

The effect of drug price liberalization on income distribution; A mathematical approach

Hamed Karimi, Seyyed Mohsen Khalife Soltani*, Bahar Hafezi

Department of Economics, Faculty of Law and Economics, Khomeinishahr Branch, Islamic Azad University, Khomeinishahr, Isfahan, Iran

(Communicated by Javad Vahidi)

Abstract

The self-reversion pattern with distribution breaks has been used and the statistics cover the time period from 1971 to 2006. The results of short-term and long-term models show that economic growth has reduced poverty in the short term but has had no effect on inequality. In the long term, although economic growth has been poverty-relieving, it has increased inequality. In the long term, the openness of the economy to trade has directly increased the average income of the poor through the effect on income distribution, therefore, the openness of the economy through two direct (effect on income distribution) and indirect (effect on economic growth) can cause a decrease become poor While openness to foreign direct investment does not have a direct effect on the average income of the poor and can only be effective on poverty through the effect on economic growth. Therefore, the specific proposal of this article is that Iran can use world trade and economic openness as a tool to reduce inequality and poverty if economic infrastructures are reformed.

Keywords: Economy, Liberalization, Vulnerable, Iran's economy, Medicine, Poverty alleviation
2020 MSC: 91B24

1 Introduction

Iran's economy is passing from a decentralized planning to a centralized planning and price liberalization is one of the main topics in this transition. The relationship between price liberalization policy and the goal of reducing poverty and inequality is a controversial issue among economists and policymakers. Some believe in the conventional economic approach (neoclassical) and believe that eliminating public subsidies and replacing them with targeted subsidies is the most effective policy in achieving the aforementioned goal. Others, with a critical view, look at this hypothesis with doubt and believe that reducing poverty requires the use of income redistribution policies, which are different in nature from the policy of targeting subsidies. In almost all known economic systems, providing the necessary grounds for achieving social justice and redistributing wealth in favor of the poor classes is one of the main duties of governments. Regardless of the debates about the definition of the concept of justice, every economic system in the short and long term has plans to eliminate poverty and deprivation as well as defend the social and economic rights of individuals. Removing the subsidy limits the poor's desire to afford basic needs, reduces the poor's access to daily services, and is considered a threat to their livelihood. As a strategic product subject to subsidies in the country and a basic need

*Corresponding author

Email addresses: hamed.karimis1990@gmail.com (Hamed Karimi), khalifehsoltani@iaukhsh.ac.ir (Seyyed Mohsen Khalife Soltani), hafezi@iaukhsh.ac.ir (Bahar Hafezi)

of the people, medicine has been of special importance, and it is among the complex and multi-factorial issues, that solving the defects and problems of this system requires national determination and the attention of all officials and It has health care workers and other related institutions and organizations. Therefore, in the current situation, in terms of ineffective and non-targeted allocation of subsidy resources, the need to change the form of subsidy payment is felt more than before and the need to deal with it is felt. Therefore, due to the importance of the drug category in the field of health and treatment on the one hand and the high amount of pharmaceutical subsidies on the other hand, and also due to the fact that the discussion of subsidies and its rationalization is one of the current issues of the country, it became more reason to A research should be done in this regard [1].

Without a doubt, poverty and economic inequalities are among the most important problems of human society, which have a special place among other social and economic issues. Poverty is one of the most fundamental problems and the most abnormal pains in human life, which despite the extensive progress and development in human life, its rate has not only not decreased, but according to the available statistics, it is increasing. The problems of poverty are not only limited to the economic consequences of poverty, but the problems of this social issue become more intense when it becomes the basis of deviations. Poverty and inequality as social harms, if not controlled and limited, can lead to widespread harms in levels of the household and society, in such a way that they threaten the economic, social and moral life of the society. Therefore, choosing a right policy in facing this issue is inevitable. Since economic decisions cannot fully predict economic realities and behaviors, there is always a gap between what happens and what is decided. One of the ways to cover these gaps is social support, which includes the payment of subsidies [18]. It is a conscious effort by the government to support a selected economic agent, a consumer and a provider, and it can be used in any market that involves the buying and selling of products or services. It is basically a government action that lowers the consumer's consumption price or increases the producer's selling price [6]. Today, due to the limited budget and scarce resources in Islamic countries, especially Iran, and the failure to meet the basic needs of poor groups, how to pay subsidies to the target groups is of interest. Since two decades ago, especially following the increase in population, and the economic problems that plagued most countries, the issue of reducing subsidies has been discussed and given more attention. In Iran, in the past years, thousands of billions of rials have been allocated to various types of subsidies and transfer payments under the pretext of supporting vulnerable groups, and these payments have generally been spent on consumer goods and services [20]. For this purpose, many efforts have been made to investigate the relationship between the concepts of efficiency and justice in different sectors of the economy of countries. One of the most important sectors is the health and treatment sector, and the pharmaceutical industry is considered the main element of this sector, and in such a way that this industry is gradually gaining the first rank among the various industries of the world, since medicine, as a strategic commodity, is directly related to Health has different communities and it will be important for the governments because the effect of such a policy will be reflected on the economic activity of the countries. Removing subsidies without careful planning limits the poor's desire to afford basic needs, reduces the poor's access to daily services, and is considered a threat to their livelihood [9]. But on the other hand, it will be important to remove the subsidy for pharmaceutical goods and to implement a correct and precise plan to prevent smuggling between countries and to pay attention to the health aspect of people in the first place, because a large part of the subsidies, due to not being targeted, have gone to the rich. And it endangers the health of the weak sections of the society. In countries, justice and equality in the treatment of all medical facilities, access to the necessary drugs, the appropriate way of designing medical insurances, as well as creating equality in enjoying these facilities, have always been considered by public and private officials and policy makers. On the other hand, the design and implementation of a health care system that, in addition to creating justice, has adequate efficiency, cannot be done by the officials of this sector alone, because considering the large amount of subsidies given to this sector in some Islamic countries, including Iran. drug subsidy ranks third among basic goods) the need for a precise economic approach in the design and planning of this health and treatment system is strongly felt. They examine a policy [21].

Subsidies in the world are established with valid goals such as supporting the access of low-income households, maintaining employment, maintaining security and supporting domestic production. These supports can be in various forms, one of the most common methods of which is price determination. Despite the defensible goals of setting subsidies, such as providing access, the experience of different countries in the world and economic theory show that usually subsidies are not a suitable tool to achieve these goals, and the setting of subsidies creates more problems that even Sometimes they are in conflict with the primary goals (such as the goal of reducing poverty and inequality). Therefore, in the current situation, in terms of ineffectiveness and non-targeted allocation of subsidy resources, the necessity of freeing the price of medicine is felt more than before and the need to address it is felt. Considering the inflation and the current economic conditions, freeing the price of medicine without considering the infrastructure and detailed planning and not determining the support framework will put heavy and additional pressure on patients and their families, which will have social crisis effects and in practice It will not work either. Things that must be paid

special attention in the field of drug price liberalization are the identification of vulnerable infrastructures and such a plan will not succeed without paying attention to the support system. If drug prices are liberalized, things like drug deductibles for patients, the lack of universal insurance coverage, the worsening of the country's health insurance crisis, the operational costs of drugs that are transferred to consumers, should be carefully examined and supported so that poverty and inequality can be reduced. In a situation where most drug manufacturing factories and honest import companies are facing severe economic problems, and all these cases have increased the liquidity burden required by the industry, any price change without scientific support and detailed planning and not determining the support framework, The current liquidity crisis will intensify the industry in an unprecedented way, the inability to provide it will definitely lead to bankruptcy and the exit of a large number of drug manufacturing companies in the country. If such a policy is implemented, it seems that it would be better if the drug subsidy removal policy is carried out based on a gradual scenario, because the adjusted opportunity economy and the negative consequences of such a policy are minimized and manageable. Therefore, in the current conditions, in terms of inefficiency and non-targeted allocation of subsidy resources, the need to change the form of subsidy payment is more needed and the need to address it is felt. Therefore, considering the importance of the drug category in the field of health and treatment on one hand and the high amount of pharmaceutical subsidies on the other hand, and also due to the fact that price liberalization is one of the current issues of the countries, it was an advantage to conduct a research in this direction. theories: Drug price liberalization has a negative and significant impact on poverty. Drug price liberalization has a negative and significant effect on inequality.

2 Literature review

2.1 Poverty in Iran's economy

Poverty in Iran has always been an important issue. Especially since its importance has doubled after the Islamic revolution and with the introduction of the goals of supporting the oppressed and the needy; In such a way that solving the problem of the deprived and the poor of the country was at the top of the plans and goals of the officials. After the revolution, attention to the poor and the removal of their deprivation became very intense, so that 4650 thousand people have been placed under the supervision of new or revived support organizations and institutions of the country, such as the Welfare Organization, the Imam Relief Committee, etc. In this way, these efforts took a special order after the imposed war and continue until now. One of the statistics that helps to approach the discussion of poverty is the standard of living and household budget statistics. This statistic is more accurate than GDP. As can be seen, the figure below divides Iran into four income groups. The blue line in the figure represents people whose income is less than 5.5 dollars a day and are considered poor. The green line also shows the percentage of the middle class in the society.

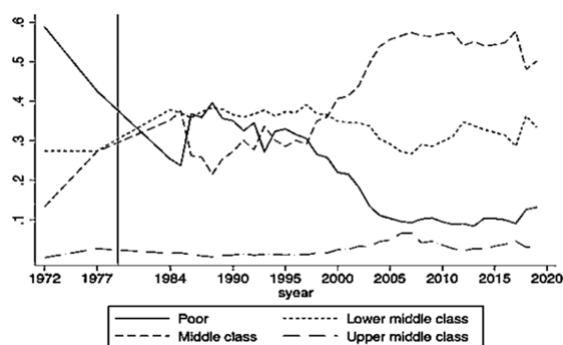


Figure 1: The situation of Iran in 4 income groups during the period of 1972-2020 [19]

Based on the curve data, we see that in recent years, poverty has been increasing, which is probably related to the sanctions under Trump. Looking at the green curve that represents the middle class and comparing it with the poor class, we can see that since 1995, many classes that left the poverty line have joined the middle class to the point where this class is more than 60% of the country's population. formed before the sanctions. If we go back earlier, we can see that before 1995 and especially during the war, the poor class, the lower than middle class and the middle class each constituted 30% of the society. Currently, this statistic has changed and most people belong to the middle class of society. Although there are no accurate statistics from before the revolution, there are a number of tabular statistics that, converting these statistics into hypothetical statistics based on a series of hypotheses, indicate that more than

60% of Iran's society was below the poverty line at that time, which is currently The middle class has become 60%. Examining the real cost of households in the country indicates a further drop in the real cost of rural households and the growing poverty of these households in the last 10 years.

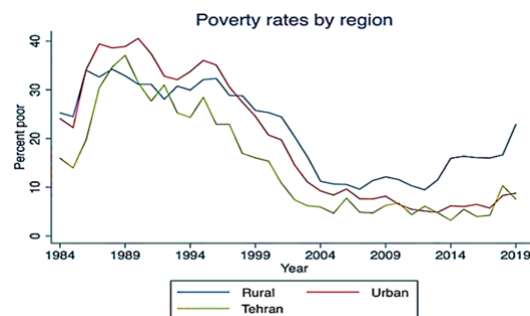


Figure 2: Poverty rate based on urban and rural population in Iran [19]

In general, before the revolution, the main attention was paid to the cities, and after the revolution, attention was paid to the villages, but in the last 20 years, the cities have received attention again. In the graph, we can see that the most pressure in the sanctions has been applied to the villages to the extent that the percentage of the poor has increased from 10% in 2013 to 23% in 2019 in these areas. Poverty alleviation programs have been implemented in many countries, and among them, some have succeeded in reducing poverty, while others have failed in this way due to work deficiencies. The poverty alleviation programs in Iran were also resumed after the revolution due to the ideological support of the Islamic Republic of Iran, and especially after the imposed war and at the same time as the first development program, they were pursued seriously, in a way that boldly It can be said that in all these programs, the goal of poverty alleviation has been one of the priorities of these programs. In this way, a lot of capital, time and energy have been spent on solving the poverty crisis in the country, and efforts are still being made to solve or at least reduce the problem of poverty. In our country, Iran, like many other countries, providing suitable conditions for the life of all sections of the society is the main task of the agents and economic officials of the country. The Islamic revolution of Iran has paid attention to the reduction and finally, the eradication of poverty as a fundamental goal, in such a way that in principles 3, 21, 29, 31, and 43 of the constitution, the issue of poverty alleviation and ensuring the welfare of the deprived classes, It is clearly mentioned [24]. The face of poverty in the system of the Islamic Republic of Iran, which is a system based on the principles and holy sharia of Islam, is a rejected and distasteful face, and certainly such a sharia does not reflect the rule of poverty in the Islamic society. In such an atmosphere, which considers poverty as the source of many other social harms, and introduces it as a source of faith, it should definitely put serious plans to solve this problem in the agenda and priority of its plans.

Also, efforts have been made to fight poverty in the form of development programs and economic organization plans, but its effects in reducing poverty in the society are not very clear. One of the actions of the government is the establishment of the Ministry of Welfare and Social Security in 2013 and the economic organization plan, and its purpose is to deal with poverty and inequality in the urban and rural communities of the country, but its performance is not very impressive [22]. The first program of economic, social and cultural development was formulated and implemented under the influence of the teachings of the World Bank regarding economic liberalization and structural adjustment [30]. In the second development plan, social justice is one of the top priorities of the plan, and the category of sustainable growth and development is mentioned as one of the final goals of this plan. income and poverty level in the society, it is a question of employment and productivity of the labor force [8]. The fourth development plan took on a more justice-seeking color and was influenced by the government's justice-oriented slogans, and as a result, the issue of inequalities and fair distribution, and finally improving the condition of the lower deciles of the society, received more attention. In general, during the development programs after the revolution, with goals such as ensuring social justice and providing the minimum second basic needs, necessary attention is paid to the elimination of poverty and deprivation in the country in the form of medium-term programs [7]. Also, in the subsequent development plans, poverty and issues related to its elimination have had a special place. By reviewing the discussed issues and taking into account the fact that huge expenses in the shadow of oil rigs are used to provide financial resources for social service institutions and also to implement poverty alleviation programs in Iran, this idea or expectation comes to mind. It is possible that with the passage of time from the years after the war until now, the extent and severity of poverty has been limited and the huge project of fighting against poverty has reached its intended destination and the continuation of this process will lead to a further reduction of poverty.

The results of the studies indicate that the poverty alleviation process has not progressed well in spite of numerous welfare programs, and according to estimates, the poverty indicators in Iran show a high figure. In this way, it seems that the country's macro programs with all the expenses and costs they have had in the direction of poverty alleviation, have not achieved much success and despite considering the attention to the poor and the economic provision of this group, whether in During development programs and during other poverty alleviation programs, they have not been able to reduce the great problem of poverty in the country to the extent of reasonable expectations [31].

2.2 Definition of poverty

Until the 1990s, the perception of poverty by researchers was merely a quantitative and instrumental perception, but the emergence of critical theories and the growth of qualitative analyzes in research work, considered the knowledge of poverty in the traditional way to be ineffective and as a result insufficient to reduce poverty. In a group meeting about the future of poverty research, Lister announced that we have reached the end of the traditional pattern in poverty research [28]. Poverty is a situation in which the well-being of an individual or household is below the standard level. In other words, in this situation, the individual's or family's income is not enough to meet his basic needs. So finally, it can be said that the lack of adequate and sufficient income of an individual or family to meet basic needs is defined as the state of poverty in a society. These incomes may generally accrue to individuals or households in three ways: 1) through labor supply and participation in the production stages as a production factor, 2) through the sale or lease of assets and material capital as another factor of production 3) through government income redistribution policies [14]. There are different definitions of poverty. But as Sen pointed out in 2019, all these definitions point to some form of deprivation. But the concept of deprivation itself is a social and relative concept and is determined based on norms that may be completely different in different times and places. In this way, poverty in a developing country may be associated with deprivation of facilities that are necessary for survival (for example, food, medicine and housing), while poverty in a developed country may be relative deprivation of Mean living conditions and facilities of the average population or social groups with higher incomes. Due to the multidimensional nature of poverty and the poor, it is difficult to provide a comprehensive and precise definition of the term poverty. The following definitions for poverty have been presented over the decades:

Definition of Tansand: Tansand believed in the 1960s and 1970s that individuals, households and population groups can be considered poor when they are faced with a lack of resources to obtain a variety of diets, participate in activities and the usual conditions and facilities of life [16].

Definition of age: In 1981, age has pointed out that poverty should be considered as a deprivation of basic capabilities and not simply "low incomes, which is the conventional rule for identifying poverty. Of course, deprivation itself is a relative concept that may be different in places and Different times have different definitions. What the capability perspective does in the analysis of poverty is that it expands our understanding of the nature and causes of poverty and deprivation [16].

Definition of Asian Development Bank: Poverty is the deprivation of assets and opportunities that every person deserves [16]. **Definition of Bot and Vantree:** these two economists tried to differentiate between absolute and relative poverty in the late 19th century. Absolute poverty is defined as the inability to obtain the minimum standard of living, and therefore it depends on how the minimum wage is defined, and relative poverty is defined as the inability to obtain a certain level of living standards that is considered necessary or desirable in the current society. (the same). Therefore, in the definition of relative poverty, inequality in the distribution of income and wealth is more important than the absolute amount of income of individuals. In order to reach the depth of inequality in the distribution of income (or consumption) between individuals or households, the percentage of total income received by the poorest class of society can be compared with the percentage of income received by the richest class. Of course, it should be noted that this concept is defined in different ways in different countries and has changed over time due to economic developments.

2.3 Types of poverty

2.3.1 Poverty with income approach

Income poverty approaches are basically one-dimensional and are evaluated only in terms of income or consumption. This approach, which has been the dominant approach in calculating poverty in Iran, ignores the variety of abilities and capabilities of different people and only achieves a certain level of income, which means guaranteeing access to

the necessary goods and services and providing the basic needs of a person or Not the intended household. Poverty is the result of severe social inequality. In the traditional view, poverty is: material deprivation measured by income or consumption criteria [17].

2.3.2 Capacity poverty

Sen's famous book titled "Goods and Capabilities" (1985) is considered the starting point of discussions related to this approach. The concept of capability was first proposed by Amartin Sen, winner of the Nobel Prize in Economics in 1998. According to Sen, the value of goods is based on their role and function in meeting human needs. In this sense, we should turn our attention from the narrow and limited view of income, which is practically the result of the theory of utility, to the expanded view based on capabilities. What Amartya Sen means by ability is exactly that. This means that empowerment actually determines the quality of human life; And if a society is to move towards social justice, the government must provide the means for people to acquire the necessary capabilities to access the goods and services that are valuable to them. If he did not do it, it is his own fault [3]. From the capability point of view, poverty does not mean having no income at all. In this view, poverty is defined as the deprivation of individual and social capabilities, and it is basically a lack of capabilities, and it is obvious that its solution should also be sought in the development of human capabilities. Therefore, the biggest advantage of defining poverty in terms of capabilities is the explanation of specific social policies and actions, which are implemented not in a temporary way but in a radical way. Policies that target specific groups.

Mental poverty Another concept of poverty is known as mental poverty. because it refers to the deprivation of some goods; which a person considers himself to be in need of, poverty occurs when a person or people fail to obtain a level of well-being that is considered the least reasonable level of well-being based on society's standards [2]. In this sense, the criterion of being poor has a completely personal aspect and is rooted in the individual's or household's feelings towards poverty and can be evaluated using questionnaires and personal statements. In this way, through statistics, it is possible to raise this questionnaire that, in your opinion, what is the minimum level of income (the income below which you will not be able to live). The answer to this question will vary from person to person and according to the size of the family. By drawing the obtained points and passing a line through them, a mental poverty line can be drawn.

2.3.3 Multidimensional poverty

The multidimensional approach of poverty, in addition to the financial and economic features, also considers the capability features, political and cultural activities of the household and finally has a more realistic description of poverty. The theoretical advances in research related to poverty show that the three dimensions of economic well-being, capabilities and social participation have a multidimensional structure and are divided into three sub-dimensions of economic, cultural and political participation. Each of these dimensions cannot be observed directly, so each of them is measured by several observable indicators. In fact, the multidimensional approach of poverty, unlike the consumption or income approach in which only the economic issue is considered, considers a system consisting of economy, politics and culture and specifies a rational and real definition of poverty. In this view, the degree of poverty of poor people is different and the existence of different dimensions makes it possible to differentiate the qualitative differences of poverty between the poor. The inadequacies in the income method have caused economists to pay more attention to the concept of multidimensional poverty.

2.3.4 Definition of the poverty line

Depending on whether the absolute or relative concept is considered in the definition of poverty, a threshold is defined that defines the border between the poor and other members of the society. This threshold is called the poverty line. Based on the income approach, poverty is considered as absolute poverty and relative or comparative poverty.

2.3.5 Absolute poverty

Poverty in its absolute definition is the inability of an individual or a family to access sufficient resources to meet the basic needs of life. Absolute poverty is defined as the inability to provide the minimum essential needs of people such as food, clothing, housing, education, health, transportation and other such things. In the absolute sense, poor people or households are considered to be at risk of death due to the lack of vital needs such as safe water, adequate and appropriate food, and lack of access to medical centers. However, the aforementioned definition does not guarantee that individuals or households have achieved many of their basic needs for a dignified life [12].

2.3.6 Relative poverty

In fact, "relative poverty" is based on the concept of inequality that people get from comparing their position with other groups. Relative poverty is defined as the inability to obtain a certain level of living standards that is recognized as necessary or desirable in the current society. In relative poverty, which is caused by a severe income difference, poverty is not only caused by the lack of resources to meet basic needs, but it is also caused by the lack of individual resources to access the minimum standard of living of the society; Therefore, in the definition of relative poverty, inequality in the distribution of income and wealth is considered more than the absolute amount of income of individuals. In order to achieve the depth of inequality in the distribution of income (consumption) between individuals or households, the percentage of total income received by the poorest class of society can be compared with the percentage of income received by the richest class. Of course, it should be noted that this concept is defined in different ways in different countries and has changed over time due to economic developments. Despite the increasing importance of relativity in the definition and diagnosis of poverty, many researches in developing countries look at poverty only from an absolute aspect, and the tools and scales for measuring poverty in these countries have not been developed much. With this definition, many emphasis on the relative concept of poverty, along with their tangible connection with the issue of social inequalities and contradictions, is a testimony to the fact that the political and social dynamics of the relationship between the poor and the non-poor in the eyes of researchers and Decision makers have gained more importance than traditional approaches to poverty. In this way, it seems that creating new indicators to calculate the relative nature of poverty is one of the new challenges that the international community will face [12].

3 Findings

3.1 Effects of poverty in society

The phenomenon of poverty is a problem that all human societies have faced in some way throughout history. The emergence of poverty did not happen all at once at a specific point, but the simultaneous occurrence of poverty and wealth in different times and places was the gradual result of the existing systems of societies throughout history. This causes various social and economic problems in different dimensions for societies. Because this phenomenon, which is itself a manifestation of economic, social and cultural underdevelopment, threatens political stability, social solidarity, as well as the physical and mental health of nations, and causes an increase in mortality, as well as a decrease in average life expectancy, and a decrease in human efficiency. In the Islamic world, economic productivity becomes. On the other hand, poverty causes social diseases and corruption in society. When this phenomenon continues from one generation to another, it takes root and becomes a culture and becomes a permanent obstacle to development. In idealistic systems, especially our Islamic country, this issue (removal of deprivation) is more important compared to other countries; As far as the holy book "Qur'an" has repeatedly emphasized the elimination of poverty and has mentioned social justice and elimination of deprivation as one of the basic goals of the Islamic system. Poverty is the root of problems and setbacks in most of the world, including an important part of our society. Various studies report the increase of inequality and poverty in the world. Currently, 54 countries are poorer than in 1990. In 21 countries, a higher proportion of people live in hunger. In 14 countries, more children die before the age of 5. In 12 countries, school enrollment rates have decreased. Such regressions have been unprecedented in human life. Among the 67 (poor) countries, the proportion of the poor population has increased in 37 countries. In 19 countries, more than a quarter of people are hungry and the situation is getting worse. In 21 countries, the rate of hunger has increased. In 7 countries, almost a quarter of 5-year-old children do not see themselves. In the 1990s, in 125 developing and transitioning countries, the average per capita income growth was less than 3%, and in 54 countries, the average per capita income decreased. In only three countries, the gap in child mortality rates between rich and poor groups has decreased [15].

3.2 Types of methods for calculating the poverty line in Iran

The difficulty of measuring poverty revolves around two basic issues: establishing a correct theoretical or conceptual framework and using valid and reliable methods to collect and organize relevant information [4]. In fact, poverty is a component that has a grammatical aspect; In this way, the type of definition of poverty itself can affect the measurement of poverty. Basically, distinguishing the poor from the non-poor or both of these from the rich depends on the predefined definition of poverty and wealth [29]. This shows that the poverty line is not an absolute fact, but the individual's taste can affect its measurement. But in the meantime, what is obvious is that almost all the poverty lines that are used in practice are dependent on nutritional needs. In various definitions of poverty, what distinguishes between the poor and the rich is the ability to meet nutritional and physical needs. For this reason, it

can accept different forms, including the following three perceptions: 1) consumption of a specific basket of goods, 2) total income, 3) total cost [26]. But the second problem that was raised at the beginning is to use valid methods for the collected information. In this way, after gathering information about the consumption, cost, or income of individuals or households, it is necessary for researchers to invent indicators to determine the limits of poverty and wealth. This is the poverty line which, with all the shortcomings of work, is the standard of poverty and wealth. Research Methodology The current research is practical in terms of purpose and experimental in terms of research method, and this research started by collecting library information and related data. And then, based on theoretical and empirical bases, the factors that will affect poverty and inequality, and finally, using econometric techniques, to analyze the effect of drug subsidy liberalization on poverty and inequality in Iran during the period of 2005-2019, using the GARCH family modeling method. (M-GARCH in terms of structural failure) will be discussed. To achieve more flexibility, another generalization in the form of generalized ARCH process (GARCH) has been proposed. This GARCH(p,q) process has a conditional variance function in the form of equation (1); (1) which is in it. Figure 1 shows the types of multivariable GARCH models that have been presented so far.

In multivariable GARCH models, the number of parameters increases strongly with the increase in the dimension of the model, and on the other hand, it is necessary that the variance matrix is positive definite. Establishing these characteristics by estimated parameters is not so simple [13]. To estimate the parameters of multivariate GARCH models, the maximum realism method is mainly used, although the two-step method is also common. In the two-step method, the conditional mean parameters of the model are estimated first, then the conditional variance parameters will be estimated using the residuals. The main problem with this method is that usually the modeling and estimation of conditional mean parameters is based on the assumption that the variance is equal. However, in the (pseudo) maximum likelihood method, conditional mean and conditional variance parameters are estimated simultaneously, so it is preferable to the two-step method.

Univariate GARCH linear combination models, as their name suggests, are linear combinations of several univariate models, each of which is not necessarily a standard GARCH model. However, univariate GARCH nonlinear combination models allow the researcher to separately specify each of the conditional variances on the one hand and specify the conditional correlation matrix on the other hand. Calculating these models using existing software is not possible and requires special programming. In the evaluation and estimation of a structural relationship, it has always been considered as a partial error, which is considered as a variable with a constant variance during the period based on an initial assumption in the estimation. On the other hand, in many cases, this assumption is violated; Because the time series of the estimated variable exhibits wide fluctuations in certain periods of time, which casts doubt on the assumption of constant variance or homogenous variance. Also, in some cases, while the unconditional average of a time series is constant, the variable in question exhibits wide fluctuations. In this case, how to pattern the fluctuations is of particular importance. Engel showed that it is possible to simultaneously model the mean and conditional variance of a series of data [23]. After the introduction of conditional variance heterogeneity model by Engel, it became possible to calculate risk and uncertainty. The basic condition for using the conditional variance as an uncertainty index is the variability of the variance of the desired variable over time. The generalized GARCH (p,q) conditional variance heteroscedasticity model introduced is as follows.

$$\alpha_0 + A(L)\epsilon_{t-j}^2 + B(L)h_{t-i}h_t = \alpha_0 \sum_{i=1}^q \alpha \epsilon_{t-i}^2 + \sum_{j=1}^p \beta_j h_{t-j} \quad (1)$$

According to relation (1) and the reliability of the Garch process, the mean and unconditional variance will be in the form of relation (2)

$$E(\epsilon_t) = 0; Var(\epsilon_t) = \alpha_0(1 - A(L)) - B(L)^{-1}. \quad (2)$$

Therefore, for a stable GARCH (p,q) process, the conditional variance is a constant value, while the conditional variance is variable over time [1]. The first step in the GARCH instruction is to identify the best specification of the time series autoregressive process using the conventional Box-Jenkins technique. For this purpose, autocorrelation and partial autocorrelation functions, Q statistic and Young-Box statistic can be used [25]. The basic and simpler models of Arch and Garch, which were used in the first researches [5, 10], have the ability to analyze only one market and They are unable to analyze the mutual effects of the markets on each other and do not pay attention to the conditional covariance between the series. Therefore, in subsequent studies, in order to solve these limitations and develop the application of these models, bivariate GARCH models were developed into multivariate (MGARCH) models. In the MGARCH models, the variance-covariance matrix of the disturbance terms of the series is estimated, while in the single-variable models, only the variance of the disturbance terms of the series will be calculated. Therefore, the multivariate GARCH model was used to analyze the dynamics of market fluctuations and identify evidence of the

existence of volatility transfer between markets in studies such as [1, 11, 27]. 2 test of significance of research variables Before estimating the model, the first step is to check the significance of the variables. Variables whose mean and variance change over time are known as unit root variables or indeterminate variables, so the use of such indeterminate variables in modeling leads to misleading results. On the other hand, if the variables are meaningful, the estimation of the long-term relationship between them will be based on the real correlation relationship and will have the necessary accuracy. In order to solve the problems related to the correlation of disorder sentences, the generalized Dickey-Fuller test is used to check the meanness of the variables. The results of the Manay test of the variables using the generalized Dickey-Fuller test.

4 Discussion and Conclusion

The summary of the results shows that the variance of the variables in question is not constant. Therefore, Arch's hypothesis is not rejected. Conclusion The country's current subsidy system, which has a comprehensive and unconditional form, whether it is the granting of subsidies to medicine and medical equipment or other goods such as energy and basic goods, causes inefficiency (for example, in the health sector, more medicine and equipment consumption and higher income deciles benefit more), Allocation corruption, high cost of regulation, high cost of administrative management and destruction of industry through supporting inefficient enterprises. In the field of medicine and medical equipment, if the amount of allocated currency is considered to be about 2 billion dollars and the subsidy for each dollar is at least 23 thousand tomans, as a result, 46 thousand billion tomans of hidden subsidies will be granted to the health sector. Comparing this figure with the health insurance budget or the transformation plan budget under various programs shows the significant importance of these resources. Considering that the amount of subsidy consumption is a function of the amount of consumption of the total product in question, the higher the amount of consumption, the greater the amount of benefit from the subsidy. Based on this and using household budget data, the examination of the amount of drug subsidy under different deciles shows that the first seven deciles have consumed only 25% of the total subsidy allocated to drugs and the top three deciles have allocated about 75% of the total drug subsidy. In addition, the 10th decile alone accounts for 39% of the total subsidy and the amount of drug subsidy consumption in this decile is more than 15 times compared to the first decile. In fact, if the criterion for granting drug subsidy is the welfare support of vulnerable groups, the drug subsidy has been distributed ineffectively. On the other hand, the evaluation of the amount of foreign currency demand for medicine in the years before the preferential currency policies indicates a significant change in the motivation of importers. Specifically, in 1397 and 1398, the amount of import of pharmaceutical raw materials was about one billion dollars; This is despite the fact that during the years 1394 to 1396, the import of this pen was about 500 to 600 million dollars. The significant growth that occurred in the years after the implementation of the preferential exchange rate was probably affected by the effect of the preferential exchange rate and the intensification of imports due to having a preferential exchange rate or storage policy, in order to prevent the transfer of the effects of the embargo on the country's pharmaceutical market. This significant increase actually means that if the preferred exchange rate increases to the nominal exchange rate, the profit margin of drug manufacturing companies will increase significantly. In addition, the comparison of order registration figures for the import of medicine and medical equipment in recent years and its comparison with the figures before the implementation of the currency policy of 4,200 tomans indicates a significant and multiple increase in order registration for these items in recent years. These evidences, along with the existence of some unofficial figures regarding the existence of drug smuggling worth 500 million dollars, show the importance of dealing with the currency policy of 4200 tomans from different perspectives. In the field of currency exchange for medicine and medical equipment, unlike other subsidies, the main solution to control costs is clear and, by the way, has the possibility of proper and significant monitoring. This solution is, in fact, the transfer of freed rial resources to the insurance system and the purchase of medicine and equipment through the insurance system. However, the implementation of this solution has some major challenges that are addressed below and a framework for its advancement and implementation is provided. Increasing the preferential exchange rate to half is facing three serious challenges, and it is necessary to take specific actions and strategies for each of these challenges. The first challenge is increasing the working capital needed for the production and supply chain of medicine and medical equipment in the country; The second challenge is the appropriate, timely and adequate supply of rial resources considered by the program and budget organization, and the third challenge is caused by the increase in costs. Preventing the transfer of increased costs in medicine and medical equipment requires proper coverage of medicines and patients. In the current situation, about 25% of the country's medicines are not covered by insurance and a part of the country's population is also uninsured. This makes it necessary to take measures to control costs in order to improve insurance and population coverage. The main point in the mentioned challenges is to maintain the balance of resources and expenses considered for the modification of drug and medical equipment subsidies. Maintaining the balance of resources and expenses, it is necessary to consider

specific technical and executive measures to succeed in reforming the foreign exchange subsidy system in the field of medicine and medical equipment. Regarding the removal of 4200 Toman currency in the budget bill of 1401, it should be said: The target of 4200 Toman currency means the recognition of the free exchange rate and is synonymous with the devaluation of the national currency. This issue is contrary to the macro policies of the country to maintain the value of the national currency. It is very surprising how the government acts against the general policies of the system to reduce the value of the national currency. Many people in our society feel humiliated by the devaluation of money. Why should the government do this? In addition, devaluation of the national currency is an inflationary measure and raises all prices, and in addition, reduces the purchasing power of salary earners, shrinks the table of the poor, and exacerbates class differences. When the official and government exchange rate in the Central Bank is 4200 Tomans, by removing it, the official exchange rate will be 27 or 30 thousand Tomans and increase the exchange rate, which means a decrease in the value of the national currency. The government wants to finance its budget deficit with this work, which is actually the worst way to finance the budget deficit because it is financed from people's pockets. In the current study, the great impact of drug price liberalization on the two areas of poverty and income distribution has been confirmed; This action will have the worst effect on health and medicine because in a situation where there is inflation, prices will increase and people have to buy their necessities every day more expensive than the previous day, the costs and financial burden of medicine and health should be reduced. find and give more subsidies for these things so that people who can't afford meat, dairy, oil and beans are not pressured for their medicine. Removing the currency of 4200 Tomans will have the worst effect on this field and will greatly increase healthcare costs. Economic calculations show that the conversion of 4200 Tomans into Nimai currency increases the price of domestically produced medicine to 4 times and the price of imported medicine to 7 times. Due to the 25% deductible share of the drug, this quadrupling is like removing the entire cost of the drug from the insurance coverage. Is it really the desire of the government to exclude medicine from insurance coverage? If this is the case, why do they raise the price of the medicine?

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