

# Studying the Effect of Social Marketing Mix to Reduce Gas Consumption (Case Study: North & Eastern Part of Shahrekord in Iran)

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## ABSTRACT

In this study, using social marketing principles and utilizing the theory of planned behavior, Social marketing mix effects on gas household consumer behavior in Shahrekord have been studied in order to reduce gas consumption. This study is applicable and descriptive-field studies in nature. Information required were collected by the questionnaire and taking a stratified random sampling method. In this study, the methods of descriptive statistics were used such as: Frequency distribution tables, the average to study and Compared data collected through questionnaires and inferential statistics, t test in a group (or individual samples), two samples t and analysis of variance (ANOVA), Pearson correlation and stepwise regression analysis. Subsequently, SPSS software was used for analysis and application of these tests and also AMOS software was used for factor analysis and structural equation modeling.

**Key Words:** Social Marketing, Theory of Planned Behavior, Marketing Mix, Social Marketing Mix

## 1. Introduction

Marketing researchers have announced environmental issues for the first time in 1970 with the advent of environmental marketing concept, these concepts represented social marketing environmental development and emphasized that marketing activities are responsible for society welfare as much of beneficiaries and the consumers. At the first topics focused on a few business issues: (including petroleum, automotive and chemical industries) and consumer behavior: (including recycling and saving energy), but in the late 1980s the concept appeared such as: environmental marketing or green marketing.

Energy has an important role in the social and economic development of countries. This not only enhances the energy needs of the country, but also has resulted in increased use (Payne, 2010). A glance at the figures of other countries shows that unsustainable use of energy, especially natural gas, in public use (residential and commercial) are ranked lower than consumption in the areas affecting economy. But in our country, unlike today dominant view, focus is on oil and gas or petroleum products, the use of "fuel", not on used generators and its value to the industrial development of the country's GDP toward country's industrial development.

According to available statistics, the amount of energy consumption in Iran is about 17 times of Japan, 4 times of Canada and 2 times of China, if this trend continues and there is no correct management in the energy consumption in the country, in near future we will be faced with a more serious crisis. (Noferesty, 2009).

Using social marketing principles can be effective in reducing energy consumption. Significant impact of social marketing on reducing gas consumption was studied based on the theory of planned behavior in the domestic consumers of gas in Shahrekord.

## 2. Theoretical and research hypotheses

### 2.1 Social Marketing

The term "social marketing" was first mentioned in 1971 by Philip Kotler and Gerald Zaltman and designed from diverse bodies of knowledge such as psychology, sociology, anthropology, political science and communication theory with a scientific background in advertising, public relations market research. It tries to create positive social changes and can be used to promote suitable products, create a targeted audience,

and ultimately prevent the promotion of products and services being used (Serrat, 2010).

### 2.1.1 Key definitions of social marketing

French and Stevens (2010) believe that social marketing is: systematic marketing techniques with other means to achieve specific behavioral goals for social results. (French and Steven, quoted by Amiri, 2012) .

Dann (2010) states that social marketing is the adaptation of activities, commercial enterprises and marketing processes as tools for temporary or permanent behavior change induced in the target market to achieve social goals.

However, despite the various definitions of social marketing, the common elements in all definitions can be seen as follows (Dann, 2010):

- (a) These definitions follow commercial marketing principles and concepts.
- (b) All definitions represent a mechanism for changing behavior to verify the application of marketing concepts, changing and adapting their behavior and consumers.
- (c) Changes are voluntarily and based on the principles and mechanisms of social exchanges.
- (d) Changes will bring personal and social benefits.

### 2.1.2 Social Marketing Applications

The main applications of social marketing can be seen in the following cases:

- (a) Protecting natural and environmental resources including energy saving, water, electricity, gas, petrol and other fuels.
- (b) Green Marketing including: reduction of environmental, air, soil, rivers, hills and towns pollution
- (c) Preventive activities such as fire, bites and poisoning.
- (d) Participation in social, cultural, economic and political cases, elections, associations, unions and networks.
- (e) health issues including periodic medical examination, dental, psychological tests, avoiding harmful habits, lifestyle changes such as avoiding obesity and exercise advice.
- (f) Behavioral changes, good promise, promise and fidelity (Hasting, quoted by Amiri, 2012).

### 2.1.3 Social Marketing Mix:

In 1964, Neil Borden represented using four factors to achieve the desired marketing objectives on the target audiences. These factors include product, price, place and promotion. Here is a question that how concepts such as product, price, place and promotion are defined in social media. In discussing social marketing, product is defined as the new behavior and benefits of that behavior for target group. Price indicates consumer expenditure incurred in exchange for new behavior and shows mostly the dissatisfaction that People cope with the new treat. Place is a place on the market for the exchange. In order to get the new behavior, environmental factors help to facilitate this adjustment. Finally, promotion is efforts to communicate with the target group about the benefits of the product.

With regard to the above, we can say that social marketing needs appropriate and consistent mixture of its related field regarding a wide range of social issues.

#### (a) Proposition instead of product:

Product is referred to the desired behavior and its benefits that this behavior is considered social marketing efforts for supply to the target audiences (Kotler et al, 2002; Weinreich, 1999).

#### (b) Cost of involvement instead of price:

Rate or charge regards whatever consumer does for accessing to goods and product in social marketing. (Mohammadi et al, 2005) or shows itself as dissipation of energy, anxiety and worry or loss of pleasure (Mirak-Zadeh et al, 2010). Social marketing cost refers to the price at which the audience will be incurred in adapting to the new behavior. (Kotler et al, 2002; Weinreich, 1999).

#### (c) Accessibility instead of promotion:

Social marketing is not always based on a physical product, although it may also be included. Social marketing mostly depends on service marketing that are its accessibility is the main key. (Kotler et al, 2002). Where information and education about the ideas or behavior of their customers, it is included here (Mirak-Zadeh et al, 2010).

#### (d) Social communication instead of promotion:

The fourth element, the promotion is also part of the social marketing mix that is often confused with social marketing. Promotion includes activities that promote the service provider or the manufacturer of the goods in

order to give useful information to the customer and to encourage customers to buy merchandise (Mirak-Zadeh et al, 2010).

### 2.1.4 Other elements of the social marketing mix

#### (a) Publics

Many experts have often several addressed that they should consider them for successful programs. Public is referred to the internal and external groups in the program. Outsidepublic includes target group, secondary audiences, policymakers and key people and the internal public includes people involved within the establishment or implementation of the program (Mohammadi et al, 2005).

#### (b) Partnership

Occasionally, some organizations have not sufficient human and financial resources to pursue social marketing efforts (Weinreich, 1999). The social issues are often so complex that no single organization or sector is able to solve them. Thus, a team of partners with other organizations in the community are needed in real and can double the success. (Mohammadi et al, 2005).

#### (c) Policy

A specific policy is necessary for changes to ensure that the environment for social change is in the long-term stability. Social marketing programs can do well in motivating people to change behavior, but the persistence of behavioral changes is difficult without the support of environment (Mohammadi et al 2005).

## 2.2 Theory of Planned Behavior

Theory of planned behavior is one of the most important theories that explain the mechanism of the adoption of healthy behaviors. This theory includes attitude, perceived behavioral control, subjective norms, intention and behavior (Lee, 2010). This theory predicts the occurrence of a particular behavior, provided that the person is going to behave. According to this model, the intention to perform a behavior is predicted by three factors:

1 - The person must have a positive view of the behavior (attitude).

2 - Person feels social pressure to perform the behavior (subjective norms).

3 - The person feels able to perform the behavior (perceived behavioral control).

As a general rule, in this model a positive attitude towards work, subjective norms and perceived behavioral control cause that person is going to act (Glanz 2002). Figure 1 shows the model of theory of planned behavior.

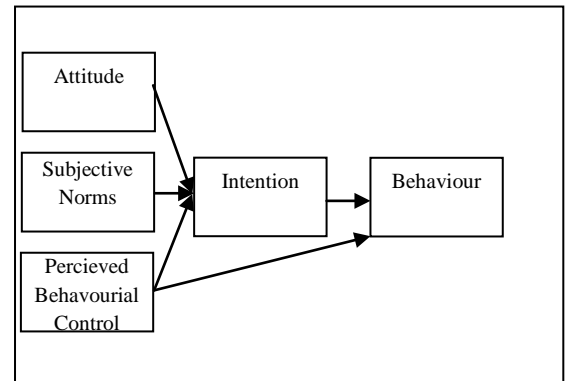


Figure 1: Theory of Planned Behavior, Nishimura, 2011

## 2.3 The position of Iran in the world's gas reserves

The world economy needs energy and studies show that hydrocarbon resources will remain the most important energy resources until 2050. The geographical distribution of the resources shows that until 2025, only five countries in the Persian Gulf including Iran / Saudi Arabia / Kuwait / Iraq and the United Arab Emirates are as major oil producers and Iran, Russia, Qatar, Saudi Arabia, and United Arab Emirates are manufacturers of gas.

According to the report, by the end of 2008, the world's gas reserves are estimated at about 185 trillion cubic meters. Russia is a country with a 43.3 trillion cubic meters and the proportion of 23.4 percent with the largest gas reserves, and then we have Iran by 29.61 trillion cubic meters with a share of 16%, is considered to be the world's second largest gas supplier (National Iranian gas). But the reality is that they concern the imbalance between aggregate demand (consumption, exports and injected into oil wells) and gas supply (production and imports).

Even assuming all of the oil ministry programs, design and implementation of national projects to reduce gas consumption by improving consumption patterns,

particularly in the domestic sector are necessary. In addition to helping to reduce domestic supply and prevent the closure of industries and power plants and eliminate our dependence on gas imports and increase exports, it will follow contributing to the growth and prosperity of the country (Noferesty, 2009).

### 2.4 Hypotheses, variables and model research

The main hypothesis tested in this study is as of the following: Social marketing mix is effective in domestic gas consumption reduction in Shahrekord. In this study, social marketing mix (including the five dimensions

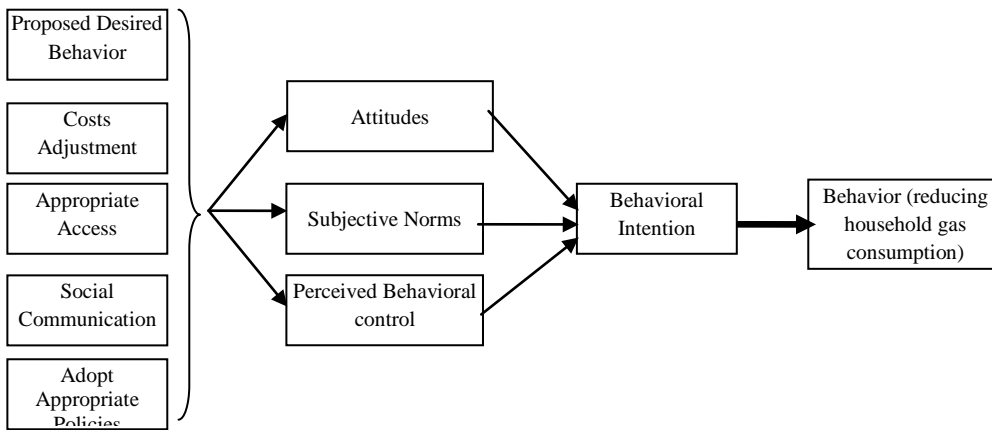


Figure 2: Conceptual model of social marketing mix effect in reducing household consumption of gas

proposed desired behavior, costs adjustment, appropriate access, Social communication and adopt appropriate policies) is independent variable, attitudes, subjective norms, and perceived behavioral control are Mediating variables and Finally, the dependent variable is behavioral intention. This conceptual model is shown in Figure 2:

## 3. Research Methodology

### 3.1 Methods

This research is considered an applied survey. According to the study, the role and impact of social marketing mix on planned behavior (reducing gas consumption) have been studied and examines the present situation. The scope of the research is descriptive with a correlation study.

### 3.2 Statistical population, sample size and sampling

All participants in the study are gas subscribers in the North and East of Shahrekord in the fall and winter of 2012 that according to the gas department, they are about 30 thousand subscribers. Based on sample size determination and Morgan table (1970) 379 participants were suitable for study. However, it is likely that some of the questionnaires may be flawed or incomplete, therefore, 385 questionnaires were distributed randomly and about 377 were fully completed and returned. Thus, the study sample consisted of 377 people.

### 3.3 Research Tools

In this research, field research methods were used in the questionnaire in order to gather the data needed for research. Questions relating to the assessment of studied structural models, using a Likert five options spectrum based on researcher

made questionnaire has been prepared and after the necessary corrections was used.

### 3.4 validity and reliability of measurement instruments

For evaluating validity of the measurement tools in this study, content validity is used. Thus the initial questionnaire utilizes experts and professionals opinions in the field of social marketing and the theory of planned behavior, about number of the questions, How to express questions, questions transposition and spectrum of response options, have been reviewed and finally, after several stages of review and a pilot phase, the final questionnaire was formulated. In this study, the Cronbach's Alpha was used to calculate the reliability coefficient. Cronbach's alpha respectively for the entire social marketing mix and aspects of theory of planned behavior which is measured by the researcher is 0.89, which is indicative of the high reliability of measurement instruments.

### 3.5 Methods of data analysis

In the present study, regarding the nature of hypotheses and variables, statistical tests were used. In this study the methods of descriptive statistics such as frequency distribution tables And Average was used for evaluate and compare the data collected by questionnaire and and in inferential statistics section, t-tests in a group (or individual samples), two samples t and analysis of variance (ANOVA) was used. Finally, for analyzing and implementation this tests SPSS software was used andfor factor analysis and structural equation modeling, AMOS software was used.

## 4. Results and Findings

### 4.1 Descriptive Findings

The sample group includes 377 participants, 7.4 per cent following a Diploma in Education, 22.3diploma or associate degree, 64.7 percent have a bachelor's degree, 5.6 percent have a master's degree. Also, 57 percent in the age group 30 years, 26.5% in the age group 31 to 40

years, 12.5% in the age group 41 to 50 years, 1.4% in the age group 51 years and above, and 2.6 percent have not stated their age. Also, of the research sample, 34.1% were male and 65.1 percent were women.

### 4.2 Findings from Examing the research hypothesis

#### 4.2.1 Evaluation of Measurement Model

Before getting into hypothesis testing and research conceptual model it is necessary to ensure the accuracy of the measurement model of research variables. Measurement model of these variables are shown in Table 1, this is done by factor analysis . Finally, according to the above we can be conclude that measurement patterns have a good fitness and In other words overall indicators confirm that the data appropriately support the patterns .

Table 1: The overall Indicators for fitness patterns Measurement Model

Structures	Propose Desirable Behavior	Cost Adjustment	Appropriate Access	Social Communication	Policy	Mix	Attitude	Subjective Norms	Perceived Behavioral Control	Behavioral Intention
Index										
CMIN	2/91	4/09	1/51	1/27	0/000	3/42	2/93	2/37	6/56	0/00
P	0/23	0/12	0/21	0/18	-	0/33	0/08	0/30	0/03	-
CIMIN/DF	1/45	2/04	1/51	1/72	-	1/14	2/93	1/18	3/2	-
GFI	0/99	0/99	0/99	0/99	1/00	0/99	0/99	0/99	0/99	1/00
RMR	0/008	0/015	0/01	0/01	0/00	0/007	0/011	0/017	0/05	0/00
CFI	0/99	0/99	0/99	0/99	1/00	0/99	0/99	0/99	0/97	1/00
NFI	0/98	0/98	0/98	0/99	1/00	0/99	0/99	0/99	0/95	1/00

### 4.2.2 Structural Model

After evaluation and confirmation of the measurement model in the first step, In the second step, structural equation was used to test the hypotheses. In this hypothesis, that the impact of social marketing mix on reducing domestic gas consumption in Shahrekord will be examined. The overall indicators of the model fitting are listed in Table 2. Moreover, the structural equation model is presented in Figure 3.

Table 2: The overall fitness indicators of the structural equation model analysis of hypothesis

CMIN	CMIN/DF	P	GFI	RMR	CFI	RMSEA
88/83	2/40	0/000	0/95	0/02	0/97	0/06

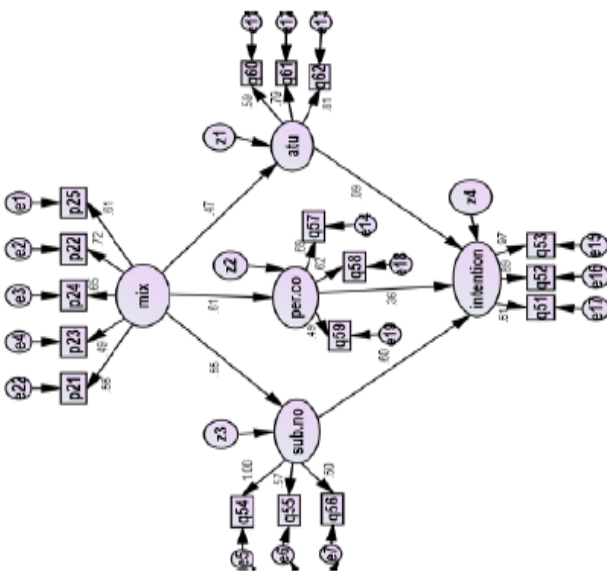


Figure 3: Structural equation pattern for impact of marketing mix on reducing domestic gas consumption

According to the Table 1 and 2 it can be concluded that the overall indicators show a good fitness of pattern by data or in other words it can be said that the data collected well support the model.

### 4.2.3 Hypothesis Testing

This hypothesis, along with the regression coefficients and partial index values are presented in Table 3.

Since the social marketing mix through attitudes, subjective norms, and perceived behavioral control affects on behavioral intention to reduce domestic consumption of gas, with confirming the first six relations can be concluded that with 95% confidence,

social marketing mix has an impact on reducing domestic consumption of gas in the Shahrekord.

### 4.2.4 The Results of Stepwise Regression:

The impact of social marketing mix dimensions on dimensions of theory of planned behavior To reduce gas consumption :

#### (a) The impact of dimensions of the Social Marketing Mix on attitude:

Hypothesis examination via stepwise regression analysis show that of the dimensions of social marketing mix , proposed desirable behavior (t=3/82, P<0/01) and social communications(t=1/97 , P<0/01) have been effective on attitude towards reducing consumption.

#### (b) The impact of dimensions of the Social Marketing Mix on subjective norms:

Also the results of analysis show that of the dimensions of social marketing mix , Social communication(t=3/83,P<0/01), costs adjustment(t=4/004,P<0/01), convenient access(t=2/58,P<0/01) and proposed desired behavior(t=2/18,P<0/01)have been effective on subjective norms towards reducing consumption

#### (c) The impact of dimensions of the Social Marketing Mix on perceived behavioral control:

Of the dimensions of social marketing mix ,adopt appropriate policy(t=5/52,P<0/01) andsocial communication(t=2/24,P<0/05)have been effective on perceived behavioral control towards reducing consumption.

#### (d) The impact of dimensions of the Social Marketing Mix on behavioral intention:

Of The dimensions of social marketing mix in three steps, costs adjustment(t=6/23,P<0/01), adopt appropriate policy(t=2/37,P<0/01) and proposed desired behavior(t=2/31,P<0/01)have been effective onbehavioral intention towards reducing consumption.

Table 3: Regression coefficients (Hypothesis testing result)

No.	Relations	Regression coefficients	Critical value	P	result
1	Social Marketing Mix → Attitude	0/46	5/66	0/000	approved
2	Social Marketing Mix → Subjective norms	0/54	5/78	0/000	approved
3	Social Marketing Mix → Perceived behavioral control	0/60	6/91	0/000	approved
4	Attitude → Behavioral intention	0/08	2/01	0/040	approved
5	Subjective norms → Behavioral intention	0/60	6/67	0/000	approved
6	Perceived behavioral control → Behavioral intention	0/36	6/42	0/000	approved

### 5. Conclusion:

The results of this study show that there exists a significant positive relationship between the dimensions of the social marketing mix (including the five dimensions proposed: desired behavior, costs adjustment, appropriate access, social communication and adoption of appropriate policies), as a perfect tool to encourage domestic gas consumers to reduce consumption, and reducing gas consumption in the domestic sector, which means that the application of the marketing mix in reducing domestic gas consumption is quite effective.

According to the results of this research, social marketing mix significantly affects gas consumption in the household sector. Therefore it is recommended that the custodians of the country's energy perform their corrective programs in reducing energy consumption in the framework of a social marketing campaign. In addition, according to the results obtained, costs adjustment compared to other aspects of social marketing mix has a greater impact on the desired behavior, and other dimensions designed to be able to cover this aspect as well.

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