

Analysis of Influencing Factors of College Students' Entrepreneurship Based on Multiple Regression Analysis

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Abstract: University students represent a burgeoning wave of widespread innovation and entrepreneurship, and it is highly important to back their creative and entrepreneurial pursuits. This study delves into the determinants that shape university students' entrepreneurial endeavours by employing empirical analysis and utilizing SPSS software for a multiple regression analysis of the pertinent factors, aiming to uncover the elements that influence their inclination and success in entrepreneurship. The findings from this empirical analysis reveal that the desire for achievement among university students and the prevailing market conditions significantly influence their propensity to engage in entrepreneurial activities. Consequently, focusing on these two pivotal factors, the paper proposes recommendations to bolster the entrepreneurial inclination of university students. These suggestions are rooted in fostering a sense of self-achievement and nurturing the necessary drive within students, as well as enhancing the market environment to facilitate and encourage university students' entrepreneurial initiatives.

Keywords: College students; Entrepreneurship; Influencing factors; Multiple regression analysis

1. Introduction

In the context of societal progress, the matter of employment is intertwined with the well-being of the economy and the populace, with particular emphasis on the job market challenges faced by university graduates. This has emerged as a critical concern that demands the immediate attention and resolution of the collective community in recent times. Presently, university graduates possess unique traits and a willingness to take risks, aligning perfectly with the prerequisites for entrepreneurial endeavors. Consequently, entrepreneurship among university graduates is a significant avenue for them to actualize their personal worth^[1]. Evidence indicates that the current rate of entrepreneurship among Chinese university students stands at approximately 2%, whereas in developed nations like the United States and the United Kingdom, this figure soars to 20% - 30%, highlighting a significant disparity^[2]. In terms of societal advancement, the entrepreneurship of university students serves to convert their intellectual and technological assets into societal worth, underscore the pivotal role of education, and foster the balanced growth of the socio-economic landscape. However, the development of entrepreneurship among Chinese university students remains inadequate. Its late inception has resulted in a low success rate, and the societal systems and measures in place are far from comprehensive.

To delve into the determinants of university student entrepreneurship, this study employs empirical analysis and SPSS software to perform a multiple regression analysis on the pertinent factors. The aim is to identify the elements influencing the entrepreneurial intentions and success of university students, thereby proposing strategies to address the identified issues. This will subsequently inform governmental and academic institutions in devising policies, securing a solid foundation for student entrepreneurship, and fundamentally enhancing the success rate of university student entrepreneurship^[3].

2. Influencing Factors System of College Students' Entrepreneurship

After investigation and analysis, we have summed up the influence factors of students' entrepreneurial intention, to construct the factors system, as shown in Figure 1.

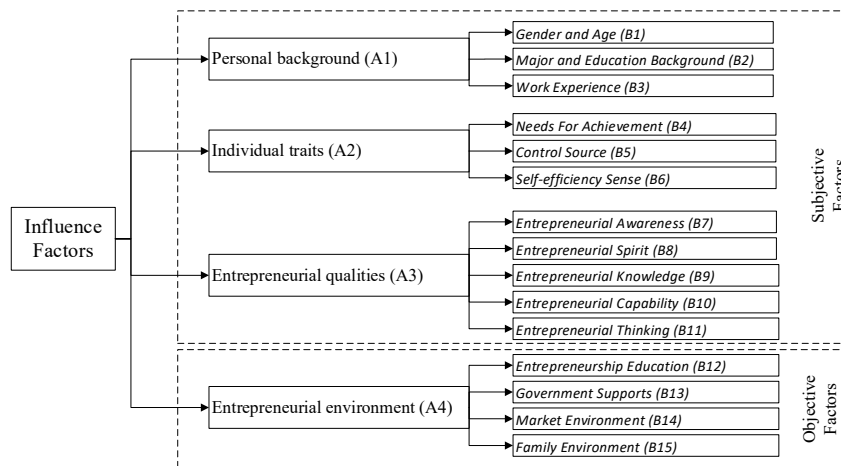


Figure 1: Influence Factors of Students' Entrepreneurial Intention

2.1 Personal Background

(1) Gender and Age

There are some differences between boys and girls in the choice of college students' entrepreneurship. The entrepreneurial projects chosen by boys are very rich. The more skilled, knowledgeable, high-risk and productive fields, the higher the proportion of male entrepreneurs will be; the difference is that when girls choose entrepreneurial projects, they usually prefer service industries, low skill requirements, and fields that do not require in-depth research.

In terms of age, statistical data showed that, in 2021, entrepreneurs of small and medium-sized enterprises will be 20-78 years old [4]. Among them, 75% of entrepreneurs are 26-44 years old, and 35.4% are 26-35 years old. For college students, the best age for starting a business is generally between 25 and 30. This period is the peak of the most active creative thinking, the most energetic, the best use of ideas, and the most creative desire.

(2) Major and Education Background

The survey shows that college graduates of different majors have different entrepreneurial tendencies. College students majoring in science and engineering have the highest entrepreneurial willingness, accounting for about 40% of the entrepreneurial population. The second is college students majoring in economic management, which accounts for about 20%. The proportion of entrepreneurship in art majors is 15% [5]. The proportion of entrepreneurship in other majors, such as medicine and humanities, is significantly lower.

Research shows that the educational background of entrepreneurs will affect their choice of entrepreneurial industries. By comparison, the social service industry is the most popular choice for college and undergraduate students to start their own businesses; while the research and technology industry is the most popular choice for graduate students to start their own businesses.

(3) Work Experience

Some college students will practice in enterprises during their holidays to accumulate some work experience. These work experiences will have a certain impact on college students' future entrepreneurial behaviour. Entrepreneurial behaviour and its process is an activity of knowledge transfer. The work experience of college students before entrepreneurship will help them identify and deal with the opportunities and risks of entrepreneurship, and integrate and create knowledge in new organizations.

2.2 Individual Traits

(1) Needs for Achievement

College students with higher achievement needs are more likely to get satisfaction in the challenging activity of entrepreneurship, and are more self-driven in the entrepreneurial context, so they are more

likely to have entrepreneurial intentions. By contrary, individuals with low achievement motivation tend to choose tasks that can be easily completed in daily life, and they will choose to avoid tasks that are difficult to solve, have obstacles and have risks. Therefore, individuals with low achievement motivation have a lower level of entrepreneurial intention.

(2) Control Source

Control source is people's perception of how much they control their destiny, which reflects people's tendency to judge the relationship between man, nature and destiny, and is a personality factor affecting organizational behaviour. Internal control sources have a positive impact on college students' entrepreneurial intentions and behaviours [5]. Entrepreneurial intention promotes the generation of entrepreneurial behaviour, and plays an intermediary role in the relationship between internal control sources and entrepreneurial behaviour. In other words, potential entrepreneurs with high entrepreneurial motivation, if they also have high internal control, believe that they can control their own lives, and believe that personal behaviour, personality and ability are the decisive factors for the development of things, then they will also have a high level of entrepreneurial learning, and are more likely to have actual entrepreneurial behaviour.

(3) Self-efficiency Sense

Self-efficiency sense refers to the individual's speculation and judgment about whether he or she has the ability to complete a certain behaviour. The self-efficacy sense involves motivational factors and will change constantly according to the new experience and information obtained by the actor. June et al. conducted an in-depth study on the relationship between self-efficacy and entrepreneurial behavior [6]. Taking into account the impact of social and cultural differences, they made cross-cultural comparisons between Korean and American business school students, and found that self-efficacy was positively correlated with entrepreneurial intention.

2.3 Entrepreneurial Qualities

(1) Entrepreneurial Awareness

The concept of entrepreneurial consciousness pertains to the drive or aspiration of individuals to embark on entrepreneurial ventures in response to societal development demands and personal ambitions. Armed with an innovative and entrepreneurial mindset, university students are likely to engage proactively in practical experiences, integrating theoretical knowledge to spark creative ideas.

(2) Spirit of Entrepreneurship

The spirit of entrepreneurship encompasses the character traits and determination required to forge a business path within the entrepreneur's subjective realm. For college students, they should first have firm entrepreneurial faith and self-confidence. Second, a positive entrepreneurial mentality can help college students stimulate and expand their potential, and then overcome the difficulties on the entrepreneurial path. Third, successful entrepreneurs generally have unique and distinctive personality, dare to take risks, and solve various problems independently.

(3) Entrepreneurial Knowledge

Although college students have rich knowledge, this knowledge is only academic knowledge, which does not play a significant role in their own entrepreneurship. Therefore, college students often fall into confusion when starting their own businesses, and they don't know how to do or solve a series of problems. Therefore, college students should be fully prepared before starting their own businesses. On the one hand, they can accumulate relevant management and marketing experience by working or practicing in enterprises; on the other hand, they can improve the success rate of entrepreneurship by participating in entrepreneurship training, accumulating entrepreneurial knowledge, receiving professional guidance and charging ourselves.

(4) Entrepreneurial Capability

Entrepreneurial capability is a key factor to determine whether entrepreneurship is successful or not. There are many factors that affect the ability of college students to succeed in entrepreneurship. First of all, college students should have clear entrepreneurial direction and projects, find entrepreneurial opportunities through effective market research, and formulate detailed entrepreneurial plans. Secondly, after starting a business, college students are bound to meet people of different types and identities, and most of the people they meet are related to their own interests [7]. Therefore, from the very beginning of

starting a business, they should learn to deal with all kinds of people and make as many contacts as possible.

(5) Entrepreneurial Thinking

Creative thinking is an important quality that the entrepreneurs should possess. In the process of entrepreneurship, we are faced with various complex problems. We must have a very strong logical thinking to scientifically analyze various topics and take corresponding measures and means. In addition, entrepreneurship must aim at making profits, and profits must deal with various data. Through the analysis of data, more useful information can be obtained to judge and make decisions.

2.4 Entrepreneurial Environment

(1) Government Supports

The national policy and legal support for the entrepreneurship of college students is the political foundation constituting the entrepreneurial intention. The government supports college students' entrepreneurship, involving finance, taxation, entrepreneurship guidance and many other aspects. Among them, the main tasks of the education department are: first, to deepen the reform of education and teaching and improve the ability of innovation and entrepreneurship; second, strengthen employment guidance and encourage employment at the grass-roots level; Third, improve employment services, provide employment information and publicize employment policies.

(2) Entrepreneurship Education

At the vanguard of fostering innovation and entrepreneurship, institutions of higher learning must take on the mantle of trailblazers and practitioners, diligently enhancing the education in these areas for students in the contemporary era. This is crucial for elevating the caliber of talent, fostering the holistic growth of students, and ensuring that they achieve more comprehensive and high-quality employment opportunities.

A well-structured curriculum and a robust teaching framework are essential components of educational instruction. It is imperative for universities to refine their course offerings, accentuate their academic specialties, seamlessly integrate entrepreneurship and innovation courses within the broader curriculum, and effectively connect practical activities related to entrepreneurship and innovation with professional training. Additionally, there should be a proactive push for the transformation of talent development models, instructional content, and the overall curriculum structure.

(3) Market Environment

It is understood that China's entrepreneurial environment ranked only 23rd in the Global Entrepreneurship Observation survey of 37 countries and regions around the world, belonging to the lower middle level^[8]. There are many problems in the entrepreneurial environment, including start-up capital support, entrepreneurial education and training, business environment and other aspects. The imperfection of the whole social entrepreneurial environment is an obstacle to college students' entrepreneurship.

(4) Family Environment

Family economic conditions and living standards will have an impact on college students' entrepreneurial intentions. In families with stable parents' work and income, college students have no economic pressure and are more likely to have entrepreneurial intentions. In families with stable parents' work and income, college students have no economic pressure and are more likely to have entrepreneurial intentions. If parents support children who are starting businesses and encourage them to be brave in trying and not afraid of failure, they will become more active.

3. Empirical Research

3.1 Data Collection

The purpose of this study is to explore the main factors that affect college students' entrepreneurial willingness. This study randomly selected a total of 482 college students and graduates from 13 local comprehensive colleges and universities as the research objects. The research method is questionnaire survey. The research data were collected by sending questionnaires to these 482 college students, and A

total of 478 questionnaires were collected. Since our survey has the characteristics of random sampling, there is no correlation between individuals, so the sample has a good representation of the population.

The questionnaire consists of two parts: the first part is the basic personal information, including the respondents' gender, educational level, age, professional category, household registration, internship experience, etc; the second part is about personal characteristics, entrepreneurial environment and creative intention. In order to facilitate logistic regression analysis, the questionnaire was designed with Likert scale, including five options: fully agree, agree, uncertain, disagree and completely disagree. The inclination to express willingness from two extremes is used to measure the internal and external influencing factors and degree.

3.2 Research Method

Taking entrepreneurial intention as the dependent variable, entrepreneurial intention is divided into two variables: willing and unwilling. The factors affecting college students' entrepreneurial willingness are divided into four categories: personal background, individual traits, entrepreneurial qualities and entrepreneurial environment, which include several small factors respectively. In this study, SPSS statistical software was used to conduct Logistic multiple regression analysis on each variable, and the significant variables were tested for collinearity.

Based on the survey data, multiple regression analysis was carried out on the 15 influencing factors, and the results are shown in Table 1

Table 1: Univariate Logistic multiple regression analysis results

Category	Influencing factors	Test method	Significant level	Significance level threshold
Personal background (A1)	Gender and age (B1)	Chi square test	0.013	0.05
	Major and education background (B2)	Chi square test	0.078	
	Work experience (B3)	Rank sum test	0.001	
Individual traits (A2)	Needs For achievement (B4)	Rank sum test	0.000	
	Control source (B5)	Chi square test	0.001	
	Self-efficiency sense (B6)	Chi square test	0.002	
Entrepreneurial qualities (A3)	Entrepreneurial awareness (B7)	Rank sum test	0.001	
	Entrepreneurial spirit (B8)	Rank sum test	0.013	
	Entrepreneurial knowledge (B9)	Chi square test	0.000	
	Entrepreneurial capability (B10)	Chi square test	0.015	
	Entrepreneurial thinking (B11)	Rank sum test	0.003	
Entrepreneurial environment (A4)	Entrepreneurship education (B12)	Rank sum test	0.008	
	Government supports (B13)	Rank sum test	0.000	
	Market environment (B14)	Rank sum test	0.001	
	Family environment (B15)	Rank sum test	0.010	

It can be seen from table 1 that, in addition to major and degree ($P=0.078>0.05$), other 14 factors have a significant impact on college students' entrepreneurial willingness ($P<0.05$). However, since the number of independent variables is still large, further screening is needed to check whether there is a linear relationship between these 14 factors, so collinearity diagnosis is carried out for these 14 factors. The collinearity analysis results are shown in Table 2.

If the tolerance is greater than 0.1 or the variance inflation factor (VIF) is less than 10, it means that there are no independent variables; on the contrary, there is a serious collinearity^[9]. It can be seen from table 2 that the tolerance of 14 independent variables is more than 0.3, and the VIF is far less than 10. Therefore, there is no collinearity between the above 14 independent variables, so multivariate logistic regression analysis can be carried out.

Table 2: Collinearity analysis results

Serial	Factors	Collinear statistical parameters	
		Tolerance	VIF
B1	Gender and Age (B1)	0.948	1.050
B3	Work experience (B3)	0.919	1.076
B4	Needs For achievement (B4)	0.908	1.101
B5	Control source (B5)	0.623	1.582
B6	Self-efficiency sense (B6)	0.388	2.528
B7	Entrepreneurial awareness (B7)	0.389	2.493
B8	Entrepreneurial spirit (B8)	0.531	1.749
B9	Entrepreneurial knowledge (B9)	0.518	1.662
B10	Entrepreneurial capability (B10)	0.429	2.048
B11	Entrepreneurial thinking (B11)	0.488	2.097
B12	Entrepreneurship education (B12)	0.502	2.055
B13	Government supports (B13)	0.462	1.643
B14	Market environment (B14)	0.372	1.185
B15	Family environment (B15)	0.402	1.483

The results of multivariate Logistic regression analysis are shown in Table 3

Table 3: Multivariate Logistic multiple regression analysis results

Influencing factors	Variables in the equation					
	B	S.E	Wals	Df	Sig.	Exp(B)
Gender and age (B1)	0.266	0.147	3.172	1	0.077	1.284
Work experience (B3)	-0.007	0.155	0.028	1	0.094	0.726
Needs for achievement (B4)	0.848	0.157	27.158	1	0.856	1.347
Control source (B5)	0.092	0.172	0.338	1	0.005	1.109
Self-efficiency sense (B6)	0.067	0.172	0.285	1	0.374	0.992
Entrepreneurial awareness (B7)	-0.094	0.158	0.236	1	0.284	1.028
Entrepreneurial spirit (B8)	0.165	0.167	0.478	1	0.582	1.097
Entrepreneurial knowledge (B9)	0.286	0.142	1.048	1	0.392	1.285
Entrepreneurial capability (B10)	0.158	0.163	1.927	1	0.558	1.372
Entrepreneurial thinking (B11)	0.043	0.150	0.842	1	0.541	1.372
Entrepreneurship education (B12)	0.422	0.178	0.756	1	0.256	0.924
Government supports (B13)	-0.082	0.191	0.682	1	0.101	1.275
Market environment (B14)	0.685	0.182	2.949	1	0.007	1.569
Family environment (B15)	0.138	0.169	0.478	1	0.128	1.287

From the Sig. value in Table 3, it can be seen that the significant factors affecting the entrepreneurial intention of college students are needs for achievement and market environment, where the former is a subjective factor while the latter is an objective factor^[10].

Further, the maximum likelihood estimates of the two variable parameters are obtained by SPSS software, as shown in Table 4.

Table 4: Maximum likelihood estimation fitting results

Factors	B	S.E	Wals	Df	Sig.	Exp(B)
Needs for achievement (B4)	0.825	0.142	33.817	1	0.000	3.824
Market environment (B14)	0.598	0.107	25.927	1	0.000	2.108
Constant	-3.300	0.342	98.284	1	0.000	0.025

From this, it can be concluded that the multifactor logistic multiple regression model is as follow:

$$P\{Y = 1\} = \frac{\exp(-3.300 + 0.825B_4 + 0.598B_{14})}{1 + \exp(-3.300 + 0.825B_4 + 0.598B_{14})} \quad (1)$$

It can be seen from the Exp(B) value in Table 4 that, the incidence of entrepreneurial willingness with high needs for achievement is 3.824 times higher than that with low needs for achievement; the entrepreneurial willingness under good market environment is 2.108 times that under bad market environment. Therefore, the impact of needs for achievement is greater than market environment.

4. Conclusions

The empirical analysis results of this paper show that college students' needs for achievement and market environment have a significant impact on their entrepreneurial willingness. Therefore, in view of these two key factors, the following suggestions are put forward to improve college students' entrepreneurial willingness:

a) Entrepreneurship is risky. A person with an adventurous spirit is not afraid of risks, but more willing to take risks, so he will be more interested in Entrepreneurship and have a greater probability of entrepreneurship. While cultivating students' professional qualities, colleges and universities should create an atmosphere of positive competition and cultivate students' needs for self-achievement in different ways.

b) Municipal authorities ought to proactively enhance the entrepreneurial climate and lower the barriers for university students to initiate businesses. Firstly, the government must execute initiatives that aid university students in launching their own ventures, bolster assistance for those who encounter difficulties in starting businesses, and offer necessary employment services, support, and social welfare; secondly, the government should intensify its advisory role, leverage the market as the primary avenue, and motivate eligible regions to investigate and establish a mechanism aimed at mitigating risks associated with university students' entrepreneurial endeavors.

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