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# Impact of Peripheral Factors on Reducing the Consequences of the Targeted Subsidies from the Greenhouse Owners' View Point: The Case of Semnan Province, Iran

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**Abstract**

The purpose of this study was to investigate the peripheral factors on reducing the consequences of the targeted subsidies from the view point of greenhouse owners of Semnan Province, Iran. The population of the study comprised greenhouse owners of Semnan Province. The sample size was calculated using Cochran formula and encompassed a number of 287 greenhouse owners. The main research tool used in this study was a questionnaire. SPSS v21was used to analyze the data obtained through the questionnaires. Based on hypotheses and theories, questions were designed, and after testing validity and reliability (based on the dependent variable Cronbach's alpha was calculated equal with 87.8) indices, modifications were performed. To examine the hypotheses of this research, the correlation coefficient was estimated, and a multiple regressions analysis was run. The results showed that current expenses, using the proper structures for constructing greenhouse, method of fuel use, the perfect place of heaters, and the use of skilled workers in the greenhouse had a key role in reducing the impact of targeted subsidies plan (dependent variable) on greenhouse owners. These variables explained 40.2 per cent of the variance in the dependent variable.

*Keywords:*
*greenhouse, peripheral factors, subsidies, Semnan Province*

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## INTRODUCTION

A greenhouse is a building in which plants are grown. Nowadays, greenhouse products are considered as one of the most important elements of people's daily consumption. This is more important when we consider the fact that in Iran, farmers are forced to produce the crops in intensive areas due to the shortage of water resources, land quality and drastic climate changes. However, targeted subsidies plan had some harmful effects on greenhouse production in the last couple of years (Jozwik; 1992, Arde & Ghazvi, 2010; Mohammadi et al., 2013).

The Iranian targeted subsidy plan also known as the subsidy reform plan was passed by the Iranian Parliament on January 5, 2010. The goal this plan is to replace subsidies allocated to food and energy (80% of the total) with targeted social assistance, in accordance with Five Year Economic Development Plan and moving towards free market prices in a five-year period. According to the government reports, approximately 100 billion dollars is spent on subsidizing energy prices per year in which 45 billion dollars is paid for the prices of fuel alone and also for many consumable goods including bread, sugar, rice, cooking oil and medicine (Kazemi et al., 2011).

As a consequence of the implementation of targeted subsidies plan, many greenhouse owners have declared to be bankrupt due to increasing fuel prices (Mohammadi, 2013). The main problem of greenhouse owners is not only provision of different material for production such as, fuel, seeds, plastics, fertilizer, pesticide; but also marketing and supplying human resources whose prices have dramatically increased over past years (Dehghani et al., 2007). On the other hand, many researchers have emphasized that the performance of greenhouses in Iran is not desirable at all in comparison with other countries due to the lack of proper technical knowledge of the owners (Mergen, 2011). Such poor performance of these owners of greenhouses has made them more fragile against the shocks produced by changes of energy costs.

Although, most studies have underscored educational needs as the most important factor (Mattson, 2008; Sabouri & Minaee, 2009), it seems that in Iran, identifying peripheral factors is a very crucial issue that needs to be seriously taken into account.

*The overall objective of this study was to investigate the impact of peripheral factors on dependent variable which is the consequences of the targeted subsidies from the view point of greenhouse owners in Semnan Province.*

## MATERIALS AND METHODS

An applied research with causal-relative method was used. The study was carried out in Semnan Province, Iran. Based on Iranian General Census (2011), there are nearly 700 official active greenhouses in this province.

The statistical population comprised all greenhouse owners of Semnan Province, which cultivate at least 1,000 square meters (0.1 hectare) of greenhouses in each period of planting. Based on Cochran formula, the sample group was determined 287 greenhouse owners. In this study, random sampling was used. The main research tool used in this research was questionnaire. Based on hypotheses and theories, questions were designed and after testing validity and reliability (based on the dependent variable Cronbach's alpha was calculated 87.8), modifications were performed. Field study was considered for filling the questionnaires. Descriptive statistics data analyses were executed by version 21 of SPSS software. In addition, correlation and multiple regressions analysis were applied for inferential statistics.

## RESULTS

The research findings showed that 12.5% of greenhouse owner's were below the age of 30 and 1.4% of them were above the age of 60. In terms of age, the largest population of greenhouse owners (92 individuals) was between 31 to 40 years old (Table1).

The level of education of 0.7% greenhouse owners was familiarity with reading and writing, and 24.7% had the B.A. degree and above. In addition, the majority of individuals were high school graduates (34.1%). A number of 98 on average had high school diploma and 29.3%

(84 persons) of greenhouse owners had the technician graduation (Table 1).

Based on the results, 57.1% of the target group declared the amount of their greenhouse lands is below 0.5; whereas, 30.7% declared that the amount of their greenhouse lands is between 0.5 to 1 ha. In addition, 12.2% (the minimum frequency) indicated that their lands are above 1 ha

Descriptive statistics of variables are shown in Table 2. According to that, "using the suitable

Table 1
*The Personal Characteristics of the Target Group: Greenhouse Owners' Age, Level of Education and Amount of Their Greenhouse Lands (n=287)*

| Individual characteristics | Group | Frequency | Percentage |
|---|---|---|---|
| **Age (year)** | Up to 30 years | 36 | 12.5 |
| Min: 24 | 31-40 | 92 | 32.1 |
| Max:65 | 41-50 | 64 | 22.3 |
| SD:8.653 | 51-60 | 91 | 31.7 |
| Mean:43 | more than 60 years | 4 | 1.4 |
| **Sex** | Female | 24 | 8.4 |
| | Male | 263 | 91.6 |
| **Education level:** | Reading & writing level | 2 | 0.7 |
| | Eight class | 32 | 11.1 |
| | High school diploma | 98 | 34.1 |
| | Associated diploma | 84 | 29.3 |
| | Bachelor's Degree or higher | 71 | 24.7 |
| **Amount of lands** | To 0.5 Ha | 164 | 57.1 |
| The lowest:1000.000 | 0.5-1 | 88 | 30.7 |
| The highest:13500.000 | Over 1 Ha | 35 | 12.2 |
| SD:3400.77331 | | | |
| Average:5404.5296 | | 32 | 11.1 |
| **Fixed expenses (IRR[1])** | To 30 Million | 6 | 2.1 |
| Min: 30 million | 31-60 | 249 | 86.8 |
| Max: 85 million | 61-90 | | |
| SD: 15.20383 | | | |
| Mean: 67.8780 | | | |
| **Current expense (IRR)** | 2-4 Million | 34 | 11.8 |
| | 4.1-6 | 67 | 23.3 |
| | 6.1-8 | 35 | 12.2 |
| | Over 8 | 151 | 52.6 |

Table 2
*Descriptive Statistics of Economic Variables*

| Variable | Mean | SD |
|---|---|---|
| Reducing the interest rate of loan received by greenhouses | 4.74 | 0.459 |
| Pricing the products expertly | 4.56 | 0.471 |
| Direct payment of subsidy to the greenhouse owner by government | 4.49 | 0.466 |
| Using the proper structures for constructing greenhouse | 4.33 | 0.471 |
| Use of skilled workers in the greenhouse | 4.54 | 0.500 |
| Using the suitable productive soil | 4.79 | 0.405 |
| Using the suitable seeds | 5.00 | 0.00 |
| Using pesticides and fertilizer with optimum performance | 4.89 | 0.311 |
| The assessment of time of cultivation as reduces the fuel consumption | 4.11 | 0.583 |
| Doubling walls in greenhouse | 2.41 | 1.083 |
| Controlling greenhouse' heat energy | 4.01 | 0.454 |
| The perfect place Heaters | 4.46 | 0.500 |
| Method of Fuel use | 4.56 | 0.497 |

Scale: 1 = very low, 2 = low, 3 = average, 4 = high, 5 = very high.

[1] *IRR: Iranian Currency ($1= 35000 IRR)*

Table 3
*Correlation Coefficient between Variables*

| Variable | Coefficient | p-value |
|---|---|---|
| Amount of greenhouse lands | -0.021 | 0.727 |
| Revenue | -0.079 | 0.184 |
| Fixed expenses | -0.021 | 0.719 |
| Current expenses | 0.180** | 0.002 |
| Using the proper structures for constructing greenhouse | 0.173** | 0.003 |
| Use of skilled workers in the greenhouse | 0.156* | 0.048 |
| Using the suitable and productive soil | -0.002 | 0.977 |
| Using pesticides and fertilizers with optimum quality. | 0.021 | 0.722 |
| The assessment of time of cultivation as reduces the fuel consumption | 0.042 | 0.479 |
| Doubling walls in greenhouse | 0.011 | 0.849 |
| Controlling greenhouse' heat energy | -0.030 | 0.608 |
| The perfect place Heaters | 0.125* | 0.035 |
| Method of Fuel use | 0.162** | 0.006 |

**p<0.01 *p<0.05

Table 4
*The Regression Analysis Summary*

| Model | R | $R^2$ | Adj$R^2$ |
|---|---|---|---|
| Enter | 0.634 | 0.402 | 0.386 |

Table 5
*The Regression Coefficient*

| Variable | B | Beta | SE | t | p-value |
|---|---|---|---|---|---|
| Constant | 12.324 | - | 1.893 | 8.0047 | 0.000 |
| Current expenses | 0.667 | 0.835 | 0.091 | 7. 365 | 0.000 |
| Using the proper structures for constructing greenhouse | 0.463 | 0.717 | 0.070 | 6.609 | 0.000 |
| Method of Fuel use | 0.204 | 0.303 | 0.025 | 4.260 | 0.000 |
| The perfect place Heaters | 0.183 | 0.270 | 0.062 | 2.972 | 0.003 |
| Use of skilled workers in the greenhouse | 0.105 | 0.243 | 0.054 | 3.745 | 0.009 |

seeds" and "using pesticides and fertilizers with optimum quality" were in first and second order, respectively.

In order to study the relationship of research variables, the researcher calculated the Pearson correlation coefficient. As shown by Table 3, there was a positive and meaningful correlation between reducing the consequences of the plan is targeted subsidies with current expenses, using the proper structures for constructing greenhouse, use of skilled workers in the greenhouse, the perfect place heaters and method of fuel use.

To determine the role of variables were used regression Inter method. Variables entered into the model the explanation 40.2% of the variance in the dependent variable (Table 4).

Table 5 shows the finding of the regression analysis of independent variables. According to Table 5, there was a linear regression between reducing the consequences of the plan is targeted subsidies (dependent variable) and current expenses, using the proper structures in constructing greenhouse, method of fuel use, the perfect place heaters and use of skilled workers in the greenhouse.

## DISSCUSION

Production of greenhouse is one of the manifestations at Industrial agriculture, however, a great number of greenhouse owners were bank-

rupt from the beginning of the target subsidies plan. This survey was done with the purpose of regression analysis of effective factors on reducing the consequences of targeted subsidies from the viewpoint of greenhouse owners of Semnan Province of Iran.

This study showed that there is a positive and meaningful role between reducing expenses with current expenses, using the proper structures in constructing greenhouse, method of fuel use, the perfect place heaters, and use of skilled workers in the greenhouse.

The finding of regression analysis showed reducing of current expenses can play an important role in reducing expenses. Current expenses reduction can reduce the effects of targeted subsidies to the greenhouses. This finding is consistent with the findings of Mattson (2008) and Latimer et al. (2002).

In addition, it was found that that there is a relationship between reducing the consequences of targeted subsidy (reducing expenses) and using the proper structures in constructing greenhouse. Use of a suitable structure plays a role in reducing energy consumption and consequently reduces the impact of targeted subsidies. This finding is consistent with Suvedi et al. (2010) and Ford (2005) results.

Method of fuel use plays role in reducing the consequences of the plan is targeted subsidies. These findings were in accordance with Ford (2005) and Arde and Ghazvi (2010).

The perfect place heaters and the use of skilled workers in the greenhouse can contribute to reducing the consequences of targeted subsidies. Eventually, the results of the research verified studies done by Mattson (2008) and Sabouri and Minaee (2009).

Therefore, the peripheral factors mentioned above can be considered as best methods for reducing the consequences of targeted subsidies. The study findings appear; when the consequences of the plan targeted subsidies will be reduced current expenses, appropriate structures to be designed, the use of skilled labor and heating appliances with appropriate design.

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