Research Article

How Internet Use Spurs Entrepreneurial Activities? Evidence from China

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Digital literacy has been increasingly important among workers in the labour market, and it also has been viewed as a micro reflection of the growing of China's digital economy. Internet use is an integral part of workers' digital literacy, which has a significant influence on entrepreneurial decision-making. This paper aims to explore the direct impact of Internet use on entrepreneurship, analyzing the mechanism and group differences of Internet use. It has a practical meaning to China's policies of promoting employment. Based on the data of China Labour Dynamics Survey (CLDS), the paper uses Probit model and 2SLS regression analysis to examine the direct impact of Internet use on entrepreneurship, and to analyze its mechanism by adopting the mediation effect model. The study indicates that Internet use has significantly increased the probability of starting a business, the impact has been stronger on the new generation, rural residents and the groups with work experience. Further analysis shows that Internet use not only increases venture capital, social capital and income, but also helps to shape individual workers' learning ability, which has an indirect effect on promoting entrepreneurship. The above results show the way of promoting workers' willingness of entrepreneurship, which are expanding Internet access, promoting policies of improving workers' Internet skills, focusing on cultivating comprehensive cognitive abilities including risk awareness and learning abilities.

1. Introduction

Recently, extensive literature on the significant importance of entrepreneurship on economic growth has consistently shown that broadband infrastructure investment drives economic prosperity [1–3]. With the increase of digital economy, entrepreneurship plays a positive role in reducing the unemployment rate, improving the employment structure and achieving more adequate and higher quality of employment [4–6]. However, there has been comparative dearth of empirical entrepreneurship research on the effect of Internet use on entrepreneurial activities. Entrepreneurship at the micro level is also treated as a comprehensive behavior that explores individual abilities and fully sensitivity of recognizing comprehensive behaviors. It is not only the specific extension of entrepreneurship, but also a rational

choice made by entrepreneurs according to economic market environment. And it is conducive to gain social respect, achieve self value and improve economic benefits for individuals. Supporting and encouraging new entrepreneurial activities has become one of the important forces to boost economy, which also has an indispensable sense on digging the factors of promoting entrepreneurship.

Based on the important value of entrepreneurship to individuals and society, workers are likely to make rational choices on entrepreneurial activities. This is because individual entrepreneurship often has various outcomes from their well-planned behaviors. On one hand, entrepreneurship is likely to bear economic risks [7, 8]. Entrepreneurship has been viewed as one of the typical investment behaviors [9], which is more likely to confront with great market competition and potential risks [10]. Once the venture fails,

most of the individuals have less capacity to afford the economic costs. On the other hand, entrepreneurship has been treated as a systematic activity, including enterprise development programs, product creations and channel distributions, which might cause mental stress for individuals [11, 12]. Entrepreneurs may bear the great pressure from their business, who might be in tense chronically with the persistent decline of happiness. Thus, the possibilities of the choice making to start a business depends on the increase of individual's utility of entrepreneurship, and the possibilities of dealing with potential economic risks. In this sense, the essence of entrepreneurship is to maximize individuals' rational decisions.

Regarding to the factors influencing entrepreneurial activities, the development and application of information technology has gradually been integrated into individual economic decision-making, and the affects on entrepreneurship have constantly deepened. In particular, the wide use of the Internet is also an important driving force. As an important carrier of information search, Internet has broadened the acquisition channels of various resources, improving the ability of online learning, increasing the accumulation of human capital, which may have a positive effect on promoting entrepreneurship. The purpose of this study is to explore the impact of Internet use on workers' entrepreneurship. It mainly addresses the following questions: Does Internet use affect workers? If any, what channels does Internet use affect individuals' entrepreneurship? Is there any heterogeneity among different groups? It helps to promote China's pro-employment policies by understanding individuals' entrepreneurial behavior and choices in the digital economy. Thus, does the increase of Internet use act as an important way to improve entrepreneurship? This requires both subjective judgment and empirical evidence.

Although some scholars point out that the development of the Internet are bringing a huge challenge to the traditional business system, many studies based on the data from various countries show that it is conducive to pushing companies and entrepreneurs to follow the new entrepreneurial trend and join the digitalization [13–15]. For example, on the basis of the Polish entrepreneurial survey data, Janson and Wrycza [16] find that the rapid development of information technology has played a significant role in promoting entrepreneurial activities and increasing the possibility of entrepreneurial success. Guillén and Suárez [17] analyze the relationship between Internet popularization and entrepreneurship based on the data from Ireland, Singapore, Argentina and Spain, and finds that there are obvious cross-border differences in development of the Internet, especially in countries and regions with high entrepreneurial activities. Cumming and Johan [18] find that Internet use plays an important role in increasing entrepreneurial activities in Canadian rural communities. Based on the data in German, Audretsch et al. [1] point out that entrepreneurship has been extensively promoted by the updated contribution progress of the Internet infrastructure. Yu et al. [19] suggest that Internet help potential entrepreneurs to finds opportunities for small or minor sized enterprises (SMEs) by providing abundant information

resource. Moreover, Internet can also decrease risks [20] and costs [21] of entrepreneurship. Some studies found that Internet use has a significant positive impact on entrepreneurship by using China Family Panel Studies (CFPS) dataset [22, 23].

In addition, some scholars have paid attention to the impact of digital technology development on entrepreneurship. Digital technologies can facilitate the development of emerging markets and increase the resilience of social entrepreneurship [24]. They have explored the mechanism of digital technology and found that innovation ability can be strengthened by the indirect effects of improving entrepreneurs' willingness by using digital skills. Moreover, entrepreneurship education is crucial to the development of technological enterprises, which has driven the development of technology-based enterprises by improving individuals' entrepreneurial motivation. Focusing on entrepreneurial women in Iran and Hungary, Bouzari et al. [25] highlighted that online social network has a significant impact on entrepreneurship. In terms of the driving factors of entrepreneurial behavior, entrepreneurship is the ultimate trend in the evolution of social entrepreneurship [26], which tends to bring social change, particularly developing individuals' abilities of identifying and creating entrepreneurial opportunities [27]. Further, the growth of female in digital entrepreneurs has played an important role in optimizing the entrepreneurial ecosystem and improving the social competitive circumstance [28]. In terms of the impact of the Internet development on income, however, many studies show that Internet use has less influence on increasing the income [29–31], which is likely to have a negative impact on individuals to make entrepreneurial decisions.

However, the existing literature on the impact of Internet use on entrepreneurship is characterized by three limitations. First, more existing research seldom pays attention to the impact of Internet use on China's entrepreneurs, and it is necessary to provide relative evidence based on the data from China's labour-force. Second, it is necessary to reduce the possibilities of endogeneity problems and selection bias, particularly the endogenous problems, such as reverse causality and selection bias in using Internet. Furthermore, the existing literature on the effect of Internet use on entrepreneurship needs to be further in-depth, and the heterogeneity of Internet use on entrepreneurship needs to be further explored. Compared to the existing literature, this paper has three additional marginal contributions. First, from the perspective of Internet use and digital literacy, this paper explores the influencing factors of entrepreneurship, which provides empirical evidence of promoting employment through entrepreneurship. Second, it studies mechanisms of Internet use on entrepreneurship, which confirms that Internet use has a significant indirect effect on entrepreneurship through venture capital, social capital, income and learning ability. Third, from the perspectives of intergenerational similarities, rural-urban differences and work experience, this paper explores the heterogeneity of Internet use on individuals' entrepreneurship, which helps to capture entrepreneurial groups' characteristics in digital era.

2. Methodology

2.1. Data Collection. The data used in this study was mainly drawn from the China Labour-force Dynamic Survey (CLDS), which is a nationally representative household questionnaire survey conducted biennially by the Centre for Social Survey at Sun Yat-sen University. This survey adopts a multi-stage stratified Probability Proportionate to Size Sampling (PPS) method to interview households from 29 provinces in China (Hong Kong, Macau, Taiwan, Tibet, and Hainan were excluded). More details about the design and implementation of this survey can be found in other papers [32]. CLDS has detailed information on demographic characteristics, socioeconomics, housing conditions, and community context and has been widely applied in many studies [33, 34]. This study was based on the 2016 wave of CLDS and included 21086 respondents in urban areas of 66 cities. After deleting the invalid cases with missing values and keeping the workers between the age of 18 to 59, the final sample size is 14608.

2.2. Variables. Entrepreneurship in this study is measured by the question, "Have you ever tried to start a business?" The answer is rated on 1 ("yes") or 0 ("no") binary choice in the specific study. According to the statistics of 2016, the proportion of the sample who has engaged in entrepreneurial activities is 7.8%. This shows that the proportion of entrepreneurship in the investigated samples is low, and it is urgent to promote "Mass Entrepreneurship and innovation by All."

The key explanatory variable is Internet use, which is measured by the question "Do you use the Internet?." And the answer is also rated 1("only use the Internet by mobile phone"; "only use the Internet by PC or iPad"; "use the Internet by both mobile and PC") or 0("never using the Internet"). In the sample of this study, there are 66.2 percent of the respondents is using the Internet. It should be noted that we take the variable of Internet use intensity, which is measured by the Internet fee, as a substitute variable for Internet use in the robustness test. In addition, considering the different effects of Internet use via mobile phone, PC and both, we also conduct three extra models of Internet use as three various dimensions to ensure the robustness of the modelling results.

This study also takes four intermediary variables to examine the mechanism of Internet use on entrepreneurship, there are learning ability, social capital, income and financial investment. In terms of the learning ability, the investigation has estimated respondents' abilities of reading, writing, communication, online banking, ATM use etc., and each dimension of the learning ability is rated on 0 ("never use"; "almost neve"; "occasionally/sometimes") or 1("almost every time"; "frequently use"). We quantify these five dimensions by summarizing the score horizontally and the range of the final rate of the learning ability is from 0 ("very bad") to 5 ("very good"). The higher score is indicating the stronger comprehensive learning ability of the individuals.

In terms of the control variables, this article adds personal characteristics, family characteristics, noneconomic control variables and regional dummy variables. The definitions and mean values of variables are shown in Table 1.

3. Empirical Results and Discussion

3.1. Benchmark Model. Models (1)–(3) in Table 2 report the results of benchmark model. We sequentially controlled various control variables and regional dummy variables to examine deviations. The results show significant positive correlation coefficients on all three models of entrepreneurship, i.e. *Model1, Model2, Model3*. The results preliminary suggest that the Internet use and Entrepreneurship are positively associated. The results also show significant positive correlations among the three measures of entrepreneurship (*Model1, Model2, Model3*). These results elaborate that the Internet use has indeed significantly promoted the entrepreneurial activities in Chinese labour market.

The control variables also have important impacts on entrepreneurship. Specifically, the impact coefficient of sex is significantly positive, indicating that the entrepreneurship of men is higher than that of women. Age has a significant positive impact on individual's entrepreneurship, whilst that of age-squared is negative, indicating that the relationship between entrepreneurship and age takes the form of a *U*. After adding different control variables to the registered permanent residence, the coefficients have changed directions, showing a more complicated influence of registered permanent residence on entrepreneurship and requiring the further demonstration of it. Education has a significant inverted U-shaped effect upon overall entrepreneurship. On the one hand, compared to primary school and illiteracy, individuals with the education of junior high level, senior high level, undergraduate level and above have a higher probability of starting a business. On the other hand, as the education level increases, the impact of education on entrepreneurship starts to decrease. In addition, there is no statistically significant impact of marriage variables on entrepreneurship. Individuals with poor health and fair health have a higher probability of entrepreneurship compared to those with the pretty good health. Refereeing to the control variables at the household level, the larger size of household and people with cars have a significantly higher probabilities of entrepreneurial activities. Finally, people with religious beliefs, smoking habit and good appearance also have a higher number of entrepreneurial activities.

3.2. Discussion of Endogeneity: Based on Eprobit Model and Ivprobit Model Tests. The above results show that Internet use has a positive impact on individual's Entrepreneurship. However, the above conclusion may be challenged by problems of endogeneity. To improve the estimation efficiency of instrumental variables, we use the Eprobit model in the Extended Regress Models (ERM) and the two-stage Ivprobit model to deal with the endogeneity of binary discrete variables in this study. We set up 161 groups based

TABLE 1: Definitions and descriptive statistics of the variables ($N = 14608$).

Categorical variables	Variables	Definitions	Mean
Dependent variable	Entrepreneurship	Ever tried = 1, never = 0	0.078
Independent variable	Internet use	Using the internet = 1, else = 0	0.662
	Learning ability	The total score of respondents' 5 categories of learning abilities: 0–5; the categories are reading, writing, communication, online banking and ATM use	3.903
Intermediary variables	Social capital	The logarithm of the total cost of the social expenditure in each family	5.531
	Income	The logarithm of the monthly income	6.186
	Financial products investment	Have investment = 1, otherwise = 0	0.050
Instrumental variable	Regional frequency of the internet use	The average rate of the Internet use	2.359
Control variables	Sex	Male = 1, female = 0	0.459
	Age	Age in 2016	41.800
	Registered permanent residence	Urban household = 1, else = 0	0.324
	Marital status	In marriage = 1, else = 0	0.832
	Education level		
	Junior high school	Junior high school = 1, else = 0	0.337
	Senior high school	Senior high school = 1, else = 0	0.170
	Undergraduate	Undergraduate = 1, else = 0	0.130
	Poor health	Poor health = 1, else = 0	0.124
	Fair health	Fair health = 1, else = 0	0.265
	Family size	Numbers of families	4.350
	Car ownership	Have cars = 1, otherwise = 0	0.234
	Religious belief	Faith in religion = 1, otherwise = 0	0.136
	Smoking history	Smoking = 1, otherwise = 0	0.263
	Appearance	The score of respondents' self-rated appearance from 1 to 10	6.476
	East area	East = 1, else = 0	0.433
	Middle area	Middle = 1, else = 0	0.268
	West area	West = 1, else = 0	0.298

TABLE 2: Internet use and entrepreneurship (benchmark model).

Variable	Dependent variable: entrepreneurship					
	(1)		(2)		(3)	
Internet use	0.898***	(0.092)	0.825***	(0.093)	0.706***	(0.095)
Sex	0.867***	(0.064)	0.877***	(0.064)	0.570***	(0.085)
Age	0.201***	(0.064)	0.213***	(0.025)	0.216***	(0.026)
Age squared	−0.002***	(0.000)	−0.003***	(0.000)	−0.003***	(0.000)
Registered permanent residence	−0.002	(0.081)	0.045	(0.083)	0.067	(0.082)
Marriage	0.140	(0.114)	0.024	(0.115)	0.034	(0.114)
Education level (ref: illiteracy and primary school)						
Junior high school	0.448***	(0.082)	0.475***	(0.082)	0.447***	(0.082)
Senior high school	0.683***	(0.101)	0.680***	(0.100)	0.636***	(0.101)
Undergraduate and above	0.243**	(0.121)	0.200*	(0.123)	0.212***	(0.124)
Self-rated health (ref: pretty good health)						
Poor health	0.241**	(0.107)	0.277***	(0.277)	0.341***	(0.109)
Fair health	0.206***	(0.071)	0.212***	(0.108)	0.228***	(0.072)
Family size			0.069***	(0.017)	0.062***	(0.016)
Car ownership			0.370***	(0.071)	0.322***	(0.072)
Religious belief					0.319***	(0.091)
Smoking history					0.588***	(0.085)
Appearance					0.062***	(0.021)
Regional dummy variables					Yes	Yes
Constant	−7.685***	(0.460)	−8.255***	(0.488)	−8.841	(0.534)
Pseudo R2	0.0645		0.0720		0.0874	
N	14613		14610		14608	

Note. *, **, and *** represent 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses.

on various cities in the sample, taking "the average Internet use frequency" as the instrumental variable of the Internet use. As shown in Table 3, the corr coefficients and the Cragg-Donald Wald F statistics of Eprobit model and Ivprobit model are both significant at the 1% statistical level, revealing that the residual items of the model are related, that is, the explanatory variables in this study are indeed endogenous dummy variables. The coefficients of the instrumental variables are all significant at the 1% statistical level, indicating that the instrumental variables are highly correlated with the explanatory variables, and there is no problem of a weak instrumental variable. Regarding to the exogeneity, the higher Internet use frequency has less direct association with individuals' entrepreneurial activities, which theoretically conforms to the exogeneity hypothesis.

As shown in Eprobit model and the two-stage Ivprobit model of Table 3, the coefficient of Internet use is positive (significant at the 1% level) after controlling various levels of variables. Moreover, compared to the ordinary logit model, the positive effect of instrumental variable estimation is more significant. That is to say, if the endogenous problem is not controlled, the impact of Internet use on entrepreneurship can be underestimated. These results further demonstrate the conclusion that Internet use has significantly promoted entrepreneurship, which is consistent with the results in Table 2.

3.3. Further Discussion: Heterogeneity Analysis. In this section, we further split the sample into subsamples based on the urban-rural disparity, various work experience and potential generation gaps, and use subsample regression to analyze the heterogeneous impacts of Internet use on entrepreneurship. As shown in Table 4, regarding urban-rural gaps, Internet use has significant positive effects on entrepreneurship for rural subsample, but the effect is not significant on urban subsample. Regarding work experience, Internet use has a significant positive effect on entrepreneurship of the people who had work experience, but the effect is not significant on the people who had no work experience. The results show that Internet use is more effective in promoting entrepreneurial activities for people with work experience. Regarding generation gaps, we subdivide the samples by people born before and after 1980. The results show that the effects of Internet use on entrepreneurship is higher for the millennials than generation X, indicating that Internet use has a greater impact on entrepreneurship on the younger generation.

4. Mechanism Analysis and Robustness Check

4.1. Mechanism Analysis of the Impact of Internet Use on Entrepreneurship. To further the study of influence on entrepreneurship by the Internet use, this article uses the stepwise method to analyze the mechanism effect. Based on the research context and prior literature discussed above, in this section, we therefore formulate the hypotheses that the impact of Internet use has four mechanisms on entrepreneurship, there are the effect of shaping the learning ability,

promoting social capital accumulation, increasing the income and the probability to buy financial products. As shown in Tables 5 and 6, Internet use not only has a significant positive effect on entrepreneurial activities, but also has a significant positive association with the four mediating variables, which provides the basic premise for the mediation effect tests. In addition, as indicated in Table 5, the four intermediary variables have significant positive impact coefficients on entrepreneurship (after controlling for the other factors), and the coefficients of Internet use all show varying degrees of downward trends compared to the benchmark models, illustrating that intermediary variables have a certain dilution effect on the influence of explanatory variables on entrepreneurship, and the dilution effect is more stronger for learning ability and income. Based on the above analysis, this article finds that Internet use not only has a positive impact on promoting financial investment, increasing social capital and income, but also helps to shape the learning ability and further activating entrepreneurship for individuals.

4.2. Robustness Checks

4.2.1. Decomposition and Replacement of the Core Explanatory Variable. To verify the robustness of the regression results above, this paper further takes Internet fee as the alternative core explanatory variable, Internet use. Individuals with more Internet fee indicate that they use the Internet more often and have a stronger ability to search information online. In addition, this paper further subdivides the explanatory variables into three sub-dimensions on the basis of various application terminals, which aims to investigate the potential differences between various ways for Internet use. Although model (1) is not statistically significant, model (2)–(4) all demonstrate that Internet use has a significant role in promoting entrepreneurship, which suggests that the results of the full-sample model is robust and reliable. The results are shown in Table 7.

4.2.2. Propensity Score Matching Estimates. Since Internet use is a binary selection variable and will cause a selection bias problem, this paper uses the propensity score matching method (PSM) to make corrections. The sample balance test results of propensity score matching show that the standard deviation(%bias) of the most variables after matching are less than 10%, and the results are significantly reduced compared to the before matching. It shows that the individual bias between the internet-using group and the unused group are greatly eliminated after controlling the selection bias by using the propensity score matching method. This article aims to examine the effect of Internet use on entrepreneurial activities. In this section, this analysis will estimate the average treatment on treated (ATT) effect. The average treatment on treated (ATT) evaluates outcomes for those who received the treatment. In this case, it estimates probability of entrepreneurship for those who actually using the Internet. The ATT requires that entrepreneurship before using Internet be the same between groups, and not

TABLE 3: Internet use and entrepreneurship: the instrumental variable method.

Variable	Eprobit model		Ivprobit model	
	Entrepreneurial activities	Internet use	Entrepreneurial activities	Internet use
Internet use	0.8417*** (0.0922)		1.0799*** (0.1375)	
Instrumental variable (IV)		1.0185*** (0.0161)		0.7570*** (0.0180)
Control variables	Yes	Yes	Yes	Yes
Corr/Cragg-Donald Wald F	−0.2425***		33.97***	
N	14446		14446	

Note. *, **, and *** represent 10%, 5%, and 1% levels, respectively; Corr test is for Eprobit model and Wald test is for Ivprobit model; robust standard errors are reported in parentheses.

TABLE 4: Internet use and entrepreneurship: heterogeneity analysis.

Variable	By registered permanent residence		By work experience		By generation difference	
	Urban residents	Rural residents	Have	Haven't	Millennials	Generation X
Internet use	0.303 (0.202)	0.918*** (0.106)	0.832*** (0.098)	0.420 (0.323)	0.817*** (0.208)	0.769*** (0.108)
Control variable	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−4.313*** (0.434)	−5.569*** (0.278)	−5.180*** (0.235)	−4.669*** (0.847)	−4.777*** (0.401)	−5.156*** (0.279)
Pseudo R^2	0.0510	0.0923	0.0722	0.0507	0.0853	0.0801
N	4318	10331	12546	2101	4172	9925

Note. *, **, and *** represent 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses.

TABLE 5: Internet use, mediators, and entrepreneurship.

Variable	Model (1)	Model (2)	Model (3)	Model (4)
Internet use	0.480*** (0.029)	0.703*** (0.095)	0.659*** (0.113)	0.702*** (0.096)
Mediators				
Learning ability	0.335*** (0.029)			
Social capital		0.029*** (0.008)		
Income			0.038*** (0.010)	
Financial products investment				0.280** (0.125)
Control variable	Yes	Yes	Yes	Yes
Pseudo R^2	0.1060	0.0889	0.0935	0.0880
N	14606	14560	10389	14607

Note. *, **, and *** represent 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses.

TABLE 6: Internet use and mediators: mechanism analysis.

Variable	Model (1) Learning ability	Model (2) Social capital	Model (3) Income	Model (4) Financial investment
Internet use	0.879*** (0.038)	0.468*** (0.071)	1.473*** (0.106)	1.181*** (0.185)
Control variable	Yes	Yes	Yes	Yes
R2	0.0124	0.0336	0.2460	0.2014
N	7071	16106	11931	16154

Note. *, **, and *** represent 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses. Model (1) and model (3) are OLS regression, which is corresponding to R-squared; model (2) and model (4) are logit regression, which is corresponding to pseudo R-squared.

TABLE 7: Subdivided sample analysis and substitution of internet use.

	Model (1)	Model (2)	Model (3)	Model (4)
Sub-dimension1: by mobile phone	0.054 (0.076)			
Sub-dimension2: by PC		0.454*** (0.079)		
Sub-dimension3: by mobile phone and PC			0.479*** (0.078)	
Internet use intensity				0.142*** (0.049)
Control variable	Yes	Yes	Yes	Yes
Pseudo R^2	0.0799	0.0844	0.0849	0.0646
N	14608	14608	14608	6521

Note. *, **, and *** represent 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses.

entrepreneurship after using Internet. If an individual knows he will have an advantage after using Internet, he might be more likely to use the Internet. The ATT allows for entrepreneurship after using Internet to differ systematically. As shown in Table 8, the nearest neighbor matching, radius matching and kernel matching all point to a significant positive effect on entrepreneurial activities in China.

4.2.3. Regression Analysis after Reducing the Sample Size. The results of empirical study above are based on the full-sample estimation. However, considering the economic growth gaps between various regions, Internet use is likely to have a selection effect of the cities on people's entrepreneurial activities. For example, in the eastern first-tier cities, the Internet penetration rate is quite high compared to other cities, and it is likely to have an impact on entrepreneurship. On the basis of the benchmark model analysis, we further exclude samples from Beijing, Shanghai, Guangzhou, Shenzhen and other large cities in the eastern area and use Logit model. As shown in Table 9, model (1) indicates that Internet use still has a significant positive impact on entrepreneurship.

4.2.4. Alternative Model Estimates of Internet Use on Entrepreneurship. In this section, we replace the logical distribution assumption in the logit model with the normal distribution assumption in the Probit model. In addition, we also use OLS method to estimate the impact of Internet use on entrepreneurship. As shown in Table 9, model (2) indicates that the regression coefficients of the core explanatory variable, Internet use, is significantly positive in all models, illustrating that the estimation results are stable.

5. Discussion

This paper finds that the impact of Internet use on entrepreneurship has a significant heterogeneity. Regarding urban and rural differences, urban areas have more complete construction of information infrastructure and much broader Internet connectivity, which might decrease the sensitivity and significance to taking Internet use as a measure of their economic behavior. In contrast, Internet infrastructure and connectivity in rural areas are left behind, which mostly limits the scale and frequency of rural residents' Internet use. Thus, Internet use for total capability of rural residents to promote information acquisition and broaden financing channels might be more significant than those in urban area.

Moreover, work experience is likely to support individuals to gain primitive wealth and social capital, which is conducive to strengthening the ability to resist social risks. In this case, findings of this study suggest that Internet use, which has been viewed as a comprehensive skill, has the advantage of maximizing the utility for individuals with work experience, and thus, it also helps to encourage more workers to engage in entrepreneurial activities.

In terms of the generation gaps, the impacts of Internet use on entrepreneurship are likely to be more significant among millennials compared with the older generation. On the one hand, millennials are the young labour-force of entrepreneurship. They are eager to learn new things, embracing latest thoughts and adapting the new circumstances. On the other hand, the frequency of Internet use has been much lower than millennials. Therefore, the "marginal contribution" of the old generation is greater, which in turn is conducive to promoting entrepreneurial activities. However, the older generation, who has formed their family and kept the relatively stable jobs, tend to averse the risks. Thus, older generation has less enthusiasm for engaging in entrepreneurship and they are likely to decrease their financial investment in a long run.

In addition, findings of this study show four mechanisms of Internet use on entrepreneurship, they are the effect of learning ability, social capital accumulation, income and financial investment. As we all know, resource integration, information acquisition and handling all kinds of risks are the basic capacities to become an entrepreneur, and all of these characteristics have to be developed by improving their learning ability. Learning ability has been treated as one of the important parts of human capital, and it is also an essential way for the human capital accumulation. Further, Internet use helps to dig potential learning ability, which also motivate people to engage in entrepreneurial activities. Therefore, the probability of the entrepreneurship can be increased by using the Internet.

TABLE 8: Propensity score matching estimates of the average treatment on treated effect of Internet use on entrepreneurship.

Matching methods	Sample	Treated	Control	ATT	Std (ATT)	t-test($|t|$)
The nearest neighbor matching	Unmatched	0.098	0.037	0.061	0.005	12.53***
	Matched	0.098	0.052	0.046	0.011	4.23***
Radius matching	Unmatched	0.098	0.037	0.061	0.004	12.53***
	Matched	0.098	0.058	0.040	0.008	4.78***
Kernel matching	Unmatched	0.098	0.037	0.061	0.004	12.53***
	Matched	0.098	0.065	0.033	0.007	5.01***

Note. Nearest neighbor matching adopts one-to-one matching; radius matching uses all neighbors within a caliper of 0.01; Kernel matching takes a weighted average of all matches within a bandwidth; *, **, and *** represent 10%, 5%, and 1% levels, respectively.

TABLE 9: Analysis after reducing the sample size and the alternative model estimation.

Variable	Model (1) Exclude large cities (Beijing, Shanghai, etc.)	Model (2) Probit	Model (3) OLS
Internet use	0.7265***	0.3355***	0.0363***
	(0.0982)	(0.0447)	(0.0047)
Control variable	Yes	Yes	Yes
Pseudo R^2	0.0857	0.0877	0.0471
N	13458	14608	14608

Note. *, **, and *** represent 10%, 5%, and 1% levels, respectively.

In digital era, Internet use has promoted the formation of social capital though gathering social resources and social relationships. It also causes the reduction of digital divide and the increase of digital dividend. With the expansion of Internet economy, digital dividend is likely to be triggered by the increase of social relations, which also helps to raise the chances to engage in entrepreneurship for individuals. Therefore, Internet use has an indirect impact on promoting entrepreneurial activities by stimulating social capital accumulation. Existing literature has shown that Internet use can not only increase the income, but also has a significantly positive effect on reducing the wage gap between different sex. On one hand, using the Internet can helps to improve competitive strength in the workplace, which also has a significantly positive effect on increasing the income. On the other hand, individuals are likely to have more tendency to engage in entrepreneurial activities on the condition that their income has been increased.

Finally, Internet use is likely to promote the development of financial investment. Because taking risks has been one of the special characters of socialization for human beings, and thus, the rapid growth of the financial investment has become a prominent feature of Internet economy. Moreover, entrepreneurship in nature has been an important component of venture capital. It is necessary to cultivating adventurous spirit for individuals to start a business. Financial investment not only has a positive influence on raising the enthusiasm of venture capital, but also helps to follow the trend of Internet economy for individuals, enhancing their social adaptability for entrepreneurship. Therefore, Internet use can promote entrepreneurial activities by increasing the probability to buy financial products.

6. Conclusions

Based on 2016 data from the China Labour-force Dynamics Survey, the present paper examines the impact of Internet use on entrepreneurship and its transmission mechanism, providing a deeper analysis for investigating people's entrepreneurship in the digital era. The results prove that Internet use has a significant positive impact on promoting individuals' entrepreneurial activities. The impact of Internet use on individuals' entrepreneurship is heterogeneous among different population in China; that is, Internet use has a greater positive effect on entrepreneurship of people who have work experience, rural residents and millennials. Mechanism analysis shows that Internet use not only has a significant effect on promoting financial investment, increasing individuals' social capital and income, but also helps to develop their learning ability, and further motivate entrepreneurial activities.

With the development of China's digital economy, Internet use has become one of the common choices for Chinese workers engaging in the socio-economical activities. This paper has driven a further study to Chinese entrepreneurial activities. It shows that Internet use has a significant positive influence on individuals' entrepreneurial choices, which suggests that the way to expand Internet use access and scale, reducing the cost of Internet use and simultaneously improving its convenience are likely to drive entrepreneurial activities. Second, in terms of heterogeneity among individuals with different characteristics, educational polices for teaching digital skills, Internet use training programs and strengthening digital work experience, in particular among rural workers, millennials are likely to enhance individuals' socio-economic effects of Internet use. Third, based on the analysis of indirect effects of Internet use

on entrepreneurship, cultivating individuals' entrepreneurship, the prevention of risk awareness, expanding social capital and income source channels, attaching importance to shape individuals' learning abilities and human capital are expected public services policies to strengthen endogenous power for individuals' entrepreneurship.

Data Availability

The data that support the findings of this study are available on request from the corresponding author upon reasonable request.

Consent

Not applicable.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

Deshui Zhou designed the study and conducted the primary statistical analysis. Jiajing Wang and Deshui Zhou contributed to the writing. All authors contributed to the revisions.

Acknowledgments

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