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A study on prioritizing typical women's entrepreneur characteristics

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A B S T R A C T

Entrepreneurship is one of the main pivot of progress and growth of every country. The spread of entrepreneurship particularly the role of women in this category has speeded up today more than any other times. Many of researchers believe that attention to women entrepreneurship plays remarkable role in soundness and safety of nation's economy. Maybe in Iran less attention has been paid to this matter in proportion to other countries and due to various reasons, there are not many entrepreneur woman. However, employing typical entrepreneur women in various fields of productivity, industrial, commercial, social and cultural and even higher than these, in country's political issue proves that women's role is magnificent and in many cases they enjoy higher abilities in portion to men. In this paper, using additive ratio assessment (ARAS) as a prioritizing method, eleven entrepreneur women were chosen for prioritizing criteria for measuring a typical women's entrepreneurship characteristics. The results show that the balance between work and family among criteria are propounded as the highest weight and fulfilling different jobs simultaneously as the lowest weight.

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1. Introduction

The rate of women's participation in social activities is one of the most important indicators, which leads to human development, and appearance in social and economic activities (Zarafshani et al., 2008; Dahalan et al., 2013). In Iran, there has been increasing trend on women's participation in higher educational programs. In fact, more than half of the university students are women and they are interested in actively participating in various kinds of academic activities. However, the recent evidences show that women are unfamiliar on how to become entrepreneur and they do not know the indicators of a typical entrepreneur woman. Women either as a manager or a workers are important parts of entrepreneurship in small sectors and in fact they may act as entrepreneur in producing products trading. Nevertheless, there are many obstacles, which may prevent these people on becoming a successful entrepreneur. For instance, Galard (2005, 2007) reported that women faced tremendous difficulties on receiving credit facilities in Iran. Women are accounted for less than 10%

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of entrepreneurs in Iran (Mirghafoori et al., 2010) which is lower than both regional Middle East and North Africa and average level. Sarfaraz and Faghih, N. (2011) studied women's entrepreneurship in Iran based on Global Entrepreneurship Monitor 2008 data. In this regard, the relative positions of women entrepreneurs in Iran were detected compared with those of their Iranian male counterparts as well as other GEM members. Then the main factors influencing women's entrepreneurship and the reasons behind the low rate of women entrepreneurial prevalence in Iran were described. The purpose of this study was to explain the gender gap in entrepreneurial activity in Iran rather than the Iranian women entrepreneurial gap with other countries. Arasti (2006) performed an investigation on 105 Iranian Entrepreneurs with higher education degrees. According to her study, the primary entrepreneurial barriers were as follows: laws and regulations (83%), administrative bureaucracy (81%), obtaining licenses (79%), financing (71%), gender discrimination (69%), market inaccessibility (65%), management and cost control (58%), human resource recruitment (55%), searching for suppliers (54%), role conflicts (52%), finding an appropriate partner (40%) and managing the business (31%). Ghani et al. (2014) quantified the link between the timing of state-level implementations of political reservations for women in India with the role of women in India's manufacturing sector. In their survey, while overall employment of women in manufacturing did not increase after the reforms, they reported substantial evidence that more women-owned establishments were generated in the unorganized/informal sector. These new establishments were concentrated in some kind of industries where women entrepreneurs had been traditionally active and the entry was primarily found among household-based establishments. They measured and discussed the extent to which this heightened entrepreneurship was due to channels like bigger finance access or heightened inspiration for women entrepreneurs.

2. ARAS Technique

According to Zavadskas et al. (2010), Additive ratio assessment (ARAS) has the following steps,

First step: forming decision-making matrix

The first step in solving every problem is multi-criteria decision making (MCDM) is to form decision-making matrix. Consider a decision-making matrix where *m* represents possible choice and *n* is regulated fixed criterion (column).

$$X = \begin{bmatrix} x_{01} & \cdots & x_{0j} & \cdots & x_{0n} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ x_{i1} & \cdots & x_{ij} & \cdots & x_{in} \\ \vdots & \cdots & \vdots & \ddots & \vdots \\ x_{m1} & \cdots & x_{mj} & \cdots & x_{mn} \end{bmatrix}, \tag{1}$$

where *m* is the number of choices, *n* is the number of fixed criterion associated with each decision choice, x_{ij} is the value, which states the amount of efficiency of *i* in criterion conditions of *j*, x_{0j} is the amount of optimized criterion of *j*.

Second step: Determine the amount of every optimized criterion

Determine the amount of every optimized criterion, if the amount of optimized criterion is not clear to decision-making, then:

If the maximum amount is determined as follows,

$$x_{0j} = \max_i x_{ij}, \tag{2}$$

and the minimum amount is calculated as follows,

$$x_{0j} = \min_i x_{ij}^*, \tag{3}$$

where x_{0j} is the optimal value choice in relationship with the criterion *j*.

Maximum values means is a set of criteria type of profit, which means the direction of optimizing is maximizing. In addition, minimum value means a set of criteria in terms of expenses.

Third step: Compute the normalized decision matrix

Usually the criteria have different importance, size and scales. The aim of the next step is to reach from relative criteria to the amount of weighted values. In order to prevent problems caused by dimensions of different criteria, the ratio of optimal value has been used. There are various opinions in describing the ratio of optimal value. Notwithstanding, the values have been drawn in span of [0, 1] or span of [0,∞] by using normalized decision, matrix.

In third step initial values of all criteria are normalized, the values of $\bar{x}_{ij}$ that is computed by the following formula, determines normalized decision matrix of $\bar{X}$.

$$\bar{X} = \begin{bmatrix} \bar{x}_{01} & \cdots & \bar{x}_{0j} & \cdots & \bar{x}_{0n} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ \bar{x}_{i1} & \cdots & \bar{x}_{ij} & \cdots & \bar{x}_{in} \\ \vdots & \cdots & \vdots & \ddots & \vdots \\ \bar{x}_{m1} & \cdots & \bar{x}_{mj} & \cdots & \bar{x}_{mn} \end{bmatrix}. \tag{4}$$

The matrix given in Eq. (4) is normalized as follows,

$$\bar{x}_{ij} = \frac{x_{ij}}{\sum_{i=0}^{m} x_{ij}}. \tag{5}$$

Any criterion, which is intended for minimization process is normalized as follows,

$$x_{ij} = \frac{1}{x_{ij}^*}, \tag{6}$$

$$\bar{x}_{ij} = \frac{x_{ij}}{\sum_{i=0}^{m} x_{ij}}. \tag{7}$$

Fourth step: computing normalized-weighted decision matrix

Fourth step is arrange the normalized weighted matrix $\hat{X}$ with $0<w_j<1$. In this case, just perfectly measured weights (accurately determined) must be used. The total weight of w_j must be limited as following form:

$$\hat{X} = \begin{bmatrix} \hat{x}_{01} & \cdots & \hat{x}_{0j} & \cdots & \hat{x}_{0n} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ \hat{x}_{i1} & \cdots & \hat{x}_{ij} & \cdots & \hat{x}_{in} \\ \vdots & \cdots & \vdots & \ddots & \vdots \\ \hat{x}_{m1} & \cdots & \hat{x}_{mj} & \cdots & \hat{x}_{mn} \end{bmatrix} \tag{8}$$

$$\sum_{j=1}^{n} w_j = 1. \tag{9}$$

Normalized-weighted values of all criteria are computed as follows,

$$\hat{x}_{ij} = \bar{x}_{ij} w_j, \quad i = 0, m \tag{10}$$

where w_j is the weight of criterion *j* and $\bar{x}_{ij}$ is the amount of normalized criterion *j*.

Fifth step: Determine optimal values for every choice

In this step, we determine the amounts of optimum function for every choice as follows,

$$S_i = \sum_{j=1}^{n} \hat{x}_{ij}, i = 0, \cdots, m \tag{11}$$

where S_i is the amount of optimal function for *i*th choice. The greatest amount is the best, and the least of it is the worst. Based on the computed process S_i optimal function has a suitable and direct relationship with x_{ij}values and $w_j$weights from considered criteria and relative effectiveness of them on results are final. Therefore, the most values of optimal function is the most effectual variable. Choices priorities can be determined with regard to the amount of S_i.

Sixth step: Compute desirability of every choice

In assessing different choices, not only determining the best grade is important but also the relative desirability of every propounded choice is important. For this, the degree of desirability of every choice is used. The degree of desirability of every choice (alternative) is specified by comparing variable, which has been analyzed with ideal state, therefore, we have,

$$K_i = \frac{S_i}{S_0}, i = 0, \cdots, m \tag{12}$$

where $S_i$and S_0 are optimal values of each criterion, obtained from the equation (11).

Seventh step: choice grading and or choosing the most effectiveness of them.

It is obvious that computed values of $K_i$are in span of [0, 1] and can be put in ascending order based on their priorities. Mixed relative effectiveness of every possible choice can be specified with regard to the amount of function values of desirability. Propounded choices are graded with sieving of K_i. For example, a choice with greater amount of $K_i$has more grade and priority and a choice with the greatest amount of $K_i$is in the best place and grade. Therefore choosing the best choice can be done by using following formula,

$$\{A_i | \max_i K_i \quad \} A^* = I: 1, 2 \ldots m \tag{13}$$

3. Theoretical framework

Islam has the same look about talent and facilities of male and female. Also in Islam, women are allowed to be active out of the house. The active presence of women and their participation on the scene of economic, social, and cultural along with countries' development has direct and close relationship with all aspects of economic, social and cultural activities. In other words, women's situation in a society shows the rate of development of that society. Therefore, the role of women in different fields of social, economical is known as one the most important indicate of developing.

During last two decades, many women proceed to business environments as entrepreneurship. By considering the psychological effects of employment and entrepreneurship of women, the researchers have shown that employed women have got a higher confidence and also in spite of tiredness they enjoy strong mental condition and they are happy for being useful. Due to their social relationship, employed women are more clear-sighted that employed men and also working has positive effect on women's mental balance. The following characteristics are associated with women's activities,

1. Energy and motivation
2. Confidence
3.Perseverance
4. Money as a basis of assessment
5. Ability to solve problems permanently
6. Goal fixing
7. Ability to take balanced risk
8. How to encounter defeat
9. Using initial information (feedbacks)
10.Innovativeness and individual responsibility
11. Using resources
12. Resistance to personal imposed criteria
13. Internal control point
14. Ability to resist to ambiguities and probabilities

In addition, the following conceptual model shows six superior characteristics of entrepreneur women that can be considered for other women who would like to be entrepreneur.

Fig. 1. Research conceptual model

Fig. 1 shows six superior characteristics of entrepreneur women in Iran.

4. Research method

The present research is a kind of practical in view of objective for prioritizing, 11 sample entrepreneur women were considered and in order to determine criteria weight as an entrance, 22 experts of entrepreneurship were used. Fig. 2 shows the criteria weights about six criteria for choosing sample entrepreneur woman.

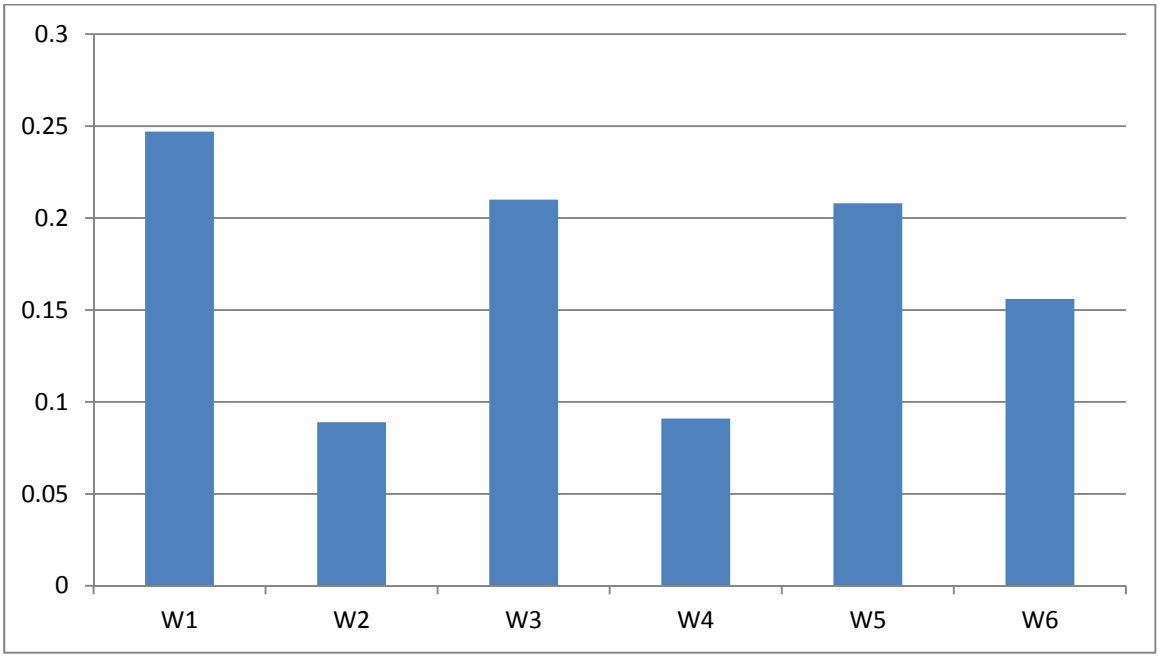

Fig. 2. Criteria weights (W1= balance of life and work W2= ability to do different jobs simultaneously W3= ability to relate to others fast and positively W4= patience at work and taking risks W5= self-assurance and eagerness at work W6= accuracy and stability in activities).

All 6 specified criteria have the capabilities to maximize the amount female entrepreneur, i.e. the more higher, the better.

5. Analysis

After specifying components of the selected sample entrepreneur woman in Iran and based on the collected data from the researcher made questionnaire, we attempt forming decision-making matrix.

Table 1
Decision-making matrix

Criteria	Balance of life and work X1	Ability to do different jobs simultaneously X2	Ability to relate to others fast and positively X3	Patience at work and taking risks X4	Self-assurance and eagerness at works X5	Accuracy and stability in activities X6
Optimum direction	MAX	MAX	MAX	MAX	MAX	MAX
Criteria weights	0.247	0.089	0.21	0.091	0.208	0.155
Optimal value	14	4	48	129	1	100
a1	4	4	37	107	0.316	100
a2	4	25	34	123	0.311	100
a3	10	9	36	103	0.438	100
a4	3.5	15	37	108	0.389	100
a5	11	10	48	99	0.316	100
a6	6	16	41	111	0.318	75
a7	1.7	10	34	98	0.358	75
a8	4.5	19	41	112	0.285	75
a9	5	11	41	103	0.38	75
a10	2	14	40	107	0.335	75
a11	2	18	37	102	0.407	50

Next, we normalize the results and Table 2 shows the results.

Table 2
The results of normalization

criteria	Balance of life and work	Ability to do different jobs simultaneously	Ability to relate to others fast and positively	Patience at work and taking risks	Self-assurance and eagerness at works	Accuracy and stability in activities
	X1	X2	X3	X4	X5	X6
Criteria weights	0.247	0.089	0.21	0.091	0.208	0.155
optimal value	0.2068	0.1999	0.1013	0.0991	0.2061	0.0976
a1	0.0591	0.1999	0.0781	0.0822	0.0651	0.0976
a2	0.0591	0.0320	0.0717	0.0945	0.0641	0.0976
a3	0.1477	0.0888	0.0759	0.0791	0.0903	0.0976
a4	0.0517	0.0533	0.0781	0.0829	0.0802	0.0976
a5	0.1625	0.0799	0.1013	0.0760	0.0651	0.0732
a6	0.0886	0.0500	0.0865	0.0853	0.0655	0.0732
a7	0.0251	0.0799	0.0717	0.0753	0.0738	0.0732
a8	0.0665	0.0421	0.0865	0.0860	0.0587	0.0732
a9	0.0739	0.0727	0.0865	0.0791	0.0783	0.0732
a10	0.0295	0.0571	0.0844	0.0822	0.0690	0.0732
a11	0.0295	0.0444	0.0781	0.0783	0.0839	0.0488

In the final step, the amount of *K*, *S* and prioritizing of the criteria are shown:

Table 3
The results of prioritization

criteria	Balance of life and work	Ability to do different jobs simultaneously	Ability to relate to others fast and positively	Patience at work and taking risks	Self-assurance and eagerness at works	Accuracy and stability in activities	S	K	RANK
	X1	X2	X3	X4	X5	X6			
optimal value	0.0511	0.0178	0.0213	0.0090	0.0429	0.0151	0.1571	1.000	
a1	0.0146	0.0178	0.0164	0.0075	0.0135	0.0151	0.0849	0.5405	3
a2	0.0146	0.0028	0.0151	0.0086	0.0133	0.0151	0.0696	0.4427	8
a3	0.0365	0.0079	0.0159	0.0072	0.0188	0.0151	0.1014	0.6457	2
a4	0.0128	0.0047	0.0164	0.0075	0.0167	0.0151	0.0732	0.4663	6
a5	0.0401	0.0071	0.0213	0.0069	0.0135	0.0151	0.1041	0.6626	1
a6	0.0219	0.0044	0.0182	0.0078	0.0136	0.0113	0.0772	0.4916	5
a7	0.0062	0.0071	0.0151	0.0068	0.0153	0.0113	0.0619	0.3941	10
a8	0.0164	0.0037	0.0182	0.0078	0.0122	0.0113	0.0697	0.4437	7
a9	0.0182	0.0065	0.0182	0.0072	0.0163	0.0113	0.0777	0.4946	4
a10	0.0073	0.0051	0.0177	0.0075	0.0144	0.0113	0.0633	0.4028	9
a11	0.0073	0.0040	0.0164	0.0071	0.0174	0.0076	0.0598	0.3805	11

Propounded choices have been graded in terms of sieving K_i. Fora example, a choice by greater $K_i$has got superior and greater grade and a choice by greater amount of $K_i$is in the best place and grade.

6. Conclusion

This paper has presented a new work and deliberately in women's arena. The components of a sample women' entrepreneur were identified in Iran and 11 sample entrepreneur women have been prioritized by using ARAS technique. There were 6 propounded characteristics specifications of entrepreneur women in Iran. Note that, Iranian women highly influence their families, they always take the responsibility of the family, and women who balance between work and family in fact prepare themselves for new and creative ideas. In addition, one of the common characteristics that usually can be seen among all women and in most researches is performing different jobs, simultaneously. Since this issue is common among all women, this issue has received less degree of importance. Fig. 3 shows details of the ranking.

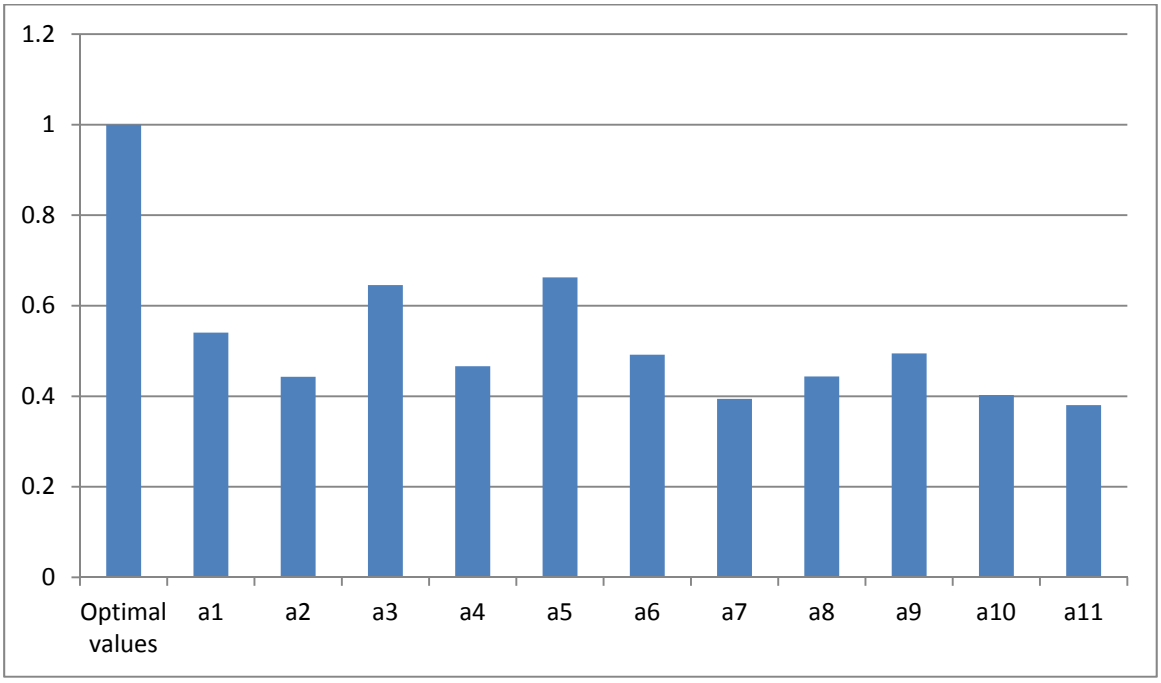

Fig. 3. The summary of the results of final assessment

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