

Energy prices subsidy in the world economy: Facts and aspirations

KERBACHE Rahma
BOUDEKHDEKH Karim
University of ALGIERS 3
University of Jijel

ABSTRACT :

Many oil exporter countries choose to subsidy energy prices to maximize the benefits of low income countries, but the problem is that this subsidy policy in the fact is in the benefit of all groups in the society both high income group and low income group. Further, this kind of policy lead to different costs in the economy that affect negatively the development of economic activity. These effects suggest that the policy makers should go to reform this kind of subsidy policy and hence improve the economic efficiency and incentives in economic activity. But the reform process faces many barriers that make the process so difficult and put many challenges for policymakers.

الملخص:

تتوجه العديد من الدول خصوصا الدول المصدرة للنفط إلى دعم أسعار الطاقة لتعظيم استفادة أفراد المجتمع ذوو الدخل المنخفض منها بحكم أنهم ينظرون إليها على أنها ثروة وطنية. لكن دعم أسعار الطاقة يستفيد منه كل فئات المجتمع سواء الفئات الفقيرة أو الغنية، وهو ما يؤثر سلبا على فعاليتها زيادة على ما يترتب عليها من تكاليف اقتصادية واجتماعية وبيئية تؤثر على تطور النشاط الاقتصادي. وعلى هذا الأساس يبرز من الضروري إصلاح دعم الطاقة لما له من تأثير إيجابي سواء على خزينة الدولة أو على تخصيص الموارد في النشاط الاقتصادي وكذا جانب تحفيز الأعوان الإقتصاديين، إلا أن عملية الإصلاح تواجهها العديد من العراقيل التي تجعل من إصلاح دعم الطاقة أمرا صعبا بالنسبة لصناع قرار السياسة الاقتصادية.

INTRODUCTION

The essential role played in economic and social development by the various types of primary fuel and electricity provides many governments with several arguments in favour of subsidizing energy prices and maintaining a tight control of the domestic energy sector. Low energy prices, particularly for electricity and higher quality fuels such as petroleum products, help the lowest income groups gain access to modern forms of energy. Furthermore, they help governments

protect the incomes of citizens, especially those in the lowest parts of the income distribution, thus contributing to poverty alleviation.

Energy subsidies have traditionally played an important role in Middle Eastern and North African economies. Subsidies still represent a major component of social protection in the majority of Southern Mediterranean countries where low prices for energy and food play a significant role in reducing poverty and protecting vulnerable households. However, subsidies present a number of important shortcomings, both in terms of efficiency and equity.

In this paper, we try in section 1 to give some definitions for the energy prices subsidy, in section 2 we present the different costs of this kind of subsidies, section 3 contains a global view of energy subsidies, in section 4 we try to show the deadweight of this policy, then in section 5 we go so far to present the possibility of implementing such reforms through their benefits and the barriers that face policymakers in the process of reform.

1. DEFINITIONS AND CONCEPTS

OECD defined a subsidy in general terms as any measure that keeps prices for consumers below market levels, or for producers above market levels or that reduces costs for consumers and producers. The US Energy Information Administration has defined an energy subsidy as any government action designed to influence energy market outcomes, whether through financial incentives, regulation, research and development or public enterprises. In a similar way, the IEA defines energy subsidies as any government action that concerns primarily the energy sector that lowers the cost of energy production, raises the price received by energy producers or lowers the price paid by energy consumers (UNEP, 2008).

Energy subsidies comprise both consumer and producer subsidies. Consumer subsidies arise when the prices paid by consumers, including both firms (intermediate consumption) and households (final consumption), are below a benchmark price, while producer subsidies arise when prices received by suppliers are above this benchmark. Where an energy product is internationally traded, the benchmark price for calculating subsidies is based on the international price. Where the product is mostly non-traded (such as electricity), the appropriate benchmark price is the cost-recovery price for the domestic producer, including a normal return to capital and distribution costs. This approach to measuring subsidies is often referred to as the —price-gap approach, and is used widely in analyses by the international agencies (Carlo Cottarelli et al, 2013).

Consumer subsidies include two components: a pre-tax subsidy (if the price paid by firms and households is below supply and distribution costs) and a tax subsidy

(if taxes are below their efficient level). For the calculation of pre-tax subsidies for internationally traded goods (such as the refined petroleum products considered in this paper), the benchmark price is the international price appropriately adjusted for transport and distribution costs (P_w) so that:

$$\text{Pre-tax subsidy} = P_w - P_c,$$

where P_c is the price paid by consumers.

When the good or service is not traded internationally, as is the case for electricity in most countries, then the benchmark price is taken as the cost-recovery price (e.g., the costs of generation, transmission, and distribution of electricity). The pre-tax subsidy is then calculated as above, but P_w is the cost-recovery price. Pre-tax subsidies only exist in countries where the price paid by consumers is below the international or cost-recovery price ($P_c < P_w$).

For the calculation of post-tax subsidies, the benchmark price includes an adjustment for efficient taxation ($t^* > 0$) to reflect both revenue needs and a correction for negative consumption externalities:

$$\text{Post-tax subsidy} = (P_w + t^*) - P_c,$$

where P_w and P_c are defined as above. Therefore, when there is a pre-tax subsidy the post-tax subsidy is equal to the efficient tax plus the pre-tax subsidy. When there is no pre-tax subsidy, the post-tax subsidy is equal to the difference between efficient and actual taxation (Carlo Cottarelli et al, 2013).

2. ECONOMIC, SOCIAL AND ENVIRONMENTAL COSTS

Despite constituting an important social safety net for the poor and achieving some economic goals such as promoting industrialization, subsidization of energy has many unintended adverse consequences. This suggests that the economic costs of such subsidies in many cases outweigh their perceived benefits. These costs arise in three main areas (UNEP, 2008):

– *Economic cost*: Energy subsidies affects negatively economic efficiency, because it lead to a misallocation of resources that prevent the country from optimizing the use of its reserves; they incentivize over-usage of energy, leading to exceptionally high consumption growth rates for energy in; they lower incentives for productivity improvements and investments in more energy-efficient technology; they distort pricing signals to customers, leading to energy waste, and a lack of incentives for investment in alternative energies; and they often result in a disparity between domestic petroleum prices in neighbouring

countries, encouraging the smuggling of petroleum products and exacerbating the problem of fuel shortage in many countries.

_ *Social cost* : Energy prices subsidy policy requires in many countries a valuable part of budget to finance the subsidy. When this finance go to the interest of all groups in society, it leads in many economies to a reduction in the part of the budget that is allocated to improve the standard of living for the poor and low income groups.

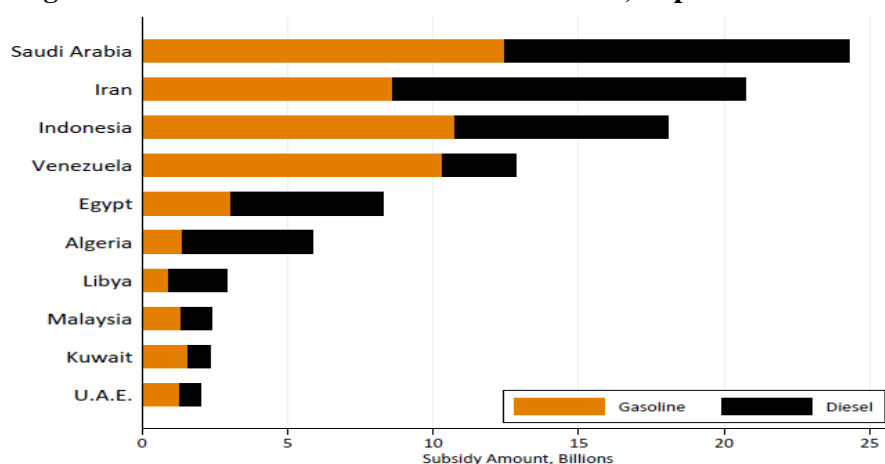
_ *Environmental cost* : Energy subsidies contribute negatively towards the protection of the environment, an issue of particular importance for the climate-sensitive agricultural producers of the Levant and North Africa. Subsidies can lead to higher energy use or reduce the incentive to conserve energy, with potential adverse environmental consequences such as increasing airborne emissions and greenhouse gases. Fuel subsidies can also hinder the development of renewable and clean energy technologies – such as solar and wind – which find it difficult to compete with subsidized fossil fuels.

3. GLOBAL VIEW OF ENERGY PRICES SUBSIDY

By taking a look to the fact of energy prices subsidy in the world economy, we find that the gasoline prices range from \$.09 per gallon in Venezuela as the lowest price to above \$9.00 in Turkey and Norway as the highest price, with an average of \$5.26 per gallon. Diesel prices tend to be a bit lower, with a range from \$.04 to above \$7.00 and an average of \$4.12 per gallon (Davis, 2013). This wide variation in prices is somewhat surprising because crude oil and refined products are widely traded internationally, so the opportunity cost of fuels is similar everywhere. Although there are differences in transportation, refining, and distribution costs, they can explain only a small part of the observed variation in prices. The only explanation of this variation is the difference in each policy maker vision to the energy prices, that can be ranged between the extreme social background that prefer to maximize the benefits of society through lowering the price to the lowest possible level, and the extreme liberal background that prefer to suspend any kind of subsidy that can affect negatively the incentives in economic activity.

Instead, the more important explanation for the wide variation in fuel prices is that taxes and subsidies differ widely. Among OECD countries, gasoline taxes per gallon range from an average of \$0.49 in the United States, to above \$4.00 in Germany and the Netherlands. Outside the OECD the range is even larger, and there are dozens of countries that subsidize gasoline and diesel, selling it for below its price in international markets. Many of these countries are in the Middle East, though Asia (Malaysia, Indonesia), Africa (Egypt, Nigeria, Algeria) and South America (Venezuela, Ecuador, Bolivia) are also represented (Davis, 2013).

Figure 1 : Dollar Value of Fuel Subsidies in 2012, Top Ten Countries



Source: Lucas Davis(2013), The Economic Cost of Global Fuel Subsidies, Energy Institute at Haas, working paper N° 247, p 4.

Logically, gasoline consumption tends to be high in countries where gasoline is subsidized. Saudi Arabia, for example, has experienced a nine-fold increase in fuels consumption since 1971 and is now the sixth largest oil consumer in the world. Venezuela is another particularly illustrative example. Gasoline consumption per capita in Venezuela is 40% higher than in any other country in Latin America, and more than three times the regional average. Figure 1 shows the countries with the largest fuel subsidies. The implied subsidy per gallon was calculated as the difference between domestic consumer prices and international spot prices. Transport, distribution, and retailing costs were incorporated following IMF (2013). The implied subsidy per gallon was then multiplied by road-sector consumption of each fuel to calculate the total dollar value. By this measure, there are 24 countries that subsidize gasoline, and 35 countries that subsidize diesel. The United States, by this measure, does not subsidize gasoline or diesel.

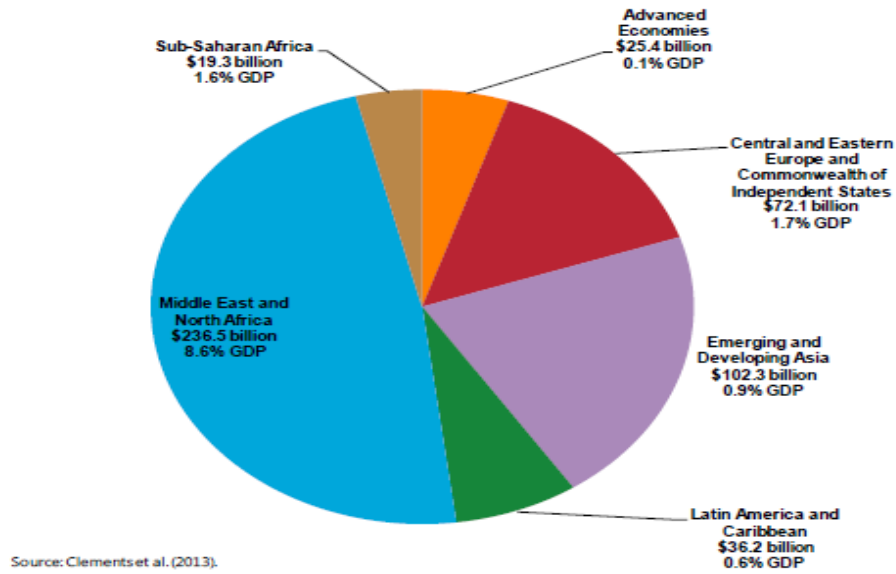
Total subsidies worldwide in 2012 were \$110 billion, with about \$55 billion each for gasoline and diesel. The top ten countries represent 90% of total global subsidies. Many of these countries are major oil producers. Fuel subsidies have long been viewed in many oil-producing countries as a way to share the resource wealth with a nation's citizens. This is not the view in all major oil-producing countries, however. Prices are at or above market in Iraq (\$2.95 per gallon for gasoline), Mexico (\$3.26), Russia (\$3.74), and Canada (\$5.00).

Concerning the global value of the two types of Consumer subsidies, IMF estimates suggest that, for the region as a whole, pre-tax energy subsidies cost about \$237 billion in 2011. This amount is equivalent to 8.6 percent of regional GDP, or 22 percent of government revenue, and accounts for 48 percent of global energy subsidies (Figure 2). Energy subsidies far exceed in value other subsidies

that are also being provided in many MENA countries. For instance, food subsidies are estimated to have amounted to 0.7 percent of GDP in 2011 in the region(IMF, 2014).

Figure 2: Total Pre-Tax Energy Subsidies by Region, 2011

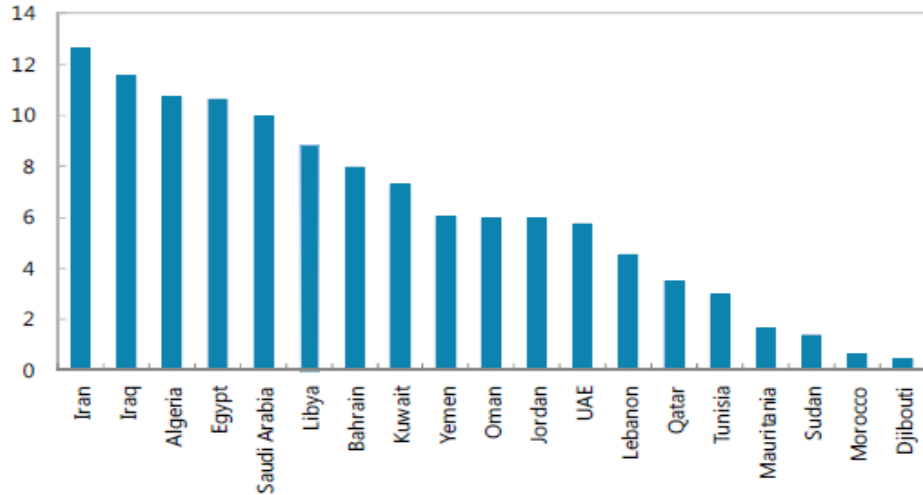
\$492 billion; 0.7% GDP



Source: IMF(2014), Energy Subsidies in the Middle East and North Africa: Lessons for Reform, Middle East and Central Asia Department, p 1.

About one-half of total energy subsidies in MENA are accounted for by petroleum products, while the remainder represents subsidies on electricity and natural gas. There is a wide dispersion of subsidies in the region, with subsidies being more prevalent in oil exporters (Figure 3). Energy subsidies exceeded 5 percent of GDP in two-thirds of the countries in the region.

Figure 3 : MENA Pre-Tax Energy Subsidies, 2011 1/
In percent of GDP



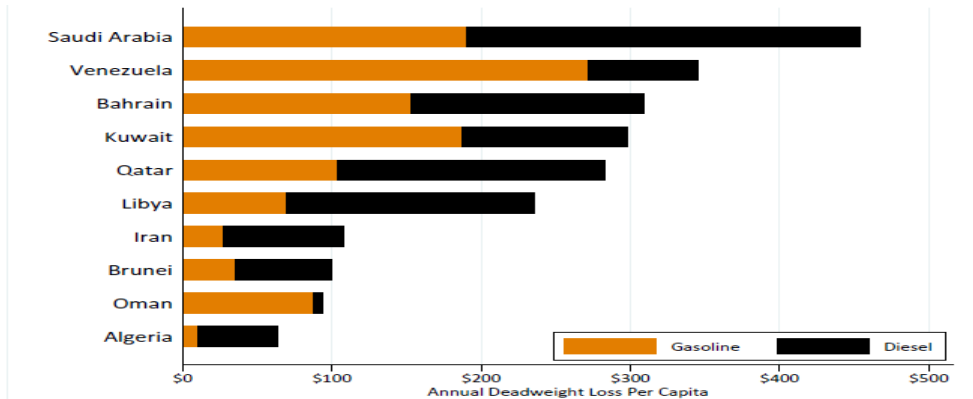
Source: IMF(2014), Energy Subsidies in the Middle East and North Africa: Lessons for Reform, Middle East and Central Asia Department, p 1.

4. DEADWEIGHT LOSS

Subsidies create deadweight loss by enabling transactions for which the buyer's willingness-to-pay is below the opportunity cost. The total amount of deadweight loss depends on the elasticities of demand and supply. The more elastic are demand and supply, the larger the deadweight loss from pricing below cost. In the short-run, demand and supply for crude oil are both inelastic.

The total global deadweight loss from fuel subsidies in 2012 is \$44 billion. This is split roughly evenly between gasoline (\$20 billion) and diesel (\$24 billion). Figure 3 reports deadweight loss by Country. Saudi Arabia takes the top spot with \$12 billion in deadweight loss. Venezuela is number two with \$10 billion(Davis, 2013).

Figure 3: Deadweight Loss from Fuel Subsidies in 2012, Top Ten Countries



Source: Lucas Davis(2013), The Economic Cost of Global Fuel Subsidies, Energy Institute at Haas, working paper N° 247, p 6.

In 2012, Venezuela had the cheapest fuels on the planet so even though the total dollar value of subsidies is higher in Iran and Indonesia, the subsidies in Venezuela impose more economic cost because the subsidy per gallon is so high. Deadweight loss increases approximately with the square of the subsidy amount so it is extremely concentrated among countries with the very largest subsidies. The big two, Saudi Arabia and Venezuela, represent 50% of total global deadweight loss, while only representing 34% of the dollar value of subsidies.

5. REFORMS BETWEEN BENEFITS AND BARRIES

The rise of different costs as a result of energy prices subsidy leads to a necessity of such reforms of this kind of subsidy policy. Subsidy reform can boost growth and reduce poverty and inequality. Reallocating the resources freed up by subsidies to more productive public spending could help boost growth over the long run. Moreover, the removal of subsidies, accompanied by a well-designed social safety net and an increase in pro-poor spending, could yield significant improvements in the well-being of low-income groups over the longer term. Subsidy reform can also contribute to lower budget deficits and interest rates, thus stimulating private-sector investment and reinforcing growth.

Country reform experiences suggest a number of barriers to successful subsidy reform. While there is no single recipe for success, addressing these barriers, which vary from country to country, can increase the likelihood of reforms achieving their objectives and help avoid policy reversals. The main barriers are (IMF, 2014):

Lack of information regarding the magnitude and shortcomings of subsidies.

The full fiscal cost of energy subsidies—including both producer and consumer subsidies—are rarely reflected in the budget. This is especially the case for oil exporters, since the subsidies provided by low energy prices are often implicit and not explicitly recorded in the budget. Populations are also often unaware of how domestic energy prices compare with international market prices, the consequences of low energy prices for both the budget and economic efficiency, and the benefit distribution of energy subsidies. As a result, the public is unable to make a connection between subsidies, constraints on expanding high-priority public spending, and the adverse effects of subsidies on economic growth and poverty reduction. This is especially important for oil exporters, where subsidies are very large. Out of the 28 reform episodes, 17 indicate that the lack of information was a barrier to reform, including fuel subsidy reforms in Ghana, Mexico, Nigeria, the Philippines, Uganda, and Yemen, and electricity subsidy reforms in Mexico and Uganda. Most countries that successfully reformed energy subsidies undertook an evaluation of the magnitude of energy subsidies prior to

implementing subsidy reforms. Public discussions based on such studies were an important component of the information campaigns in fuel subsidy reforms in Ghana, Namibia, and the Philippines.

Lack of government credibility and administrative capacity. The problem of corruption and the lack of credibility that characterize the governance especially in oil exporters economies is one of the important barriers that affect negatively any process of energy subsidy reform. People in that economies are less confident about the efficiency of government in the use of the savings from the subsidy reform in their interests and hence preferring the continuity of the energy subsidy rather than any reform that suspend it. The middle class may fiercely resist the removal of these subsidies because they are viewed as one of the few concrete benefits they receive from the state. This is especially the case for oil exporters that have ample fiscal resources yet lack the administrative capacity to implement cash transfer programs. Lack of credibility was seen as an important factor behind the less successful fuel subsidy reforms in Indonesia in 2003 and Nigeria in 2011.

Concerns regarding the adverse impact on the poor. Even the highest share of benefits from energy subsidy are captured by the high income group, the suspension of this subsidy policy lead to affect negatively the poor and low income group, both through higher energy costs of cooking, heating, lighting, and personal transport, as well as higher prices for other goods and services, including food. This is an important consideration for countries that do not have a well-functioning social safety net that is capable of effectively protecting the poor from the adverse impact of higher energy prices. In 20 episodes, subsidy reform was accompanied by specific measures to mitigate the impact of price increases on the poor. In seven episodes, price increases were initially concentrated on products that were less important for poor household budgets.

Concerns regarding the adverse impact on inflation, international competitiveness, and volatility of domestic energy prices. While the energy prices subsidy lead to a decrease in production costs for firms and a decrease in prices for other goods and services, and hence gives an advantage for the country to improve its competitiveness, the suspension of this kind of policy lead to an adverse effects on inflation and competitiveness, and give rise to expectations of further increases in prices and wages, that can lead to unstable economic activity in the future.

Weak macroeconomic conditions. The possibility to suspend the energy prices subsidy can be acceptable in a situation of good economic development with high economic growth and low inflation rate, which can help economic agents to face the rise in energy prices as a result of energy sector reform. In Turkey, reforms of the electricity sector coincided with a period of economic growth and improving

standards of living, which assured the public that reforms were moving the country in the right direction. High inflation is also an obstacle to reform. When inflation is high, frequent large changes in controlled prices are needed to avoid the emergence of fuel subsidies (as in Brazil).

6. CONCLUDING REMARKS

The energy prices subsidy policy is one of the most popular alternatives that the oil exporter economies choose to maximize the benefits of their societies from the energy that appear for them as a national wealth. The effectiveness of energy prices subsidy is not so clear because the whole society get benefits and not only the poor and low income group. More than that, this policy lead to economic, social and environmental costs that confirm that this kind of policy is not at the benefit of the concerning economy, and the reform of the energy sector is so important because it boosts growth and reduce poverty and inequality, leading to the reallocation of the resources freed up by subsidies to more productive public spending that could help rise growth over the long run.

In this context, country reform experiences suggest a number of barriers to successful subsidy reform such as ; the Lack of information regarding the magnitude and shortcomings of subsidie, Lack of government credibility and administrative capacity, Concerns about the adverse impact on the poor, Concerns regarding the adverse impact on inflation and international competitiveness and the weak macroeconomic conditions. While there is no single recipe for success, addressing these barriers, which vary from country to country, can increase the likelihood of reforms achieving their objectives and help avoid policy reversals.

REFERENCES

- _ Lucas Davis(2013), **The Economic Cost of Global Fuel Subsidies**, Energy Institute at Haas, working paper N° 247.
- _ IMF(2014), **Energy Subsidies in the Middle East and North Africa: Lessons for Reform**, Middle East and Central Asia Department.
- _ Carlo Cottarelli et al (2013), **Energy subsidy reform : lessons and implications**, IMF.
- _ UNEP(2008), **Reforming energy subsidies**, United Nations Environment Programme, Division of Technology, Industry and Economics.