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Internet Use, Risk Attitude and Willingness for Individual Entrepreneurship

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Abstract. Based on the sample data of CGSS2015 questionnaire, this paper empirically analyzes the impact mechanism of Internet use on individual entrepreneurial willingness using the Oprobit model. The research found that: Internet use is significantly positively correlated with individual entrepreneurial intention; Risk attitude has indirect influence between Internet use and individual entrepreneurial intention; In addition, the age, gender and income of individuals are significantly related to their entrepreneurial intentions, and the relationship between age and their entrepreneurial intentions is an inverted U-shaped relationship.Therefore, it is necessary to strengthen the construction of Internet infrastructure, maintain the entrepreneurial information service platform, cultivate the innovative consciousness and adventurous spirit of potential entrepreneurs, further tap the entrepreneurial potential of individuals, and enhance their entrepreneurial willingness.

Keywords: entrepreneurial intention; Risk attitude; Internet use.

1. Introduction

With China entering the critical period of economic transformation in the new era, China's economic development urgently needs the help and promotion of innovation and entrepreneurship activities. Since the implementation of the innovation driven development strategy by the Chinese government, entrepreneurial activities have shown an active trend year by year[1], and various new and flexible entrepreneurial methods based on Internet technology have emerged[2]. The development of Internet economy contains huge entrepreneurial opportunities, which can promote potential entrepreneurs to fully identify entrepreneurial opportunities and ultimately achieve entrepreneurial behavior[3]. According to the theory of planned behavior, the occurrence of individual behavior is closely related to its motivation factors. As a subjective attitude to measure whether an individual is willing to carry out entrepreneurial activities[4], entrepreneurial willingness is a key indicator to predict whether an individual is willing to carry out entrepreneurial activities[5]. Generally speaking, when people have strong behavioral intentions, they will invest more time and energy in this activity [6]. Therefore, the research on entrepreneurial willingness is of great significance for entrepreneurial activities in the context of the Internet plus era.

The research of domestic and foreign scholars on the influencing factors of individual entrepreneurial willingness mainly focuses on individual characteristics[7], family endowment resources[8], social capital[9], policy environment [10], risk perception[11], etc. With the popularization and development of the Internet, the Internet has gradually become an important channel for building virtual social network relationships. The development of the Internet not only increases the entrepreneurial demonstration effect of the media, but also provides entrepreneurs with more abundant entrepreneurial information and resources, and improves the entrepreneurial willingness of individuals[12]. However, there are conflicting views on how Internet use affects individual entrepreneurial willingness. Zhang Siyang pointed out that Internet embedding has no direct impact on entrepreneurial willingness[13]. The existing literature has explored the research on Internet use and individual entrepreneurial willingness to a certain extent, but the research depth is obviously insufficient. First, there is few literature on the impact of Internet use on individual entrepreneurial willingness; Second, there is little literature on the mechanism of Internet use on individual entrepreneurial willingness, and the research results need to be further deepened. In this context, it is of great research value to explore the impact of Internet use on individual entrepreneurial

willingness. Therefore, based on the CGSS (2015) data of China Comprehensive Social Survey, this paper proposes a model of the relationship between Internet use, risk attitude, and entrepreneurial willingness, analyzes the impact of Internet use on individual entrepreneurial willingness, and discusses the mechanism and effect of risk attitude. The paper deepens the research on the mechanism of individual entrepreneurial willingness, and the conclusions are helpful to the precise formulation of various entrepreneurial policies and the favorable development of entrepreneurial activities.

2. Theoretical analysis and research hypothesis

2.1 Internet Use and Entrepreneurship Intention

As an important source of information in the virtual social network[14], the Internet has provided entrepreneurs with a variety of information resources, enhanced their awareness of the feasibility of entrepreneurship, derived the idea of individual entrepreneurship activities, and promoted the improvement of individual entrepreneurial willingness[15]. At the same time, the social network platform has such network characteristics as flexibility and interactivity, which can create more flexible and free working hours for individuals and enhance their entrepreneurial willingness[16]. In addition, the use of the Internet can not only facilitate individuals to obtain information related to entrepreneurship and seize potential entrepreneurial opportunities [17], but also can effectively reduce the entrepreneurial costs of entrepreneurs[2] and stimulate their entrepreneurial motivation because of the low cost of obtaining information through the Internet. In other words, the more frequently you use the Internet, the higher your entrepreneurial intention. Therefore, this paper proposes the following assumptions:
H1: Internet use has a significant positive predictive effect on individual entrepreneurial willingness

2.2 Internet use and risk attitude

For entrepreneurs, traditional ideas hinder their entrepreneurial activities. In the context of the growing popularity of the Internet, the use of the Internet can provide information, resources, technology and other support for individual entrepreneurship, which not only enables individuals to perceive the support of the surrounding environment, but also further promotes the development of new ideas, which is conducive to the formation of risk-taking attitudes. As an open entrepreneurial service platform, the Internet has promoted the formation and dissemination of innovation culture [18], and to a certain extent, it can promote entrepreneurial activities in all areas. At the same time, the use of the Internet can reduce the financing risk of entrepreneurs, improve the possibility of entrepreneurship [19], and further reduce the cost of Internet entrepreneurship[20]. The use of the Internet can not only improve the ability of individuals to identify entrepreneurial opportunities, but also enhance their behavioral propensity to take risks. Therefore, this paper proposes the following assumptions:

H2: Internet use can positively predict the improvement of individual risk attitude

2.3 Risk attitude and entrepreneurial willingness

Entrepreneurial cognitive theory believes that entrepreneurial decision-making is affected by individual cognitive structure, and risk attitude is the key cognitive factor affecting the formation of entrepreneurial intention. Entrepreneurship involves a large number of risky behaviors and uncertainties. Whether to carry out entrepreneurial activities is actually a risk decision[21]. Individuals' likes and dislikes of risky behaviors constitute their attitudes towards entrepreneurial behaviors, which can directly affect their entrepreneurial intentions. Individuals with high risk propensity show high entrepreneurial willingness, while people with low risk propensity will choose to give up entrepreneurship or not start entrepreneurship for the time being[22]. Through empirical analysis, Xiang Kaibiao has verified that the spirit of adventure can improve the

entrepreneurial possibility of individuals. The stronger the individual's tendency to challenge risks, the higher their entrepreneurial willingness[23]. As a kind of psychological experience or spiritual feeling, entrepreneurial intention is closely related to individual risk tendency and risk attitude. Therefore, this paper proposes the following assumptions:

H3: Risk attitude has a significant positive predictive effect on individual entrepreneurial willingness

2.4 Internet use, risk attitude and entrepreneurial willingness

According to the theory of planned behavior, the intention of individuals to take specific behaviors is related to their perception of attitudes and concepts. Internet use can enhance entrepreneurs' awareness of entrepreneurial risks and enhance their risk preference. At the same time, entrepreneurship has a relatively high risk, and individuals will consider its uncertainty when facing entrepreneurship. When individuals perceive that entrepreneurship has risks or they cannot afford losses, they will actively reduce entrepreneurial motivation[24]. For example, Liu Pengcheng pointed out that female entrepreneurs with strong risk aversion awareness generally show a low entrepreneurial rate [25] on the basis of research on female samples.

To sum up, Internet use can enhance individual risk attitude, which is an important factor affecting individual entrepreneurial willingness. That is to say, the use of the Internet can promote the improvement of individual entrepreneurial willingness to a certain extent, but it may also be affected by individual risk attitude. In view of this, this study introduces the risk attitude into the theoretical model of Internet use and individual entrepreneurial intention, and explores whether Internet use can affect entrepreneurial intention through risk attitude. Therefore, this paper proposes the following assumptions:

H4: Risk attitude plays a mediating role between Internet use and individual entrepreneurial willingness

The research model is shown in Figure 1.

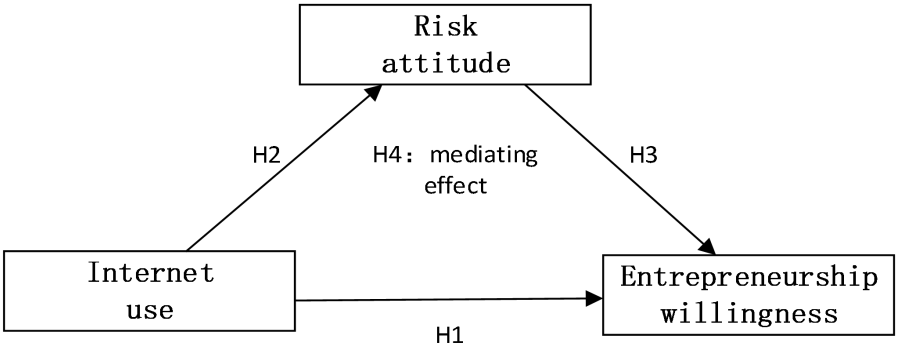

Fig 1 Research model diagram

3. Data source and variable setting

3.1 Data source

The data in this paper is from CGSS2015 questionnaire. The survey data comes from 28 provinces/cities/autonomous regions across the country, covering individuals, families and communities. The sample is highly representative. As the research object of this paper is individual entrepreneurial intention, the samples aged 18-60 are selected as the research object, and the research variables are scattered in various parts. After deleting the samples with missing values, unanswerable and unknown information, the number of remaining samples is 1113.

3.2 Variable Settings

3.2.1 Dependent variable

The dependent variable of this paper is entrepreneurial intention. The measurement indicator of entrepreneurial willingness selects the question in the CGSS2015 questionnaire: "If you have opportunities and resources, will you start a business?", There are seven levels of options: "very likely, very likely, possible, unclear possibility, unlikely, very unlikely, very unlikely", which are respectively assigned with "1-7" (1 is very likely, 7 is very unlikely). In order to ensure the consistency of the direction, the reverse setting is carried out. The higher the score, the stronger the individual's entrepreneurial willingness.

3.2.2 Independent variable

3.2.2.1 Internet use

The measurement index of Internet use selects the question in the CGSS2015 questionnaire: "In the past year, your use of the Internet (including mobile Internet access) is". The options are "never, rarely, sometimes, often, very frequently". The first two items are combined into "very few", and the last two items are combined into "many", with "very few" as a reference. The above three categories are assigned 1-3 points in turn.

3.2.2.2 Risk attitude

For individual risk attitude, the measurement indicators in this paper are selected from the CGSS2015 questionnaire item: "I often like to try new and unusual things", "I prefer to try my own unique method when learning new things", and the options have five levels, namely "very agree, relatively agree, indifferent agree disagree, relatively disagree, and very disagree", which are assigned "1-5" respectively. The interviewees choose according to their own preference. The reverse setting is also carried out. The higher the score, the higher the risk tendency. The Cronbach's Alpha coefficient of the reliability test and validity test of risk attitude is 0.648, greater than 0.6, and the internal consistency is within the acceptable range.

3.2.3 Control variables

The control variables in this paper include individual age, gender, marriage and income level. Considering that there may be an inverted U-shaped relationship between age and individual entrepreneurial willingness, this paper puts age and age squared terms into the regression model. Income level. This paper uses the question "your personal income of the previous year" in the questionnaire as an indicator to measure the individual income level, and conducts logarithmic processing. The variable description is shown in Table 1.

Table 1 Descriptive Statistical Analysis of Variables

Variable	variable definition	mean	standard deviation
Entrepreneurship willingness	if you have opportunities and resources?	4.900	1.712
Risk attitude	When there are risks, I will be cautious rather than bold I often like to try new and unusual things	6.099	1.753
Internet	How did you use the Internet in the past year?	1.986	0.955
Age	2015 - Year of birth (18-60 labor force)	41.531	11.820
Age square/100	Age square item/100	18.644	9.538
Gender	Women as reference	0.489	0.500
marriage	If you are married, the variable is 1, otherwise it is 0	0.797	0.402

Income level	Personal income logarithm of the previous year	8.543	3.734

4. Empirical results and analysis

4.1 Correlation analysis

In order to understand the relationship between Internet use and entrepreneurial intention, Pearson correlation analysis was conducted from Internet use, risk attitude and entrepreneurial intention. The correlation coefficients of the main variables are shown in Table 2. There was a significant positive correlation between Internet use and risk attitude ($r=0.261$, $p<0.01$), indicating that the more frequently Internet use was, the stronger the individual's risk propensity was. Internet use was significantly positively correlated with entrepreneurial intention ($r=0.285$, $p<0.01$), indicating that the more frequently Internet use was, the stronger individual entrepreneurial intention was. Risk attitude was significantly positively correlated with entrepreneurial willingness ($r=0.325$, $p<0.01$), indicating that the higher the risk tendency, the stronger the entrepreneurial willingness of individuals. Internet use, risk attitude and entrepreneurial willingness have significant correlation, which can be further empirical research.

Table 2 Correlation Statistical Analysis of Variables

	variable	1	2	3
1	Entrepreneurship willingness	1.000		
2	Risk attitude	0.325***	1.000	
3	Internet use	0.285***	0.261***	1.000

Note: The standardized regression coefficient is listed in the table, * represents P<0.1** P<0.05*** Indicates P<0.01.

4.2 Ordered regression Oprobit

In this paper, Stata12.0 software is used for data analysis. Since the dependent variable entrepreneurial intention is an ordered variable, the Oprobit regression model is adopted. In order to study the relationship between various variables and individual entrepreneurial willingness, according to the assumptions proposed in this paper, a hierarchical regression model is adopted that gradually adds control variables, independent variables, Internet use and risk attitude. Table 3 shows the regression results of the model.

Table 3 Empirical Analysis of Internet Use on Entrepreneurship Intention

Variable name		dependent variable				
		Entrepreneurship willingness			Risk attitude	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Age	0.041*	0.054**	0.070***	0.080***	-0.166***	-0.150***
Age square/100	-0.088***	-0.096***	-0.118***	-0.124***	0.156***	0.149***
Gender	0.260***	0.256***	0.219***	0.217***	0.313***	0.302***
marriage	-0.093	-0.090	-0.085	-0.083	-0.080	-0.071
income	0.015*	0.009	0.006	0.001	0.060***	0.050***

Less Internet usage		0.094**		0.038		0.343*
More Internet usage		0.291***		0.229***		0.448***
Risk attitude			0.163***	0.158***		
Observations	1113	1113	1113	1113	1113	1113

Note: The standardized regression coefficient is listed in the table, * represents P<0.1** P<0.05*** Indicates P<0.01.

This paper explores the impact mechanism of Internet use on individual entrepreneurial willingness. The intermediary effect test method proposed by Wen Zhonglin et al. [26] will be used, and the independent variable is Internet use; The intermediary variable is risk attitude; The dependent variable is entrepreneurial intention. The stepwise test method is divided into three steps: first, the independent variable has a significant impact on the dependent variable; Second, the independent variable has significant influence on the intermediate variable and dependent variable; Third, the addition of intermediate variables will weaken or disappear the influence of independent variables on dependent variables.

Table 3 shows the marginal effect of Internet use on individual entrepreneurial willingness and the impact of Internet use on risk attitude. As shown in model 2, Internet use has a significant positive predictive effect on individual entrepreneurial willingness (B=0.094, p<0.05; B=0.291, p<0.01), indicating that after controlling other variables, regular use of the Internet can increase the overall probability of individual entrepreneurial willingness by 29.1%. This shows that the higher the frequency of Internet use, the stronger the individual's willingness to start a business. Assume that H1 is validated.

The direct impact of Internet use on individual entrepreneurial willingness has been confirmed, so is there an indirect impact between Internet use and individual entrepreneurial willingness? First, we will examine whether Internet use can help improve individual risk attitude. Risk attitude is a continuous variable, and OLS model is used for regression. As shown in Model 6 in Table 3, under the control of individual personality characteristics, income and other variables, Internet use has a significant positive impact on individual risk attitude (B=0.220, p<0.1; B=0.276, p<0.01), indicating that Internet use can improve individual risk attitude, and the higher the frequency of Internet use, the greater the coefficient. Based on this, H2 is verified.

The relationship between risk attitude and entrepreneurial willingness is shown in model 3. Under the control of individual personality characteristics, income and other variables, risk attitude is significantly positively related to individual entrepreneurial willingness (B=0.163, p<0.01), indicating that individuals who like to take risks show higher entrepreneurial willingness. Based on this, H3 is verified.

Next, we will examine whether Internet use can indirectly affect the entrepreneurial willingness of individuals by improving their risk attitude. Model 4 shows that when the Internet is used frequently, the variable risk attitude is added. Many variables of Internet use still have a positive predictive effect on individual entrepreneurial intention (B=0.157, p<0.01), but the coefficient value becomes smaller, indicating that the addition of risk attitude weakens the impact of Internet use on individual entrepreneurial intention, and risk attitude plays a partial intermediary role between Internet use and entrepreneurial intention. Based on this, H4 is verified. The hypothesis model test results are shown in Figure 2.

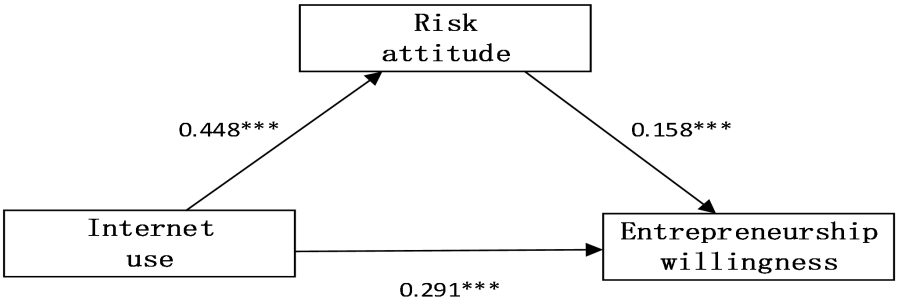

Fig. 2 Model Diagram of Inspection Results

To further verify the mediating effect of risk attitude, Table 4 shows the results of Sobel test and Bootstrap test of the mediating effect of risk attitude. The results of bilateral test in Sobel test show that the indirect effect is significant (z=3.256, p<0.001). In Bootstrap test, the 95% confidence interval is [0.019, 0.084], excluding 0. The intermediary effect is also significant, and the indirect effect of Internet use from risk attitude to entrepreneurial willingness is 0.052, accounting for 23.7% of the total effect. Therefore, H4 is assumed to be validated.

Table 4 Sobel Test and Bootstrap Test of Risk Attitude Mediation Effect

Sobel test	B	SE	Z	P
	0.052	0.016	3.256	0.001
Bootstrap test	Effect	B（SE）	LLCI	ULCI
	Indirect effect	0.052(0.016)	0.019	0.084
	Direct effect	0.167(0.057)	0.055	0.280

Note: LLCI is the lower limit and ULCI is the upper limit

As for the control variables, Table 3, Model 4 shows that the age and gender of the variables have a significant impact on entrepreneurial willingness. Specifically, the coefficient of gender on individual entrepreneurial willingness is significantly positive (B=0.217, p<0.01), and the probability of male entrepreneurial willingness is higher than that of female, indicating that gender differences are more obvious in entrepreneurial willingness; The influence of age on the probability of individual entrepreneurial willingness is "inverted U-shaped", that is, with the increase of age, the probability of individual entrepreneurial willingness first increases and then decreases.

5. Summary

Using the 2015 micro survey data of CGSS for empirical analysis, this paper discusses the impact of Internet use on individual entrepreneurial willingness and its internal mechanism. The results show that the use of the Internet has a significant role in promoting the willingness of individuals to start their own businesses. Every additional unit of Internet use increases the probability of the willingness of individuals to start their own businesses by 29.1%. The use of the Internet can further enhance the understanding of individual entrepreneurship information and resources, reduce the cost of individual entrepreneurship, promote the formation of entrepreneurial motivation, and enhance individual entrepreneurial willingness. The Internet is characterized by flexibility, interaction and freedom. The popularity and development of the Internet not only facilitate individuals to obtain various entrepreneurial information and resources, enhance their awareness of the feasibility of entrepreneurship, but also greatly reduce the cost of entrepreneurship, stimulate entrepreneurs' entrepreneurial motivation, and ultimately enhance their entrepreneurial willingness.

Further research found that Internet use indirectly affected individual entrepreneurial willingness through the intermediary role of risk attitude. The use of the Internet can improve individual entrepreneurial willingness to a certain extent, but it may also be affected by individual risk preference. Risk attitude plays a part of intermediary role between Internet use and entrepreneurial intention, and the proportion of intermediary effect is 24.3%. Entrepreneurship has a high degree of

risk, and individuals will consider its uncertainty when facing entrepreneurship. When individuals perceive that entrepreneurship has risks or they cannot bear losses, their entrepreneurial willingness will weaken accordingly.

This study has the following implications for improving individual entrepreneurial willingness. First, strengthen the construction of Internet infrastructure, promote the popularization and inclusiveness of the Internet, provide good entrepreneurial information and resources for the general public, and further reduce the cost of entrepreneurial information for potential entrepreneurs. Second, the government should do a good job of supervision, crack down on the manufacturing and dissemination of various false entrepreneurial information, and build and maintain a good entrepreneurial information service platform. Third, we should further improve relevant entrepreneurship policies, strengthen training and education in entrepreneurship, strengthen support for innovation and entrepreneurship, cultivate the innovation awareness and entrepreneurship of potential entrepreneurs, further tap their entrepreneurial potential and enhance their entrepreneurial willingness.

Although this research has made some achievements, it adds a theoretical explanation on how Internet use affects entrepreneurial willingness. However, there are still some limitations. First, in the relationship between Internet use and entrepreneurial willingness, there may be more than risk attitude as an intermediary variable, and there may be the common influence of other variables; Secondly, the empirical study found that the heterogeneity of individual gender and age has a greater impact on Internet use and individual entrepreneurial willingness, which has not been specifically discussed. These are also the directions and contents that can be further discussed in the future.

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