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Ma, H., Zhang, Y.C., Barbe, F.G.T. et al. (2025) Psychological capital and the entrepreneurial performance of migrant workers: intermediary role of entrepreneurial opportunity identification. China Agricultural Economic Review, 17 (2). pp. 303-324. ISSN: 1756-137X

https://doi.org/10.1108/caer-01-2024-0001

Psychological Capital and the Entrepreneurial Performance of Migrant Workers: Intermediary Role of Entrepreneurial Opportunity Identification

Abstract: Migrant entrepreneurship is playing an important role in boosting China's rural revitalization strategy. Psychological capital and entrepreneurial opportunity identification have a positive impact on individual growth, and they may have a positive impact on entrepreneurial performance. With the rise of knowledge economy and the advent of the information age fueled by the fourth industrial revolution, the study of psychological capital and role of entrepreneurial opportunity identification becomes more prominent. This paper conducts a theoretical analysis of psychological capital, entrepreneurial opportunity identification and entrepreneurial performance, and proposes a theoretical model of entrepreneurial opportunity identification acting as the intermediary role between psychological capital and entrepreneurial performance of migrant workers. Based on the data collected from 899 rural households in Shaanxi Province, a Structural Equation Model and a Bootstrap method are used to verify the association between psychological capital, entrepreneurial opportunity identification and entrepreneurial performance. Quantitative data suggests that both entrepreneurial opportunity identification and psychological capital are conducive to the improvement of entrepreneurial performance. However, the entrepreneurial opportunity identification is found to exert a more significant impact on the entrepreneurial performance of migrant workers than psychological capital does. Findings have also revealed that the intermediary role of entrepreneurial opportunity identification is more prominent in the relationship of adventure and innovation and the entrepreneurial performance of migrant workers than that of self-confidence and optimism and entrepreneurial performance of migrant workers.

Drawing on primary and secondary data, this paper has revealed that for entrepreneurial performance and economic reintegration of returning migrants to be successful, the local government through policies needs to invest in education to improve human capital. In addition, the government needs to put policies in place and mechanisms on the ground to ensure that migrant entrepreneurs have access to finance, social security, housing, and infrastructure.

Keywords: Psychological capital; Entrepreneurial opportunity recognition; Entrepreneurial performance; Migrant workers; China.

Introduction

In China, job creation and economic growth has been high on the policy agenda. Under the background of new urbanization, the new generation of migrant workers has become an increasingly important part of China's modern industry. This new social phenomenon has been recognized and supported by a government that aims at stimulating sustainable business growth in underdeveloped rural areas (Ma, Topolansky and Zhang 2018).

To encourage migrant workers to return home and start their own businesses, the Chinese central government has issued a number of preferential policies. These types of policies have been adopted by several countries to support particular ethnic groups. Under the guidance of these policies, the number of migrant workers returning home has continued to increase. According to data from the National Bureau of Statistics of China, more than 30 million migrant workers returned home in 2020, and 11.2 million people returned to the countryside in 2022. In fact, 75% of migrant workers are now living and working in their own province. For example, provinces like Henan and Shaanxi have become major centres of activism and unrest (China Labour Bulletin 2022). This is a substantial increase of 43.59% compared to 2018. After returning to their hometowns, these migrant workers generally choose to start businesses, which ultimately create jobs in the local area. In spite of their contribution to economic growth, migrant workers'limited access to education has affected their psychological capital and entrepreneurial performance (China Labour Bulletin 2022, Lu, Zhou, and Liu 2023, Huang et al., 2024).

Migrant workers in China refer to those who were born in the 1980s, have rural household registration records, but do not engage in agricultural activities in rural areas. A large number of migrant workers grew up or were born in the city.. However, due to the inflexibility of the household registration system, they remain classified as rural migrants (China Labour Bulletin 2022). They are characterized for having a clear plan for their future careers, being risk takers, and creative.. Because of their attitude and life values, migrant workers have made great contributions to urban construction and social and economic development (Yu, Mai, Tsai, and Dai 2018). It has to be noted that there are differences between generations of migrant workers (Zhao, Liu and Zhang 2018). The new generation differentiates from their predecessors for being more individualistic, having a weakening connection with the countryside but stronger engagement with urban life (Lin and Graefe 2019).

There is not a unified definition for migrant workers' entrepreneurship. Based on the research results of Mcmullen and Shepherd (2006), this paper views migrant workers as those who have broadened their horizons from working in the urban cities, improved their talents, accumulated start-up funds, mastered certain information and technology, returned to their hometowns, and established industrial and commercial enterprises in their hometown, or engaged in agricultural management and development. The herein mentioned "Entrepreneurship" refers to both, large-scale social enterprises and small business startups such as restaurants and shops, from agricultural to non-agricultural production activities.

Entrepreneurship has been a driving force in creating employment opportunities in needed areas (Munshi 2004; Stathopoulou, Psaltopoulos, and Skuras 2004). Migrant workers can use their accumulated knowhow, experience, and technological knowledge

to start their own businesses when they return to their hometowns, which, can effectively, improve the quality of urbanization, and promote new forms of businesses (Liu 2013). For example, in rural areas, 70% of new businesses have been created by returning migrant workers. On average, rural entrepreneurship projects can engage 6.3% farmers in stable employment, 17.3% farmers into flexible employment, and create new growth points both for increasing rural employment and promoting rural economic development (Xue et al., 2023).

The quality of China's entrepreneurial activities has been improved. However, there is a factor preventing migrant workers from achieving their full potential. The low level of education and lack of resources are limiting the potential of migrant workers' entrepreneurship (Xiong 2009, Huang 2011, Zhu and Kang, 2013; Zhang, Li, Frenkel, and Zhang 2019). Hence, it is more difficult for migrant workers to start a business when compared with other entrepreneurs. Less than 30% of migrant workers can succeed in business and their performance is generally low (Huang 2011, Trappel 2021). Therefore, exploring the entrepreneurial performance and its influence mechanism of migrant workers are critical to solve their entrepreneurial dilemmas.

The entrepreneurial performance of migrant workers' is influenced by many factors such as entrepreneurial motivation, and social network (Luo and Chen 2014; Zhang, Zhang, and Wang 2015). Entrepreneurship, viewed as a high-risk, competitive, and challenging activity, puts high demands on the entrepreneurs' psychological endurance and ability to grasp opportunities (Knaup 2005; Li 2017). Although migrant workers in China have less human capital and social capital than migrant workers from developed countries, their tough living environment from childhood has developed their perseverance, courage, optimism, and positive psychological capital (Ma 2016; Ma, Topolansky, and Zhang 2018).

Psychological capital is a positive psychological state manifested in the process of individual growth, development, and performance (Luthans, Youssef, and Avolio 2007). Hmieleski and Baron (2009) pointed out that entrepreneurial psychological capital

could explain entrepreneurial performance more effectively than human capital and social capital.

Entrepreneurial opportunity identification is the process by which entrepreneurs systematically collect, process, and identify entrepreneurial information (Shaver and Scott 1991; Shane and Venkataraman 2000; Robinson, Shaver, and Wrightsman 1991). As the starting point of entrepreneurial activities, entrepreneurial opportunity identification plays a decisive role in entrepreneurial performance (Clark, Alvarez, and Barney 2003; Gruber, MacMillan, and Thompson 2008; Liu, Hu, and Xu 2010).

There is limited research on the association of entrepreneurial performance with different dimensions of psychological capital and how these dimensions affect the entrepreneurial performance of migrant workers. Based on the data collected from 899 rural households this research will partially address this gap in knowledge by assessing the influence of psychological capital and entrepreneurial opportunity identification on the entrepreneurial performance of migrant workers in Shaanxi province.

To organize the discussion, this paper uses a structural equation model, to systematically explore the influence mechanisms of psychological capital and entrepreneurial opportunity identification on the entrepreneurial performance of migrant workers. Compared with previous studies, the paper mainly focuses on the following two aspects. Firstly, this paper breaks down the psychological capital of migrant workers into different dimensions by using factor analysis method. Secondly, this paper verifies the relationship between the psychological capital, entrepreneurial opportunities identification and the entrepreneurial performance of migrant workers by using a structural equation model. This understanding can help policymakers to deploy strategic resources to improve on areas of want and propel regions into higher levels of economic prosperity (Hechavarria and Ingram 2014).

Research suggests that the potential of psychological capital in boosting the economy of a country will be affected by the context within which businesses operate. This is

why this paper not only investigates psychological capital but also produces a set of policy recommendations to help developing a good “entrepreneurial ecosystem” that maximises the potential of psychological capital (Roundy and Fayard 2019, Shane and Venkataran 2000). This is paramount for developing regions within countries because of human capital externalities which allows for knowledge to be transmitted across people without being paid for (Spilling 1996, Marvel, Davis and Sproul 2016).

The next section covers the theoretical analysis and hypothesis proposal, followed by the introduction and justification of data collection, survey sampling, and measurement of related variables.

Theory and Hypotheses

Psychological capital of migrant workers

Psychological capital is a relatively new concept defined as the core psychological aspects of an individual’s general enthusiasm (Luthans, Youssef, and Avolio 2007). Luthans and Jenson (2005) and Avolio (2005) further deepened the concept by proposing that psychological capital is not only a state of mind, but also a positive psychological state, including hope, optimism, self-efficacy, and resilience. Gao and Jiang (2014) expanded the analysis of entrepreneurial psychology capital, identifying seven key components: self-efficacy, optimistic hope, active response, positive growth, passionate innovation, keen excellence, and social wisdom. In line with these papers, Ma (2016) measures the psychological capital of the new generation of migrant workers from the perspective of three dimensions: risk and innovation, self-efficacy and entrepreneurial happiness. The most established measurement tool to date is the PCQ-24 scale developed by Luthans, Luthans, and Luthans (2004), which defines psychological capital thorugh four dimensions: confidence, hope, resilience, and optimism.

This paper agrees that the psychological capital of migrant workers is a positive psychological state that helps them to achieve their entrepreneurship potential. In designing measurement indexes to reflect the psychological characteristics of migrant workers, this paper also considers the particular characteristics of the migrant workers of China such as having a lower educational level, lacking sufficient resources or innovative spirit, and being risk averse. To ensure the measurement indexes comprehensively to cover the psychological capital of migrant workers entrepreneurs, this paper adds adventure and innovation to the existing measurement indexes of psychological capital. This research conducted a factor analysis to narrow down the dimensions used to measure the psychological capital of migrant workers. These dimensions are confidence and optimism, adventure, and innovation.

Entrepreneurial opportunity identification of migrant workers

Entrepreneurial opportunity identification has been widely acknowledged as an important aspect of the entrepreneurial process (Ardichvili and Gasparishvili 2003; Ozgen and Baron 2007). As the initial step to start an entrepreneurial process, entrepreneurial opportunity identification is the judgement made by business starters on whether an entrepreneurial opportunity exists. With the current hypercompetitive and changing environment, it is almost impossible to avoid entrepreneurial failure. In fact, many have claimed that failure improves the entrepreneur's ability to identify opportunities (Li and Chen 2020). Successful entrepreneurs will be those that are able to find an entrepreneurial opportunity, evaluate, and develop it (Hills, Lumpkin, and Sing 1997; Ardichvili and Gaspairshivili, 2003).

There are three ways of recognizing an entrepreneurial opportunity, these are: active search, passive search, and fortuitous discovery (Kirzner 1997). Chandler and Hanks

(1994) and Detienne and Chandler (2007) measured entrepreneurial opportunity identification by focusing on three factors: the number of identified opportunities; innovativeness of the identified opportunities; and the sequence of identified opportunities. Ozgen and Baron (2007) and Rong, Huang, and Shenkar (2011) measured entrepreneurial opportunities identification by concentrating on three separate factors: entrepreneurs' ability to sense the opportunities for potential new businesses, entrepreneurs' alertness and sensitivity to new business opportunities, and entrepreneurs' judgement of the potential new business opportunities. The paper holds the view that entrepreneurial opportunity identification of migrant workers in China is driven by the entrepreneurial environment and the entrepreneurs' entrepreneurial intentions (Duan, Wang, and Zhu 2012).

Migrant workers' entrepreneurial performance

There is no uniform standard to measure entrepreneurial performance. In entrepreneurial research, entrepreneurial performance has been used as a criterion to assess the effectiveness of a new business venture. In practice, some scholars adopt the organization measurement framework to evaluate the entrepreneurial performance. Murphy's (2011) study identified three frequently cited dimensions to measure entrepreneurial performance: efficiency, growth, and profit. Chrisman, Mcmullan, Ring, and Holt (2012) proposes that business survival and growth should be used as the measures to assess entrepreneurial performance. Wall, Wood, and Leach (2005), Haber and Reichel (2005) claim that entrepreneurial performance should also be measured by some objective criteria, such as market share, customer satisfaction, and relative profit. Other scholars have also supported the idea that entrepreneurial performance should be assessed by objective measures (Delmar, Davidson, and Gartner 2003; Zahra, Neubaum, and El-Hagrassey 2003; Lerner and Almor 2002).

In terms of specific metrics, Lerner and Almor (2002) suggest considering sales volume, asset income, investment profit, equity profit, market share, number of employees, and owner's income. However, Shen (2006) and Guo (2006) look at entrepreneurial performance from a different lens and emphasize the role of family businesses and disruptive ideas. According to these authors, entrepreneurial performance indicates the amounts of input and output that entrepreneurs acquire. Migrant workers' entrepreneurial performance should consider the role of the family. This is because the family tends to work together to expand their existing production scale and improve family income by selecting new business models. Zou and Huang (2014) conducted a study that considered the characteristics of Chinese migrant workers. The outcomes of this research indicate that entrepreneurial performance should consider housing construction expenditure, education expenditure relative to entrepreneurial income, and annual net income from entrepreneurship. Zhou, Duan and Zhu (2014) believe that the drive for entrepreneurship of Chinese migrant workers mainly lies in satisfying living needs, improving their living conditions, or adapting to the changing environment. It is extremely difficult for them to maximize profits. Hence, it is suggested to use social influence, employment, personal satisfaction, and profit as metrics to assess the entrepreneurial performance of migrant workers. The research proposes to measure the entrepreneurial performance of migrant workers by focusing on the annual profit of entrepreneurship. Ma, Topolansky and Zhang (2018) believe that the number of employees in the year together with annual income from the family business are the main metrics to evaluate the entrepreneurial performance of migrant workers. The underline argument is that the main drive for their entrepreneurship activity is to increase family income. Therefore, this study claims that employment, personal satisfaction, and profit should be the metrics to assess the entrepreneurial performance of migrant workers.

Psychological capital and the performance of migrant workers' entrepreneurship

Viewed as the premise of successful entrepreneurship, psychological capital plays a vital role in entrepreneurial practice and performance (Jin 2017; Yousaf et al., 2015; Mahfud, Triyono, Sudira, and Mulyani 2019). Seligman and Schulman (1986) corroborate that employees with optimistic psychological capital are more likely to achieve higher job performance. Individuals with psychological capital such as resilience, optimism, self-efficacy, innovation and hope, tend to have stronger commitment, which ultimately leads to improved profitability and performance (Cheng 2015; Luthans, Youssef, and Avolio 2007; Avey, Luthans, and Youssef 2008).

Ke, Sun, and Li (2009) signalize that in complex environments, psychological capital has a more positive impact on performance than human capital. Similar conclusions are drawn by Chen (2017) and Wang and Sun (2018) who suggest that the psychological capital of new migrant agricultural entrepreneurs has a significant positive impact on entrepreneurial performance. It is also believed that psychological capital has the capacity to predict the success or failure of migrant workers The higher the psychological capital, the higher the entrepreneurial performance. Migrant workers with stronger psychological capital, such as self-confidence and optimism, have the capacity to enhance their own ability and to be more productive with limited resources (Stajkovie and Luthans 1998).

The above is complemented by the study of Cheng (2015) who proposes that there is a significant positive correlation between resilience and expectation and entrepreneurial performance. In line with these studies, Wang and Sun (2018) emphasize that the spirit of innovation has a significant positive impact on entrepreneurial performance. The study also concluded that entrepreneurs' tendencies to risk-taking are also conducive to the improvement of innovation performance. Duan, Xu and Tian (2015) propose that self-confidence and optimism have a positive impact on farmers' entrepreneurial

performance.

Taking into consideration the main aspects covered in the literature, the following hypotheses are generated:*Hypothesis 1a: Risk and innovation in psychological capital have a significant positive impact on the performance of migrant workers.Hypothesis 1b: Self-confidence and optimism in psychological capital have a significant positive impact on the performance of migrant workers.*

Entrepreneurial opportunity identification and migrant workers' entrepreneurial performance

It is believed that entrepreneurial opportunity identification has a positive effect on entrepreneurial performance. The study of Wickham (1997) indicates that entrepreneurs with initiative will improve entrepreneurial performance. The entrepreneurial relationship network plays a significant role in identifying and creating entrepreneurial opportunities, which ultimately leads to entrepreneurial success.

Zhu and Kang (2015) and Ma (2016) state that entrepreneurial opportunity identification is an important factor affecting the performance of migrant workers returning to their hometowns. The influence of entrepreneurial motivation on growth has a stronger impact on entrepreneurial performance than that of entrepreneurship motivation on survival. In addition, Yang and Zou (2018) note that entrepreneurship opportunity identification is a prerequisite for the successful start of farmers' entrepreneurial activities. Results of this study also suggest that there is a widespread “herd effect” in the current process of migrant workers’ entrepreneurship, as some migrant workers often blindly follow the trend, lacking careful identification and grasp of entrepreneurial opportunities, which might lead to the generally low performance of migrant workers. Hence, the following hypothesis is generated:

Hypothesis 2: Entrepreneurial opportunity identification has a significant positive

impact on the migrant workers' entrepreneurial performance.

The mediating effect of entrepreneurial opportunity recognition

People with strong psychological control are more proactive and alert to entrepreneurial opportunities (Mueller and Thomas, 2001). Entrepreneurs' psychological capital has an impact on the entrepreneurial performance, with the entrepreneurial opportunity identification ability playing as an intermediate role (Niu 2015; Mueller and Thomas 2001; Luthans, Avey, Avolio, Norman, and Combs 2006). The study of Zou and Huang (2014) finds that the spirit of adventure has a positive impact on entrepreneurial performance. Chen (2017) claims that opportunity identification plays an intermediate role between creativity and entrepreneurial performance.

The research of Krueger and Dickson (1994) emphasize the positive role of self-confidence on entrepreneurial opportunity identification. Noticeably, entrepreneurs with strong self-confidence are more likely to recognize entrepreneurial opportunities. These results are in line with the work of Liu (2013) and Niu (2015) who alleged that entrepreneurs' confidence and optimism lead entrepreneurs to adapt their abilities to the environment, set higher goals for the company and be more proactive to improve business performance. Hence, the following hypothesis are generated:

Hypothesis 3a: Entrepreneurial opportunity identification plays a mediating role between migrant workers' adventure and innovation and their entrepreneurial performance.Hypothesis 3b: Entrepreneurial opportunity identification plays a mediating role between migrant workers' confidence and optimism and their entrepreneurial performance.

The above has reviewed empirical research on the main factors influencing

entrepreneurial performance. This assumes that the entrepreneurial success of migrant workers rests upon different aspects of entrepreneurship. Different authors highlight some aspects of entrepreneurship success over others. In developing the theoretical framework that underlines the current research, the authors of this paper have prioritized the context, culture, and characteristics of Chinese migrant workers. This is done in recognition that entrepreneurship as a contextualised activity must consider the socio-political conditions of the country in which the target sample operates. Based on these premises, we developed a conceptual framework (Figure 1) incorporating the main variables affecting Chinese migrant workers in a context of limited education and difficulties in accessing finance. Accordingly, we assume that adventure and innovation; confidence and optimism; and entrepreneurial opportunity identification are the main factors influencing the entrepreneurial performance of migrant workers in Shaanxi province.

"Insert here Figure 1".

Methods

The positivist research philosophy was adopted as the dominant paradigm to meet the objectives of this research.

Sampling and data collection

The data was collected through a questionnaire survey, which was conducted in urban areas of Shaanxi Province. The criterion used for selecting cities was their level of entrepreneurial activity. These cities, featured as urban villages, were considered ideal for migrant workers to live, and develop their businesses. A random sampling method was adopted, with 1-4 districts (counties) in each city. A total of 4 cities, and 11 districts (counties) were surveyed. The sampling strategy allowed collecting data where most

migrant workers entrepreneurs are located. Although urban areas serve as the predominant type of settlement for migrant workers involved in entrepreneurial activity, this sampling strategy has not excluded those who live in townships and rural villages.The survey was administered to 952 migrant workers who have already started their own businesses. Out of the 952 respondents, 889 were considered valid.

The response rate of the questionnaire was 94%. 216 respondents were from Ankang City (24.30%); 422 from Baoji City (47.47%); 45 from Tongchuan City (5.06%); and 206 from Weinan City (23.17%).

"Insert here Table 1."

Among those 889 valid respondents, males accounted for 49.8%, and females accounted for 50.2%. 61.8% of respondents were over 39 years old, indicating that the majority of migrant workers were born before 1980. Married accounted for 92.5%. 72.3% of participants had attained junior high school or high school education level, and among them, the junior high school education level accounted for 45.9%. This reflects the characteristics of the migrant workers of China.

"Insert here Table 2."

Survey

The survey consists of six parts, covering the context of the start-ups, social capital, psychological capital, opportunity recognition, perception of business environments, and entrepreneurial performance. To develop the questionnaire, good quality papers looking to unveil important aspects of entrepreneurship were selected and relevant

questions were adjusted to another research context. The cross-cultural adaptation was performed according to internationally recommended methodology, using the following guidelines: translation; back-translation; review; and pretesting.

Variable measures

Independent Variables - psychological capital of migrant workers. Informed by the research findings of Luthans and Jenson (2005), Avolio (2005), Luthans, Youssef, and Avolio (2007), the paper measured psychological capital of the new generation of migrant workers using a five-point Likert scale. The options given in the Likert scale ranged from 1 (never) to 5 (always). The following are examples of questions that helped to measure psychological capital: “Are you brave and adventurous enough to achieve success?”, “Are you able to keep optimistic no matter what happens?”, “Do you have enough courage to explore the business world?”, and “Is your business making you more confident?”.

This paper uses factor analysis to extract common factors. KMO test was conducted to verify the validity of the factor analysis. The statistical value was 0.869 (> 0.6), and the Bartlett test was significant (P=0.000), indicating that selected resources of psychological capital are suitable for factor extraction. Factors were extracted by orthogonal rotation through principal component analysis and maximum variance method. Table 3 shows the two common factors that have been extracted. The first dimension is named confidence and optimism, and the second dimension is named adventure and innovation.

Based on the reliability test and factor analysis results in table 3, theα reliability coefficient of nine measurement items of migrant workers' psychological capital is 0.873 (>0.7), indicating that the reliability of the measurement items is good. The load value of each index is greater than 0.5, and the cumulative contribution rate is 71.14%,

indicating that the measurement items of migrant workers' psychological capital have good validity.

"Insert here Table 3."

Intermediary Variables - entrepreneurial opportunity identification. Drawing on the research findings of Chandler and Hanks (1994), Shepherd and Detienne (2005), Ozgen and Baron (2007), and Rong, Huang, and Shenkar (2011), the paper selected three items to measure the migrant workers' entrepreneurial opportunity identification. The questions used in the survey were: "Can you find business opportunities earlier than others?", "Can you get enough resources from others?", "Are you clear with where your business is heading to?", and "Are you ready to burden the failure of your business?".

Based on the results of reliability test and factor analysis in Table 4, the α reliability coefficient of the measurement items is 0.716 (> 0.7), indicating that the reliability of the measurement items of migrant workers' entrepreneurial opportunity identification is good. A common factor, with a cumulative contribution rate of 63.869 % (>60%), has been extracted, and the factor load of each index is greater than 0.5, indicating that the validity of the measurement items of migrant workers' entrepreneurial opportunity identification is good.

Insert here Table 4

Dependent variable –migrant workers' entrepreneurial performance. Informed by the research findings of Delmar, Davidsson, and Gartner (2003), Zahra, Neubaum, and El-Hagrassey (2003), and Yang (2011), the paper selected five measurement items to measure the migrant workers' entrepreneurial performance. The survey collected data on profit and not for profit objectives.

Based on the results of reliability test and factor analysis in table 5, the α reliability coefficient of the measurement items is 0.836 (>0.7), indicating that the measurement items of migrant workers' entrepreneurial performance have good reliability. A common factor, with a cumulative contribution rate of 61.127 (>60%) was extracted, and the factor load of each index was greater than 0.5, indicating that the measurement items of the migrant workers' entrepreneurship performance have good validity. All the above measurement items were measured by using a five-point Likert scale.

Insert here Table5

Results and Discussion

Correlation analysis

This paper explores the relationship between psychological capital, entrepreneurial opportunity identification and entrepreneurial performance of migrant workers through several statistical analysis. It is revealed that there is a significant positive correlation between psychological capital and entrepreneurial performance at the level of 0.01, with the correlation coefficient being0.624 (P<0.01). It is also found that there is a significant positive correlation between entrepreneurial opportunity identification and entrepreneurial performance at the level of 0.01, and the correlation coefficient is 0.510 (P<0.01).

"Insert here Table 6."

Structural equation model building

Structural equation was deemed the most appropriate method to measure variables

and to analyse their relationships.

The structural equation model is as follows:

$$\eta = B\eta + \Gamma\xi + \zeta \quad (1)$$

$$X = \Lambda_x\xi + \delta \quad (2)$$

$$Y = \Lambda_y\eta + \varepsilon \quad (3)$$

Equation (1) is a structural equation. η $(\eta_{1,}\eta_2)^T$ represents the column vector of potential variables for internal factors, whereas ξ (ξ_1, ξ_1) represents the column vector of potential variables for external factors. B is the coefficient matrix of the potential variable for internal factors, while Γ is the coefficient matrix of the potential variable for external factors, and ζ is the residual vector. Equation (2) is a measurement model of the potential variable for external factors. X = (X1, ..., X9) ^{T} represents the column vector of the observed variables for external factors, whereas Λ_X is the coefficient matrix, δ as the error term, with ξ defined as above. Equation (3) is a measurement model of the potential variable for internal factors. Y= (Y1...Y8) ^{T} represents the column vector of the observed variables for internal factors, whereas Λ_Y represents the coefficient matrix, ε as the error term, with η defined as above.

ξ1 refers to adventure and innovation (potential variable for external factors): the observed variables are X_1=*your courage and spirit of adventure will help you achieve success*; X_2= *you don't like to be a conservative person, but like to bring your breakthrough ideas to life*; X_3= *being courageous, you are a man who dares to do it*; X_4=*when facing problems, you like to try solutions that you have never used before*. ξ 2 refers to confidence and optimism (potential variable for external factors): the observed variables are X_5 = *even when your mood is low, you can stick to your goals*; X_6 = *you can face difficulties and frustrations calmly*; X_7= *if you encounter something unsatisfactory, you can face it with peace of mind*; X_8=*you can maintain an optimistic attitude under any circumstances*; X_9= *you believe that you can effectively cope with*

any unexpected things. η1 refers to the entrepreneurial opportunity identification (potential variable for internal factors): the observed variables are Y_1= *when you plan to start a business, you always find business opportunities before others*; Y_2= *when you plan to start a business, you already have or can get enough resources*; Y_3 = *when you plan to start a business, you know exactly what to do and how to do it.* η2 refers to the migrant workers' entrepreneurial performance (potential variables for internal factors): the observed variables are Y_4= *the overall operation of your business is in good condition;* Y_5= *your business is profitable*; Y_6= *your business is expanding its market share*; Y_7=*you have achieved the goals you set*; Y_8= *your personal income is much higher than before.*

Model fitness test

The model fitness index is used to assess whether the hypothetical path analysis model map is compatible with the collected data (Wu 2010). Using Amos 21.0 software, this research measures the fitness of the structural equation model using three indexes: absolute fitness index, value-added fitness index and simple fitness index (see Table 7).

"Insert here Table 7."

Table 7 shows that *Absolute fitness index*: GFI=0.946 (>0.9); AGFI=0.926 (>0.90); RMR=0.054 (<0.08); and RMSEA=0.056 (<0.08). It can be seen that all indexes meet the fitting standard except for RMR due to the fitting standard of residual mean square root (RMR). However, according to Qin and Chen (2006), the model could be acceptable when RMR is less than 0.08. In terms of *Value-added fitness index*: NFI=0.947 (>0.90); RFI=0.936 (>0.90); IFI=0.960 (>0.90); and CFI=0.960 (>0.90), all indexes meet the adaptation standard. As to Simple fitting index: PGFI=0.693 (>0.5); PNFI=0.780 (>0.5); and CMIN/ DF = 3.804 (<5), each index has reached the adaptation standard. This indicates that the model has a good fit. Therefore, the hypothetical path analysis model map is compatible with the collected data.

Analysis

The impact of psychological capital and entrepreneurial opportunity identification on migrant workers' entrepreneurial performance

Table 8 below presents the test results of the structural equation model on psychological capital, entrepreneurial opportunity identification and migrant workers' entrepreneurial performance.

"Insert here Table 8."

As can be seen from table 8, the load values of all variables are greater than 0.5, $P<0.001$, except for variables of *risk and innovation-> X_1 (Being courageous and adventurous enable you to succeed)*, *self-confidence and optimism -> X_5 (Even with low mood, you can stick to your own goals), entrepreneurial opportunities identification-> Y_1 (When you plan to start a business, you always find business opportunities before others), migrant workers entrepreneurial performance -> Y_4 (the overall operation of your business is in good condition).* This indicates that the observed variables of *adventure and innovation*, *self-confidence and optimism*, *entrepreneurial opportunity identification*, and *entrepreneurial performance* are in a stronger position to interpret their corresponding latent variables.

Findings indicate that the impact of risk and innovation on migrant workers' entrepreneurial performance is not significant. Therefore, the *Hypothesis 1a: Risk and innovation in psychological capital has a significant positive impact on the performance of migrant workers* is rejected.

Self-confidence and optimism have a direct positive effect on the entrepreneurial

performance of migrant workers, as the impact coefficient is 0.147 (*P<0.001*). Thus, *Hypothesis 1b: Self-confidence and optimism in psychological capital has a significant positive impact on the performance of migrant workers* is accepted.

Entrepreneurial opportunity identification has a significant positive impact on the entrepreneurial performance of migrant workers, as the impact coefficient is 0.336 *(P<0.001)*. Thus, *Hypothesis 2: Entrepreneurial opportunity identification has a significant positive impact on the migrant workers' entrepreneurial performance* is accepted.

In addition, both dimensions of psychological capital, *risk and innovation; self-confidence and optimism,* have a significant positive impact on the migrant workers' entrepreneurial opportunity identification, as the impact coefficients are 0.271 and 0.363 respectively, with *P<0.001*.

Mediating effect of entrepreneurial opportunity identification

Table 9 presents the results of the standard path coefficient parameters of the influence of psychological capital on migrant workers' entrepreneurial performance. The indirect effect coefficient of *risk and innovation* on the entrepreneurial performance of migrant workers is 0.107, *P <0.001*, and the 95% confidence interval does not include 0. However, the direct effect is not significant, indicating that entrepreneurial opportunity identification plays an intermediary role between *risk and innovation* and migrant workers' entrepreneurial performance. Therefore, the *Hypothesis 3a: Entrepreneurial opportunity identification plays a mediating role between migrant workers' adventure and innovation and their entrepreneurial performance* is accepted. The indirect effect coefficient of *self-confidence and optimism* on the entrepreneurial performance of

migrant workers is 0.152, *P <0.001*, and the 95% confidence interval does not include 0. However, the direct effect is also significant, with the direct effect coefficient being 0.152. This indicates that entrepreneurial opportunity recognition plays a partial intermediary role between *self-confidence and optimism* and migrant workers' entrepreneurial performance. Therefore, the *Hypothesis 3b: Entrepreneurial opportunity identification plays a mediating role between migrant workers' confidence and optimism and their entrepreneurial performance* is accepted.

"Insert here Table 9."

Policy implications

The analysis below draws from both secondary and primary data.

The rising number of returning migrants has prompted the Chinese government to develop policies aimed at supporting them. These include financial support for migrants to start up new businesses, tax incentives, access to social insurance and skills training. In 2016, the Ministry of Human Resources and Social Security implemented a 5-year plan for returning migrant workers including entrepreneurship training and capacity building initiatives. This is in recognition that returning migrants can act as key agents for economic and social change in their hometowns. One of the economic benefits is the possibility to bridge the rural-urban divide (Lu & Xia, 2016).

Despite government support, returning migrants efforts to start a business often fail due to insufficient financial capital. Because of this, some consider migrating again. Financial support for migrant workers to start businesses tend to fail due to the complex application processes and the high personal contribution requirements. The majority of returning migrants have limited savings and cannot afford the 50% loan's overall amount required by the government scheme (Chen et al., 2018).

Labour market reintegration has proved to be very difficult for those returning migrants with low educational and skills levels. Despite government efforts, the limited number of opportunities for skill development has prevented migrants from securing high-paying jobs to improve their livelihoods. To thrive in the labour market, they require continuous, customized vocational education and skills training from the government to enhance their market competitiveness. Training programs should be adapted to the educational background, skills, and specific needs of migrant workers to help them

acquire relevant skills for the future. A standardized approach is inadequate for developing the skills and competencies of all returning migrants.

The local government needs to address the above challenges to ensure a sustainable reintegration. Therefore, governments at all levels should focus on promoting education and skills training, providing access to affordable financing, offering entrepreneurship guidance, facilitating information sharing, and ensuring the integrated delivery of social insurance and support services.

One area that needs improvement is the dissemination of information. Lack of dissemination of information has prevented returning migrants to know about training opportunities available to them (Yunsong and Zhang, 2015). Effective information dissemination is crucial to ensure that migrant workers are aware of available policies, programs, and opportunities.

By easing migrants access to capital and reducing administrative fees, the local government can greatly improve their capacity to start businesses and engage in entrepreneurial activities. Current entrepreneurship grants, to migrant workers, fall short due to limited financial availability and challenges in accessing it. An enabling tax policy should be designed to encourage the establishment of start-ups. In addition, business incubation centers can help returnees to access a full range of services and resources for their business activities.

Conclusions

Through analyzing the data collected from 889 migrant workers in Shaanxi Province of China, and using structural equation model and Bootstrap method, the paper explores the extent of influence and influence path of psychological capital and entrepreneurial opportunity identification on the entrepreneurial performance of migrant workers. This paper has made the following conclusions.

Firstly, this study has revealed that self-confidence and optimism in psychological capital has a direct positive impact on the entrepreneurial performance of migrant workers, while risk and innovation have no direct impact on the entrepreneurial performance of migrant workers. However, results indicate that migrant workers who are courageous and dare to try new things can often find business opportunities before

others. For example, a small number of migrant workers (0.8% surveyed) dare to try a new business venture such as e-commerce business. The majority of migrant workers' entrepreneurial activities are focused on the traditional businesses with a purpose to gain stable incomes for their families.

Secondly, analysis of quantitative data suggests that entrepreneurial opportunity identification has a significant positive impact on the entrepreneurial performance of migrant workers. In addition, it has a greater impact than psychological capital. It indicates that identifying and seizing the entrepreneurial opportunity is critical for migrant workers entrepreneurs. Therefore, strengthening migrant workers' ability to identify the entrepreneurial opportunities plays a significant role to improve their entrepreneurial performance.

Thirdly , this research found out that entrepreneurial opportunity identification plays a mediating role in the impact of psychological capital on the migrant workers' entrepreneurial performance. In addition, entrepreneurial opportunity identification plays an intermediary role between *risk and innovation* and migrant workers' entrepreneurial performance, a partial intermediary role between self-confidence and optimism and migrant workers' entrepreneurial performance. This shows that migrant workers who are more adventurous and innovative might not be able to achieve better entrepreneurial performance than those who are less adventurous and innovative. However, their spirit of risk and innovation will drive them to actively seek ways to make money and acquire entrepreneurial resources. That will enable them to achieve higher performance in the long term. In contrast, migrant workers who have self-confidence and optimism are able to positively face the success or failure of entrepreneurship, persistently stick to their own goals, and try their utmost to achieve success. Such mentality can help migrant workers to develop clear business plans,

identify and seize entrepreneurial opportunities, and ultimately facilitate business operations and achieve entrepreneurial goals.

Moreover, this study suggests that comprehensive policies and programs must be established at local levels to facilitate returning migrants' successful reintegration into meaningful employment or self-employment. This environment should not only offer labour market opportunities but also ensure access to social services and safety nets. Most importantly, policies should focus on enhancing human capital and improving access to financial capital, as these are critical for building and strengthening the key assets needed to secure labour market opportunities.

Research contribution and limitations

This study has made significant contributions in the following areas. First, this paper constructs the measurement dimensions of migrant workers' psychological capital, entrepreneurial opportunity identification, and entrepreneurial performance within a Chinese context. Such contribution fills the literature gap of measurement scale of migrant workers' psychological capital, entrepreneurial opportunity identification, and entrepreneurial performance. Using the structural equation model, this study expands the research findings of Luthans (2007), Ardichvili and Gasparishvili (2003), Ozgen and Baron (2007), and Zhou, Duan, and Zhu (2014). In addition, it provides a theoretical foundation for future scholars who are interested in research on migrant workers' entrepreneurship.

Second, based on a large sample (889), this research empirically studies the extent of influence that dimensions of psychological capital and entrepreneurial opportunity identification have on migrant workers' entrepreneurial performance. Previous research on farmers' entrepreneurship mainly focus on personal and family endowment, venture capital, and entrepreneurial cognition (Luo 2015; Zhang, Zhang, and Wang 2015), ignoring the impact of psychological capital and entrepreneurial opportunity

identification on migrant workers' entrepreneurial performance. Therefore, this study contributes to supplement the literature gap in the empirical analysis of migrant workers' entrepreneurial performance from new perspectives of psychological capital and entrepreneurial opportunity identification.

Finally, through empirical analysis, this paper also highlights the discrepancies existing with regard to the impact on the migrants' entrepreneurial performance that dimensions of psychological capital and entrepreneurial opportunity identification impose. Additionally, the paper reveals that entrepreneurial opportunity identification has a mediating effect on both dimensions of migrant workers' psychological capital and entrepreneurial performance. This finding, to some extent, is in line with the findings of Liu (2013) who also recognize the intermediary role that entrepreneurial opportunity identification plays on psychological capital and entrepreneurial performance. However, the existence of two different dimensions of migrant workers' psychological capital, and their interaction with the entrepreneurial opportunity identification and entrepreneurial performance were underdeveloped. Hence, this study makes a contribution to knowledge by gaining a deeper understanding of the dimensions of psychological capital and how they might work with entrepreneurial opportunity identification to influence migrant workers' entrepreneurial performance. It is important to recognize that many more pathways could be explored between psychological capital and entrepreneurial performance in future research.

There is also a practical contribution of this research. In the first place, data analysis has revealed why migrant workers' entrepreneurial performance is generally low. A large number of migrant workers' entrepreneurial failure indicate that having ability to identify entrepreneurial opportunities cannot guarantee the success of entrepreneurship. Having strong psychological capital, being innovative, positive and optimistic are

essential qualities for entrepreneurs to achieve success in their entrepreneurial endeavor. In the second place, analysis of data has revealed that there is a shortage of migrant workers with innovative skills due to lack of knowledge and experience, entrepreneurial information and limited social resource. It is suggested that the government should be involved in the training of migrant workers. Tailored training courses need to be carefully developed and delivered to ensure that migrant workers have the required skills to develop start-ups. For example, enabling migrant workers to gain practical knowledge on entrepreneurship, marketing, strategy, business planning and finance. Along with training on soft skills, this would allow migrant entrepreneurs to identify more entrepreneurial opportunities, make good strategic decisions and improve their entrepreneurial performance. The government could also play an active role by incentivizing good entrepreneurs through rewards and by motivating them to try innovative business models.

Finally, some of the limitations of the study should be mentioned. The study has not considered different groups of migrant workers in terms of their psychological capital and entrepreneurial opportunity identification. Researches on migrant entrepreneur can explore the differences between varieties of groups of migrant workers, for example, in terms of their gender or age, and determine what policies or practices should be in place to improve their respective entrepreneurial performance. This study has adopted an empirical analysis approach. This approach might not reveal all the characteristics of migrant workers' entrepreneurship. Therefore, future studies may consider using case studies to address this limitation. The research focused on one province. This limited the representativeness and universality of the survey sample. Therefore, future research might focus on entrepreneurial performance in different regions of China.

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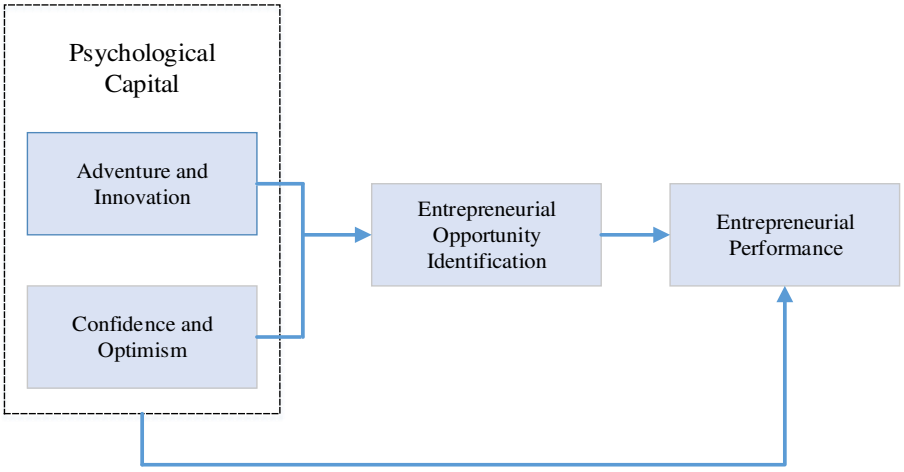
Tables and Figures

Theoretical Framework (Figure 1)



Sample distribution (Table 1)

City	District/County	Number of Samples	Total
Ankang City	Shiquan County	216	216
Baoji City	Chencang District	83	422
	Fengxiang County	129	
	Fufeng County	3	
	Mei County	89	

	Qishan County	118	
Tongchuan City	Wangyi District	45	45
	Baishui County	1	
	Fuping County	39	
Weinan City	Jingkai District	24	206
	Linwei District	142	
Total	11	889	889

Basic characteristics of the migrant workers of China（Table 2 ）

Characteristics	Project	Frequency	Percentage%
Gender	Female	446	50.2
	Male	443	49.8
Age	Under 18 years old	1	0.1
	19-23years old	26	2.9
	24-28years old	81	9.1
	29-33years old	95	10.7
	34-38years old	137	15.4
	39-44years old	146	16.4
	Over 44 years old	403	45.4
Marital status	Married	50	5.6
	Spinster	822	92.5
	Divorced	8	0.9
	Widowed	9	1
Degree of education	Illiteracy	38	4.3
	Primary school	103	11.6
	Junior high school	408	45.9
	Senior high school	235	26.4
	Vocational college	69	7.8
	University and above	36	4

Table created by author, 2024.

Rotation component matrix of migrant workers' psychological capital (Table 3).

Measurement Item	Ingredients	
	1	2
You can face difficulties and frustrations calmly.	0.857	0.158
If you encounter something unsatisfactory, you can face it with peace of mind.	0.854	0.105
You can maintain an optimistic attitude under any circumstances.	0.828	0.123
Even when your mood is low, you can stick to your goals.	0.794	0.200
You believe that you can effectively deal with any unexpected event.	0.777	0.193
You don't like to be too conservative, but like to break through existing things.	0.113	0.894
Being courageous, you are a man who dares to do it.	0.152	0.891
Your courage and spirit of adventure will help you achieve success.	0.106	0.884
Facing difficulties, you like to try solutions that you have never used before.	0.317	0.740
Cronbach 's Alpha Reliability Coefficient	0.873	
KMO Value	0.869	
Bartlett Spherical Test	0.000	
Cumulative Contribution Rate (%)	71.140	

Note: extraction method: main component; Rotation method: orthogonal rotation method with Kaiser Standardization; the rotation converges after three iterations.

Factor load of entrepreneurial opportunity identification (Table 4).

Measurement Item	Factor Load
When you plan to start a business, you already have or can get enough resources from others.	0. 815
When you plan to start a business, you know exactly what to do and how to do it.	0. 793

When you plan to start a business, you always find business opportunities before others.	0. 790
Cronbach 's Alpha Reliability Coefficient	0. 716
KMO Value	0. 678
Bartlett Spherical Test	0. 000
Cumulative Contribution Rate (%)	63. 869

Note: extraction method: main component; One component has been extracted.

Factor load of migrant workers' entrepreneurship performance (Table 5).

Measurement Item	Factor Load
The overall operation of your business is in good condition.	0. 858
Your business is in good profitability.	0. 858
Your personal income is much higher than before.	0. 752
You have achieved the goals you set.	0. 738
Your business market share (sales, business, etc.) is increasing.	0. 669
Cronbach 's Alpha Reliability Coefficient	0. 836
KMO Value	0. 761
Bartlett Spherical Test	0. 000
Cumulative Contribution Rate (%)	61. 127

Note: extraction method: main component; One component has been extracted.

Correlation analysis of psychological capital, entrepreneurial opportunity identification and entrepreneurial performance（Table 6 ）

variable		Entrepreneurial performance
Psychological capital	Person correlation	.624**
	Significance (bilateral)	0.000

Entrepreneurial opportunity identification	Person correlation	.510**
	Significance (bilateral)	0.000

Structural Model Fitting Indicators (Table 7).

Statistical test	Fitting index	Criteria or thresholds for adaptation
Absolute fitness index	Goodness of fit index（GFI）	>0.90 above
	Adjust goodness of fit index（AGFI）	>0.90 above
	Mean Square Root of Residual Error（RMR）	<0.05
	Root mean square of approximate error（RMSEA）	>0.05 (well adapted);> 0.08 (reasonable adaptation)
Value-added adaptation index	Normalized fitting index（NFI）	>0.90 above
	Relative fit index（RFI）	>0.90 above
	Value-added fitting index（IFI）	>0.90 above
	Comparison fit index（CFI）	>0.90 above
Simple fitness index	Simple-effect comparison adaptation index（PGFI）	>0.50 above
	Simple standard fitting index（PNFI）	>0.50 above
	Chi-square freedom ratio（CMIN/DF）	Acceptable at 1-5

Table created by author, 2022.

Model path and variable load estimation (Table 8).

Latent variable/observed variable	path	Latent variable	Standardization coefficient	S.E.	C.R.	P
Entrepreneurial opportunity identification	<---	Risk and innovation	0.271	0.041	6.083	***
Entrepreneurial opportunity identification	<---	Self-confidence and optimism	0.363	0.044	8.081	***
Migrant workers' entrepreneurial performance	<---	Risk and innovation	-0.042	0.048	-1.026	0.305
Migrant workers' entrepreneurial performance	<---	Self-confidence and optimism	0.147	0.054	3.431	***
Migrant workers' entrepreneurial performance	<---	Entrepreneurial opportunity identification	0.336	0.066	6.516	***
X_1	<---	Risk and innovation	0.711			
X_2	<---	Risk and innovation	0.871	0.051	24.545	***
X_3	<---	Risk and innovation	0.865	0.054	23.963	***
X_4	<---	Risk and innovation	0.852	0.053	23.468	***
X_5	<---	Self-confidence and optimism	0.734			
X_6	<---	Self-confidence and optimism	0.784	0.043	22.837	***
X_7	<---	Self-confidence and optimism	0.826	0.043	23.711	***
X_8	<---	Self-confidence and optimism	0.847	0.043	24.368	***
X_9	<---	Self-confidence and optimism	0.769	0.044	22.338	***

Y_1	<---	Entrepreneurial opportunity identification	0.660			
Y_2	<---	Entrepreneurial opportunity identification	0.716	0.07	14.699	***
Y_3	<---	Entrepreneurial opportunity identification	0.655	0.063	14.224	***
Y_4	<---	Migrant workers' entrepreneurial performance	0.902			
Y_5	<---	Migrant workers' entrepreneurial performance	0.930	0.029	36.658	***
Y_6	<---	Migrant workers' entrepreneurial performance	0.536	0.036	17.212	***
Y_7	<---	Migrant workers' entrepreneurial performance	0.525	0.04	16.718	***
Y_8	<---	Migrant workers' entrepreneurial performance	0.560	0.034	18.014	***

Table created by author, 2022.

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The role of entrepreneurial opportunity identification in the relationship between psychological capital and migrant workers' entrepreneurial performance (Table 9).

Independent variable	Direct effect coefficient	Indirect effect coefficient	Standard error	95% confidence interval	
				Lower limit	Upper limit
Risk and innovation	-0.042	0.107***	0.027	0.062	0.168
Self-confidence and optimism	0.147***	0.152***	0.033	0.096	0.227