

Structural Modeling of Entrepreneur's Effectiveness

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Abstract: One of the major economic issues in Middle-East countries is non-oil exports and its increased share in Middle-East economic development plans. Among these of great priority are pistachio production and its processing industry. This study identifies the significant factors in increasing success of Middle-East small and medium industries (SMI) especially pistachio industry, base on their entrepreneurs' characteristics (ECh). The prepared empirical structural equation model (SEM) based on three concepts of ECh, strategy making and performance of small and medium pistachio industry (SMPI), shows that there is a strong relation between ECh and performance of SMPI. The model considers both direct and indirect effects of each 27 defined variables of our concepts.

Key words: Small and medium pistachio industry (SMPI) · Entrepreneur's characteristics (ECh) · Strategy-making · Performance · Structural equation modeling (SEM)

INTRODUCTION

Three major streams of management focus on what managers are, what managers do and what do they achieve.

'What managers are', is a measure with focus on manager's background and their perception. It has been distinguished that a top level of management quality, can be measured in different terms of managerial characteristics and perceptions such as gender, skills, capabilities, experiences, education and age [1-4] and recently creativity factors are added to the list [5]. Additionally, Karami and his colleagues noticed strategy awareness of entrepreneurs as a measure of ECh and perceptions [4, 6, 7].

'What managers do', is a measure which focuses on acting and activities of managers actions which are presumed to increase the success chance of organization [8-16].

'What managers achieve', is a measure of success and outcome which mostly in different related researches defined as company's performance [7, 10, 17-19]. This approach mostly relies on reliable outcome-based measure of SME's performance such as financial outcome [10, 17]. But Koochi believes that, the financial perceptions just give respect to the relationship between stated financial goals and other goals [8].

In order to discussed three streams, we present our theoretical framework in Figure 1, for measuring the effectiveness of managerial characteristics and managerial action. This framework is able to analyze direct and indirect effects of ECh and entrepreneur's action on their enterprise success and explore the relationship between three concepts of research interest; ECh, strategy-making and performance. In the coming paragraphs we discuss the three construct of our research framework.

Entrepreneurs' Characteristics (ECh): The professional work experiences of the entrepreneurs, product knowledge, or technical experience, have been associated with small industry success [4, 20]. By a human capability study held by Amini and Rameezani, the important role of technical skill was confirmed in some provinces of Middle-East [21]. By another view, Karami says that entrepreneurs with more managerial work experience tend to place more weight on strategy development than those entrepreneurs who lack managerial work experience [4] according to Karami and also Ruzzier, it is more important when entrepreneurs have professional experience in management field [4, 20]; more specifically in strategy setting [4].

More than work experience, educational background of the business entrepreneur is our second variable in this study. Both formal educational level and the type of

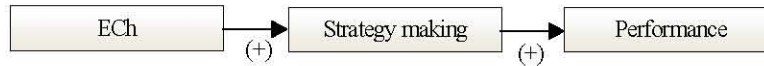


Fig. 1: Theoretical framework

education provide some measure of competency base [4, 22, 23]. Norburn and Berily [23] and Karami found that entrepreneurs with higher level of business education degree are expected to generate more effective strategic solutions in facing complex problems [4]. Rafati found the positive relation between training programs and organizational foundation achievement [24]. By a deeper view, Babae argues that even parents educational background affect their child individual profile of entrepreneurship [25].

The third variable is entrepreneur's strategy awareness which individually makes one term of ECh and at the same time can be affected by entrepreneurs educational background and/or entrepreneur work experience [4, 7]. We found a few studies on relationship between entrepreneurs' strategy awareness and strategy making in a SME, Researches by Chan and Foster, Karami, Oregon which all confirm a distinct lack of environmental (internal and external) awareness of manager, perception toward management training and establishing strategic management system, they do not emphasize on strategic planning [4, 7, 8, 26, 27].

Strategy-making: Strategy-making is our second construct of research theoretical framework and at the same time the heart of our framework which presents with two dimensions, manufacturing strategy and environmental analyzing. The advantage of this kind of categorizing in strategy making construct is that we at the same time consider two multifaceted approach of strategy-making; Rationality approach and assertiveness approach.

Latest school of Rationality approach is most appropriate to an organizational environment characterized which review strategy as the consequence of an adaptive ability of SMEs [28]. Because rapid environment change and the need of attention to SME's environmental characterized in their strategies is even more tangible than before [29]. The dimensions of environmental analyzing includes competitors and customers, resources and internal factors, funds and supply of labor and political/social [17, 30].

The next approach of strategy making, assertiveness, refers to the level of risk that entrepreneurs takes and their decisions reflection [28]. Dimension of ,manufacturing

strategy is operationalized on four manufacturing imperatives; quality, cost, delivery and flexibility [17].

Performance: Performance is dependent variable of our research framework. The theorists in the field of management mostly measure organizational success and effectiveness with three kinds of approach, the goal-based approach [31], the constituency approach [32] and the systematic approach [33]. By Using Metts's metrics in our study to measure performance of SMEs as he mentioned in his studies we can have a tool which evolves all three approaches [10, 17]. In our study the construct includes financial performance and operational performance consist of eight metrics.

Research Model Development: As our objectives of this paper, we try to explore:

- The impact of entrepreneur characteristics and their strategy making upon firm performance.
- The relationship between entrepreneurs' work experiences, educational background and their strategy awareness and strategy making in SMIs

From the objectives and based on the theoretical arguments and our literature review, we propose six hypotheses in support of our structural research model.

- H1.** As the level of entrepreneur's work experience increase, the level of entrepreneur's strategic awareness will increase.
- H2.** As the level of entrepreneur's educational background increase, the level of entrepreneur's strategic awareness will increase.
- H3.** As the level of entrepreneur's work experience increase, the level of strategy making activities will increase.
- H4.** As the level of entrepreneur's educational background increase, the level of strategy making activities will increase.
- H5.** As the level of entrepreneur's strategic awareness increase, the level of strategy making activities will increase.
- H6.** As the level of strategy-making activities increase, the level of firm performance will increase.

Table 1: variables and their measurements in the proposed Structural model

Variables	Cronbach's alpha	Code	Measurement Item	CITC
Work experience	0.8673	T.W.E	Technical work experience	0.5978
		M.W.E	Managerial work experience	0.5498
Educational background	0.6572	Ed1	Educational level	0.5451
		Ed2	Educational field	0.5700
Strategy awareness	0.6408	S.A 1	environmental (Internal) awareness of the entrepreneur	0.6122
		S.A 2	environmental (external) awareness of the entrepreneur	0.7323
		S.A 3	perception toward management training	0.5265
		S.A 4	Perception toward establishing strategic management system	0.6547
Strategy making	0.6729	E1	Environmental scanning	
			Competitionprices	0.5232
			Competition's introduction of new products	0.4199
			Competition's advertising/promotion programs	0.5001
		E2	New product characteristics	0.6970
			Customer's demand and desires	0.7230
			Availability of external financing	0.5463
			Availability of labor	0.4109
		E3	New manufacturing technology	0.4544
			Company's sales capabilities and resources	0.7611
			Company's financial capabilities and resources	0.5434
			Company's management capabilities and resources	0.6545
		E4	Local/national/global social conditions	0.5628
			Local/national/global political conditions	0.4982
			Local/national/global economical conditions	0.6589
			0.7389 Manufacturing strategy	M1
		Real-time process control	0.4926	
		Updating process equipment	0.5623	
	M2	Reduce inventory	0.6389	
		Increase capacity utilization	0.5893	
		Increase equipment utilization	0.6324	
		Reduce production costs	0.7247	
	M3	Lead-time reduction	0.7129	
		Set-up time reduction	0.3245	
		Ability to change machine assignments on the shop floor	0.5346	
		Ability to change priorities of job on the shop floor	0.6323	
	M4	Provide fast deliveries	0.4356	
		Meet delivery promises	0.7532	
Performance	0.8736 Financial Performance	F1	Average return on assets over the last three years	0.6000
		F2	Average per cent change in sales over last three years	0.5647
	0.7208 Operational Performance	O1	Quality of product(meet customer specification)	0.4532
		O2	Ability to quickly change production volumes	0.4123
		O3	On-time ability performance	0.6893
		O4	Customer satisfaction	0.4390

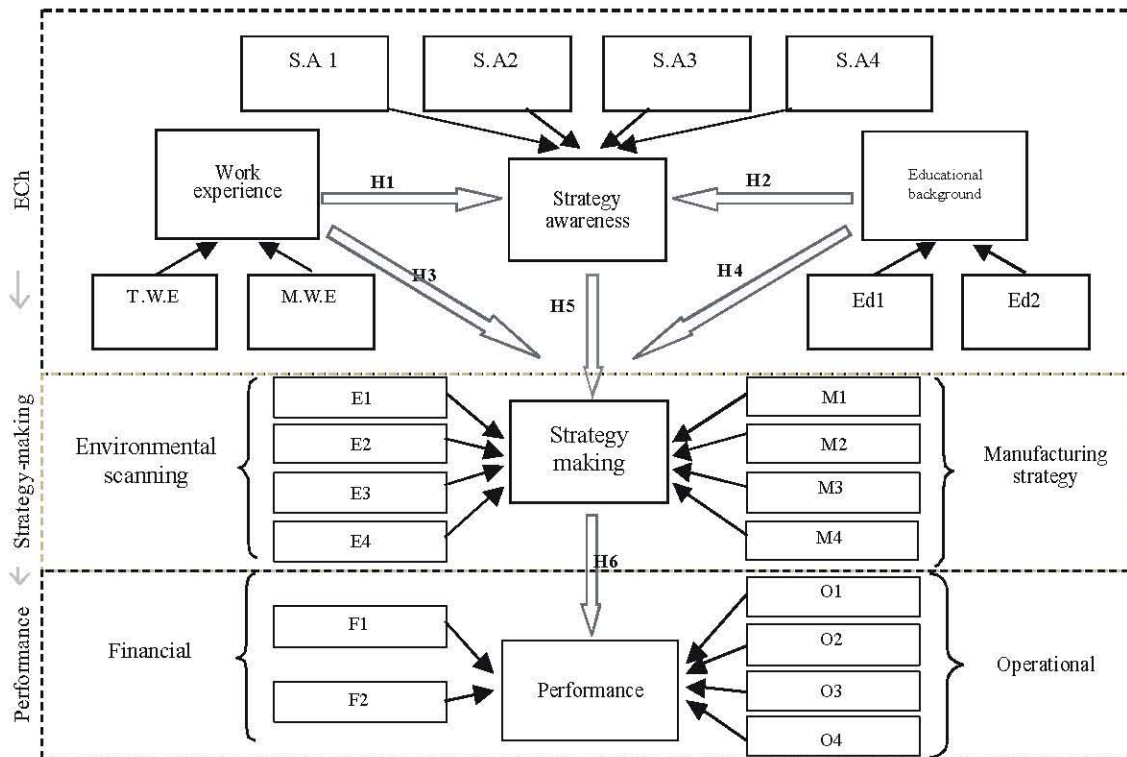


Fig. 2: Hypothesized Structural model

Regarding these objectives and hypothesis, the structural research model for analyzing the effectiveness of entrepreneur's characteristics is presented in Figure 2 and Table 1. The hypothesized model has the ability to measure the indirect and direct effects of ECh on firm performance. Proposing this model is the first attempts in this field, although some of the single linkages of the research model have been supported in some other industries by prior research efforts.

Methodology and the Survey: According to the food and agriculture organization of the united nations(FAO) [34], Middle-East produces more than half of world's pistachio. In this area the sample frame used mechanized pistachio processing firms with employing less than 250 employees. This scale has widely used in literature in defining SMIs [4, 35]. Although most of the firms were in Iran, we also noticed Syria, Afghanistan, Pakistan, Uzbekistan and Jordan. These six countries are among first 20 huge producers that produce and process more than 45% of world pistachio [34].

In order to test the proposed hypotheses, we chose a random sample of 2000 entrepreneur and collect data using a postal survey. Questioners were addressed to the entrepreneur of firm who were randomly chosen from list of pistachio Iranian SMIs, published by industrial park

organization of Iran [36] and list of other Middle-East SMPs [37]. Out of the surveys executed, 238 completed ones were return. Among responses, 211 subjects were male and the rest of them were female; 217 subjects employed less than 50 employees and the rest had between 50 and 250 employees.

We prove reliability of measurement variables and latent variables with Cronbach's alpha which is often suggested tool [38]. The result is shown in table 1. To satisfy the assumptions of the multivariate procedures which has used for model testing and confirmatory analysis, as pre-analyzing step, authors evaluated the normality and linearity of the data prior to mean substitution. Evaluating univariate normality was with normal Q-Q plots and evaluating linearity was with scatter plots. These evaluation proves that the data are considered linear and univariate normal [39]. As table 1 shows, each scale was evaluated for reliability and corrected-item to total correlation (CITC) to make sure that measurement items contributed to the dimensions of each construct [17, 40].

Structural equation modeling (SEM), a statistical technique combines elements of traditional multivariate models, was used for exploring confirmatory factor analysis to test the each construct's unidimensionality, as "SEM consists of a set of linear equations that

simultaneously test two or more relationship among directly observable and/or unmeasured latent variables"[41] . Fortunately these days, the use of SEM in field of management studies has dramatically become popular though it is more than 25 years that SEM has been introduced [41]. The SEM analysis in this study was conducted using AMOS 16.0 software.

RESULTS AND CONCLUSION

The result of hypothesis testing and found standardized research model using SEM is presented in Figure 3. Fit indexes of the model were AGFI=0.8711,

GFI=0.924, TLI=0.891, RMR=0.039 Representing acceptable fit to the data [41]. Our result provides support for conceptualizing the human capital of a SMI's entrepreneur in term of the three dimensions of ECh, strategy making and firm's performance. Further, we have showed that the entrepreneur's capital relates positively and directly to the degree of success of SMIs. In addition, while we observed direct effects between individual dimensions of characteristics of SMPI's entrepreneurs, strategy making and firm's performance (Figure 3). It is appears that the firm's success is best explained by the latent construct of ECh comprising its three indicators (Figure 2 and 3).

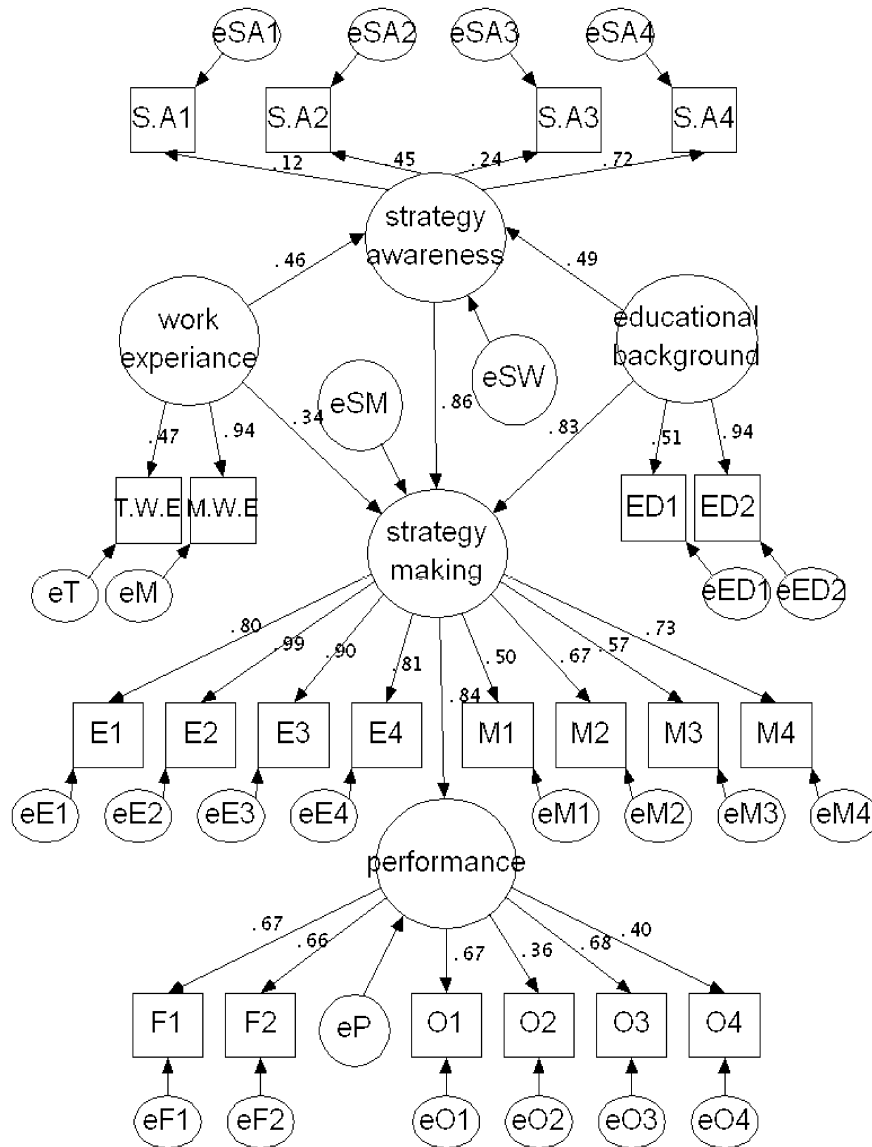


Fig. 3: Structural equation model

This research addressed the shortfall in empirical researches in several areas. First, in this research we tried to provide a fresh approach to the effectiveness of managerial characteristics in SMIs. Second, this research provided a comprehensive strategy making construct which is validated and tested for further use by other researchers. Third, our research provided additional insight into entrepreneur's background and their perception on strategic management. Finally we tried to make a structural equation model for Middle-East pistachio industry which was the first in this industry. From our previous literature review, This research was the first research on pistachio industry management science [42]. As the first look to our structural model shows, entrepreneur's characteristics affected success of their SMPI. Furthermore, by this research we tried to explore the impact of entrepreneur's work experiences, educational background and their strategy awareness on strategy making in SMPIs and also fined the relation between entrepreneur characteristics and their strategy making upon SMPI performance.

Following our objectives of this research, all the hypotheses were supported by founded model which suggest that the entrepreneur acquires a broader success perspective through educational background, work experience and strategy awareness. Also the model presents the relation between educational background and work experience of entrepreneur and his/her strategy awareness. Moreover our model, while supporting the notion that the characteristics of entrepreneur is associated with strategy making in SMPIs; Also the model shows that some attributes such as educational field of SMPI entrepreneur, are more important in success of SMPI regard than the other.

The finding model is completely unique though the research was limited to the pistachio Middle East SMPIs. The direction for further studies can be grouped in to three categories: As the first category, further comparative industry-wide is recommended; second, we recommend the zone of study to be expanded geographically and in the last category the same study is suggested considering chief executive officers in large industries.

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