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Energy Price Reform in Iran

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Authors:

WI:

Dr. Stefan Lechtenböhrer
Magdolna Prantner
Dieter Seifried
Dr. Nikolaus Supersberger

IEA:

Dr. Saeed Moshiri
Dr. Farideh Atabi
Prof. Mohamad Hassan Panjeshahi

Prof. Mohssen Massarrat

Wuppertal Institut für Klima, Umwelt, Energie GmbH
Döppersberg 19
D-42103 Wuppertal

Summary

Introduction

Energy is one of the most important sectors of the economy that drives almost all economic activities. Therefore appropriate energy pricing is a necessary condition for the promotion of the efficient use of energy and a sustainable energy sector. This means that the first step of any energy efficiency policy is to set prices that send correct signals to consumers and that provide them with incentives to use energy efficiently and to acquire energy efficient equipment or renewable technologies. By contrast energy prices that do not reflect the actual economic costs will encourage inefficient use of energy and discourage investment in new technologies and renewable energy sources.

Iran is one of the countries in the world that heavily subsidize the energy sector. The prolonged and generous subsidising of energy prices have led energy consumption to grow rapidly, energy efficiency to decline, and environmental conditions to deteriorate. The subsidies have also become a huge burden on the government budget leading to macroeconomic disturbances. To address the increasing economic and social problems associated with high energy subsidies, Iran has decided to reform its energy pricing policy. Although changes in energy pricing policy have been part of the third and fourth Five Year Development Plans, governments have not been able to tackle the problem, probably due to lack of political will. In 2009, the government announced that it would undertake the energy price reform along with other economic reforms. After long debates and significant changes to the plan, parliament finally approved the change in the energy subsidy plan in 2010. In this paper, we will review the energy subsidy program in Iran and discuss problems and challenges with the current energy price reform.

Energy Prices and Actual Costs

In many countries tariffs and pricing in the energy sector are far from “actual costs”. Consumption of energy carriers and electricity involves social costs like environmental damages, climate change, and health damages. These external costs are often not included in the prices, and therefore, energy consumption is higher than the socially optimal level.

Reason for this is the fact that in a competitive market, the existence of external costs will cause too much of the respective goods are being produced and consumed in terms of overall costs and benefits to society. One way to change this unsustainable development is to incorporate the indirect cost into market prices by restructuring taxes (without raising them overall). The target is to get the prices to tell the truth and to avoid wrong allocation due to mislead market functions.

The Energy Subsidies

In most countries, energy in general is taxed; mainly because of its external effects on environment. However, in a few countries including Iran, energy is being subsidized. The objectives of energy subsidies in these countries typically fall into the social or development

support categories. They subsidize energy to provide inexpensive input to energy intensive manufacturing industries enabling them to develop and compete in international market. Also energy is a basic good and is thus often subsidised to enable the access of low income groups to basic energy services.

As experiences from most developing countries show, development support programs have rarely been able to achieve their original objectives. Typically they ran for much longer periods than originally planned or necessary, their priorities changed and deviated from original objectives.

Those are the reasons why in many countries (OECD-countries, transition countries and developing countries) energy price subsidies have been eliminated or reduced for the last decade. In market economies, prices should at least reflect fairly accurately the supply costs. That is why, in many developed countries, gasoline is highly taxed. Gasoline tax is to cover the external costs such as environmental damages, incidents and the costs of the control-system, as well as to help balance government budgets, particularly when other government revenue sources are limited.

Consequences of subsidies in Iran

Energy Subsidies Problems

The continuous energy subsidies in Iran have caused various economic and social problems. Although the government has raised the energy prices for the past 15 years, the real energy prices have decreased because of higher inflation rates.

The subsidy problem is most prominent in the case of gasoline consumption, which receives about one third of the total energy subsidies. The very low price of gasoline has encouraged the use of inefficient vehicles and high levels of consumption. The growth rate of gasoline consumption has averaged 10 percent annually. Its consumption has by far exceeded domestic refinery capacities. This caused an import about 40 percent of domestic consumption in 2007. Iran is now the second biggest gasoline importer in the world after the United States. Rising gasoline consumption and highly inefficient motor technology have also led to a high concentration of air pollutants in many cities along with other social and economic problems.

Macroeconomic Effects of Price Reform

The prolonged subsidy program in the energy sector has led to significant levels of distortion in the economy and imbalances in different sectors, including the government budget. If the current policy of subsidizing energy consumption would be continued, government had either to cut oil exports or to increase gasoline imports in response to the growing domestic demand. This would add extra pressure on the government budget, leading to higher inflation and balance of payment deficit, and lower growth.

Therefore the government has recently decided to tackle the growing problem in the energy sector by reforming the energy pricing system and cutting back the subsidies. However, there are many challenges the policy makers and society at large have to face regarding the price reform policy. There is a need for a clear road map for the price reform policy which

shows what type of energy subsidies would be removed, by how much and how. Moreover, the macroeconomic impacts of price reform on inflation, economic growth, unemployment, and balance of payments should be studied and dealt with carefully. The government also needs to have a plan on how to spend the additional revenues that will be generated with the removal of subsidies. The plan should identify vulnerable social groups, among both consumers and producers, who would suffer most under the price reform scheme, and lay out the details on how to compensate for their loss of income. The following subchapters review some of the macroeconomic impacts of the energy price reform. Throughout our analysis, we define subsidies as government direct transfers to consumers or producers, which appear in the government budget, as well as the opportunity costs or implicit subsidy arising from the difference between domestic and border prices

Government Budget

Subsidies on basic goods have traditionally been one of the major government outlays comprising more than 12 percent of the budget. This budget also includes energy subsidies (fuel and gasoline), which have been increasing from 2 percent to more than 8 percent of the total government budget. If we include the implicit subsidy, the share of total energy subsidies of total budget would amount to between 20 to 40 percent, depending on oil prices. Reducing or removing direct subsidies will as a first order effect alleviate the budget deficit problem. Price reform will as a second effect also generate significant additional revenues for the government from selling energy carriers at border prices, which are at least four times higher than current domestic prices. However, the final effect of price reform policy on the government budget will depend on fiscal policy regarding how to spend additional revenues. If government does not expand its spending, the budget deficit will be reduced and government will be able to repay its debt to the central bank. However, if additional revenues were spent on compensation and welfare programs, the budget deficit would continue. There are other channels through which the budget deficit might be affected. One possibility is the wage adjustment due to inflationary effects of price reform, which will contribute to a higher level of deficit. The second channel is the exchange rate changes due to balance of payment imbalances. Higher energy prices will weaken the industries position in international markets, therefore, lowering exports. If government devaluates the exchange rate to support exports, its oil exports revenues will increase, reducing budget deficit. The final effect of this channel will depend on government import expenditures, which will also rise.

Inflation

Removing energy subsidies will have strong effects on prices, exchange rates, and cost of living. Consumers will have to pay higher prices for energy carriers with some exceptions for non marketted decentralised renewable energies, for non-energy goods whose prices will increase to offset the increase in their energy costs, and all other goods whose costs in turn will be affected by energy price rises. These could be as low as 1.47 percent (Komijani, 2004) as well as high as 103 percent (Manzoor, 2004) according to existing studies on the static effects. The lower end of the estimates on inflationary effects are based on the assumption that a price reform policy will be implemented gradually in four to five years, whereas, the estimate of higher effects assumes that price changes will materialize at once. Moreover, the types of energy carriers subject to price changes are different in the studies.

One of the common shortcomings in studies of inflationary effects of an energy price reform is that they are static, leading to unrealistic implications, which generates unsubstantiated fears among policy makers and society. Economic theory, however, suggests that a rise in energy prices alone will not have a continuous inflationary effect, since it will only increase the aggregate price level in the short-term. If the government adopts non- or anti-inflationary fiscal and monetary policies during the energy price shock, the economy will not necessarily experience a higher inflation rate. In fact, experiences of energy price reform in some developing countries suggest that the inflation rate may even be lower after the reform.

Income Distribution

Energy subsidies in energy-rich countries are often seen as a means to distributing rents among their citizens.¹ They are also perceived as a means to redistribute income from rich to poor. Both reasons, however, are to be questioned. The rent distribution argument is flawed as it ignores the multigenerational aspects of the natural resources. As oil is non-renewable, its benefits should accrue not only to the current generation, but also future generations. Redistributing the complete rent to current generation deprives the future generations from their rights to the natural resources they own. The income redistribution argument for the energy subsidy can also be challenged, since the redistribution objective is not usually achieved in practice, particularly when subsidy applies to goods whose consumption increases with income and all income groups receive the same amount of subsidy per unit.

The change in expenditures will vary in different income groups depending on their preferences as well as price and income elasticities of demand for energy. Energy expenditures shares change inversely with the level of income in both urban and rural households. Furthermore changes in expenditures are more pronounced in lower income groups than higher income groups. Based on the trends of the energy expenditure shares when energy prices have been rising, we can conclude that lower income households will be more severely affected by the energy price reform.

Although the level of expenditures on energy is lower among lower income households, their shares of total expenditures are higher as their income level is disproportionately lower. They also show that the difference between energy expenditures in different income groups is higher for gasoline than for other energy carriers. We therefore, can conclude that lower income groups would be affected most by the energy price reform, particularly when it applies to gasoline.

The government can use additional revenues generated by removing subsidies to compensate low income households for higher energy prices. Since the levels of expenditures on energy vary with the level of income, i.e. higher income groups spend more on energy than lower income groups, equal direct payments to all households will redistribute income from the rich to the poor.

Income redistribution from the rich to the poor will have implications on production and price levels as well. Since marginal propensity to consume is rather high in low income groups, most of the additional income received from government will be spent immediately leading to a higher aggregate demand and, therefore, prices. On the other hand, since energy elasticity

¹ Rents are the differences between the world oil prices and the domestic production costs the oil exporting countries receive.

in upper income groups is low, higher prices will lead to lower savings rather than lower consumption.

Production

Removing energy subsidies will increase energy costs in the industry and transportation sectors. The effect will vary in different industries depending on the specific energy intensity. Higher energy intensive industries and businesses will have to bear higher costs of energy and adjust the production and employment levels accordingly. In the short run, this may prove difficult, particularly for industries which have been heavily subsidized and supported for a long period. In the medium and long run, industries will have to eventually change their technologies and production processes to reduce their energy intensities.

The direct production cost of manufacturing industries would almost double on average if energy prices were adjusted based on the OPEC oil price in 2009 (\$78 per barrel). Khiabni (2008) also shows that a price reform would lead to production cuts in manufacturing industries and mining by 2 to 8 percent. The increase in cost to industries and the production cut would vary in different industries depending on their energy intensities and demand elasticities. Higher energy costs will be shared by both producers and consumers. In the long run, industries with high demand elasticity are expected to take more aggressive measures in using more energy efficient technologies.

To alleviate the adverse effects of the energy price reform on production and employment in the short run, the government needs to have a compensation plan for producers and workers who lose their jobs. Furthermore, a part of the additional revenues generated by energy price reform can be allocated to support employment training programs, R&D investment, and investment in advanced and efficient technologies. The use of better technologies in industries will increase the energy efficiency leading to products of higher quality and lower prices.

Balance of Payments

Rising energy prices will increase the costs of domestic products, particularly in the energy intensive industries, weakening their position in the international market. This will likely lead to a change in the trade balance as exports will decline and imports will increase. On the other hand, the energy price reform will curb domestic energy consumption freeing oil resources for more exports and improving the balance of payments. The net effect on the balance of payments will depend on the import/export elasticities and the magnitudes of the two opposing effects, noted above, as well as the exchange rate and trade policies. Energy price reform could put pressure on the value of rial if exports would decline and imports rise. If the current policy of supporting rial would continue, this would increase the non-oil trade deficit. However, if exchange rates were allowed to change, production might not suffer and exports might not decline. The downside of this policy is, however, could be an increase in price level as imports would become more expensive.

An Alternative Energy Policy Reform

An energy price reform can have many different social and economic objectives in short run and long run. Some of these objectives are decreasing energy consumption, increasing efficiency, increasing government revenues, increasing productivity, and redistributing

income. An active energy price reform would choose an objective which would combine maximised social welfare in the long run without compromising economic growth and with minimum short run cost. A passive energy price reform, on the other hand, would choose a shortcut to be able to continue with the status quo. For instance, when the higher levels of government budget deficit and debt do not allow the current subsidy program to continue, it will have to remove subsidies to be able to generate revenues to cover its budget. Therefore, increasing government revenues will be a real objective behind the subsidy reform plan. Depending on the existing economic conditions, the adverse effects of such a passive policy reform may prove more harmful than beneficial.

The current government energy price reform plan seems to be a passive policy and is criticized by many prominent economists in Iran². Although most economists are, in principle, in favour of the energy price reform, and have been advocates of removing subsidies policy in the past, they oppose the current plan based on the environment in which the reform is implemented. They argue that the current economic condition which is characterized by high inflation and high unemployment rate is not ready to absorb the shock of a one-step price reform. Therefore the fear is that the one to one implementation of the plan would lead to higher inflation and unemployment rates, lower production and exports, higher levels of uncertainty and instability, and exacerbate unequal income distribution. To avoid such these consequences, many economists suggest to postpone the plan or at least to slow down its pace and to implement a more active approach to the implementation of the energy price reform.

The most important elements of such an active energy price reform plan would be follows.

1. An active energy policy plan clearly identifies its short run and long run social and economic objectives. For instance, the main objective of an energy price reform could be increasing energy efficiency and uptake of renewable energies without compromising economic welfare. The objective can also specify certain restrictions such as avoiding inflation, and not exacerbating income distribution.
2. The plan specifies targets in line with the objectives. The targets should be clearly stated and reasonably achievable. Examples of targets are decreasing energy consumption, increasing oil exports, improving environment by reducing emissions.
3. The plan also identifies instruments which will be used to achieve the targets and the objectives. The instruments should be effective and readily available. Some examples are a consumption quota, price controls, and public education through media and public education system.
4. The plan should be approved by the legislative authorities and becomes a law before it is implemented. This would increase public trust in the plan and would prevent discretionary measures by different authorities, which will lead to uncertainty.
5. As the energy price reform will have important economy wide effects, its success will depend on peoples' attitude and their level of participation in the plan. To increase peoples' participation in the reform plan, it should be communicated with the public continually, effectively and honestly.

² For instance, see the some of the research reports published by the Majles (Parliament) research Center that are cited in this report, and Renani (2010), Nili (2010), and GhaniNejad (2010).

6. The plan should have a transparent budget, specifying the revenues that will be generated and the expenses that are going to be made. The current scheme of distributing most of the revenues among households is not sustainable and may not be consistent with the objective of energy efficiency and lowering energy consumption. The lower income group, which is not the main energy consumer, will not change its consumption as its nominal income will rise, and higher income groups' consumption will likely remain unchanged as their demand elasticities are very low due to high income level.

An effective energy policy reform would link the policy to energy efficiency. One way to reform the energy prices and to increase energy efficiency is to provide incentives to people and businesses to undertake energy efficiency measures. In other words, the current energy subsidy, which encourages consumption, can be partly substituted with targeted subsidies for energy efficiency. For instance, households who substitute their inefficient appliances with new efficient appliances, or improve the energy standard of their building, would receive subsidies. Likewise, industries that decrease their energy intensity or use or develop renewable energy resources would receive efficiency subsidy. Another important sector which needs to be tackled in the energy price reform is transportation. The revenues generated from removing energy subsidies would be best spent on developing public transportation systems including expanding subways, trains, buses, and roads.

Conclusion

An energy price reform is inevitable in Iran, but it may have striking adverse economic and social impacts, should it not be done properly. Therefore, it is imperative to study the various potential side effects using economic models that take into account all different sectors of the economy and to analyze alternative scenarios. The outcome of such detailed studies will help policy makers to foresee potential benefits and challenges and thus design appropriate policies that would capitalize on advantages and alleviate the adverse effects. The important effects and implications of the energy price reform are as follows.

- Higher energy prices will increase the price level in the economy. This will decrease the purchasing power and, therefore, the welfare of consumers. It will further increase production costs, which will contribute to higher prices;
- Price effects are not symmetric across households and industries. Lower income groups will be affected more than higher income groups, and energy-intensive industries will be affected more severely;
- The short run inflationary effects of the energy price reform will be stronger if it is implemented in a step than when it is introduced gradually. In any case, the inflationary effect will depend on the fiscal and monetary policies and inflation expectations. If the government adopts expansionary policies, following the energy price reform, the short run shift in price will turn into high inflation rates. For instance, if the government would adjust wages or increase transfer payments more than the price increase predicted by the price reform plan, the inflation rate would increase. Inflation will also increase if people do not trust in government policy due to either miscommunications, lack of transparency and ability, or political tensions;
- The energy price reform will have a drastic effect on manufacturing industries. In the long run, industries will have to undergo significant technological changes to reduce

their energy intensities. Given the high potentials for increased energy efficiency in the Iranian economy this could be quite beneficial in the long run. In the short run, however, higher energy costs could cause industries with high energy intensity and older technologies to scale down or shut down, which could increase unemployment;

- The exchange rate policy will have an important effect on production, employment, and price levels. The energy price reform will lead to a depreciation of the Rial which will alleviate negative effects on exports, production and employment. This will, however, contribute to higher price levels. The continuation of the controlled exchange rate policy would exacerbate these negative impacts on exports, production and employment and should thus be reconsidered;
- In spite of the number of challenges imposed by the energy price reform, there are significant potentials to tackle those. The government can use extra revenues from higher energy prices to alleviate the short run negative impacts of the price reform. It can allocate revenues to lower income groups and people who lose their jobs, and support vulnerable industries. It can also make an investment on R&D to help industries to adopt more efficient technologies.
- The energy price reform is an important economic change that will affect all sectors of the economy. Since the reform will reallocate resources and income, it will cause social tensions among various groups in the short run. Therefore, the success of such an important reform will primarily depend on how society will participate and cooperate. If there is trust between people and government, that is, if society believes that the government is able to implement such a critical reform and that the reform will benefit everybody in the long run, people may be willing to sacrifice in the short run. This requires a transparent plan and effective communication on the government side.
- The energy price reform should be linked to a strong promotion of energy efficiency and renewable energies. The revenues raised by removing subsidies would be best spent on energy efficiency measures that reduce energy consumption and reduce environmental side effects. Rather than distributing money to all households, it may be better to direct the resources to encourage energy efficiency investments in household, transport, and industry sectors.