# Investigation of Indices Affecting the Healthcare of Suburb Households

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## ABSTRACT

*Introduction: Health is considered as an important and valuable tool and goal for human well-being. Therefore, economists and policymakers have paid special attention to the optimal methods and systems for promoting the health of communities. In recent years, efforts to address these concerns have had a significant impact on human health and well-being in many parts of the world, and most countries in the world have experienced rapid growth in their health care costs in recent years. Given the growing cost of this sector, it seems conspicuous to determin the components that affect health spending. Also, human health is a fundamental right and a valuable asset and capital for all levels and classes of society and the study of various aspects of health in rural areas and efforts to promote it has an effective role in the sustainability of rural areas. Therefore, the aim of this study was to investigate the indicators affecting health care in rural areas of Iran.*

*The present study examines the indicators affecting the health care of rural households. The data of the present study have been extracted from the Central Bank and the Statistics Center of Iran and have been reviewed and estimated using the econometrics methods.*

*The results show that there is a positive and significant relationship between dependent variables and independent variables and the education and training costs have the most and then health insurance costs and per capita income affect health care costs.*

*Keywords: health care, insurance expenditures, rural housholds*

## 1. Introduction

Health is considered an important and valuable goal for human well-being. Despite having a healthy life, people must utilize the health service to promote and recover from their disease; in other words, they must purchase that service (WHO, 2000).

Health is an ideal phenomenon that cannot be purchased but in contrast, healthcare can be purchased and in line with an individual's health. It means that the higher the healthcare and consumption is, the higher health with a lower rate is. It is noted that although consumption is a free and desirable choice, in many cases except for the prevention, the use of healthcare is not a free choice and is not considered as desirable by itself; because when people suffer from a disease, the use of health cares requires to ignore the use of other products and other services (Pourreza, 2004). Also, it should be noted that health is one of the main parts of sustainable development; so, providing expenditures for optimal healthcare to remove the people's expectations by supporting their financials and helping by distributing these costs equally among different classes is of the most significant health responsibilities of each country (Hartwig, 2008). In another word, providing fair financial support for health, supporting people against the increase in health care costs, and ensuring fairness in the use of health services are

of significance in health systems; so, the lack of comprehensive and complete health covering injures the households with fewer capacity for providing the health service (Weraphong et al., 2013).

Therefore, in today's world, the quality of health is of the most important goals of governments. The nature of the health service is such a way that the special group of people does not require merely it. All humans in all settlements require that. The lack of health service, especially in suburbs, towns, and deprived regions, encounters many negative issues; and of the most important ones is the adverse effects affecting human life (Ebrahimi et al., 2013).

In particular, the issues related to offering health services in the suburbs are more different than the urban regions. Villagers face unique factors that discriminate their health areas (Fong et al., 2011). Currently, half of the people around the world live in the suburbs and farthest regions, but these only have 38% of the whole nursery forces and fewer than one-fourth of the aggregated medical forces. This situation intensifies in 57 countries worldwide faced with the main lack of trained staff in the field of health, so around 1 billion people do not have access to essential services in this field (Kumar P, 2018).

Since suburban communities are low-income and some diseases, such as chronic ones, are more common among them, these societies face such challenges of access to healthcare providers due to geographical isolation (Lusting, 2012). The residents in such areas try to utilize the facilities and medical services. This effort mostly led them to immigrate to large cities temporarily, which required high costs and time. Thus, health facilities and related services must be given fairly and uniformly in all areas of the country, especially in suburban areas. The lack of fair distribution of health and medical services in all various regions of the country leads to the easy access of people to them, and eventually, they do not care about these issues. Nevertheless, recently medical and plannings from the government have accompanied health infrastructure, and increasing developments in suburbs and suburbans' access to at least medical and health services have been easier by constructing the medical centers and health houses in suburban and farthest areas. However, the use of some specified health and medical services is merely done in health and medical centers in the cities, and the villagers have to come and go to them to be able to utilize these facilities.

On the one hand, the public healthcare system, along with institutional and educational factors as well as social costs, is one of the pillars of the government of well-being in the country. Although the public health and medical systems have been designed differently in the countries as well as their geographical areas, one of their common features is to increase healthcare constantly (Ke et al., 2011). Nevertheless, the difference in the growth rate of healthcare expenditures among the countries, as well as the geographical areas of each, is considerable. These differences can be explained by economical-social and demographic factors (Pammolli et al., 2012). In this way, attention to the factors affecting the health expenditures of suburban households in Iran has been of significance, which has to be discussed by politicians and researchers. According to the above mentioned, this research aims to respond to the following questions:

- Do the health and medical costs affect the suburbans' healthcare?
- Do the educational costs affect the expenditures of suburbans' healthcare?
- Does the annual income affect the expenditures of suburbans' healthcare?

This paper has been organized into 5 sections, including the introduction, theoretical basics, research background, methodology, and conclusion. After the introduction, the existing literature about the factors affecting the expenditures of households is briefed on theoretical basics. The next section refers shortly to the number of outside studies and inside studies. The data and variables are introduced in the research method, and then the index measurement and model estimation are method  Finally, the conclusion is given.

## Theoretical basics

Grossman (1972) is from one of the studies that modeled health expenditures at the micro level. He has introduced the education, age, and wage rate as the factors affecting the health demands and healthcare and medical care and eventually as the health expenditures of people. But in the following, it was identified that except for existing variables in Grossman's model, other factors also have an effect on health expenditures. Fayissa & Gutema (2005) proposed that 3 existing factors in Grossman's model are converted into the vectors of economical, social, and environmental variables. Paker & wong (1997) also believed that the health expenditures of the household are a function of annual income, age groups of family members, and vectors of other household variables (economical-social and demographical).

Another defect of Grossman's model was that in this model, people had been considered as health demand and medical-health care units while people have the households acquired from other members as well; indeed, the acquired desirability of people affects people the desirability of other family members too. For this reason, it is worth that the products demand unit and the health services changes from individual to household. Researchers such as Bohlin, Jacobson &Lindgren (2001) and Jacobson (2000) have considered this unit change in their study.

According to the existing literature in the field of theoretical modeling, especially the experience of health expenditures, the most fundamental variables affecting them are as follows:

**Income:** In most studies performed regarding the investigation of factors affecting health expenditures, income has been introduced as the first and most important factor affecting them because income creates the ability to pay for people. As in developed countries, the main part of the health payment system is personal payments, so in most of the previous studies, the direct relation between different forms of income (e.g., current, constant, the head of the household, annual income) and the health expenditure of the household has been mentioned (Grossman, 1972; Paker & wong, 1997; Sanwald & Theurl, 2014).

**Gender:** According to the physical differences between women and men, researchers have always raised that it is possible that this difference can create a difference in the level of health expenditures consumed by them. So, in most of the studies performed, one of the desired variables in the vector of demographical variables has been gender. Some researchers have indexed this variable as the gender proportion for the household members (Paker & wong, 1997) and others as the gender of the household head (Okunade et al., 2010; Malik & Azam syed, 2012).

**Age structure:** One of the existing variables in the demographic vector is age. Age has been measured in different ways in different studies, including near to death (Zweifel et al., 1999; Felder et al., 2000), presence or absence of old and children (Malik & Azam syed, 2012); the individual age or the household head (Grossman, 1972; Getzen, 1992); the age of household members (Okunade et al., 2010; Sanwald & Theurl, 2015), or attention to the age groups (Paker & wong, 1997; Brown et al., 2014). The researchers believe that due to devastating health

insurance and a decrease in physical abilities, children are more affected by the disease because of the lack of the evolution of the safety system relative to the others; thus, the increase in the proportion of old and children in the family can lead to increase in the health expenditures of the household.

**Education:** health is of significance for educated people due to various reasons such as higher wages if the high workforce demand is high. In Grossman's model (1972), the relation between education and demand has been explained directly in health. The higher health is supplied by two sources: 1- lower disease due to having precaution and preventive activities including doing periodic medical examinations, the use of products such as masks, toothbrushes, and …., and vaccination; 2- the higher and more efficient treatment if suffering from a disease. So, the demand for treatment decreases if the precaution and preventive activities are acquired, and then the relation between education and health expenditures (including the treatment costs and precaution-preventive actions) is associated with the result of the above-mentioned origins, and it cannot be clearly said about the type of this relation. Education has been indexed in different studies in different ways as well; for example, Brown et al. (2014), lee et al. (2007), and Paker & wong, 1997 have utilized the education of the household head. At the same time, Sanwald & Theurl (2015) and Malik & Azam syed (2012) have considered the average education of parents or adolescents as an explanatory variable.

**The difference between geographical regions:** in most countries, the different geographical regions have considerable differences from each other, especially in the access level of the health facilities and proper medical ones; these differences can lead the changes in the requirement of medical actions or the costs of the access to these products and service. For this reason, in most of the studies that their used sample consists of multiple geographical locations, the complex variables have been considered for the geographical regions. From these studies, it can be refferred to Sanwald & Theurl (2015), Malik & Azam syed (2012), and Paker & wong (1997).

**Insurance:** as it can refer to the microeconomic basics, one of the more fundamental factors for all product and service demand is the price. For the health products and services, when the household is utilized the insurance service, including private/public insurance, it causes the individual demands to change because part of the costs related to buying the health products and services are paid by the insurance companies. So, one of the main existing factors in the social-economic variable vector has been its household/head insurance situation. Paker & wong (1997), Brown et al. (2014), lee et al. (2007), and … have noticed this important point. In Sanwald & Theurl's study (2015), the variable vector includes the public insurance situation of the head household; and also having private insurance of at least one parent.

**Household dimension:** the number of family members or the household dimension is also from significant factor affecting the health expenditures of the household. This variable affects it in different ways. The first impact of it is the increase in health expenditures due to requiring higher health products and services in larger families, but we think that the family dimension can have the reverse impact on health expenditures as well. This reverse impact is induced by the financial resources constraints; in this way, the families devote the existing resources to the needs such as food, clothing, and housing instead of investing in the member health to utilize optimal situation of physical and mental health. In other words, the increase in the number of members causes the annual income of the household decreases; as a result, the household will

have a lower demand for health products and services. According to above mentioned, the researchers have used the household dimension in two ways per capita: direct (Anoujiku et al., 2017) and indirect (Paker & wong, 1997).

Worth: one of the issues that exist in the literature related to the demand for health products is the impact of worth. Indeed, some researchers such as Okunade et al. (2010) believe that demands of products and services consistent with Friedmann's theory (the function of income) are a permanent income, not a current one; in other words, the correct estimation of the income is not possible in the cross-sectional data. So, it is preferred that the worth of the current income has been nearer to the permanent income with entering the worth index, and the results improved. According to this point, Malik & Azam Syed (2012) have stated that the households provide the necessary costs to be utilized from medical care and healthcare by selling their assets. Therefore, it can be said that the worth and income show aspects separated and different from the financial resources of the family, and it is not correct to remove the worth from the model due to existing revenue.

In this case, according to the above discussed, it can be said that the main factors affecting the health expenditures of the household are classified into 3 sections: economical (revenue, insurance, and worth), social (education, geographical regions), and demographical (household dimension, gender, and age structure.

## 2.1. Investigating the situation of the health cost in suburban households

Attention to the health and medical situation is one of the significant categories in the development of macroeconomic policies for the health system. According to existing exclusions in the suburbs and farthest regions, as well as the lack of financial ability, these regions have not mostly noticed private health. Fortunately, in recent years, according to the decisions and tangible actions performed in this field by the associated institutions, the average share of health and medical costs has increased in the suburban household portfolio.

It is noticed that the census onset of rural households has been from 1963, performed by the Statistical Center of Iran; from 1974 and then in addition to the cost, the revenue of the rural households is also included, and to now except for the year of 1980 and 1981, it has been done all years. This report aims to investigate the average share of health and medical costs of households in a cost portfolio of rural ones in the country; and includes the results of a survey on the cost and income of the rural household in 2018, performed by the Statistical Center of Iran.

The average annual health and medical cost of a rural household with a 9.3% increase have reached from 24120 thousand rials in 2017 to 26374 thousand rials in 2018. This percentage increase is 22% of the average costs of a whole rural household. Also, the average costs of health and social security insurance in a rural household with a 22.1% increase has reached from 5443 thousand rials in 2017 to 6645 thousand rials in 2018; because of the increase in social security costs.

In 2018, the average share of the annual health and medical cost of a rural household relative to the whole average cost in the ones with a tenth cost tithe of 11.9% and ninth cost tithe of 10.9% was higher than the country share of 9.9%; and for ones in another cost, the tithe is lower. The highest cost share of the annual health and treatment of a rural household, with 11.9%, is related to the tenth cost tithe and the lowest with 6.2% to the first cost tithe. In another word,

the average cost of the health and treatment of rural households who are in the tenth cost tithe is about 25 times of the ones with the first cost tithe.

## 2. Research background

Fanksa et al. (2020) studied more than 40 European countries and found that the higher the education of people is, the better their health will be. One more year of education leads to a decrease in 6.85% of diseases. Also, it reduces 3.8% of health attacks and 7% of Arthritis among the older. In other words, if the education years increases, it has many benefits for the health of people.

Barcelos et al. (2019) reviewed the distribution and education impacts on health and found that education causes weight to decrease and blood pressure to increase in older people. Of course, high-risk people with obesity genes tend more to lose weight; for this reason, some studies have verified the positive impact of education on weight loss, and others rejected that. So, the educational impact on healthiness varies in different demographical samples.

Murti and Okunade (2015), in their study on the main determinants affecting the health costs in African countries (one of the rare studies about undeveloped countries worldwide), and using consolidated data for 44 African countries and statistics plus figures of the year 2015 for them and entering variable such as annual income, foreign assistance received by the governments, the number of physicians per thousand people, and also people higher than 65 found that the annual income is one of the most important variables to explain the health fluctuation of undeveloped countries while the role of other variables is relatively lower. They state that the health costs of such countries are in the form of necessary health treatment instead of healthcare. They emphasize that these costs are near to the necessary costs of these countries, and their elasticity is close to 1.

Glied et al. (2013) believe that the educational impact on health has increased during recent years, and this increasing inequality is related to the existing technical development in medical equipment: people with higher education are the first ones who utilize technological developments, which cause healthiness. They studied their assumption according to the mortality rate induced by diseases and found that educated people utilize more technology which causes their health to improve. They studied their assumption according to the mortality rate and healthiness using the drug use rate for treating diseases and changing the mortality rate induced by them and found that educated people utilize more from the new medical technologies; so, the use of new technologies can increase the medical treatment costs.

Hammond (2012) refers that the increase in education can improve the decisionmaker's abilities to understand and interpret the information and signs associated with health. The educated people have the abilities such as more efficient management of family healthcare, the higher skill to work with medical systems and ensure the proper information. Also, they follow the complex medical recommendations more seriously; all these cases can reduce the unnecessary and inefficient use of health services and save incomes. In addition, the increase in education may prevent harmful behaviors such as smoking, improper nutrition, drug addiction, and their costs.

In 2008, Newhouse reviewed the relationship between different variables and their impacts on the determination of the health cost levels among the countries for the first time. Using data related to 13 OECD countries, per-capita variables, demographical variables, and the variables

related to the measurement of the technological development in the field of health found that more than 80% of the observed changes in the fluctuation of the health costs among countries is explained by the revenue variable. He reached the elasticity of about 1.15-1.31 for chafing the health costs due to revenue changes in the evaluated different countries. The results showed that the nature of these costs in these countries is a kind of luxury cost.

Savjipur et al. (2018) used data from 2011 related to the household budget, analyzed the direct determinants of households for the health expenditures with a two-way Hakman's method, and found that the increase in income, education, women's proportion, the number of the older people and who not old lead the increase in the health expenditures of the urban household.

Mehrara and Fazaeli (2015), in their study, called investigating the relationship between health costs and the economic growth in middle-east countries and northern Africa (Mena), emphasize that the share and importance of GDP are very critical for describing the health fluctuation among countries or different regions and identifying the size of this relationship to design policies in the health part of the community. In this research and using 13 samples of mentioned countries in the range of 1995-2005 and accumulation analysis based on the consolidated data (panel), they have shown a long-term relationship between two variables of the whole health costs (including public and private costs) and GDP. Based on the obtained coefficients, they do not reach any evidence of the luxury cost of short/long-term healthcare in this region of the world.

Sadeghi et al. (2014) investigated the factors affecting the health costs of the private section and compared their intensity in different levels of income in Asian countries using the regression technique for the consolidated data of the panel and control of the fixed effects among the countries. Their results showed that the per-capita variable could explain the huge section of the existing difference in health costs among countries. Also, it is observed that there is a significant difference in the kind of effective factors as well as their intensity in each different income group of countries.

Hosseini-Nasab and Varhami (2010), in a paper called investigating the factors affecting the medical care expenditures of households in Yazd province, analyze the second three-month information of Yazdian households. Eventually, they resulted that the per-capita income, medical insurance cover, household dimension, households with a baby, civilization, and education of the head of household are the important factors affecting their health expenditures.

### 3. Research method

The current study is descriptive-analytical. The study sample in this research is the rural regions of 21 provinces of Iran. The data relating to each studied variable for the rural regions of this country have been extracted in the period 2001-2020 from the central bank of Iran and Statistical Center of Iran. The estimation of models was performed by a modern econometric approach using Eviews software V.10.

To review the indices affecting healthcare and medical care of the rural household, the model introduced by Baltagi et al. (2010) and Saguti et al. (2013) has been used in the form of consolidated data. In economic literature, some studies have been done about the factors affecting healthcare expenditures. Following the economic literature of this research, the healthcare expenditure function can be given as follows:

$$Y_{it} = \alpha + \beta X_{it} + \mu_i + \varepsilon_{it} \qquad (1)$$

Where $Y$ is a dependent variable (healthcare and medical care costs of the rural household), $X$ set of explanatory variables, $\mu_i$ unobserved specific impacts of each country, and $\varepsilon_{it}$ an error component

### Variable introduction

The study's independent variables consist of 3 variables, including social security cost and medical cost of rural households, annual capital of rural households, and literacy rate; the dependent variable is the healthcare cost described as follows:

**Healthcare:** is the used treatment introduced by variables such as health expenditures of private/public sections and health services (including per-capita physicians, per-capita paramedics, the level of hospital beds, etc.). In three previous decades, most countries around the world have experienced fast growth in the expenditures of healthcare, and a considerable difference has been created in the healthcare expenditures per capita of different countries, such that the share of medical-health care from the GDP of developed countries is higher than undeveloped.

Per-capita income: the healthcare expenditures of each country depend on various factors. The payment capacity or, in other words, per-capita income plus financial constraints of the government can determine the costs of the health part of each country. In particular, the role of income as an important factor affecting healthcare expenditures has been identified and confirmed in all studies.

**Educational cost:** the educational cost can be divided into two parts. 1) current expenditures caused by issues done to produce regular and current educational services. The main feature of wage and salary of the staff, price of water, cost of electricity and telephone, rent, and so on is because of their daily expenses and current nature. 2) construction costs that costs are indeed a part of public expenses of education, and they do not have a current nature, but it is necessary to be used huge expenses for educational facilities. However, to utilize facilities and services permanently from this kind of expense, reinvestigation is not required.

**Social security and medical costs:** As it is referred to as the basics of microeconomics, one of the most fundamental factors for the demand for all products and services is price. In the case of health products and services, the households utilize the health services, including private/public insurance, and this causes the level of people's demand to be changed; because a part of purchasing costs of products and health services is paid by insurance companies.

So, according to the mentioned method and target variables, the current model of this study is given as follows:

$$LHYGIONE_{it} = LINSURANCE_{it} + LEDUCATION_{it} + LINCOME_{it}$$

Where we have:

$LHYGIONE_{it}$: the cost logarithm of healthcare and medical care of a rural household;

$LINCOME_{it}$: the per-capita income logarithm of a rural household;

$LINSURANCE_{it}$: the health-insurance cost logarithm of health and treatment of a rural household;

$LEDUCATION_{it}$: the education cost logarithm in the health and treatment part of a rural household;

In the above equation, $i$ is the villages of the desired province and $t$ the desired year.

## 4. Research findings

Before we want to estimate the model, it is necessary to test the reliability of all used variables in estimations because their unreliability creates a false regression problem for both time-series data and panel data that, in this case, the use of t-statistic value and F-statistic will be confusing. The results for the reliability test of variables considering the intercept and trend are as follows (Table 1):

Table 1: The results of the reliability test in consolidated data of model variables.

| Levin, Lee, and Chu | Im, Pesaran and Shane | Fisher-Dickie Fuller | Fisher-Phillips Perron | The test variable |
|---|---|---|---|---|
| -14.2590 (0.000) | -13.2405 (0.000) | 206.569 (0.000) | 208.917 (0.000) | LHYGIONE |
| -16.4673 (0.000) | -13.1923 (0.000) | 206.222 (0.000) | 210.421 (0.000) | LINSURANCE |
| -15.7705 (0.000) | -12.9524 (0.000) | 201.676 (0.000) | 221.096 (0.000) | LEDUCATION |
| -16.7303 (0.000) | -13.2542 (0.000) | 201.357 (0.000) | 226.432 (0.000) | LINCOME |
| Source: research data (in the level of 5% and 10%) | | | | |

According to the results of Table 1, the t-statistic, and the obtained probability value, it can be said that all target variables of this study at the level of 5% are static.

In the next stage, the F-test is done to select one of the methods: panel data and pooling. If the computed F related to the F-statistic of Limer from the table with the degree of freedom (df) of $(n - 1)$ and $(nt - n - k)$ is bigger, the zero assumption is rejected, and the panel data is selected; in otherwise, the consolidated method is used. The results of Limer's F-test for the model of developed countries are given in Table 2.

Table 2: the results of Limer's F-test for the studied model.

| d.f | Prob | Statistics value | Statistics |
|---|---|---|---|
| (17.320) | 0.0000 | 6.799183 | Cross-section F |
| 17 | 0.0000 | 105.154691 | Cross-section Chi-Square |
| Source: research data (in the level of 5% and 10%) | | | |

According to the results of Table 2, the acceptable value of the Limer's F-statistic as well as the probability value (significance) that is lower than 0.05, the zero assumption (based on the use of the pooling method) is rejected and the H1 assumption (based on the use of data panel) accepted.

In particular, to estimate the panel-data samples, there are two methods of fixed effects and occasional impacts. To determine which method must be used for one of the data samples, specific tests are done. One of the most popular tests is the Hasman test. In this stage, we perform the Hausman test for the studied model, and its results are given in Table 3.

Table 3: The results of the Hausman test for the studied model.

| Prob | d.f | Statistics chi-sq. | Statistics |
|---|---|---|---|
| 0.0000 | 3 | 16.788108 | Occasional cross-section |

Source: research data (in the level of 5% and 10%)

According to the obtained results in Table 3, the zero assumption based on using occasional impacts is rejected, and it is concluded that the best kind of estimation is the fixed effect method. So, according to the results related to Limer's F-tests, it is concluded that the studied model should be estimated by the panel-data method and pooling method.

The estimated results of the model using mixed data methods and fixed effects are given for 31 provinces of the country during the period 2001-2020 in Table 4.

**Table 4:** The estimated results using the fixed-effect method for the studied model.

| Variables | Coefficients | T-statistics | Prob. value |
|---|---|---|---|
| C | -0.487532 | -0.887229 | -0.3757 |
| LINSURANCE | 0.786138 | 20.76831 | 0.000 |
| LEDUCATION | 1.026808 | 2.715522 | 0.007 |
| LINCOME | 0.117910 | 3.745673 | 0.000 |
| Determination coefficient: 0.964550 | | Watson camera: 2.095 | |
| Prob. value: 0.0000 | | F-statistics: 388.6920 | |
| Source: research data (in the level of 5% and 10%) | | | |

According to the results of Table 4, the obtained $R^2$ is an acceptable value that shows that about 96% of independent variables are explained by dependent ones. The F-statistics value and the probability obtained are acceptable and show the significance of the model coefficients. The statistic value of the Watson camera is 2.095, which is acceptable and shows the autocorrelation among the model variables.

So, according to the results obtained from the fixed effect method, we can analyze and interpret the impact of each variable reviewed in this research.

Based on the results, the coefficient estimated by the logarithmic variable of the insurance cost is positive and significant that the increase in one percent of social security and medical costs raises 0.7% in the rural regions of Iran; of course, it is assumed that the other variables, healthcare, and medical expenses are constant. Also, based on the obtained results, the variable coefficient of income for rural households (another effective variable of healthcare expenses in the rural regions) is positive and significant such that it increases by 0.1% with a 1% increase in household income, healthcare, and medical expenses of rural regions. The variable of education costs in rural regions has been one of the other variables affecting healthcare and medical expenses. The results of this study show that the effect of the education variable on the rural regions is positive and significant; this means that with a 1% increase in education, assuming the stability of other variables, the expenses of healthcare in the rural regions increase by about 1.02%.

## 5. Conclusion

The contents related to healthcare expenses have been one of the main concerns and challenges of health politicians in all countries worldwide in recent years. The main reason for the concern has been the resources for supplying the expenses because the level of healthcare increase compared to income increase has been higher and limited supplying these expenditures. So, this issue is one of the most important ones for the health politicians in all countries to determine

how much country resources have been spent on medical care and healthcare. Since different factors affect the health costs and how much level the household is faced with, the effect of these factors can not be equal. Thus, this study aims to review the factors affecting the efficient indices which have an impact on the healthcare and medical care of rural households in provinces of Iran from the period 2001-2020 using econometric methods. The results of this study show that: **Household income** is one of the important factors affecting health and medical costs, especially in rural areas where its importance is in first position. The income of the rural household has a positive and significant impact on the health and medical costs, so, in the values higher than the income level, this impact is stronger. It can be said that the medical expenses of a household are more affected by household income. In this case, the financial access level of the household to healthcare and medical care is influenced by the income level of the household, so with a 1% increase in the household income, healthcare and medical care expenses increase by 0.1% in the rural regions.

The impacts of **social security** on rural health and medical costs are positive and significant. In other words, it can be said that the direct impact of social security costs on healthcare and medical care expenses can be induced by encouraging people to use services and higher-level providers of health and medical services more. The insurance leads to an increase in the medical healthcare expenditures of the household induced by the low efficiency of the insurance system and the lack of attention to the correct design depending on the covered services, insured behaviors, and method of paying the service providers; such that with increasing 1% in the social security and medical costs, assuming the other variables are constant, the health and medical care expenditures increase 0.7% in the rural regions of Iran.

At last, the results show that the educational impact on healthcare expenses has investigated more than two variables. Indeed, education has a high positive and significant impact on healthcare expenditures. It can be said that higher education leads increase in health and medical care expenditures as well as household health improvement. As a result, by providing higher facilities for continuing education, especially for under-diploma groups in rural regions, we will see the optimal allocation of resources for community health and human development. It is noted that the results of this study are consistent with studies of Hosseini-Nasab et al. (2000), Zare (2004), Sadeghi et al. (2004), and Exu (2007).

According to the experimental results of this study, the below propositions are given as follows: At first, politicians should notice the policies associated with the rural regions and rural households. On the one hand, health policies, medical policies, improvement of life quality for raising life expectancy, and increase in the villagers' awareness relative to healthcare should be followed to increase economic growth and human capital promotion. In other words, the policymakers can systematize the health field, reduce the pressure on the household, and lower the health expenses in the household budget by identifying the key factors affecting the health and medical expenses of the rural household, including income, social security costs, education, and so on besides improving the health infrastructure. Also, according to the positive effect of the per-capita income on the health and medical expenses of the rural household, the increase in the per-capita income can raise the health and medical expenditures through the used expenditures.

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