

## An empirical investigation on factors influencing export of herbal supplements

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### CHRONICLE

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### ABSTRACT

During the past few years, there have been growing interests in business development of herbal supplements in many developing countries especially in Iran. Herbal supplements are used to cure many deceases such as medicating anxiety, acne, weight loss, depression, etc. In this paper, we present an empirical investigation to detect important factors influencing exporting herbal supplements. The proposed study designs a questionnaire consists of 31 questions, distributes it among 210 experts who are professional in the area of production and distribution of herbal supplements and using factor analysis, the study detects eight factors including supportive laws and regulations, organizational atmosphere, marketing structure, knowledge oriented, feasibility study, research and development, competitive strategy and partnership strategies.

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## 1. Introduction

During the past few years, there have been growing interests in business development of herbal supplements in many developing countries especially in Iran. There is a steady demand growth on for herbal supplements in developed countries such as United States (Blumenthal et al., 2006). The marketing on herbal supplement has increasing trend specially over the cyber space (Morris & Avorn, 2003). Herbal supplements are used to cure many deceases such as medicating anxiety (Saeed et al., 2007; Lakhan & Vieira, 2010), acne, weight loss (Pittler et al., 2005), depression, etc. Ritchie (2007), for instance, considered the use of herbal supplements and nutritional supplements in the UK. Herbal supplements can also be considered as a potential for drug interactions in transplant recipients (Barone, et al., 2001). Even, there are some promises on medicating serious deceases such as cancer or liver decease using herbal supplements (Kumar et al., 2005; Levy et al., 2004; Temple et al., 2005; Kuhn & Winston, 2000). In fact, some researchers believe herbal supplement can be an alternative for adverse interactions with analgesic drugs (Abebe, 2002). However, there seems to be a word of

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cautious on relying herbal supplement for curing serious cancer deceases (Cassidy, 2003) and robust clinical trials are needed to prove the efficacy and lack of adverse impacts of such preparations.

According to (Harrison et al., 2004), more than one in ten adults were taking herbal supplements, with evening primrose oil, the most common supplement, applied primarily by women. Individual characteristics such as age, gender, ethnicity, and social class influenced the use of herbal supplements, but there was no evidence that this substituted for conventional medical care. There was also a weak evidence to support some popular herbal supplements. During the past few years, there was growing trend on easing regulation on herbal supplement (Gottlieb, 2000; Sahoo et al., 2010) and this has helped business owners to spend more on this market.

## 2. The proposed study

In this paper, we present an empirical investigation to detect important factors influencing exporting herbal supplements. The proposed study designs a questionnaire consists of 31 questions, distributes it among 210 experts who are professional in the area of production and distribution of herbal supplements. Cronbach alpha has been calculated as 0.81, which is well above the minimum acceptable limit of 0.70. In addition, Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity are calculated as 0.788, 1677.307, respectively. We first present details of some basic statistics associated with the data, which are summarized in Table 1 as follows,

**Table 1**

The summary of some basic statistics associated with the questionnaire

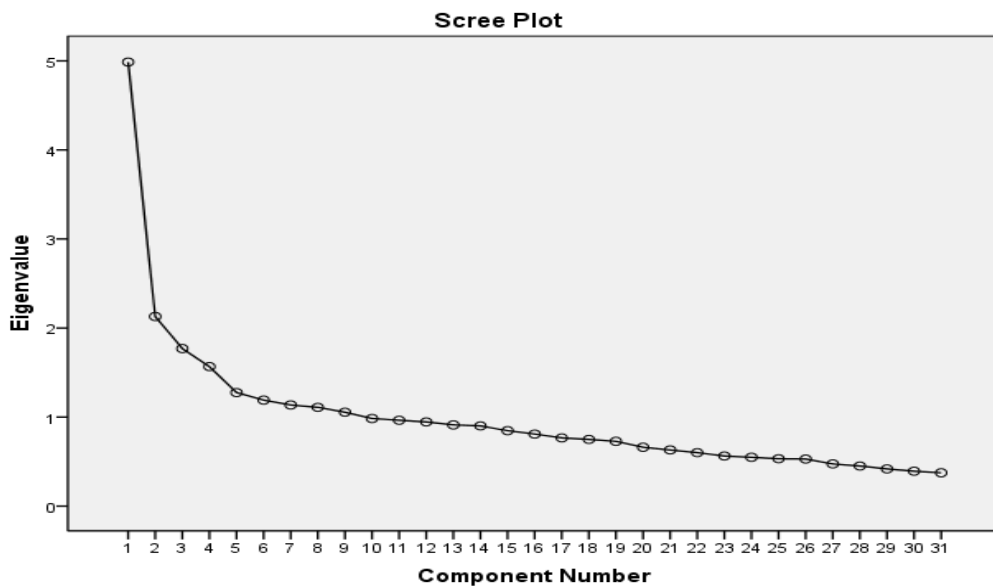
	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Competitive challenge	5.722	-.517	.138	-.564	.276
Competitiveness of existing firms	4.240	-.357	.138	-.131	.276
Supporting manufacturer	5.485	-.370	.138	-.581	.276
Lobby with stakeholders	5.262	-.119	.138	-.517	.276
Insurance Research	4.901	-.108	.138	-.604	.276
Commercial risk	5.301	-.120	.138	-.660	.276
Distribution channels	5.939	-.174	.138	-.781	.276
Material suppliers	5.506	-.126	.138	-.850	.276
Commercialization process model	5.703	-.187	.138	-.749	.276
Success in the experimental stage	4.982	-.101	.138	-.520	.276
Marketing Research	4.969	-.094	.138	-.568	.276
Financial Feasibility	5.536	-.081	.138	-.776	.276
Technical feasibility	6.108	.007	.138	-.882	.276
Research sector and industry	6.123	.002	.138	-.932	.276
Standard challenges in new markets	6.083	-.056	.138	-.887	.276
Government incentives	6.332	.000	.138	-.909	.276
Legal Terms	5.964	.059	.138	-.816	.276
Intellectual Property	5.650	.056	.138	-.745	.276
National Planning	5.497	-.125	.138	-.672	.276
Advanced Technology	6.688	-.009	.138	-.983	.276
Technical experts	6.768	-.275	.138	-.985	.276
Nanotechnology	6.043	-.174	.138	-.796	.276
Organizational structure	5.948	-.370	.138	-.647	.276
Risk	5.694	-.169	.138	-.731	.276
Management Support	5.880	-.222	.138	-.782	.276
Provide timely product	6.569	-.281	.138	-.890	.276
Market Forecast	5.848	-.339	.138	-.698	.276
Pricing Strategies	5.832	-.156	.138	-.827	.276
Market elasticity	5.347	-.272	.138	-.590	.276
Entrepreneurial environment.	5.840	-.033	.138	-.824	.276
Positioning the company	6.152	-.254	.138	-.776	.276

We plan to use factor analysis and since this method is sensitive to skewness of the data, we have decided to remove some questions from the survey. In addition, Table 2 shows details of communalities and as we can observe from the results of our investigation, the average of communalities is equal to 0.445, which is within acceptable limit.

**Table 2**  
The summary of communalities

	Initial	Extraction
Competitive challenge	1.000	.482
Competitiveness of existing firms	1.000	.445
Supporting manufacturer	1.000	.522
Lobby with stakeholders	1.000	.445
Insurance Research	1.000	.475
Commercial risk	1.000	.459
Distribution channels	1.000	.513
Material suppliers	1.000	.616
Commercialization process model	1.000	.520
Success in the experimental stage	1.000	.534
Marketing Research	1.000	.473
Financial Feasibility	1.000	.489
Technical feasibility	1.000	.481
Research sector and industry	1.000	.479
Standard challenges in new markets	1.000	.546
Government incentives	1.000	.612
Legal Terms	1.000	.447
Intellectual Property	1.000	.477
National Planning	1.000	.451
Advanced Technology	1.000	.642
Technical experts	1.000	.619
Nanotechnology	1.000	.489
Organizational structure	1.000	.608
Risk	1.000	.676
Management Support	1.000	.524
Provide timely product	1.000	.488
Market Forecast	1.000	.556
Pricing Strategies	1.000	.493
elasticity of market	1.000	.517
Entrepreneurial environment.	1.000	.485
Positioning the company	1.000	.653

In order to extract important factors we first look at Scree plot demonstrated in Fig. 1 as follows,



**Fig. 1.** Scree plot

The results of Scree plot shown in Fig. 1 indicate that there are eight important factors. Table 3 demonstrates the results of factor analysis.

**Table 3**  
The summary of factor analysis after rotation

Variable	Component								
	1	2	3	4	5	6	7	8	9
Government incentives	.727								
Standard challenges in new markets	.691								
Intellectual Property	.569								
Legal Terms	.533								
Research sector and industry	.526					.394			
National Planning	.498		.349						
Advanced Technology	.492				.492				
Technical feasibility	.402			.361					
Risk		.792							
Entrepreneurial environment		.625							
Organizational structure		.579			.344				
Management Support		.512	.353						
Market elasticity			.656						
Pricing Strategies			.615						
Provide timely product			.560						
Financial Feasibility				.628					
Marketing Research				.605					
Material suppliers				.476			.460		
Technical experts					.772				
Nanotechnology					.640				
Market Forecast	.349		.353		-.384				
Success in the experimental stage						.685			
Commercialization process model						.589			
Competitive challenge							.656		
Competitiveness of existing firms							.619		
Distribution channels						.385	.424		
Supporting manufacturer								.634	
Insurance Research								.572	
Lobby with stakeholders								.533	
Commercial risk								.343	
Positioning the company									.797

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Based on the results of Table 4, there are eight important factors including supportive laws and regulations, organizational atmosphere, marketing structure, knowledge oriented, feasibility study, research and development, competitive strategy and partnership strategies. Using factor analysis, we can verify each of these eight factors and Table 5 summarizes the results of our investigation.

**Table 5**  
The summary of testing all hypotheses

Row	Alternative Hypothesis	p	Estimate	Reject the hypothesis	Accepting the
1	Government incentives	P<0.001	1		Accept
2	Standard challenges in new markets	0.112	0.202	Reject	
3	National Planning	P<0.001	1.527		Accept
4	Legal Terms	P<0.001	1.511		Accept
5	Intellectual Property	P<0.001	1.522		Accept
6	Organizational structure	P<0.001	0.947		Accept
7	Provide timely product	P<0.001	0.96		Accept
8	Market Forecast	P<0.001	0.919		Accept
9	Financial Feasibility	P<0.001	1		Accept
10	Marketing Research	P<0.001	1.042		Accept
11	Technical feasibility	P<0.001	0.935		Accept
12	Entrepreneurial environment	P<0.001	1		Accept
13	Risk	P<0.001	1.073		Accept
14	Management Support	P<0.001	1.06		Accept
15	Market elasticity	P<0.001	1		Accept
16	Pricing Strategies	P<0.001	1.033		Accept
17	Advanced Technology	P<0.001	1		Accept
18	Technical experts	P<0.001	0.895		Accept
19	Nanotechnology	P<0.001	0.788		Accept
20	Research sector and industry	P<0.001	1		Accept
21	Success in the experimental stage	P<0.001	1.127		Accept
22	Commercialization process model	0.091	0.228	Reject	

As we can observe from the results of Table 5, expect two cases, all other hypotheses are confirmed and Table 6 summarizes the results of our investigation.

**Table 6**

The summary of six factors and their sub-components

Factor	Variable	Important coefficient
Subsidiary Rules (1.1)	Intellectual Property	0.6
	Legal Terms	0.59
	National Planning	0.59
Organizational climate (1.03)	Management Support	0.65
	Entrepreneurial environment	0.61
	Risk	0.6
	Organizational structure	0.54
Marketing organization (0.94)	Marketing Research	0.64
	Financial Feasibility	0.61
	Technical feasibility	0.57
Knowledge (0.88)	Advanced Technology	0.67
	Technical experts	0.65
	Nanotechnology	0.57
Market Survey (0.78)	Pricing Strategy	0.7
	Market Forecast	0.63
	Provide timely product	0.63
	Market elasticity	0.62
Process research and development (0.67)	Success in the experimental stage	0.59
	Research sector and industry	0.52

As we can observe from the results of Table 6, subsidiary rules is the most important factor followed by organizational climate, marketing organization, knowledge, market survey and research and development.

#### 4. Conclusion

In this paper, we have presented an empirical investigation to detect important factors influencing export of Iranian herbal supplements. The proposed study has performed a comprehensive review on different items and using factor analysis, the study detected six factors influencing this industry. We hope the results of our study could help experts find major barriers in exporting herbal supplements and expand this market. In our survey, subsidiary rules were considered the most important item and the government needs to take the necessary actions on changing the rules and regulations on helping this industry grow. Marketing climate was the second most important factor and the experts are suggested to cooperate with public media to create more awareness on the advantages of exporting herbal supplements.

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