Do energy policies work?
Empirical evidence from targeted fuel subsides in agricultural sector, Iran

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1- Introduction

Energy efficiency policy has been followed by Iran's government system during recent years as the main approach to reach sustainability. Since 2010, subsidy reform plan has been implemented by government. It is described as one of the most important undertakings in Iran's recent economic history. Targeted fuel subsidies law constitutes a substantial part of this approach.

The goal of the subsidy reform plan is to replace subsidies on food and energy with targeted social assistance (anti-poverty family focused policies such as direct cash payment to low income strata; provision of basic social services, hygiene or health programs or subsidies). Hence, the ultimate goal was to move toward **sustainability** through:

- reaching social equity
- rationalizing energy consumption,
- consuming energy efficiently,
- moving towards free market prices, etc.

2- Question

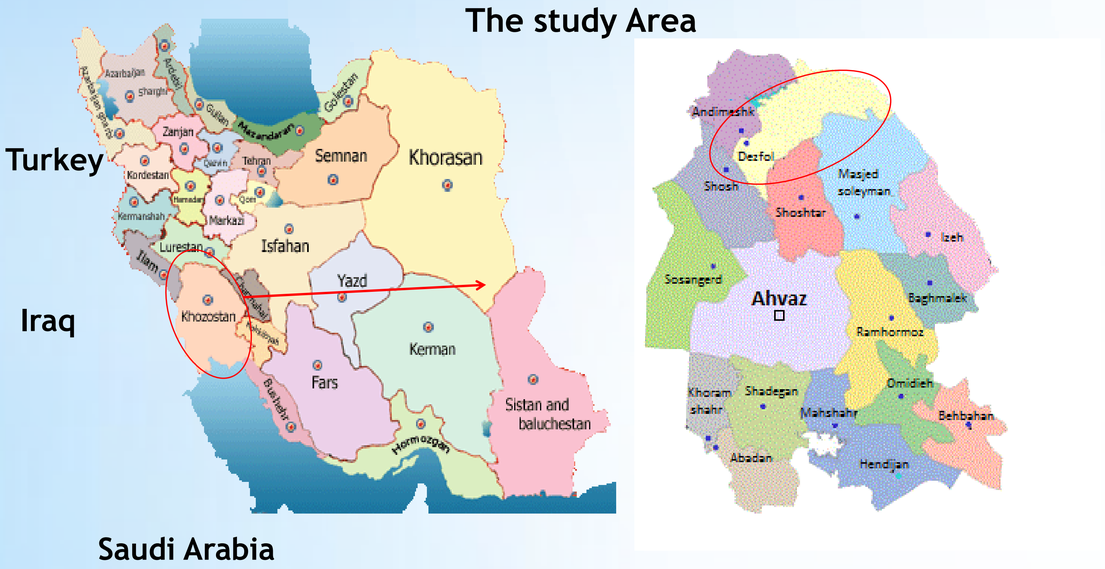
Agriculture sector as one of the major oil fuels consumers has affected greatly from the implementing of fuels price reforms. Farmers consume fuels for various usage such as pumping ground water, moving agricultural equipment and vehicles, heating poultry sites, etc. Before implementing the targeted fuel subsidies law, farmers could provide their needed fuels with low prices, so, over consumption and wasting energy commonly expected to happen. This research aimed to investigate the opinions of farmers regarding targeted fuel subsidies law. It was conducted to answer this question: **Is the mechanism applied to implement targeted fuel subsidies law satisfactory for farmers in terms of:**

- reaching equal resources distribution,
- providing more accessibility to,
- provoking optimal usage of fuels,
- and preventing illegal jobs like fuel smuggling operation?

3- Method

A survey study was conducted in an agriculture-based area of Iran. For this, Dezful County, Southwest of Iran, was selected. A random sample of 160 farmers who use fuels for their various farm operations were asked to fill out the study questionnaire.

The study Area



4- Results

Descriptive statistics of variables showed that farmers were moderately satisfied with the targeted fuel subsidies law in terms of its impact on optimal fuel consuming, equal distribution, convenient accessibility, and preventing fuel smuggling.

variable	Mean	SD
optimal usage	3.17	0.56
equal fuel distribution	3.26	1.07
convenient access to assigned portion of fuel	3.24	0.69
preventing fuel smuggling	3.35	0.68

Range of score: 0-5

Comparison of the study variables between farmers possess less or more than 15 ha farmland, revealed that there were significant differences between them. Those who owned less than 15 ha, evaluated the targeted fuel subsidies law more successful in reaching equal fuel distribution, providing more accessibility to, provoking optimal usage of fuels, and avoiding illegal jobs like fuel smuggling operation.

variable	Land size (ha)		T- value	Sig.
	<15	>15		
optimal usage	3.83	3.46	2.60	0.015
equal fuel distribution	3.56	3.27	2.64	0.009
convenient access to assigned portion of fuel	3.51	3.16	2.75	0.006
preventing fuel smuggling	3.25	2.91	2.54	0.012

Regarding the amount of monthly fuel consumption, our results showed that there were significant differences between those who consumed less than 1000 liter per month for their various farm operations and those who consumed further. The first group evaluated targeted fuel subsidies law more successful in terms of optimal usage, equal fuel distribution, convenient access to assigned portion of fuel, and preventing fuel smuggling than the other group.

variable	consumed fuel (liter per month)		T value	Sig.
	<1000	>1000		
optimal usage	3.54	3.14	2.55	0.01
equal fuel distribution	3.47	3.08	2.14	0.02
convenient access to assigned portion of fuel	3.34	2.97	2.87	0.033
preventing fuel smuggling	3.52	2.78	2.67	0.41

5- Conclusions

Iran was the largest provider of fuel subsidies in the world by 2009. Many Iranian experts agree that these unsustainable subsidies encourage waste among goods, including in the production sector that must be stopped and the only way is to redirect subsidies. Despite the negative expected consequences such as increase in input and energy prices, and consequently growth of production cost which are confirmed by different studies, the crucial impact of conducting this law is to decrease the consumption rate. While environmental sustainability is partly ensured, there were some doubt on efficiency of this law on economic and social sustainability. This study was done to evaluate the satisfaction of fuel consumers in agricultural sector. All of the respondents evaluated the targeted fuel subsidies law as a moderately successful program in reforming consumption pattern and equal distribution of fuel, convenient access due to better management of fuels sites, and also preventing illegal sale of surplus and trafficking fuels. There were also significant differences between the mean of farmers' attitude on these four aspects in terms of their consuming liter per month. Those who consume less than 1000 liter fuels per month significantly believed that the targeted fuel subsidies law has been more successful compare to those who consume more. In addition, farmers who have large farmlands and apply more farming equipment which need huge amount of oil fuels dissatisfied with implementing this law. Large farmers were unsatisfied because of low crop prices which are not assigned by the free market rules. In all, some structural adjustments are needed. To improve the effectiveness of the targeted fuel subsidies fuel mechanism, a comprehensive view on policy-making, further inter-organizational coordination and more cooperative efforts of research and education institutions are crucial to invent and introduce new efficient fuel-consumed technologies.

Main References

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