

The effect of targeted subsidies on healthcare costs in rural areas

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Abstract

Background: This study aimed to investigate the effect of targeted subsidies on health costs in the Khor and Biabank districts.

Methods: This was descriptive-analytical research. The statistical population included 1326 heads of households in Khor and Biabank cities. Using the Krejcie and Morgan table, the statistical sample size was 300 people, who were selected by a random sampling method. The tool was a questionnaire. Experts confirmed its validity and its reliability were confirmed using a preliminary test and Cronbach's alpha coefficient. Structural equation modeling was used in Lisrel and SPSS software.

Results: Targeted subsidies with a factor load of 0.99 on the price of household appliances, with a factor load of 0.97 on the cost structure of education and cultural services, with a factor load of 0.96 on the cost structure of tourism, has a factor loading of 0.90 on the structure of transportation costs, has a factor loading of 0.89 on the structure of housing and fuel costs, has a factor loading of 0.89 on the cost of agricultural products, has a factor load of 0.70 on the cost structure of food and tobacco, has a factor load of 0.69 on the cost structure of health and treatment.

Conclusion: Due to the importance of the targeted subsidies effect on costs, the attention of policymakers in macro-planning is necessary.

Keywords: Economics; Factor Analysis, Statistical; Financing, Government; Health Planning Support.

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Introduction

The degree of government interference in the economy varies depending on each country's political and economic system. Subsidies are a type of market interference tool aimed at improving income distribution. Iran's economy has always used this tool to achieve various goals (1). Subsidy payments have the economic and social

goals of assisting the poor and needy, reducing the class gap, improving income distribution, increasing public welfare, contributing to the optimal allocation of scarce resources, and establishing economic stability (2). The distribution of subsidies, aiming to keep public prices low and increase consumer welfare, prevents the necessary dynamism in the economy, as large volumes of government revenues in the allocation of subsidies (about 26% of

GDP) make it difficult for the government. Per capita net production in the country has not grown significantly for more than three decades (3). Thus, the working group on the economic transformation of the government for the growth of the country's economy and structural reform of the tax, customs, banking, productivity, and distribution system of goods and services, as well as the systems of allocation and distribution of subsidies, put the economic transformation plan on its agenda in 2018 (4). The law of targeted subsidies was passed at the end of 2009. In it were 16 articles indicating a change in the subsidy payment process. In a way, with the gradual elimination of subsidies from fuel, food, water, electricity, gas, and other items, a part of the income is distributed in cash and non-cash among the people. In addition, the other part is spent on production, development, cultural and social projects, and the health of society (5). In a consumer-oriented economy, cash subsidies are spent on non-essential goods and fill household expenditure gaps, reducing the consumption of essential goods and endangering public health. If inflation increases at the societal level, since most rural household expenditures are spent on meeting their food needs, a sharp rise in the price of energy carriers will negatively affect these households' food health. Subsidies should be accompanied by the expansion of production so that rising prices do not threaten households' food security. Given this issue's importance and since no similar study has been conducted on the effect of targeted subsidies on the consumption pattern of rural households in Khur and Biabank, this study was designed.

Methods

The present study was applied research conducted with quantitative, longitudinal, and retrospective, non-experimental, descriptive-analytical, and survey methods. The statistical population of this study included the heads of households in the

Khur and Biabank counties. According to the 2011 Statistics Center of Iran census, their number was 1326 people ($N = 1326$). In the present study, to determine the sample size, the table presented by Krejcie & Morgan was used (6). Based on the formula of $n = \frac{t^2 \times p \times q}{d^2}$ and using $1 + \frac{1}{N} + [\frac{t^2 \times p \times q}{d^2} - 1]$ the Krejcie & Morgan table, and considering the size of the statistical population, the sample size was estimated at 300 people ($n = 300$). Due to the difference in the volume of classes in the statistical population, the proportional allocation was used. Khur and Biabank counties include 1 central part and 3 villages of Nakhlestan, Biabank, and Jandagh, and 30 villages. The number of samples in each village was selected using the proportional assignment method (6).

Equation (3-1): $np = n.(nk) / \sum(nk)$

np: number of questionnaires in each village

n: the number of samples specified in the

Krejcie & Morgan table;

nk: number of heads of households in each village;

N (nk): The total number of heads of households in the selected villages.

The experts' panel method has been used to determine the research tool's validity. Thus,

Table 1. Number of samples selected in each village among heads of households

County	Selected village	Total	Sample
Biabank	Ibrahimabad	53	17
	Jaafarabad	78	25
	Chah Malek	147	47
	Qadarabad	21	7
	Nasrabad	8	3
Nakhlestan	Ardib	71	23
	Iraj	123	39
	Bayazeh	84	27
	Garmeh	71	23
	Mehrjan	167	53
Jandagh	Farahzad Farm	12	4
	Mesr	32	10
	Baziab	13	4
	Hossein Abad	14	4
	Haftuman	43	14
3	15	937	300

Source: Results of the census of the Statistics Center of Iran in 2011

the designed questionnaire was given to professors, experts, and specialists who have worked in the field of rural development in the area of rural development. Similarly, they were asked to express their opinion on issues such as the difficulty level in understanding the concepts, words, and phrases; items' relevance; the presence of ambiguity and items' misunderstanding; the general questionnaire structure, the font and questionnaire text size; the questions' arrangement; the spacing of the lines; the volume of the questionnaire; the questionnaire content; and the importance of the questions. Then, the questionnaires were collected, and the questionnaire was modified using the results obtained from experts' opinions. Cronbach's alpha method was used to calculate the reliability of the measurement tool and determine the reliability. Thirty copies of the questionnaire were distributed among a group of heads of households (outside the main statistical population) to assess the reliability of the questionnaire.

According to Cronbach's alpha coefficient, the reliability of different parts of the questionnaire is as follows: food and tobacco costs for rural households (0.80), health care costs of rural households (0.78), education and cultural services costs of rural households (0.84), housing and fuel costs of rural households (0.90), transportation and communications costs of rural households (0.80), durable home appliances and goods costs (0.82), recreation costs of rural household (0.80), agricultural production costs (0.85).

In this study, food and tobacco costs for rural households; health care costs of rural households; education and cultural services costs of rural households; housing and fuel costs of rural households; transportation and communications costs of rural households; durable home appliances and goods costs; recreation costs of rural household and production costs of the rural household are latent or invisible variables that cannot be directly observed and

measured. Several items were proposed that formed the observed variables to measure each of these variables. These items are designed on a five-point Likert scale (very high = 5, high = 4, moderate = 3, low = 2 and very few = 1). By combining these items, latent variables were obtained. In this study, the required information was obtained by studying the existing documents and collecting information of the second type; observation, interview, and questionnaire methods were used. A questionnaire including two parts was used as the main tool for collecting information from household heads in the villages of Khur and Biabank. The first part was assigned to the demographic characteristics of household heads. The second was assigned to examine the effect of targeted subsidiaries on household consumption patterns from the standpoint of the head of household.

Descriptive and inferential statistics are used to process data and describe and analyze them as follows:

In the descriptive statistics section, frequency distribution tables, percentages, cumulative percentages, central tendency indices including mean, mode, and median, and dispersion indices including variance, standard deviation, and coefficient of variation were used to describe and categorize respondents' data. The inferential statistics section used the statistical method of confirmatory factor analysis to confirm the model. Due to the ranked nature of the items, a non-parametric test of a one-dimensional chi-square test was used to validate the model to examine the respondents' opinions on the items of each component of the consumption pattern. Similarly, a one-sample t-test was used to examine the effect of targeted subsidies on each household consumption pattern item on a quasi-interval scale. A one-dimensional chi-square test was used to test descriptive hypotheses. The targeted subsidy effect from the perspective of the head of the household was measured on a 5-point

Likert scale. A one-sample t-test was used to test the hypotheses and check the normality of data distribution, and the Kolmogorov-Smirnov test was used to test them. This study was performed using SPSS19 and Lisrel software.

Results

Demographic results

The results of the demographic information showed that in the studied community, the youngest person was 22 years old and the oldest person was 70 years old. Regarding gender, 87% of the respondents were male, with a frequency of 261, and 13% were female, with a frequency of 37. Also, 0.7%, with a frequency of 2 people, have not answered this question. Regarding marriage, the highest number is 224 people, with a frequency of 75% married, and

12.30% with a frequency of 38 female heads of the household, and 0.7% with a frequency of 2 people. They have not answered this question. Concerning education, the highest group with a diploma education numbered 120 people, with 40%, and the lowest group with a master's and doctorate education numbered 4 people, and 1.3%. Moreover, the number of 4 people with 1.33% has not responded to this question. In terms of occupation, agriculture is the highest occupational group of 123 people with 41% and the lowest with 20 people. 6.7% are unemployed, and 2 people, 0.7%, have not answered this question. The number of dependents was 1, and the maximum number of dependents was 8. The median index of this variable was 4 people, and the mode index was 4 people in Table 2.

Table 2. Frequency distribution of respondents based on age, gender, marital status, education, job, dependents

	Group	Frequency	Percentage
Age	22 to 30 years	40	13.3%
	30 to 38 years	37	12.3%
	38 to 46 years	70	23.3%
	46 to 54 years	90	30.0%
	54 to 62 years	42	14.0%
	62 to 70 years	13	4.3%
gender	No answer	8	2.7%
	Male	261	87.0%
	Female	37	12.3%
Marital status	No answer	2	0.7%
	Single	36	12.0%
	Married	224	74.7%
	Female-headed households	38	12.7%
Education	No answer	2	0.7%
	illiterate	8	2.7%
	Under diploma	95	31.7%
	diploma	120	40.0%
	associate	26	8.7%
	bachelor	43	14.3%
Job	Master and PhD	4	1.3%
	No answer	4	1.3%
	Farmer	123	41.0%
	Public sector employee	37	12.3%
	Self-employed	118	39.3%
Dependents	Unemployed	20	6.7%
	No answer	2	0.7%
	1 and 2 people	61	20.4%
	3 and 4 people	122	40.7%
	5 and 6 people	96	32.0%
	7 and 8 people	17	5.7%
	No answer	4	1.3%

Quantitative results

The effect of cash subsidies received on the food and tobacco costs

To examine the impact of cash subsidies on food and tobacco costs from the point of view of respondents based on the budget data of urban and rural households, 8 items were designed, and the respondents were asked to answer on a 5-point scale (very low, low, moderate, high, very high).

Table 3 shows the frequency distribution of respondents based on the answer to food and tobacco cost items and the prioritization of food and tobacco cost items. The results of the prioritization of food and tobacco cost items from the respondents' point of view showed that in the study population, receiving cash subsidies had the most significant effect on increasing tobacco consumption, meat

consumption, and oil consumption in rural households and had the least effect on legumes, flour and noodles, sugar and tea consumption, and dairy consumption.

To determine the cash subsidies' effect on the food and tobacco costs from the perspective of each respondent, the total score of their answers to all food and tobacco items was used. According to the scale and number of items of food and tobacco variables, the minimum score could be 8 (8×1), and the maximum could be 40 (8×5). By dividing the mentioned score by 8, the mean answer of each person to the food and tobacco variables is obtained. Furthermore, the obtained variable was re-coded to better describe the effect of cash subsidies on food and tobacco costs.

Table 3. Frequency distribution of respondents based on the answer to food and tobacco costs items and prioritization of food and tobacco costs items

Frequency distribution of respondents based on the answer to food and tobacco costs items											
Row	Frequency	Very low		low		moderate		high		Very high	
		f	%	f	%	f	%	f	%	f	%
1	items	53	7.17	54	0.18	99	0.33	80	7.26	12	0.4
2	cereals, flour, and noodles costs	36	0.12	75	0.25	81	0.27	77	7.25	31	3.10
3	Meat consumption costs	40	3.13	69	0.23	77	7.25	86	7.28	27	0.9
4	Consumption legumes costs	49	3.16	53	7.17	75	0.25	86	7.28	37	3.12
5	Dairy consumption costs	44	7.14	44	7.14	74	7.24	95	7.31	42	0.14
6	Fruit and vegetable consumption costs	39	0.13	44	7.14	112	3.37	69	0.23	36	0.12
7	Oil consumption costs	45	0.15	44	7.14	80	7.26	82	3.27	48	0.16
8	sugar and tea consumption costs	40	3.13	44	7.14	95	7.31	90	0.30	31	3.10
Prioritization of food and tobacco costs items											
Items	median	mode	mean	SD	Dispersion coefficient	Priority					
Tobacco costs	3	3	3.0933	1.1786	0.3810	1					
Meat consumption	3	3	3.0633	1.1735	0.3830	2					
Oil consumption	3	3	2.9733	1.1848	0.3984	3					
Fruit and vegetable consumption	3	4	3.1572	1.2633	0.4001	4					
legumes consumption	3	4	2.9699	1.1910	0.4010	5					
cereals, flour, and noodles costs	3	3	2.8121	1.1363	0.4040	6					
sugar and tea consumption	3	4	3.1472	1.2842	0.4080	7					
Dairy consumption	3	4	3.0300	1.2706	0.4193	8					

Accordingly, in the statistical study population, from the perspective of 0.9% of people, with a frequency of 27 people, the effect of cash subsidies on food and tobacco costs is at a shallow level. From the point of view of 18.3% of people, with a frequency of 55 people, it is at a low level. From the opinion of 37.7% of people, with a frequency of 113 people, it is at a moderate level. From the position of 28.0% of people, with a frequency of 84 people, it is at a high level. From the point of view of 5.3% of people, with a frequency of 16 people, it is at a very high level. Also, 1.7% of people with a frequency of 5 people did not respond to different items of food and tobacco costs

The effect of cash subsidies received on healthcare costs

To examine the effect of cash subsidies on health care costs from the point of view of respondents and based on the budget data of urban and rural households, 4 items were designed, and the respondents were asked to answer in this area on a 5-point scale (very low, low, moderate, high, very high). Table 4 shows the frequency and percentage of answers of all subjects for each item and the prioritization of healthcare cost items.

The results of prioritizing the items of health care costs from the respondents' point of view show that in the statistical

population, receiving cash subsidies has the most significant effect on increasing the cost of visiting a physician and the cost of health supplies in rural households and has the least impact on expanding medical expenses and dentist costs. In Table 4, the items of health care costs are prioritized from the respondents' point of view.

The total score of their answers to all healthcare items was used to evaluate the cash subsidy effect received on the cost of healthcare from the perspective of each respondent. According to the scale and number of items in the health variable, the minimum score was 4 (1×4). Hence, the maximum was 20 (4×5), which by dividing the mentioned score by 4, the mean answer of each person to the health variable was obtained. The obtained variable was re-coded to better describe the effect of cash subsidies on health care costs. Accordingly, in the statistical population of the study, from the point of view of 14.7% of people with a frequency of 44 people, the effect of cash subsidies on health care costs at a very low level, from the point of view of 0.20% of people with a frequency of 60 people, it is at a low level, from the point of view of 0.29.2% of people with a frequency of 87 people, it is a moderate level, from the point of view of 27.0% of people with a frequency of 81 people, it is at a high level, and from the point of view of 8.3% with a frequency of 25 people, it is at a very high

Table 4. Frequency distribution of respondents based on the answer to healthcare cost items and prioritization of healthcare cost items

Frequency distribution of respondents based on the answer to healthcare cost items											
Row	Frequency of items	Very low		low		moderate		high		Very high	
		f	%	f	%	f	%	f	%	f	%
1	visiting a physician cost	43	3.14	58	3.19	95	7.31	70	3.23	34	3.11
2	Medicine costs	45	0.15	83	7.27	76	3.25	67	3.22	27	0.9
3	Dentist costs	53	7.17	59	7.19	70	3.23	79	3.26	38	7.12
4	health supplies costs	46	3.15	62	7.20	80	7.26	74	7.24	38	7.12
Prioritization of healthcare cost items											
Items	median	mode	mean	SD	Dispersion coefficient	Priority					
visiting a physician cost	3	3	2.9800	1.2073	0.4051	1					
health supplies costs	3	3	2.9867	1.2563	0.4206	2					
Medicine costs	3	2	2.8255	1.2017	0.4253	3					
Dentist costs	3	4	2.9666	1.2974	0.4373	4					

level. Also, 0.1% of people with a frequency of 3 people did not answer to different items of health care costs.

Inferential results

Investigating the normality of household consumption pattern variables

To ensure the normality of the statistical distribution of the studied variables, the Kolmogorov-Smirnov test was used. Since the significance levels of all structures were above 0.05, the hypothesis that the distribution of variables was normal was accepted.

Examining the normality of the distribution of research variables is as follows: level of significance in food and tobacco cost, health care cost, education and cultural services cost, housing and fuel cost, transportation and communications cost, home appliances, and durable goods cost, recreation, and tourism cost, agricultural production cost are 0.093, 0.116, 0.126, 0.126, 0.126, 0.286, 0.321, 0.259, respectively.

Second-order confirmatory factor analysis

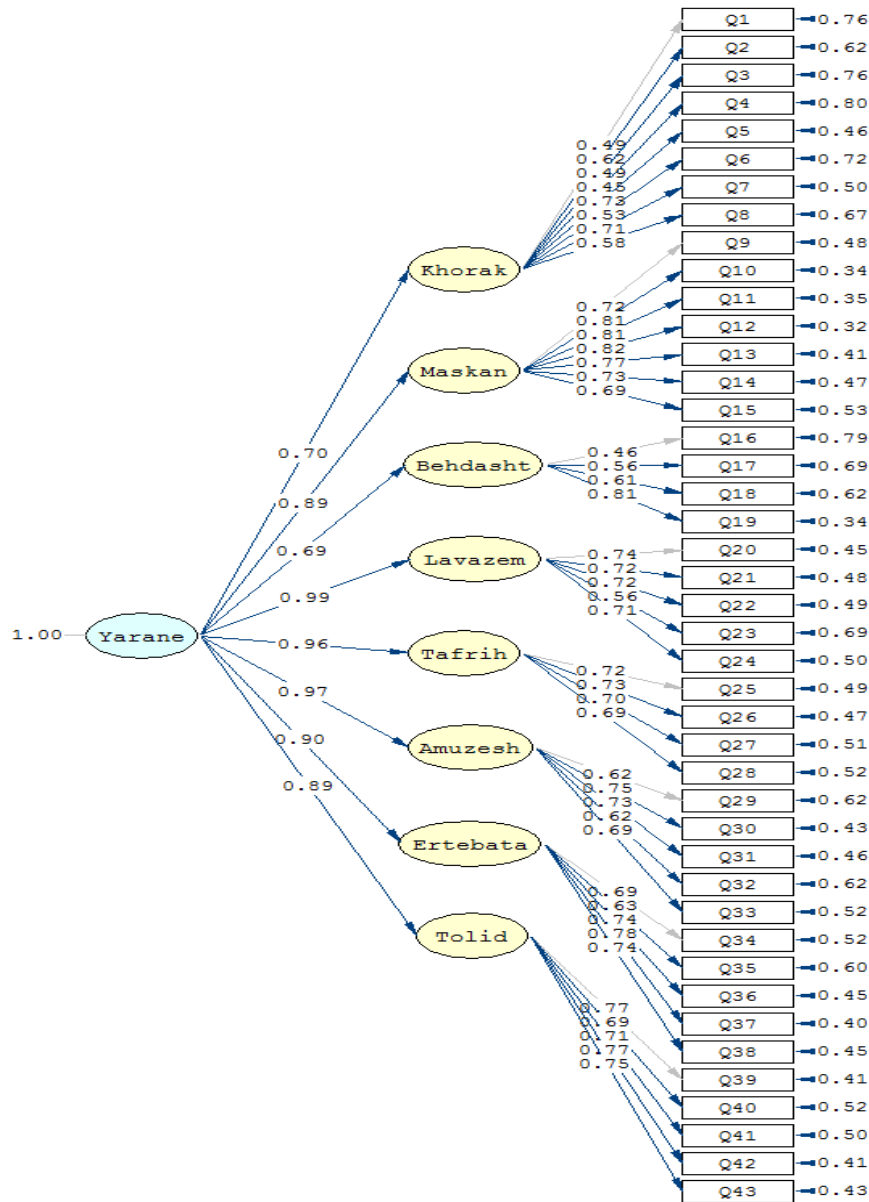
A second-order confirmatory factor analysis was used to examine the effect of targeted subsidies on each of the components of the household consumption pattern. According to the results, the variance of the structures of rural household food and tobacco costs, rural household housing and fuel costs, rural household health care costs, rural household durable home appliances and goods costs, rural household recreation costs, rural household education costs, and cultural services costs, transportation and communications of rural household cost, and the production of rural household cost with factor load of 0.70, 0.89, 0.69, 0.99, 0.96, 0.97, 0.90 and 0.89, respectively, was explained by 70%, 89%, 69%, 99%, 96%, 97%, 90%, and 89%, respectively, by targeted subsidies. Targeted subsidies have had the greatest effect on the structure of durable home appliances and goods cost and the least effect on the structure of rural household

health care costs. Figure 1 shows the results of the second-order confirmatory factor analysis based on standard factor loads.

After identifying the correlation between the food and tobacco cost of rural households, housing and fuel cost of rural households, the health and medical care cost of rural households, durable home appliances and goods cost, recreation cost of a rural household, education and cultural services cost of a rural household, transportation and communication cost of rural household, and production cost of a rural household and targeted of subsidies, to examine the significance of the correlation between the variables, the value of t-test statistics was examined. The calculated t-values for each of the factor loads of each structure by targeted subsidies are above 1.96, so the relationships between structures and targeted subsidies are significant. Figure 2 shows the relationships between structures and targeted subsidies based on t values.

According to the results of the study, it can be said that from the respondents' point of view, targeted subsidies on rural household food and tobacco cost structures, rural household housing and fuel costs, rural household health care costs, rural household durable goods costs, recreation costs, rural household education, and cultural services, transportation and communications costs of rural households, and the production costs of rural households were significantly effective. The effect of targeted subsidies on each component of the household consumption pattern is shown in Table 5.

After confirming the research model by the second-order confirmatory factor analysis, the model must be fitted. As the fit indices of Table 6 show, the data of this study are a good fit with the factor structure and theoretical basis of the research. In addition, this indicates that the questions fit with theoretical structures, and thus the model is confirmed.

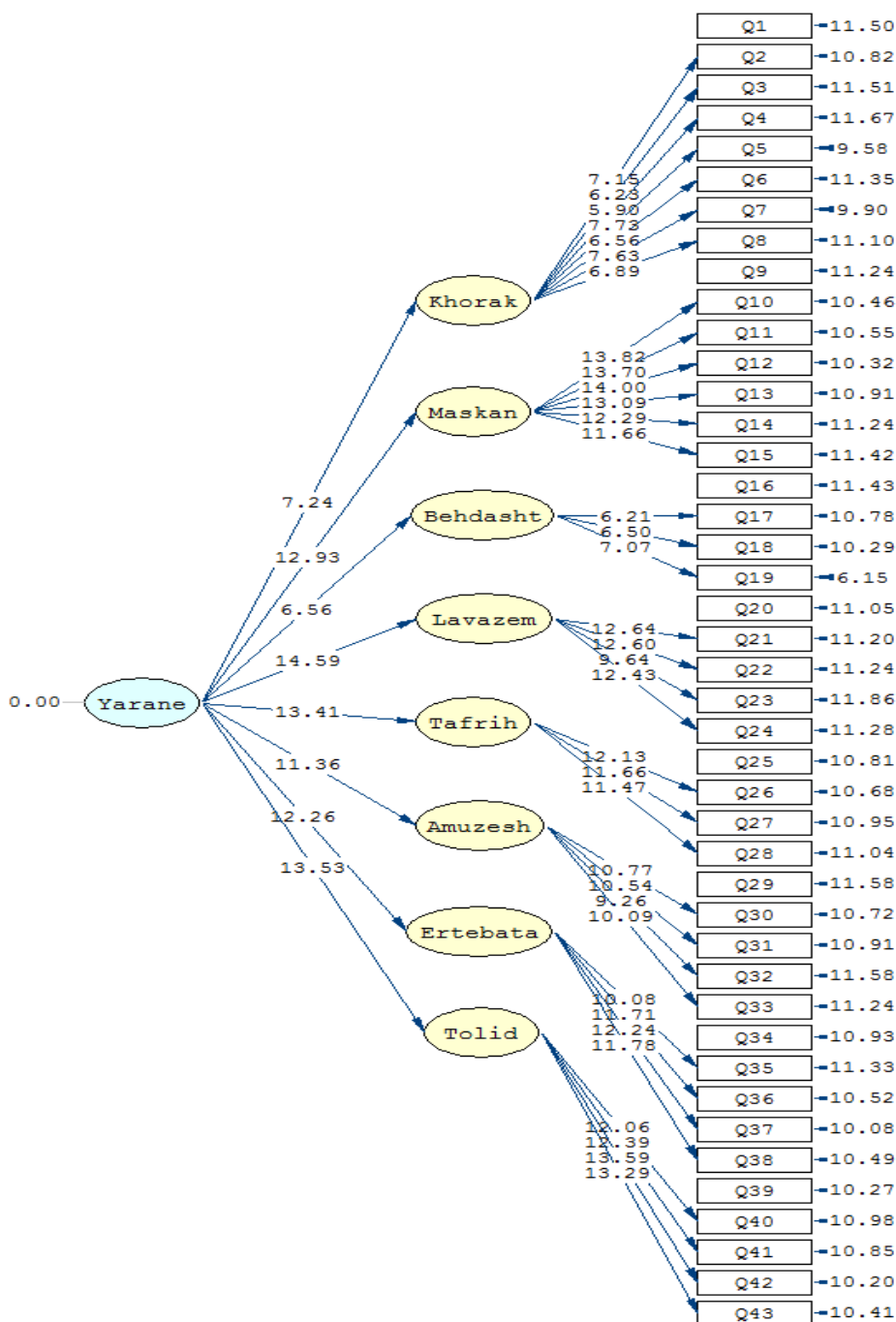


chi square=2041.88 p-value=0.064 df=852 RMSEA=0.028

Figure 1. Second-order factor analysis based on standard factor loads

Table 5. The effect of targeted subsidies on each component of the household consumption pattern

Structure	Factor load	t-value
durable home appliances and goods cost	0.99	59.14
education and cultural services cost	0.97	36.11
recreation cost	0.96	41.13
transportation and communication cost	0.90	26.12
housing and fuel cost	0.89	93.12
agricultural production cost	0.89	53.13
food and tobacco cost	0.70	24.7
health care cost	0.69	56.6



chi square=2041.88 p-value=0.064 df=852 RMSEA=0.028

Figure 2. Second-order factor analysis based on t-values

In Table 6, the results of a one-sample t-test show that the variables of rural household food and tobacco cost, rural household health care cost, rural household education, and cultural services cost, rural household housing and fuel cost, rural household transportation and communications cost, durable home appliances and goods cost, recreation cost of rural households have a mean greater than the test value (3) and the

significance level is less than 0.05. - As a result, targeted the subsidies has had a positive and significant effect on these variables from the respondents' point of view. The variable of production cost of rural households has a mean smaller than the test value (3), so from the respondents' point of view, targeted the subsidies has not affected this variable.

Table 6. Fit indices of the research model and Results of one-sample t-test on the effect of targeted subsidies on the components of the household consumption pattern

index	Desirable value		Reported value		
χ^2	0/05≤		88.2041		
p-value	0/050≤		0.064		
df	-		852		
X ² /df	3 ≥		2.396		
RMR	Close to zero		0.091		
GFI	0/9≤		0.92		
NFI	0/9≤		0.89		
IFI	0/9≤		0.92		
CFI	0/9≤		0.91		
RMSEA	0.05≥		0.028		

Results of one-sample t-test on the effect of targeted subsidies on the components of the household consumption pattern					
Test value=3					
variable	mean	Mean difference	t-value	df	sig
food and tobacco cost	3.5339	0.5339	9.998	294	0.000
health care cost	3.4402	0.4402	5.419	296	0.000
education and cultural services cost	3.1656	0.1656	6.379	298	0.000
housing and fuel cost	3.3715	0.3715	2.165	298	0.000
transportation and communication cost	3.1274	0.1274	6.654	298	0.031
durable home appliances and goods cost	3.0899	0.0899	7.681	297	0.000
recreation cost	3.0158	0.0158	8.750	299	0.000
agricultural production cost	2.9141	-0.0859	10.756	297	0.000

The effect of cash subsidies received on the food and tobacco costs: The results show that in the study's statistical population, from the point of view of the majority of people (37.7%), the effect of cash subsidies on the food and tobacco costs is moderate. Receiving cash subsidies had the greatest effect on increasing tobacco consumption, meat consumption, and oil consumption in rural households and had the least effect on increasing legumes, flour and noodles consumption, sugar and tea consumption, and dairy consumption.

The effect of cash subsidies received on health care costs: The results show that in the study population, from the point of view of the majority of people (0.29%), the effect of cash subsidies on health care costs is moderate. Cash subsidies had the greatest effect on increasing the cost of visiting a physician and the cost of health supplies in a rural household and had the least effect on

increasing the cost of medicine and dentistry.

The effect of cash subsidies on transportation and communication costs: The results show that in the study population, from the point of view of the majority of people (29.7%), the effect of cash subsidies on transportation and communications costs is very low. Receiving cash subsidies has had the greatest effect on increasing landline phone use and transportation fares in rural households and has had the least effect on increasing mobile phone use and personal vehicle maintenance costs.

The effect of cash subsidies on the cost of education and cultural services: The results show that in the study population, from the point of view of the majority of people (28.7%), the effect of cash subsidies on the cost of education and cultural services is moderate. Receiving cash subsidies had the greatest effect on increasing the cost of

textbooks and stationery in rural households and had the least effect on increasing the cost of tuition and non-textbook costs.

The effect of cash subsidies on durable home appliances and goods costs: The results show that in the study population, from the point of view of the majority of people (29.3%), the effect of cash subsidies on durable home appliances and goods costs is moderate. Receiving cash subsidies had the greatest effect on increasing the cost of buying a TV and furniture in a rural household and the least effect on increasing the cost of buying a personal car and a washing machine.

The effect of cash subsidies on housing and fuel costs: The results show that in the study population, from the point of view of the majority of people (24.7%), the effect of cash subsidies on housing and fuel costs is low. Receiving cash subsidies has the greatest effect on increasing the cost of gasoline and diesel consumption and the construction and repair of housing in rural households and has the least effect on increasing the cost of piped water consumption and housing rents.

The effect of cash subsidies received on the recreation cost: The results show that in the study population, from the point of view of the majority of people (29.7%), the effect of cash subsidies on the recreation cost is low. Receiving cash subsidies had the greatest effect on increasing the cost of restaurants, hotels, and pilgrimage trips in rural households and had the least effect on increasing the cost of toys and sports equipment.

The effect of cash subsidies on production costs: The results show that in the study population, from the point of view of the majority of people (0.37%), the effect of cash subsidies on production costs is very low. Receiving cash subsidies had the greatest effect on increasing the use of fertilizers and chemical toxins and the consumption of improved seeds and seedlings in rural households and had the least effect on expanding the use of

agricultural machinery and the use of livestock manure and green manure.

According to the results, the variance of food and tobacco cost of rural households, housing and fuel cost of rural households, health care cost of rural households, durable home appliances, and goods cost, recreation cost of rural households, education and cultural services cost of rural households, transportation, and communications cost of rural households and the production cost of rural households with factor load of 0.70, 0.89, 0.69, 0.99, 0.96, 0.97, 0.90 and 0.89, respectively, was explained by 70%, 89%, 69%, 99%, 96%, 97%, 90%, and 89%, respectively, by targeted subsidies. Targeted subsidies have had the greatest effect on the cost of durable home appliances and goods cost and the least effect on the health care costs of rural households.

Discussion

Targeted subsidies have a factor load of 0.99 and a significant value of 14.59 on the durable home appliances and goods costs and shows that, from the respondents' point of view, targeted the subsidies affects the cost of durable home appliances and goods. Ghanbari et al. (7), Jalalian & Pashazadeh (8), and Rezaei Ghahroudy & Soratfalaki (9) also confirmed the effect of targeted subsidies on the cost of durable appliances and goods in the consumption pattern of rural households.

Targeted subsidies have a factor load of 0.97 and a significant value of 11.36 on the costs of education and cultural services costs, which shows that, from the respondents' point of view, targeted subsidies affect education and cultural services costs. Ghanbari et al. (7), Rezaei Ghahroudy & Soratfalaki (9), and Bazrafshan et al. (10) also confirmed the effect of targeted subsidies on the education and cultural services costs in the consumption pattern of rural households.

Targeted subsidies have a factor load of 0.96 and a significant value of 13.41 on the recreation costs and show that from the

point of view of respondents, the targeted subsidies affect the recreation cost. Ghanbari et al. (7), Rezaei Ghahroudy & Soratfalaki (9), and Bazrafshan et al. (10) also confirmed the effect of targeted subsidies on the recreation cost in the consumption pattern of rural households.

Targeted subsidies have a factor load of 0.90 and a significant value of 12.26 on the transportation and communication costs, which shows that, from the respondents' point of view, targeted subsidies affect the cost of transportation and communication. Rezaei Ghahroudy & Soratfalaki (9), and Bazrafshan et al. (10), confirmed the targeted effect of subsidies on transportation and communication costs in the consumption pattern of rural households.

Targeted subsidies have a factor load of 0.89 and a significant value of 12.93 on the housing and fuel costs and show that from the respondents' point of view, the targeted subsidies affect housing and fuel costs. Namqi & Khadivi (1), Ghanbari et al. (7), Rezaei Ghahroudy & Soratfalaki (9), Bazrafshan et al. (10), Ghasemi et al. (11) also confirmed the effect of targeted subsidies on housing and fuel costs in consumption pattern of rural households.

Targeted subsidies have a factor load of 0.89 and a significant value of 13.53 on the production of agricultural products costs and shows that from the point of view of respondents, targeted subsidies affect the cost of production of agricultural products. Ghanbari et al. (7), Bazrafshan et al. (10), Ghasemi et al. (11), Barimani & Amani (12), Khatib & Moradi (13), Dorward & Chirwa (14), also confirmed the effect of targeted subsidies on the cost of agricultural production in the consumption pattern of rural households.

Targeted subsidies have a factor load of 0.70 and a significant value of 7.24 on the food and tobacco costs and shows that from the respondents' perspective, targeted subsidies affect the cost of food and tobacco. Namqi & Khadivi (1), Rezaei Ghahroudy & Soratfalaki (9), Bazrafshan et

al. (10), Dorward & Chirwa (14), Korayem (15) also confirmed the effect of targeted subsidies on the cost of food and tobacco in the consumption pattern of rural households.

Targeted subsidies have a factor load of 0.69 and a significant value of 6.56 on the structure of health care costs and show that, from the point of view of respondents, targeted subsidies affect the cost of health care. Rezaei Ghahroudy & Soratfalaki (9), Bazrafshan et al. (10), also confirmed the effect of targeted subsidies on health care costs in the consumption pattern of rural households. The implementation of the targeted subsidy law was aimed at helping the vulnerable sections of the country, and based on the studies of the Center for Planning and Agricultural Economics, the villagers have been identified as one of the five most vulnerable groups in the country in terms of employment and society, which is due to economic and cultural problems, and social villages can be justified. One of the essential reasons for this vulnerability is the insignificance of incomes in rural areas and the lack of productivity of the agricultural sector compared to the industrial sector (16). Therefore, through targeted subsidies and price correction, significant resources will be released, and the government can spend these resources on development and social programs as another important goal of this law. Freeing the price of subsidized goods, including energy carriers, will lead to more transparency of prices in the market and, as a result, will improve the marking of prices in the country's economy. This will lead to economic transparency, which is one of the other goals of this plan (17). In his research, Dadvand investigated the effects of cash payments of subsidies on the economic and social indicators of rural households from the perspective of both people and officials. The results of the research showed that the subsidy targeted plan has been able to improve some economic indicators. However, the targeted plan of subsidies has not been able to provide grounds for improving social indicators (18).

Ketabi et al. showed that targeted subsidies have improved productivity, consumption management, participation, and job opportunities. From the point of view of farmers, the cost of production inputs and household expenses have increased, and the amount of tendency and need for product insurance, satisfaction with service provision, household income, institutional trust, social justice, and the quality of health and education has decreased (19).

Kavusi et al. showed that the priority of farmers is to increase income, production, and productivity when spending financial resources from cash subsidies. Due to the fact that these resources increase the possibility of farmers entering the financial markets to receive credits, the option of financing and credits has been placed as the next priority. In this case, the option of cooperation in land management had the lowest rank (20).

Recommendations

Based on the research results, it is recommended:

The implementation of economic policies, such as the implementation of the next phases of the plan of targeted subsidies, should be accompanied by the application of compensatory policies and should be designed in such a way as not to reduce the purchase and consumption of such items for households. Because housing, transportation, communications, and health account for the majority of household costs, it is recommended that the payment method for subsidies and services be more targeted so that vulnerable groups in these sectors can benefit. Since the welfare of households is affected by two factors: income distribution and their real income, economic policies should be designed and implemented to improve both factors. In other words, the emphasis should not be on only one aspect of social welfare.

Conclusion

In recent years, the payment of subsidies has been due to pressure on the government

budget on the one hand and the benefit of all households. On the other hand, it has led the government to avoid wasting resources and increase coverage of government payments for deprived and needy households by targeted subsidies. Cash payments and correctly identifying needy households will reduce government costs and benefits of subsidies to rich households and increase coverage for poor households. It also prevents price duality and distortion by allowing the price to play its natural market role. It also causes that investment to be based on real rather than distorted comparative advantages. Now, 52 months after the law's implementation targeted the subsidies, i.e., the liberalization of energy carrier prices, it is necessary to evaluate the implementation of this law with the planned goals since one of the most critical steps in planning is to evaluate the effectiveness of plans. This process helps to optimize decisions and, ultimately, the feasibility of projects. Evaluating effectiveness can be a crucial factor in identifying and correcting the weaknesses of development plans and increasing monitoring.

Author's contribution

Azita Zand and Masomeh Arfaee developed the study concept and design. Serveh Ahmadi acquired the data. Azita Zand and Masomeh Arfaee analyzed and interpreted the data and wrote the first draft of the manuscript. All authors contributed to the intellectual content and manuscript editing and read and approved the final manuscript.

Informed consent

Questionnaires were filled with the participant's satisfaction, and written consent was obtained from the participants in this study.

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Conflict of interest

The authors declare that they have no conflict of interest.

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