



Environmental Policy and Sustainable Innovation: A Step toward Greening and Gaining a Sustainable Competitive Advantage

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ABSTRACT

Following the rise of environmental concerns and state laws and regulations on environmental protection as well as the emergence of green consumers, the green marketing approach seems vital and yet necessary more than ever. The present study aimed to examine the importance of being green and the organization musts for adopting the green marketing philosophy and therefore the innovation and development of environmental products. It also reviewed the path of organizations toward sustainable development and growth and strengthening their competitive position through the use of environmentally friendly innovative techniques and producing goods and services that are less harmful to the environment. The test results of the data collected from 107 managers of small and medium enterprises (SME) in Iran show the managers' awareness of emerging opportunities to gain competitive advantage by considering environmental issues in the business and turning to the sustainable innovation. As the test results of the research hypotheses and the proposed model showed, the adoption of green marketing concept by managers is positively associated with sustainable innovation and competitive position of the company. Also, sustainable innovation of the company has a positive impact on the competitive position and finally, competitive position is positively related to the company profitability.

Key words: green marketing, innovation of environmental products, sustainable innovation, sustainable competitive advantage, profitability

INTRODUCTION

The idea of sustainable relationship between business and environment, that was first presented in almost two decades ago, was based on the assumption that environmental objectives and business objectives are not necessarily mutually exclusive and inconsistent [1]. The increasing growth of concern, and then the reports of environmentalists on many environmental problems including global warming, the increase in greenhouse gas emissions and the pollutions coming from factory operations and the holes of ozone layer [2], and consequently, applying an increasing volume of social and environmental laws and regulations, more awareness of consumers on the importance of social responsibility, concerns of companies about the scarcity of resources, rising costs and above all, general changes in social values and attitudes, encouraged many companies to include sustainable environmental issues as an essential component in developing their strategies [3]. From the mid-1990s, consumers were increasingly aware of environmental and social issues and meanwhile with the emergence of green consumerism (protection of green consumption viewpoint) and then ethical consumerism (protection of ethical consumption viewpoint), consumers started commenting on producing, processing and sourcing their products [4]. Survey shows that consumers reflect their concerns about the environment in various ways in their purchasing behavior and select some products and avoid some others based on their impacts on the environment [5]. In response to consumers' behaviors and environmental needs, the strategic importance of marketing and the critical role of innovation and sustainable initiatives were specified so that today new, sustainable product development is seen frequently in companies that ignored it in the recent past and the investment in sustainable products is becoming a position in order to gain competitive advantage and profitability. As a result, managers today must provide conditions to support this scenario [6], the industry must be restructured and the existing technology must be applied more proactively to create a green and sustainable growth [7]. This article provides

the answer to this question: Whether the adoption of green marketing concept by managers has a positive impact on profitability directly or indirectly (due to sustainable innovation and competitive position)?

Sustainable innovation, an answer to the green challenge and its consequences

The terms "sustainability" and "sustainable growth" have entered into the vernacular of academics, businessmen and policy makers. These people believe that when reviewing and assessing economic growth, its social and environmental impacts should also be considered and the long-term sustainability must be provided [8]. Sustainable innovation is a critical aspect for strategies of production, consumption and sustainable development. Sustainable innovation is the process of entering sustainability considerations into enterprise systems, from the idea emerging to R&D to commercialization, which is applied in goods, services, new businesses and organizational plans [9]. Opportunity identification is a stage in innovation that includes the search for new ideas emanating from new knowledge, current and future customers, companies, the set goals, R&D centers and innovative markets [10]. Innovation is widely considered as the foundation of performance, economy, and social welfare. More recently, industry leaders and policymakers have considered innovation as a key to fundamental improvements in environmental practices and firm performance. For example, the Japanese government has promoted the concept of sustainable innovation as "a new field of social-technical innovations" that focuses on people and the environment. Many companies have also considered environmental impacts throughout the product life cycle and have included environmental strategies and activities in their management systems. Some leading companies have attempted to apply the closed-loop system in order to eliminate final disposal by recycling wastes and converting them into new sources of production. Sustainable innovation will contribute to these changes and competitive developments in industrial activities and companies [7].

Kemp et al. (2000) classified the determinants of sustainable innovation into three categories:

1. Incentives and stimuli for innovation, which are related to the intensity of competition, demand amount and prevailing cost conditions (e.g. costs of waste reuse, energy prices, demand for environmentally improved goods, and lower trust factors for companies producing environmental goods).

2. The ability to integrate and synthesize the knowledge acquired from various sources, both internal and external to create a new product or process is necessary. This knowledge includes technical knowledge and the knowledge about markets.

3. Management capabilities to manage the innovation process within an organization, and between the companies of a chain and other stakeholders [11].

Generally, there are not clear and measurable definitions and boundaries for sustainable innovation, yet four major innovation levels can be identified in the environment improvement area:

- Level 1 (gradual): Gradual and progressive improvements in existing products.

- Level 2 (redesign or green limits): Redesign of most existing products (but limited to improvements that are technically feasible).

- Level 3 (functional or product replacements): Ideas for new products and services for specific functional requirements.

- Level 4 (systems): Design for a sustainable society [9].

As previously noted, many leading companies - knowing the importance of environment - are considering environmental issues in their business processes and have partly paved the ground for environmental protection. While it is assumed in this study:

First hypothesis: the adoption of green marketing concept by managers is positively associated with sustainable innovation.

Sustainable innovation, competitive advantage and profitability

The development of an environmental product which is excellent in environmental factors and can maintain its competitive position technically and economically is a major, critical challenge. The existing literature reflects the profits and benefits derived from institutionalization of environmental sustainability issues in business activities, particularly in the development of greener products [12]. In the meantime, many authors have stated that environmental products pave the ground for a growing and lucrative penetration in the market [6]. In their study in the Jordan chemical industry, Eiadat et al. found a significant positive relationship between the company environmental performance and business innovation strategies [13]. In another study among 83 managers of U.S. firms, Karagozoglue et al. found a positive relationship between environmental innovation and competitive advantage for companies as well as the environmental, financial and competitive functions [14]. On the other hand, several studies have also been done in the area of product innovation, which imply the failure of innovation processes (from initial idea to a successful product on the market) [13].

What is clear and must be paid attention is that the scope of environmental improvement of products and services may be large for a company, but only small parts of it have the capability to create competitive advantage for the company. Hence the creation of environmental products is a complicated issue and yet influenced by several factors. Companies with superior knowledge and awareness can coordinate their traditional sources and abilities in new ways and offer higher value to customers compared to competitors [6]. So the second and third research hypotheses are as follows:

Second hypothesis: Sustainable innovation is positively associated with competitive position.

Third hypothesis: Sustainable innovation is positively associated with profitability.

Green challenge and current competitive opportunities

Being green can occur due to internal and external pressures. There are many internal factors that exert pressure on companies to implement green activities. The first or the most important reason is the cost factor. It means that being green can lead to more efficient resources and financial savings. The second internal factor is the company philosophy. When companies care environmental objectives like other goals and include environmental issues in their existential philosophy, being green will tie with their strategies and then with their tactical activities. The third internal factor is to establish a competitive position in the market. Companies that consider environmental issues in the development and marketing process of their products will find competitive position relative to competitors [15].

External pressures are also another factor that leads to green companies. Among effective external factors, one can point to increasing pollution of the environment, competitors' measures, increasing government intervention in the reduction of environmental pollutions, and above all, satisfying customer needs and responding to their environmental behaviors [15].

A suitable positioning begins when the company's offering is really distinctive from the competitors' offering and thereby creating value for customers [16]. Few companies have found that being green gives them strategic advantage [17]. So given that social and environmental issues are important to customers today, the compliance of environmental issues in the marketing activities will create a competitive advantage for the company and thus, the company can establish a good and sustainable basis in the market. Considering the above literature, the fourth to sixth hypotheses are as follows:

Fourth hypothesis: The adoption of green marketing concept by managers is positively associated with competitive position.

Fifth hypothesis: Competitive position and profitability are positively correlated.

Sixth hypothesis: The adoption of green marketing concept by managers is positively associated with profitability.

According to the mentioned relationships and hypotheses, Figure 1 depicts the research conceptual model.

The predicting variables of the research proposed model is the adoption of green marketing concept and the final variable of this model is profitability. While sustainable innovation and competitive position are considered as a mediator variable in the relationship between the adoptions of green marketing concept and profitability.

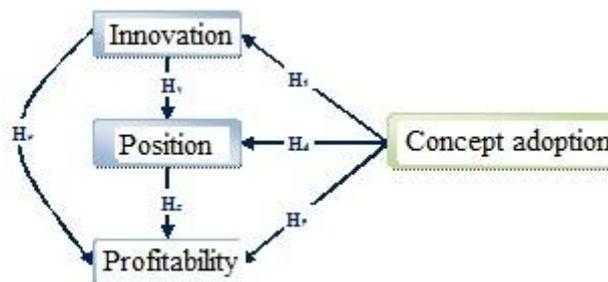


Figure 1: Conceptual model of the research

MATERIALS AND METHODS

The present study is practical in terms of purpose and is of correlation type in terms of nature and descriptive method in which a researcher-made questionnaire was used for data collection. The required data was collected among 150 managers. The managers were selected by cluster (stage) sampling among managers of small and medium enterprises operating in Iran. A total of 150 questionnaires were distributed and 107 questionnaires were returned that were usable. The questionnaire consisted of 16 questions, with a seven-point Likert scale (very low to very high) which were designed to measure the adoption of green marketing concept, sustainable innovation, competitive position and profitability from the perspective of managers. The questionnaire validity was specified following the survey of experts and professionals and its reliability was calculated using Cronbach's alpha coefficient of 0.91.

RESULTS

After collecting data, it was statistically analyzed and interpreted using SPSS 20 and the research hypotheses were tested using a series of bivariate and multivariate linear regression models. The results are summarized in Table 1.

Model 1 was used to test the first research hypothesis (i.e. the adoption of green marketing concept by managers is positively associated with sustainable innovation). The results indicate a positive relationship

between the adoption of green marketing concept and sustainable innovation (correlation coefficient of 0.31 and Beta coefficient of 0.31 at a significance level of 0.01). Model 2 was used to investigate the relationship between the adoption of green marketing concept and sustainable innovation and competitive position (the fourth and fifth hypotheses). As shown in Table 2, the adoption of green marketing concept by managers is positively associated with competitive position (correlation coefficient of 0.49 and Beta coefficient of 0.46 at a significance level of 0.01). The results also confirm a positive relationship between sustainable innovation and competitive position (correlation coefficient of 0.22 and Beta coefficient of 0.26 at a significance level of 0.05). Finally, the Regression Model No. 3 was used to test the third, fifth and sixth hypotheses. The results show that the adoption of green marketing concept has no significant relationship with profitability (sig=0.78, the sixth hypothesis is rejected). Also the sig (0.46) indicates that there is no significant relationship between sustainable innovation and profitability. Besides, the fifth research hypothesis (i.e. a positive relationship between profitability and competitive position) was confirmed (correlation coefficient of 0.26 and Beta coefficient of 0.45 at a significance level of 0.01)

Table 1. Results of regression tests

Dependent variable \ Independent Variables	Sustainable innovation Model 1	Competitive position. Model 2	Profitability Model 2
Adoption of green marketing concept	0.31**	0.46**	0.029
Sustainable innovation	--	0.26*	0.068
Competitive position	--	--	0.45**
Model F	10.99**	10.46**	10.38**
Degree of freedom	1	2	3
Adjusted R2	0.09	0.23	0.24
P<0.05 *, P<0.01 **			

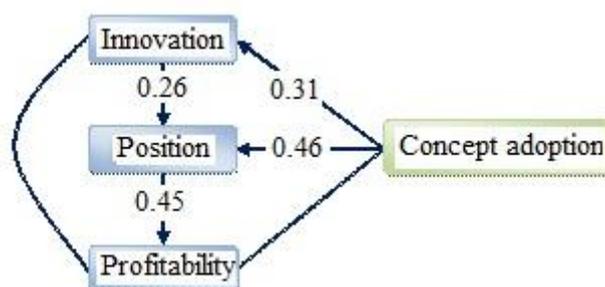


Figure 2. Final model of the research

DISCUSSION

The present study aimed to answer this question: Whether the adoption of green marketing concept by managers has a direct or indirect impact (due to sustainable innovation and competitive position) on profitability of the company or not?

The first research hypothesis stated that the adoption of green marketing concept by managers is positively associated with sustainable innovation. Sustainable innovation is the process of entering sustainability considerations in enterprise systems, from the idea emerging to R&D to commercialization which is applied in goods, services, new businesses and organizational plans [9]. In response to consumers' behaviors and environmental needs, the strategic importance of marketing and the critical role of innovation and sustainable initiatives are specified so that today the new and sustainable product development is seen frequently in companies that ignored it in the recent past and the investment in sustainable products is becoming a position in order to gain competitive advantage and profitability [6]. The test results of the first hypothesis confirmed that the adoption of green marketing concept by managers is positively associated with sustainable innovation. This result suggests that managers have realized the importance of environmental issues and problems and consider themselves partly involved in the environmental protection issue and as a result, they consider environmental issues in their production and promotion policies and strategies. The second hypothesis stated that sustainable innovation is positively associated with competitive position. In their study in the Jordan chemical industry, Eiadat et al. found a significant positive relationship between the company environmental performance and its business innovation strategies [13]. In another study among 83 managers of U.S. Firms et al. found a positive relationship between environmental innovation and competitive advantage for companies as well as the environmental, financial and competitive functions [14]. On the other hand, several studies have also been conducted in the area of product innovation, which imply the failure of innovation processes (from initial idea to a

successful product on the market) [13]. Our findings show that sustainable innovation is positively associated with competitive position. Managers believe that if they consider the sustainable innovation concept in their business, then they will gain a better position in the market and the sights and sounds of their essence will be more competitive. A positive relationship between sustainable innovation and profitability was the third research hypothesis. The existing literature reflects the profits and benefits derived from institutionalization of environmental sustainability issues in business activities, particularly in the development of greener products [12]. In the meantime, many authors have stated that environmental products pave the ground for a growing and lucrative penetration in the market [6]. The results of this study are not consistent with previous studies, i.e. managers believe that sustainable innovation does not directly affect the growth of corporate profitability. This can be interpreted as managers believe that given the resource spending for the foundation of sustainable innovation, it cannot alone guarantee profitability. A sustainable innovation that comes with true insights and promotes the company competitive position is more likely to promise future profitability. The fourth hypothesis stated that the adoption of green marketing concept by managers is positively associated with competitive position. A suitable positioning begins when the company's offering is really distinctive from the competitors' offering and thereby creating value for customers [16]. Few companies have found that being green gives them strategic advantage [17]. The study also found that the adoption of green marketing concept by managers is positively associated with competitive position. Companies whose managers have environmental insight and attitude and are aware of the problems associated with green marketing will have a better competitive position. The fifth research hypothesis stated that competitive position is positively associated with profitability. The test of this hypothesis showed that competitive position is positively associated with profitability. Finally, the last research hypothesis stated that the adoption of green marketing concept by managers is positively associated with profitability. There are many internal factors that exert pressure on companies to implement green activities. The first or the most important reason is the cost factor. It means that being green can lead to more efficient resources and financial savings [15]. This is not confirmed by the study results.

This paper aimed to introduce sustainable innovation and environmental innovation as opportunities to gain a sustainable competitive advantage and profitability and also to present the musts and requirements of this important issue. Clearly, only identifying and discussing issues will not lead to the correct solution. Societies, economic systems and markets are still away from the necessary and sufficient criteria and changes in increasing demand, production and consumption of sustainable goods and services and thereby, providing innovative areas for developing sustainable innovation. In other words, we are still in the first phase and there are many challenges and obstacles that must be overcome through research and efforts, some of which were briefly mentioned in this article. Raising awareness on green practices and values with focus on the environment can lead to changes in attitudes and thereby, more adaptable behaviors. Policymakers should use the advertising and communication programs to inform the public about these issues and especially their consequences. Scientific centers and universities should train entrepreneurs that have learnt the money-making ways consistent with the environment. It is true that the rewards and punishments are tools for shaping environmental behaviors, but the removal of these tools may make environmental practices to be forgotten while providing areas for social understanding of environmental behaviors will be much more effective and longer lasting. In other words, it is time to replace superficial laws and regulations with inner wants and musts. On the other hand, success in the development of a new product depends on a clear definition of strategy that will realize the competitiveness and profitability of the new product and also the alignment of this strategy with the organization's core strategy. In short, the atmosphere governing the market has provided a proper space for presenting innovations that minimize the use of natural resources and harm to the environment. To get the advantage of these opportunities, managers must change their strategies commensurate with the existing conditions for businesses and environmental measures. Managers must also link social and environmental issues to the market and economic aspects of the company strategies. On the other hand, companies should also have the capabilities and resources required for facilitating the development of sustainable product innovation based on the customer's needs and values.

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