sample, significant differences in the impact of government policies and procedures on the entrepreneurial passion among the four types of entrepreneurs were not observed for the South Korean sample, which indicates that government policies, such as restrictions on imports and exports, barriers to entry, etc., had little effect on the entrepreneurs' passion. Socioeconomic conditions are more likely to promote expansive and growing entrepreneurs rather than non-passionate or conservative entrepreneurs, which implies that low- or moderate-passion entrepreneurs (non-passionate and conservative entrepreneurs) may grow into high passion entrepreneurs (expansive or growing entrepreneurs). For entrepreneurial and business skills, almost no difference was observed in their effect on entrepreneurial passion among the four types of entrepreneurs. Similar to the Chinese sample, increased financial assistance led to higher passion among Korean entrepreneurs, while non-financial assistance led to more conservative entrepreneurs. These results partially supported H2a and H2b.



**Table 7** Three-step results for the antecedents (R3STEP) for China

Antecedents	Non-passionate v. expansive	Non-passionate v. explorative	Non-passionate v. mature	Expansive v. explorative	Expansive v. mature	Explorative v. mature
Government policies and procedures	-0.403	0.684*	-1.859***	1.087***	-1.456***	-2.543***
Socioeconomic conditions	-0.642**	-1.045***	-0.503	-0.403	0.139	0.542
Entrepreneurial and business skills	0.842***	-0.181	-0.961**	-1.023***	-1.803***	-0.780*
Financial assistance	0.003	0.128	-1.124**	0.125	-1.127**	-1.252***
Non-financial assistance	0.316	-0.337	0.888*	-0.021	1.203***	1.225**

*N* = 325. Positive values indicate that a higher antecedent makes individuals more likely to be in the former latent profile than the latter one. Negative values indicate that a higher antecedent makes individuals more likely to be in the latter latent profile than the former one

\**p* < 0.05, \*\**p* < 0.01, and \*\*\**p* < 0.001



**Table 8** Three-step results for the antecedents (R3STEP) for South Korea

Antecedent	Non-passionate v. conservative	Non-passionate v. expansive	Non-passionate v. growing	Conservative v. Expansive	Conservative v. growing	Expansive v. growing
Government policies and procedures	0.228	0.422	0.795	0.195	0.567	0.373
Socioeconomic conditions	-0.435	-1.528***	-1.916**	-1.093***	-1.481**	-0.388
Entrepreneurial and business skills	-0.303	0.550	0.801	0.853**	1.105	0.251
Financial assistance	0.274	-1.282**	-2.921***	-1.556***	3.195***	-1.639***
Non-financial assistance	-1.198***	-0.482	-0.786	0.716**	0.412	-0.304

$N = 325$ . Positive values indicate that a higher antecedent makes individuals more likely to be in the former latent profile than the latter one. Negative values indicate that a higher antecedent makes individuals more likely to be in the latter latent profile than the former one

\* $p < 0.05$ , \*\* $p < 0.01$ , and \*\*\* $p < 0.001$



## Discussion

Based on the latent profile analysis of entrepreneurial passion, significant quantitative and qualitative differences were observed in the profiles of entrepreneurial passion. To be specific, four types of entrepreneurs were observed for the Chinese sample. The first profile was entrepreneurs with low passion for inventing, founding, and developing, which was named “non-passionate entrepreneurs”. This type of entrepreneur is always a necessity-based entrepreneur who has been forced to engage in entrepreneurial activities to make a living, and they do not have better employment options. The second profile was labelled “expansive entrepreneurs”, and their passion for founding was relatively higher than their passion for inventing and developing. This type of entrepreneurs is passionate about creating new business or branches and exploring new fields, and they may lack entrepreneurial and business skills (see the different effects of skills among the four profiles). The third profile was named “explorative entrepreneurs”. Their passion for inventing was relatively higher than their passion for founding and developing, and their passion for developing was the lowest among the three domains. This type of entrepreneurs had high passion for finding and exploiting market opportunities. Combined with Table 7, these results showed that these entrepreneurs usually have entrepreneurial skills but do not receive government policy support and financial assistance. However, they may grow into the fourth profile (mature entrepreneurs) if they receive more preferential policies and financial support. The fourth type of entrepreneurs exhibited high levels in all three types of passion, and we named this profile the “mature entrepreneurs”. They are able to successfully balance their roles in entrepreneurship, and for the Chinese sample, these entrepreneurs’ passion for founding and developing was relatively higher than their passion for inventing. This result may be related to the positive entrepreneurial environment and policy assistance provided to entrepreneurs by the mass entrepreneurship and innovation strategy pursued by the Chinese government. However, their entrepreneurial education and training are not adequate; therefore, Chinese entrepreneurs’ business skills are slightly lower, resulting in low and moderate entrepreneurs.

For South Korean entrepreneurs, there were also four profiles. The first profile exhibited a low passion for all three types of passion and was named “non-passionate entrepreneurs”. Different from Chinese non-passionate entrepreneurs, their passion for inventing was relatively higher than their passion for founding and developing. The second entrepreneurial profile exhibited lower than average passion for inventing and passion for founding but relatively higher passion for developing. These entrepreneurs are not willing to take a risk to explore new fields or create new corporations and are keen on nurturing their current business. Therefore, these entrepreneurs were named “conservative entrepreneurs”. According to the growth stage of South Korea, the GEM indicated that South Korea is in the innovation-driven stage, and the fear of failure in an innovation-driven economy is higher than those in factor-driven and efficiency-driven economies (Herrington and Kew 2017). In addition, uncertainty avoidance in the South



Korean culture is high (Block and Walter 2017); as a result, more young people are afraid to start a new business and considerable societal pressure is placed on young people to pursue stable careers in government or large companies. For the third profile, all three types of passion were higher than average and the passion for founding was relatively higher than the passion for inventing and developing. This profile was named “expansive entrepreneurs”. Given the chaebol-oriented economic situation, “Everyone knows you don’t compete with the chaebol” is a commonly heard phrase in South Korea. New businesses face challenges; therefore, entrepreneurs who are passionate and dare to start new enterprises are already pioneering entrepreneurs in South Korea. Table 8 shows that socio-economic conditions are important for motivating expansive entrepreneurs, which indicates that the government should create a good socioeconomic environment for entrepreneurs and set examples to simulate entrepreneurs’ passion for founding. The fourth profile exhibited high levels of all three types of passion, and it was named “growing entrepreneurs”. Different from Chinese entrepreneurs, the passion for inventing was relatively higher for this type compared with the other two types of passion in South Korea. This finding indicates that entrepreneurs in South Korea have the willingness and skills to engage in entrepreneurship and are eager to start a business once they have the opportunity, which is why they were labelled “growing entrepreneurs” and not “mature entrepreneurs”.

Prior studies about entrepreneurial passion usually analysed passion for founding, inventing, and developing separately. The basic assumption in analysing the relationship between one or more types of entrepreneurial passion and other variables is that the type of studied passion is high. However, the passion state of entrepreneurs is complex and associated with other factors, and a variable-centred approach can only present one specific aspect of entrepreneurial passion and only describes one side of passion. A person-centred approach regards individuals as an organic whole, and such approaches can be used to describe the relatively integrated and whole state of entrepreneurial passion. Research about work passion generally employs latent profile analysis to identify the different configurations of work passion, and such work has provided a good example for entrepreneurial passion research. This study references the study of Li et al. (2020), who used latent profile analysis to explore the possible configurations of entrepreneurial passion and found that the three formats entrepreneurial passion can coexist. They also found that the configurations are different in China and South Korea. This study supported the entrepreneurial passion theory and showed that entrepreneurial passion can indeed be classified into three types. The findings can provide insights for the development of entrepreneurial passion studies and a new perspective for entrepreneurial passion research.

As shown in Table 8, the effects of entrepreneurial and business skills on the four profiles were generally consistent. The skills were promoted by entrepreneurial education in South Korea. Since the 1950s, the South Korean government has promoted the basic national strategies of “building a country through science and technology” and “building a country through education”. The cost of education accounted for 17% of the government’s budget in the 1960s, and the portion increased to 22% in the 1980s. The government supports the establishment of institutes to cultivate scientific and technical research and development of talent



(e.g. the Korea Advanced Institute of Science and Technology, KAIST), and it has also designed entrepreneurship courses and supported the selection, preparation, implementation, and growth of science and technology entrepreneurship projects. Through such courses, students can master entrepreneurial and business skills, such as the ability to complete a business plan, conduct surveys, and raise funds for entrepreneurial projects. In addition, almost all Korean universities have set up assistance centres for scientific entrepreneurship and provide practical grounds for entrepreneurship education. Previous studies on the antecedents of entrepreneurial passion usually focused on individual-level factors, such as entrepreneurs' passion for people, the product or service, competition, or social causes (Cardon and Glauser 2011). This study explored the promoting effect of the national-level entrepreneurial environment on entrepreneurial passion, and it provides a supplement for entrepreneurial passion research and complements the research framework of passion at the national level.

### **Theoretical contributions**

By comparing the entrepreneurial passion in China and South Korea, passions for inventing, founding, and developing were found in both countries. This result indicated that the three types of entrepreneurial passion are still applicable in Asian cultures. This study provided evidence for cross-cultural research on entrepreneurial passion.

This study also conducted a latent profile analysis and compared the entrepreneurial passion profiles in China and South Korea, and the findings showed that passion for inventing, founding, and developing can coexist simultaneously. This study changed the previous variable-centred approach and provided a new perspective for future passion research. Current entrepreneurial passion studies usually analyse the three domains separately, which leads to fragmented sections of passion. The person-centred approach helps to present a holistic and realistic state of entrepreneurial passion. This study provides another possible method of re-examining entrepreneurial passion and thus provides new insights into entrepreneurial passion.

Furthermore, this study explored the source of entrepreneurial passion with respect to national entrepreneurial environments, thereby supplementing previous studies that only focused on individual- or organizational-level factors. Entrepreneurship is not only an individual behaviour but also a national and global activity, and it is a driver of innovation and plays important role in promoting employment and societal and human development (Herrington and Kew 2017; Hisrich et al. 2005, 2007; Ma and Tan 2006). Determining whether and how national-level entrepreneurial environments influence entrepreneurial passion can help fill the theoretical gaps of passion research. This study found that entrepreneurial environments have different effects on entrepreneurial passion profiles, thereby providing a supplement for passion research. Moreover, this work can provide policy suggestions for governments to promote entrepreneurial activities and enhance people's entrepreneurial passion.



## Practical implications

China has a strong masculine culture, and personal achievement and wealth are more valued in China than in South Korea. Therefore, entrepreneurs exhibit relatively high entrepreneurial motivation and passion in China. With the rapid development of the digital economy in China, many people have started businesses via online shops or broadcasts. Additionally, the Chinese government provides various supportive policies that result in an active entrepreneurial atmosphere. However, the emphasis on entrepreneurial education in China occurred at a relatively late stage. Therefore, the entrepreneurs' business skills are weak, which increases the difficulty of participating in entrepreneurial activities, especially high-tech entrepreneurial activities. Therefore, the Chinese government should enhance their investments in entrepreneurial education, provide better entrepreneurship training services for entrepreneurs, and encourage entrepreneurs to explore and discover new fields.

Chaebols have controlled South Korea's economy since the last century, and the socioeconomic conditions and supportive entrepreneurial policies are weak; thus, the opportunities for new entrepreneurs are limited. Therefore, passion for founding is relatively low. To simulate entrepreneurs' passion, the South Korean government should take advantage of entrepreneurial education and provide more supportive entrepreneurial policies to create an active entrepreneurial environment.

## Limitations and future avenues

This study has certain limitations. First, the sample size was slightly too small for national-level research. Second, this study was based on a cross-sectional design, which has a limited ability to explain the causal relationships between entrepreneurial environments and entrepreneurial passion. Third, this study depicts the relationship between entrepreneurial environments and distinct entrepreneurial passion profiles but does not explore the detailed mechanism. To compensate for the above limitations, future research should add more observations to the sample to test the stability and validity of the conclusions. Moreover, longitudinal studies are needed to provide more precise evidence for the stability of profiles over time and the causal relationships between entrepreneurial environment and entrepreneurial passion profiles. In addition, future studies should consider the possible mechanisms that impact entrepreneurial environments and entrepreneurial passion profiles, which would contribute to improving the effectiveness of policy interventions and refining the framework of entrepreneurial passion research. Various opportunities are available to carry out similar studies in different country contexts (single or multiple). Finally, future research should include qualitative studies, such as interviews, to verify and enrich the conclusions drawn from the analysis.



## Conclusions

This study explored the relationship between entrepreneurial environments and entrepreneurial passion in China and South Korea and modified the variable-centred approach into a person-centred approach to first explore the potential configurations of entrepreneurial passion and analyse the effect of macro entrepreneurial environments on entrepreneurial passion profiles. The results showed that non-passionate explorative entrepreneur profiles are found in both China and South Korea, while expansive and mature entrepreneurs are unique to China and conservative and growing entrepreneurs are unique to South Korea. To enhance entrepreneurial passion, entrepreneurship education and training are necessary in China, while positive governmental policies and procedures and socioeconomic conditions are essential in South Korea.

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**Jingjing Li** Lecturer at the College of Economics and Management in Beijing University of Technology. Her research interest focuses on creativity in organization, passion for work, and social network in organization.

**Jian Zhang** Professor and Chair in the Department of Enterprise Management, School of Economics and Management in University of Science and Technology Beijing. Her research interest focuses on emotion and motivation in organization, entrepreneurship and creativity.

**Justin Paul** Professor at Rollins College-Florida and Graduate School of Business Administration Organization University of Puerto Rico.

**Jihui Du** Ph.D. candidate at the Department of Enterprise Management, School of Economics and Management in University of Science and Technology Beijing.

