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Challenges of Energy Carrier Consumption Management in Iran

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ABSTRACT

Energy carriers as one of the most important inputs of production as well as consumer goods of households play a very important role in determining production costs and household expenditures. Price fluctuations in each of these carriers will cause fluctuations in production costs, consumer spending, and ultimately inflation. The extent of this fluctuation, depending on the importance and share of each carrier, can be examined in the total basket or in the issues of production and consumption. These oscillations can be divided into two parts: Direct load and indirect psychological load. Indirect psychological burden shapes the expectations of households and producers, and direct burden reflects the direct impact of price fluctuations. Statistics show that the relative price of energy carriers is lower than that of other domestically produced goods or energy prices in the region and the world, and this gap between the price of domestic energy carriers compared with world prices has led to its growth over the last decade, accelerating and increasing the share of carrier costs in the total consumer basket. It is therefore important to identify the gap between the mentioned variables, the mechanism of presenting corrective or supportive, and institutional policies to reduce the possible negative consequences and put the economy on the path of increasing the efficiency of production factors. This article examines the challenges of managing the consumption of energy carriers in Iran.

Introduction

In the current situation, Iran with a population of about 70 million people, consumes energy equivalent to more than one billion people, which is the largest amount of energy loss related to the construction sector; in other words, the cost of energy consumption in the country is twice the total annual budget. On the other hand, while Iran is the thirteenth most energy-consuming country in the world, and despite generating more than 80 billion $ in crude oil sales in 2008, the country's total overt and covert energy subsidies over the year are about 80 billion $, according to the latest figures. Experts estimate that more than 410 million barrels (Figure 1) are equivalent to crude oil, or about 41 percent of the country's total energy consumption (equivalent to 16 billion $), of which about 70 percent is natural gas and 20 percent is petroleum products [1-7]. The Institute for International Energy Studies, referring to the poor state of consumption of energy carriers in Iran, has stated: If the price of energy carriers in Iran is realized in order to improve the energy

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pattern, there is a potential to reduce energy consumption by about 47% of current consumption.

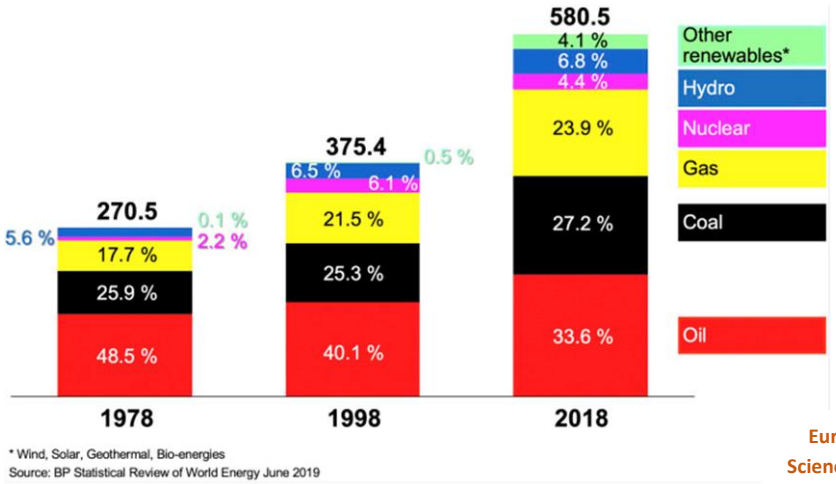

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Figure 1 Global energy perspectives by 2060

The domestic sector of this reduction can be achieved up to 30% [8-10]. Undoubtedly, the first-degree defendant in non-optimal consumption and out of the pattern of energy consumption in our country is the subsidies that have turned energy consumption in Iran into an economic disaster. Given that energy, subsidies account for a large part of the country's annual income, as well as the way the country consumes energy (Figure 2), which is five times the global average; the need to pay serious attention to this problem to create solutions to optimize energy consumption in the country is quite a matter [11-15].

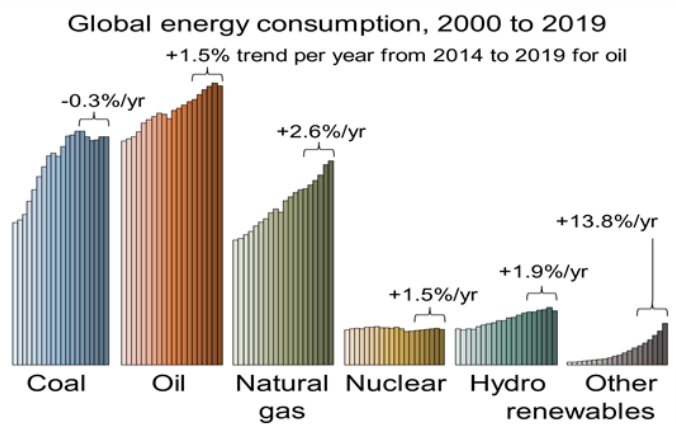

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Figure 2 World energy supply and consumption

In such circumstances, it is predicted that if the pattern of energy consumption in the domestic and commercial sectors is not reformed and the current trend continues, energy consumption in these sectors in 2025 will reach more than 1400 million barrels of crude oil equivalent. The 20-year perspective will damage Iran's position in crude oil exports, which will also affect the country's economy and the environment [16-20] (Figure 3).

People and Management of Energy Carrier Consumption

In reviewing the budget bill of 1989, the Islamic Consultative Assembly approved the revenue from targeted subsidies of 20,000 billion Tomans, and with this resolution, the process of implementing the bill and the government's task

for planning the implementation have been determined. Thus, the people must prepare themselves for the implementation of this bill and its consequences. Thus, although the prices of various energy carriers have not yet been determined, the gradual increase in these prices over a period of 5 years is definite; therefore, people must prepare for the new situation by planning to manage energy consumption. This is between paying attention to the management strategies of different types of energy carriers and paying serious attention to the correct use of energy among families, a point that will reduce the potential problems of the people and will also help the success of the project. At the household level, there are many cases that serious attention and planning to them can help manage consumption in the new situation, that is, after targeting subsidies. The subsidy targeting plan is one of the key plans of Iran's economy, the legal history of which dates back to the early years after the imposed war, which was emphasized in several development programs but has not been implemented until the government introduced the new bill. Help and support from people, accuracy in the methods of implementation, and planning of the people for consumption management are among the key points in the implementation of the bill to target subsidies, which also helps the people to implement the plan. They are in a better position and it will be important for the government to help in the implementation of this plan [21-25].

Figure 3 Elements of Sustainable Consumption and Production Source

History

Since the 1970s, with the formation of the idea of the role of manpower in the development process, it has become a global awareness that physical capital is not enough to deal with underdeveloped countries and at least as much as physical capital, social issues, and policies and human capital. Therefore, in this period, social protection policies in the form of welfare states, subsidy policies, etc. have become the headline of countries' development programs [26-30]. What was neglected in subsidies was the correct targeting of these policies, as most countries paid subsidies in general, but in the 1980s, following the debt crisis, the global recession, and the experience of other countries, the emphasis was on improving development strategies. And the acceptance of the greater role of market forces changed, and as part of this new approach, most countries began to reform their subsidy programs. The main reason for these countries to implement the reform program was the high cost of public subsidies due to its ubiquity. Due to the increasing population and rising prices of goods and services in world markets, the government's financial burden had increased significantly, and in addition, the inefficiency of the government distribution system and the negative effects of product price

control on producers were other reasons for the reform. Countries have selected poor households based on extensive testing. In this way, household income has been used as an indicator for selecting stakeholders [31].

Studies show that in the pre-1980s, governments preferred price subsidies to cash payments, but these subsidies gradually accounted for a large portion of government current expenditures and ostensibly reflected the government's sovereign role in the economy. This role further led to disruption of the pricing system of factors of production and goods and services because this subsidy was not paid in a targeted manner as the vulnerable groups were not identified. Basic measures were therefore taken by governments to implement energy carrier price reform. These include reforming the tax structure and developing the infrastructure of the public transport sector, but it should be noted that the increase in the price of energy carriers in the short term, leads to an increase in the unit price of enterprises in one hand and an increase in labor wages to compensate and maintaining real income will be available on the other hand, and will ultimately reduce the demand for the economy as a whole and production, but its long-term positive effects are not hidden from anyone [32-35]. Since the program of targeting subsidies, especially energy carriers, is at the top of the government's economic transformation plan, examining the experience of different countries according to the country's indigenous conditions can be a good guide for policymakers, as most countries have reformed the price system, especially in the energy sector. Their economies, especially at the macroeconomic level, have benefited from the implementation of this policy.

Iran's Economy and Price Reform of Energy Carriers

In Iran's economy, due to the huge oil and gas resources and the relatively easy access to these resources, energy costs are low compared with other costs, and in this regard, there is not much sensitivity and incentive to save and use this gift wisely. However, the price of energy carriers has always been lower than that of other goods and that it has not acted as a sign of economic activity. At the same time, a large part of the country's resources is allocated annually to direct and indirect subsidies for energy carriers, and the structure of consumption and utilization of this productive factor is formed in such a way that separation from this space costs the government a lot of economic, social and financial costs [36].

According to the statistics of the Ministry of Energy, the energy price index inside (liter-Rials) during the years 2001-2007 grew by an average of 9.2 percent per year, while the growth of the energy price index abroad (liters-Rials) during the same period, annually was 37 percent; that is, the growth of energy carrier prices abroad during the period under review was nearly four times the growth of the energy price index in the country [37]. This difference between the energy price index at home and abroad caused the total final energy consumption (billion liters) to grow by about 6.2% during the mentioned period. The gradual increase in the consumption of energy carriers is due to the relatively low price of these products and population growth. The government has been spending large sums of money annually on subsidies for energy carriers. In 2007, the number of subsidies for energy carriers reached about $ 88 billion, which was about 26.7% of the country's GDP. The growth of subsidies for energy carriers during 2001-2007 averaged 57.3% per annum (in dollars 35.6%), which was an important part of government current expenditures. Considering what stated, if the current trend runs on, this situation is not only not commensurate with the country's energy production capacities, but with the growth of energy carrier consumption in recent years, in the coming years, the main current government expenditures will be subsidized by these carriers. The trend will not be possible in the future due to government revenues and financial resources, and major government sovereign responsibilities may be diminished by directing government spending in this direction, while one of the main directions of price reform is to review and quantify the government's sovereign role in macro-policy. Therefore, the country's macro-policymakers have sought to address

these concerns, in one hand, by controlling the consumption of energy carriers to have the least impact on the production and consumption sector in the economy, and on the other hand, minimizing government spending on energy for households and businesses. In this case, increasing the efficiency of the country's energy sector can be expected [37].

Key Macroeconomic Indicators

With the implementation of the energy carrier pricing policy, many economic variables may be directly and indirectly affected, but some economic variables, due to their weight and importance among other variables, are more significant and emphasized, for their side effects. Other economic variables double their importance in the implementation of energy carrier pricing policy [30]. Based on studies (at the domestic and foreign levels), it is natural that each economic market is affected by energy carrier pricing in some way, but within these markets, the key indicators that are considered in macro-policies are more strongly influenced and are the focus of policymakers. In addition to inflation as the focus of price correction effects in the market of goods and services, economic growth variable in the labor market, unemployment rate and wage variables in the money market, variables of increasing money rate, money base, and liquidity volume in the commercial market, variables of non-oil exports, imports, and foreign exchange, and in the discussion of the income distribution, the issue of income inequality are considered [32].

Macroeconomic Effects of Price Correction

To know and be aware of the effects of energy carrier price correction on macroeconomic variables in the policy-making environment of the country, it is necessary to make a logical analysis from quantitative and qualitative dimensions, and this article focused on only qualitative analysis economically.

In fact, the existence of inflation means that the prices of most consumer goods and services in the economy are more or less constantly increasing. Past studies show that the increase in the price of energy carriers has a positive effect on the general level of prices. This effect can be studied directly and indirectly, while it should be noted that the effect of rising energy carrier prices on the general level of prices depends on the range of change or correction of the price of these carriers. At the same time, among the macroeconomic key variables, energy carrier price correction shows that inflation is the core of the effectiveness of this policy and other variables are affected by inflation. Correction of carrier prices, depending on the type of carriers in the final consumption or intermediary, can play a role in changing the general level of prices. In other words, the price correction of some energy carriers in the final consumption basket of households directly changes the Consumer Price Index (CPI). While some of these carriers are used as intermediate goods for their corporations, it affects the producer price index (PPI) and finally, the change in the PPI index can be effective in increasing the price of goods produced by firms [25].

Thus, the type of energy carrier on the one hand and its direct and indirect effects on the general level of prices, on the other hand, is an issue that is significant in this section. In addition, the change in the price of energy carriers, followed by an increase in the price of intermediate consumer goods and, finally, the general level of prices (inflation rate), in turn, leads to the formation of inflation expectations (PE) and exacerbates inflation. Of course, inflationary expectations of people in the community are formed over a relatively long period of time. It is important to note that the experience of some countries has shown that inflation due to expectations has been significant and, in some cases, constitutes a major part of the increase in prices due to the implementation of this policy because expectations are part of the indirect effects. Much of this experience has been observed in developing or transition countries following economic liberalization, especially price liberalization, because a key element in recognizing rising prices as inflation is the continued growth of the commodity and services price index. The effect may be neutralized in a short time, but the psychological effect of rising prices will prevent this shock from being neutralized.

As mentioned, an increase in the price of energy carriers will lead to an increase in the consumer price index and the producer price index, but due to the formation of inflation expectations, its effect can be intensified on the inflation rate. Given that with the immediate implementation of the policy of reforming the prices of energy carriers, people and economic actors will not expect price increases in subsequent years, so price increases will not occur due to rising inflation expectations in the coming years. It is important to note that the provisions required for a one-time reform policy are more than a gradual one-price reform policy for all energy carriers, because to implement this policy, tools, facilities, institutions, laws and regulations and gaining public trust are necessary as preconditions for project implementation. But with gradual policies, because the price of energy carriers is expected to rise every year, inflationary expectations will be longer, but the government can gradually revise policies to do the least harm to people and businesses. Thus, given the above, gradual policy due to less economic pressure than the one-time policy of correction of carrier prices will have a higher performance guarantee in the community because during the implementation of the policy, in proportion to the general increase in prices, there is the possibility of partial power reduction. There is purchasing through redistribution of income, and people in the community will experience a reduction in purchasing power over a longer period of time than in politics. At the same time, gradual policy can be evaluated and revised, and planners and policy makers can better manage the implementation of this policy according to the economic conditions of the country [21].

The Benefits of Targeting Energy Carrier Subsidies

Targeting energy carrier subsidies is one of the government's policies that can have the following benefits:

a) Decreasing the share of high-income classes and increasing the share of low-income classes from subsidies;

b) rationalizing the consumption of energy carriers and preventing the smuggling of this type of goods;

c) Reforming relative prices, increasing productivity and economic competitiveness;

d) transparency of government budget and reduction of waste of resources;
e) Gradual replacement of social welfare schemes with subsidies;
f) reforming the structure of income - the cost of enterprises producing subsidized goods;
g) Economization of energy supply projects from renewable sources;
h) Improving the technology of production of energy carriers; and
i) Helping to reduce government budget imbalances.

Conclusion

Energy carriers as one of the most important inputs of production as well as consumer goods of households play a very important role in determining production costs and household expenditures. Price fluctuations in each of these carriers will cause fluctuations in production costs, consumer spending, and ultimately inflation. The extent of this fluctuation, depending on the importance and share of each carrier, can be examined in the total basket or in the issues of production and consumption. In this regard, among the important issues in explaining the policy of energy carrier pricing, the effects and consequences of this implementation policy are based on macroeconomic variables to identify the cause and effect relationships between these variables, to determine the mechanism of corrective or supportive and institutional policies to reduce the potential negative consequences and put the economy on the path to increasing the efficiency of factors of production. Undoubtedly, the low prices of energy carriers, i.e. oil, gas, gasoline, diesel, electricity, and water, in recent years have led to extravagance and wasteful growth and waste of national resources, and intensifying environmental degradation. Although with the generalization of the culture of saving and teaching the correct ways of consumption, we can hope to reduce the costs of

energy consumption in the country, let us not forget that due to the very high consumption of energy carriers in the country, even in the most optimistic state (10 to 15%), the amount of people's savings will not be significant because currently the energy consumption in our country is much higher than the global average and these have very adverse and destructive effects on the country's economy. In such circumstances, reforming the price of energy carriers is the best way to reform the consumption pattern and counteract the waste and waste of national resources and will promote productivity and competitiveness in the economy and expand economic and industrial infrastructure. The issue of targeted subsidies is considered as the result of the long-term experience of the country's elites and achieving this truth and a firm determination to implement it. It is the result of a long experience that has been concentrated and put into practice over the years. One of the four main goals of the subsidy targeting bill is proper management of energy consumption and resources in the country and in this bill, the government has proposed the rates of energy carriers including gasoline, kerosene, gas oil, water, electricity, gas, etc. during a maximum period of three years, to approach regional, international and export rates, and to compensate for the inflationary effects of the implementation of this bill; part of its subsidies is based on priority to the lower deciles of society. Obviously, inflation due to the implementation of energy carrier price correction can be adjusted over time and with government support measures, but inflation due to the issuance of new and unsupported banknotes (due to the removal of targeted subsidies from the budget 88) has a deeper impact and it also puts a lot of pressure on the lower deciles of society. Also, reducing the consumption of fossil fuels will protect the country's oil resources, and future generations will have more reserves of this divine gift. On the other hand, the price of gasoline and diesel will be equalized with other countries. The region will play a very important role in preventing the smuggling of this national wealth. Regarding water and electricity used in the industry and the agricultural sector, the Islamic Consultative Assembly can help the government in reforming water supply networks, improving irrigation methods and protection of the country's surface and groundwater reserves by modernizing laws and taking the necessary funds, and modernizing the electricity transmission network and preventing the loss of electricity on the way between power plants to the place of consumption as a priority for the Ministry of Energy. Ombudsmen can also make the use of energy-saving light bulbs and smart valves in government institutions a legal obligation, and with careful planning and monitoring, the government should focus on increasing energy efficiency and improving productivity and manufacturing technology in the country's industrial industries. In addition, the esteemed parliament can carefully allocate the current budget of governmental and non-governmental institutions and institutions, while preventing the irrational increase of the budget of some special institutions, and with the permission of the Supreme Leader of the Revolution, closely monitor the correct use of resources and facilities. All what stated will be possible only with the coordination and empathy of the officials in the three powers and the people, which ultimately can lead to the acceleration of the country's economic development process and the rapid and great movement towards progress and justice and achievement.

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