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ORIGINAL SCIENTIFIC PAPER

Using Structural Equation Modeling in the Analysis of the Relationship Between Internal and External Factors and Women Entrepreneurs' Success

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A B S T R A C T

In modern business conditions, entrepreneurship, as a significant driver of economic growth and development, is also an important facilitator of women's empowerment in developed and developing countries. Taking into account the significant contribution of female entrepreneurship to economic development and, on the other hand, its contribution to the empowerment of women, the paper examines the factors that influence the success of female entrepreneurs in the Republic of Serbia. The effects of many factors on the success of women entrepreneurs have been the subject of numerous studies, but this study focused on internal and external factors, which are still largely unexplored, particularly in the Republic of Serbia. In this sense, the aim of this work is to determine whether internal and external factors have direct, positive, and significant effects on women entrepreneurs' success. The specific research aims are: 1) determining whether

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internal factors have a positive effect on women entrepreneurs' success and 2) determining whether external factors have a positive effect on women entrepreneurs' success. The causal relationships between observed variables were assessed using the Structural Equation Modeling method. The obtained results showed that both internal and external factors are significant determinants of women entrepreneurs' success. The results emphasize the need to motivate women to start their own businesses by organizing various educational courses and workshops and women's support programs by the government.

KEY WORDS: *women's entrepreneurship, need for achievement, self-confidence, risk-taking, economic factors, sociocultural factors, Republic of Serbia, SEM*

Introduction

Most countries in the world, at any level of development, promote entrepreneurship as a significant form of self-employment for men and women. The importance of this topic is indicated by the fact that a large number of authors deal with different aspects of entrepreneurship in their studies (Schneider, 2017; Haseeb et al., 2019; Mukha et al., 2021; Zelekha, 2021; Jović Bogdanović, Dimić, Vučić,2022;Marković et al., 2022). In that sense, the sector of small and medium enterprises (SME) is an important factor not only in the development of innovation but also in improving the competitiveness of countries, developing entrepreneurship, and increasing productivity (Milanović, 2020). One of the more precise definitions includes the term entrepreneur as a woman who owns at least 1% of the company, performs at least one management function in the company (marketing, finance, human resources), and is employed in the company. One of the more precise definitions of the term women entrepreneur means a woman who owns at least 1% of the company, performs at least one management function in the company (marketing, finance, human resources) and is employed in the company (Pantić-Popović, 2014).

Pérez-Pérez and Avilés-Hernández (2016) list four factors that influence women's decision to engage in entrepreneurship. The first factor is related to reasons of the internal type, which relate to women's motivation, concerns and desires. The second factor refers to reasons of an external type, such as the social and economic context. The third and fourth factors are related to cultural changes and women's development, and they include family reasons and reasons related to cultural changes. On the other hand, the success of female entrepreneurship, according to the results of studies by

different authors (Balogun et al., 2017; Meroño-Cerdán et al., 2018; Khan et al., 2021), is influenced by numerous factors. Khan et al. (2021) divide these factors into internal and external. The mentioned authors state the following as internal factors of the success of female entrepreneurship: the need for achievement, risk-taking, and self-confidence, and external factors, and, as external factors: economic and sociocultural factors.

One of the first and most extensively researched components of the empirical studies of female entrepreneurship is the motivational foundation for choosing it as a career path (Brush 1992; Holmquist & Carter 2009). The findings of the study imply that a variety of factors influence women's decision to choose self-employment as their labor market status. According to Apergis and Pekka-Economou (2010), all of those motives fall into one of the two major types of motives: the push (negative) motives group or the pull (positive) motives group. Carree, & Verheul (2012) cite negative motives for undertaking entrepreneurial activity: difficult working conditions at their current workplace, low family income, unemployment and similar reasons. On the other hand, the aforementioned authors cite positive factors: the possibility of higher earnings, better social status, professional success, a greater degree of independence and reasons similar to these. In most cases, according to Stošić et al. (2016) it is justified to talk about a combination of motives from these two groups, with the predominance of one of them. According to Stošić et al. (2016), it is usually appropriate to discuss a combination of these two groups' motivations, with one of them always having the upper hand. According to the findings of the study conducted by the aforementioned authors, women in the Republic of Serbia choose an entrepreneurial activity as a career path based on both push and pull motives, with pull motives predominating. As a result, it can be said that female entrepreneurship in the Republic of Serbia is more of a chance than a necessity. Four pull factors: economic freedom, better income, self-fulfillment and achievement, and personal development, as well as two push factors: job discontent and a lack of career prospects, were discovered to be the most important entrepreneurial motivators, according to Dahr et al. (2022).

Although the statistics in this area are insufficiently developed and incomplete, in Serbia, the most relevant source of data for the number of women's businesses is the Business Registers Agency. However, official data show how many women are in the formal status of entrepreneurs but not how many women among registered entrepreneurs actually manage their

businesses (Pantić-Popović, 2014). In Serbia, in the first six months of 2022, 25.816 business entities were founded, which is 4.520 more companies and entrepreneurs than in the same period of 2021, the Business Registers Agency announced. According to the data available from the Chamber of Commerce and Industry of Serbia, there are 31% of companies in Serbia that are owned by women, and 87% of them are satisfied because they entered the entrepreneurial world.

Previous research has focused on how crucial it is for women to have motivation, family support and self-confidence (Azmi, 2017), a lack of business skills (Muhammad et al., 2017), risk-taking and motivation (Abd Rani & Hashim, 2017), and culture, government policies, access to finance, and regulation (Muhammad et al., 2017), internal and external factors (Khan et al., 2021). The influence of many factors on the success of female entrepreneurs has been the subject of numerous research. However, external and internal (self-confidence, need for achievement and risk-taking) and external (economic and sociocultural) factors have still been insufficiently investigated in the Republic of Serbia. For this reason, the subject of this work is the analysis of the relationship between internal and external factors and women entrepreneurs' success using structural equation modeling. According to the research's subject, the research aims to determine whether these factors have direct, positive, and significant effects on women entrepreneurs' success, and the specific research aims are: 1) determining whether internal factors have a positive effect on the women entrepreneurs' success, and 2) determining whether external factors have a positive effect on women entrepreneurs' success.

The paper is structured as follows. After the introductory presentation, the second part presents an overview of the literature, which is relevant to the researched area and research hypotheses. The third part of the paper includes research methodology. This part of the paper presents the data, sample, questionnaire, variables, model, and analysis, as well as the results of the analysis. In the last part, the key conclusions of the research were drawn, possible limitations were pointed out and recommendations were given to future researchers.

Literature Review

During the last decades, there has been an increase in the number of female entrepreneurs on an annual basis (Rehman and Roomi, 2012).

However, despite this growth, there is still a small number of women who have succeeded in their business (Alam et al., 2011; Kallerber et al., 2017). As a complex phenomenon, entrepreneurial success is determined by numerous factors, primarily social, cultural, and economical, but also by education (Schneider, 2017). Marković et al. (2022) emphasize the importance of the education process to improve the well-being of men and women and encourage their entrepreneurial activity. This is supported by the fact that, before and during entrepreneurship, education and training are key determinants of maintaining the entrepreneurial spirit and business management (Pérez-Pérez and Avilés-Hernández, 2016). On the other hand, Sigdel (2016), in her study, obtained results according to which the level of education does not determine the type of business a female entrepreneur will engage in, nor does the legal ownership status of the company. Also, according to the results of the aforementioned study, the level of education does not affect the source of funds for starting a business owned by women, nor the support that women receive for starting a business.

Alam et al. (2011) point out that, considering that the businesses owned by women are very often small and grow slowly, women entrepreneurs do not consider themselves successful if their success is measured from an economic perspective. In addition, women subjectively perceive their business success in terms of balancing work and family, freedom to choose their own daily activity, reputation, and contribution to the community, children and the quality of life they provide for themselves (Fenwick and Hutton, 2000). Female entrepreneurs consider that they have achieved business success only if they manage to achieve a balance between the multiple roles they have, that is, the role in the business and the role in the family (Ibid).

Kalyani and Mounika (2016) cite internal and external factors as factors of the success of female entrepreneurship. Similarly, in their research on the success factors of female entrepreneurship in Pakistan, Khan et al. (2021) emphasize internal factors, which include: the need for achievement, risk-taking, and self-confidence, and external factors, which include economic and sociocultural factors, as success factors of female entrepreneurship.

The concept of motivation, according to McClelland (1988), includes three types of needs for achievement motivation: 1) the need for achievement, 2) the need for power, and 3) the need for belonging. Dewi et al. (2016) believe that the need for achievement is crucial for top managers.

Jayeoba et al. (2013) define the need for achievement as a source of motivation for the long-term business success of entrepreneurs. The results of some studies show that abilities, such as self-confidence and motivational strength, can help women become successful entrepreneurs (Abd Rani and Hashim, 2017; Azmi, 2017; Muhammad et al., 2017), while their need for achievement positively influences their business success (Khan et al., 2021). While making short-term and long-term decisions, self-confidence, as another internal factor, is of great importance for top managers. The results of certain studies have shown that self-confidence significantly and positively affects the business success of self-employed in developing countries (Balogun et al., 2017; Khan et al., 2021). Kirkwood (2009), researching female entrepreneurship in New Zealand, suggests that entrepreneurial self-confidence may differentially influence women's entrepreneurship. While for some women self-confidence records growth over time, it limits others, reducing their ability to access finance and their aspirations for growth.

Studies also indicate that risk-taking can positively influence the success of women entrepreneurs (Meroño-Cerdán et al., 2018; Khan et al., 2021; Muindi and Masurel, 2022), especially in developing countries (Zalata et al., 2019). Slovic (2000), most research on risk perception showed that women are more worried about the risks of starting a business than men. Since risk-taking is an important quality of successful entrepreneurs, the risk aversion of women entrepreneurs can be seen as an obstacle to their growth.

Wube (2010) suggests that economic factors refer to the internal and external financing of the firm, which is important for the business success of the firm. Previous studies have shown that fluctuations in political and economic systems significantly affect women's entrepreneurship success, which is why these factors lead to an increase or decrease in their performance and success at a significant level (Abdallah & Alnamri, 2015; Lindvert, et al., 2017; Khan, 2021). The results of the study by Hassan et al. (2022) showed that the psychological, political and economic empowerment of women positively and significantly affects female entrepreneurship, while the impact of social empowerment of women is negative but not at a statistically significant level.

Khan et al. (2021) point out that sociocultural factors can influence the success of female entrepreneurs. Balakrishnan and Low (2016) suggest that, in developing economies, sociocultural factors significantly influence the

decision-making and success of female entrepreneurs. According to Messikh (2021), the support of parents and the government has a significant influence on the entrepreneurial intents of female students in Algeria, whereas other characteristics like self-efficacy, entrepreneurial education, and attitude toward entrepreneurship have less of an effect. Pérez-Pérez and Avilés-Hernández (2016) highlight the lack of entrepreneurial culture and social support as factors that greatly affect female entrepreneurship. Similarly, according to the results of the studies by Poggesi et al. (2016), and Arasti et al. (2012), sociocultural factors significantly and positively influence women entrepreneurs' success. Definitions of internal and external factors, which are the focus of studies dealing with this topic, are shown in Table 1.

Table 1: Internal and external factors of women entrepreneurs' success

Variable	Definition	Source
Need for Achievement	Refers to the motivation derived from the desire for success and represents the economic need to improve the overall quality of life.	Shahzadi (2014)
Risk-taking	The degree to which managers are willing to make large and risky resource commitments, that is, those which have a reasonable chance of costly failures.	Miller and Friesen (1982)
Self-confidence	The self-confidence has been defined as that it is the human feeling, which has trust in their qualities, abilities and judgment.	Twibell et al., (2008)
Economic Factors	Economic factors refer to the set of basic information related to internal project financing and external market condition that affects the business or an investment's value.	Wube (2010)
Socio-Cultural Factors	These factors include a combination of social and cultural factors that affect women entrepreneurs' success.	Wube (2010)

Research Methodology

Data, Sample, Questionnaire, Variables, and Model

The survey method was used for quantitative research, with the target population being women entrepreneurs in the Republic of Serbia. The research, including the pilot test, was carried out in the period of July - October 2022. 518 questionnaires were collected, while the examination of the questionnaires determined that, due to observed irregularities, 4 questionnaires should be excluded from the analysis, and 514 questionnaires were used for further analysis; that is, 514 respondents were included in the convenient sample.

Web and face-to-face survey techniques were used for data collection. For the research, a questionnaire was constructed, consisting of four parts. The first part of the questionnaire related to the demographics of the respondents (age, marital status, and education level). The second part of the questionnaire covered female entrepreneurs' perception of internal factors, the third part contained female entrepreneurs' perception of external factors, and the fourth part of the questionnaire contained female entrepreneurs' perception of entrepreneurs' success. The items were measured using a five-point Likert scale (1 - I do not agree at all; 5 - I completely agree).

Dependent variable: The instrument for measuring the "women entrepreneurs' success"(WES) consisted of 4 attitudes, taken and adapted according to Bernard et al. (2016), and Khan et al. (2021). More detailed information about the instruments for measuring the construct "women entrepreneur's success" in the research is presented in Table 2.

Table 2: Measurement items for constructing "women entrepreneur's success"

Construct	Items	References
Women entrepreneurs' success (WES)		
	WES1 Family savings tend to increase	Bernard et al. (2016); Khan et al. (2021)
	WES2 Profits of my enterprise tend to increase	
	WES3 There is an increase in sales and profitability during the three last years	
	WES4 Family income tend to increase	

The independent variables in the research model are internal and external factors.

The internal factors (IntF) measurement instrument consisted of 12 items, taken and adapted according to Khan et al. (2021). Items are divided into three factors: 1) Self-confidence (SC) - 5 items; 2) Need for achievement (NfA) - 4 items; and 3) Risk-Taking (RT) - 3 items. More detailed information about the instruments for measuring the construct "internal factors" in the research is presented in Table 3.

Table 3: Measurement items for constructing "internal factors"

Constructs	Items	References
Internal factors (IntF)		
Self-Confidence (SC)	SC1 I feel at ease SC2 I am confident to perform well his business take care SC3 It is very important for our team to perform well SC4 I am concerned about these competitors in the market SC5 Never my team workers feel nervous during hard working	Khan et al. (2021)
Need for achievement (NfA)	NfA1 I try to think if ways of doing my job effectively. NfA2 I like to look back at a day's work with a sense of a job well done NfA3 I feel unhappy when my work is not up to my usual standard. NfA4 I feel a sense of personal satisfaction when I do this job well	Khan et al. (2021)
Risk-Taking (RT)	RT1 We seem to adopt a rather conservative view when making major decisions RT2 We have a tendency to support projects where the expected returns are certain RT3 Our operations can be generally characterized as high risk	Khan et al. (2021)

The external factors (ExtF) measurement instrument consisted of 7 items, taken over and adapted according to Khan et al., 2021. Items are

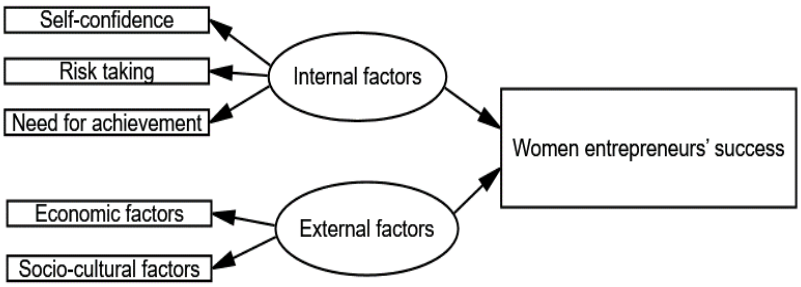
divided into two factors: 1) Economic factors (EF) – 4; and 2) Sociocultural factors (SCF) - (3 items). More detailed information about the instruments for measuring the construct "external factors" in the research is presented in Table 4.

Table 4: Measurement items for constructing "external factors"

Constructs	Items	References
External factors (ExtF)		
Economic factors (EF)	EF1 My business is not offering good product at competitive price EF2 There is maintenance of accurate records of sales/expense in my enterprise EF3 I Can't find qualified labor for my business	Khan et al. (2021)
Socio-cultural factors (SCF)	SCF1 I suffer greatly from the gender discrimination caused by culture and traditions of the society SCF2 The support from strong ties (spouse, parents, friends and relatives) have a positive effect on my business growth SCF3 My parents have their own business	Khan et al. (2021)

Following the methodology applied by Khan et al. (2021), the planned research examines relationships between internal and external factors and women entrepreneurs' success. Figure 1 graphically presents the research model.

Figure 1: Conceptual model



Methods

The causal relationships between internal and external factors and women entrepreneurs' success were assessed using the structural equation modeling (SEM) method. According to the SEM method, the assumption is that there is a basic mechanism that leads to the theoretical covariance structure between vectors of random variables, and the goal is to propose and test a model that mimics the basic mechanism. The goal is to propose and test a model that will mimic this basic mechanism (Malaeb et al., 2000). The null hypothesis (H_0) in SEM is that the covariance matrix of the observed variables (Σ) is a function of the set of parameters (θ) (Bollen, 1989), so it is:

$$H_0: \Sigma = \Sigma(\theta) \qquad (1)$$

When it comes to linear models, the goal is to reject the null hypothesis and accept the alternative. However, when it comes to the SEM model, the goal is to accept the null hypothesis because rejecting the null hypothesis means rejecting the initial model.

SEM is a combination of factorial, regression, and path analysis. It, according to Bolen and Long (1993), includes five stages: 1) model specification; 2) model identification; 3) parameter estimation; 4) model fit testing; and 5) model respecification.

According to Anderson and Gerbing (1988) approach, the measurement model was first evaluated, and then the structural model. By applying the maximum likelihood method, based on the covariance matrix, the parameters of the model were evaluated. Confirmatory factor analysis was used to evaluate the measurement model. Cronbach alpha was used to check the internal consistency of the construct. Factor loadings, average variance extracted (AVE) and composite reliability coefficient (CR) were used to check convergent validity. Discriminative validity was checked on the basis of the Fornell–Larcker criterion, i.e., on the basis of the value of the $\sqrt[2]{AVE}$. Before these analyses, the VIF test was used to check whether the data set had problems with multicollinearity, as well as the common method variance bias test (CMV) to check whether the first factor explained less than 50% of the total variance in order to avoid measurement errors.

The statistical package SPSS IBM Statistics Version 21 and AMOS graphics were used for data processing.

Results

Description of the Research Sample

According to the data shown in Table 1, most of the respondents are between 41 - 50 years old (29.0%), and the least were 61 or older. The average age of respondents was 42.83 years (SD = 11.213; range 20–63). As far as marital status is concerned, there were more married women in the sample (60%), while the highest percentage of women have completed high school or faculty (48.6%). Table 5 shows the demographics of the respondents.

Table 5: Demographics statistics

Description	Frequency	%
Age		
≥ 30	129	25.1
31 - 40	79	15.4
41 - 50	149	29.0
51 - 60	133	25.9
≤ 61	24	4.7
Marital status		
Single	205	39.9
Married	309	60.1
Education level		
Secondary	233	45.3
High/Faculty	250	48.6
Master/PhD	31	6.0

Sample Adequacy, Multicollinearity, and CMV Test

Structural equation modeling, according to Lee et al. (2010), implies the adequacy of the research sample, the absence of problems with multicollinearity, and the common method variance bias test (CMV). When it comes to the sample size, Hoelter (1983) recommends a minimum of 200, while this study included 514 respondents. VIF test values are less than 3 (ranging from 1.568 to 2.337), indicating no multicollinearity problem. CMV was analyzed using Harman's single-factor test. The obtained results show that all attitudes in the model can be categorized into six constructs, while the first construct explains 46.617% of the total variance, which is less than 50% (Podsakoff et al., 2012).

Measurement and Structural Model Analysis

The measurement model was evaluated using confirmatory factor analysis. According to the data tabulation, all fit indicators are at an adequate ($\chi 2/df$) or perfect level (NFI, NNFI, CFI, RMSEA, SRMR). Detailed results are shown in Table 6.

Table 6: Structural model fit indicators

	χ^2/df	NFI	NNFI (TLI)	CFI	RMSEA	SRMR
Obtained values	2.508	0.977	0.979	0.986	0.054	0.032
Adequate fit*	≤ 3	≥ 0.90	≥ 0.90	≥ 0.95	≤ 0.08	≤ 0.08
Perfect fit*	0 or > 2	0.95 or near 1	0.95 or near 1	0.95 or near 1	0 or ≤ 0.050	0 or ≤ 0.050

*Note: according to: * - Hu and Bentler (1999); Byrne, (1994; 1998)*

Table 7 shows that factor loadings range from 0.624 to 0.890 for the construct "internal factors", from 0.904 to 0.988 for "external factors", and from 0.744 to 0.776 for "women entrepreneurs' success." The values of Cronbach's alpha coefficient (for the first factor is 0.835, for the second 0.943 and 0.844 for the third factor) indicate high internal consistency (Pallant, 2007). Values of average variance extracted (AVE) ranged from 0.577 to 0.897, which is above the threshold of 0.50 (Fornell & Larcker, 1981). In addition, the values of the composite reliability index (CR) were found to be adequate (above 0.70), ranging from 0.845 to 0.945. According to the obtained results, the condition of convergent validity is met.

Table 7: Reliability and validity of all constructs

Latent constructs	Factor loading	Cronbach's alpha	Composite reliability	AVE
IntF		0.835	0.848	0.655
NfA	0.890			
RT	0.886			
SC	0.624			
ExtF		0.943	0.945	0.897
EF	0.988			

Latent constructs	Factor loading	Cronbach's alpha	Composite reliability	AVE
SCF	0.904			
WES		0.844	0.845	0.577
WES1	0.745			
WES2	0.776			
WES3	0.774			
WES4	0.744			

For the discriminant validity test, the square root of AVE was calculated. Discriminant validity is confirmed by the fact that the value of the $\sqrt[2]{AVE}$ for each factor is greater than its correlation with the other two factors. (Fornell & Larcker, 1981). The results are shown in Table 8.

Table 8: Discriminant validity (Fornell–Larcker criterion)

Latent constructs	IntF	ExtF	WES
IntF	0.809*		
ExtF	0.252	0.947*	
WES	0.598	0.381	0.760*

Note:* - $\sqrt[2]{AVE}$

The structural model shows the causal relationship between exogenous and endogenous constructs (Hair et al., 2016). The explanatory power (R^2) and path coefficient (β) were estimated. The R^2 value of "women entrepreneurs' success" was 0.410, which proves the model's predictive power (Hair et al., 2016). According to obtained research results (Table 9), internal factors directly significantly and positively affect women entrepreneur success ($\beta = 0.536$, $p < 0.001$). The results also indicate a direct positive effect of external factors on women entrepreneurs' success ($\beta = 0.246$, $p < 0.001$). This speaks in favor of the fact that both internal and external factors are significant determinants of women entrepreneurs' success.

Table 9: Hypotheses assessment

Hypotheses	Paths	β	S.E.	t	R^2	Decision
H1	IntF⟶WES	0.536	0.044	10.846***	R^2_{WES} = 0.410	Supported
H2	ExtF⟶WES	0.246	0.035	5.515***		Supported

Note: R^2 - Coefficient of determination; *** - significant at $p < 0.01$.

Conclusion

The aim of the conducted research was to determine the effects of internal and external factors on women entrepreneurs' success using structural equation modeling. The obtained results indicate that the business success of entrepreneurs is significantly, positively and directly influenced by the factors included in the analysis. The research results are in line with the research results of other authors (Hasan & Almubarak, 2016; Abd Rani & Hashim, 2017; Azmi, 2017; Muhammad et al., 2017; Adiza, Alamina, and Aliyu, 2020; Khan et al., 2021), who also indicated a significant and positive relationship between the observed variables when it comes to female entrepreneurship in developing countries.

The conducted research has several limitations. One of the limitations of this research is that it is based on the analysis of data, which is a reflection of the subjective perceptions of the respondents, and the validity of the obtained results can be questioned. However, when considering the nature of the researched phenomenon, the subjective nature of most of the data for analysis is an indispensable element of research. The next limitation refers to the size of the sample, but the obtained results can serve as a starting point for defining the framework of future research, which would imply the realization of a larger sample, but also apply some other econometric methods in data analysis, or include moderator variables, such as, on example, marital status. Another limitation is reflected in the territorial limitation only to an individual country, i.e., the Republic of Serbia. In this sense, future researchers could compare the results obtained in this research with the results of the analysis of factors that influence the success of women's entrepreneurship in other countries.

The importance of the growth and development of women's entrepreneurial activity in the Republic of Serbia is undeniable, first of all, if it is taken into account that self-employment gives women the opportunity

to improve their economic and social status. Therefore, the necessity of further promoting female entrepreneurship and increasing research on this topic is a key implication of this research.

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