Energy Subsidies – an OPEC Perspective

JOERG SPITZY argues that energy subsidies are still legitimate policy tools

Reasons for Providing Subsidies in General – subsidies as a common policy tool

Subsidies have a long history and have been used widely by almost every economy in various forms up to the present day. Sector-wise, they range from multi-billion(US)-dollar farming, fishing and energy subsidies to the trillions of dollars of subsidies that have been channelled into the bail-out of the global banking system since 2007. Usually, they are provided via direct transfers of funds, while there are also subsidies that come indirectly via forgone revenues, like tax incentives. Both forms have a real cash effect.

Then there is support that does not involve cash-related flows and should not, therefore, be classified as subsidies. This includes state guarantees for the cheaper funding of specific sectors, guarantees for financial instruments or selling energy resources in resource-well-endowed countries to the population at production cost. There is no public fund outflow involved and they do not burden the funds of an economy, but, nevertheless, they are usually supportive of socio-economic development. These forms of support hardly qualify as subsidies.

The main question, when providing subsidies, is whether it makes sense in socio-economic terms to invest funds to support a specific sector, the population or any other important area of concern. It should be noted that, according to the agreement of the Group of 20 (G20), the answer to this question should be treated as a sovereign decision. Usually, such a sovereign analysis tries to balance the social and economic costs and benefits and, therefore, distinguishes between efficient and non-efficient subsidies – defining efficient subsidies as those that enhance socio-economic development, while non-efficient subsidies can harm such development, since the costs outweigh the benefits. A tool that is available to assess this is 'social cost-benefit analysis' (SCBA).

A brief overview shows that the global figure for subsidies is large. In 2010 an OECD Secretariat report on Agricultural Policies showed that support for the agricultural sector in the OECD stood at $379 billion in 2008 and at $384 bn in 2009. The majority of these subsidies, $262 bn and $252 bn respectively, were producer subsidies, despite the fact that food prices – to the benefit of producers – increased by more than 20 per cent between 2007 and 2010. At the same time, subsidies supporting the consumer increased too, by more than 20 percent, i.e. covering inflation in agricultural products. Subsidies used since 2007 to bail out the global banking system have been on a much larger scale, but they are extremely hard to define, because of the complexity of the bailout, and are estimated in terms of multi-trillion dollars in the USA alone. However, before moving on to the energy sector in greater detail, it has become obvious that sovereign states may have many reasons to believe that, through subsidies, socio-economic factors can be improved, whether this be in the wealthier OECD or poorer developing economies.

When it comes to energy subsidies and, particularly, consumer subsidies, resource-abundant countries in the developing world use them widely to eradicate poverty and facilitate access to modern energy sources. Three billion people are denied access to electricity around the world and 2.7 billion rely on the traditional use of biomass for cooking, according to the latest figures from the International Energy Agency. Particularly for resource-abundant economies, providing energy subsidies to consumers could be a simple and relatively efficient way of improving conditions for their populations as a transitional process. While there might be a long way still to go to achieve the UN Millennium Development Goals (MDGs), consumer subsidies for energy sources have been used for a long time with a positive effect on the socio-economic development of many of these countries. Although some developing economies have started to phase out consumer subsidies for energy, with the next step of channelling some of these funds into a social welfare system that could compensate individuals better and is more specifically targeted than broadly distributed energy subsidies, this has turned out to be a very challenging task, as has been observed on many occasions in recent years.

The magnitude of the funds, which are aimed at eradicating poverty and improving socio-economic development through such consumer subsidies for energy in mainly the developing economies, is estimated by the IEA's price-gap analysis (PGA) at $409 bn in 2010. Since these assumptions are applied mainly to developing economies, it is worth noting that producer and consumer subsidies in much wealthier OECD economies in

2010 have been estimated at an aggregate value of around $45–75 bn per year over the period 2005–10, by the OECD.

It is also important to highlight the fact that the amount that has been raised through negative subsidies in OECD economies on fossil fuels is around twice the sum that, according to the IEA's PGA, has been used for consumer subsidies for energy. These negative subsidies obviously play a vital role in economic policy, particularly in the energy field. Based on energy demand, price and tax data published by the IEA, OPEC estimates that, between 2005 and 2010, around $850 bn were raised annually by OECD countries through taxes on petroleum products, including taxes on goods and services and value-added taxes. This compares with an estimate of $800 bn in the years between 2004 and 2009. These funds are then redistributed to other areas, in accordance with sovereign decisions in these countries. Based on IEA and OECD data, negative subsidies are the highest, in relative terms, for oil-related products, followed by natural gas and coal. In 2010, the average amount of tax on oil in OECD countries stood at $51.1/barrel of oil equivalent; for gas, it was $3.1/boe, and for coal, $0.2/boe.

In addition to these comparisons, it should be said that the PGA-based estimate of fossil fuel consumer subsidies seems to overstate the figures significantly. This is discussed in the IEA, OPEC, OECD, World Bank joint report for the 2010 G-20 summit. First, producer prices in many resource-abundant economies are relatively low, and, therefore, these lower prices cannot be compared with the usually higher prices in importer countries, where prices are also diluted by taxes, i.e. negative subsidies, and administration, marketing and freight costs. Due to this lower level of cost, in many economies no extra funds are being used to provide the population with these lower fossil fuel prices. However, when these producer price levels in resource-well-endowed economies are applied, then the amount of consumer subsidies is reduced significantly to around $250 bn. Furthermore, the PGA does not accommodate any purchase power parity (ppp) adjustment, which, in many of these countries – even when taking into consideration an international reference price – would significantly reduce the amount of this subsidy calculation. Therefore, even by applying the base number for 2010 of $409 bn, a ppp-based approach would lead to a much lower figure of around $300 bn.

Furthermore, any link between the virtually assumed amount of fossil fuel consumer subsidies and the funds needed to reduce greenhouse gas emissions is misleading. First, many estimates of consumer subsidies for fossil fuels seem to be overstated and are, secondly, only a fraction of the quantity of negative subsidies that have been raised by OECD economies, and are also only a rather small amount, in contrast with the massive subsidies given to the financial services sector in recent years.

Comparison of the Amount of Subsidies per Energy Unit

When reviewing energy subsidies, it is always important to compare them on a per energy unit, instead of as a total amount, since fossil fuels account for the majority of energy resources provided. Figures show that the subsidies for fossil fuels are by far the lowest, when compared with other energy sources. Based on estimates provided by the Global Subsidies Initiative (GSI), the rates of subsidisation for non-fossil fuel energies are at relatively high levels, compared with fossil fuels and are provided mainly by OECD countries. These countries are currently responsible for 83 per cent of the world's nuclear and renewable energy-based electricity generation, according to the US Department of Energy's Energy Information Administration, and two-thirds of its biofuel production. Based on GSI estimates, non-fossil fuel energy sources and biofuels are subsidised at an average rate that is significantly higher than that for fossil fuels. The per unit subsidies to nuclear and renewable energy are up to 11.6 US cents per kilowatt hour and 15.4¢/kWh respectively, compared with up to 0.7¢/kWh for fossil fuels. For transportation, biofuels receive a subsidy of 3.3 ¢/kWh, compared with 0.5 ¢/kWh for oil-related products (Table 1).

The findings on nuclear energy are of particular importance and probably become even more accentuated, when considering the long lasting effects of potential accidents and all the long-term challenges related to nuclear waste. The cost of the clean-up following the meltdown of the Fukushima accident, for example, has been estimated at around $250 bn and this does not even consider the economic consequences of this tragic incident.

Distinguishing Efficient and Inefficient Energy Subsidies

Energy subsidies can be very supportive for particularly immature economies, but decisions about subsidies are a sovereign matter. However, with respect to the use of subsidies as a policy tool, it is important to distinguish between efficient and inefficient ones. This must also be considered according to the G20's mandate, when deciding upon phasing out fossil fuel subsidies over the medium term. The complex, but most useful tool for analysing this matter is social cost-benefit analysis (SCBA). Such an analysis can only be pursued by the sovereign

Table 1: Energy Production and Subsidies

Energy type	Energy produced (2009)	OECD share of production (2009)	Subsidies per energy unit US cents/K Wh (2009)
Nuclear energy	2,600 TWh electricity	83%	0.5–11.6
Renewable energy (excluding hydropower)	500 TWh electricity	83%	1.7–15.4
Fossil fuels to electricity	12,900 TWh electricity		0.1–0.7
Biofuels to transport	51 Mtoe	66%	3.3
Oil products to transport	2,205,570 Ktoe		0.5

Sources: Global Subsidies Initiative and US Energy Information Administration

authority, since it is the only institution that holds all the necessary information for providing a comprehensive answer. An example of how this can be used to examine the social, economic and environmental impact of energy subsidies is provided in Figure 1.

While, for the poorer resource-well-endowed countries, such an analysis could probably support the reasoning for the provision of consumer subsidies for fossil-fuel related energy, most developed economies have concluded that it supports nuclear and alternative energy, i.e. those areas where they sense a comparative advantage, when it comes to the energy agenda.

Economic Impact, when Phasing out Energy Subsidies

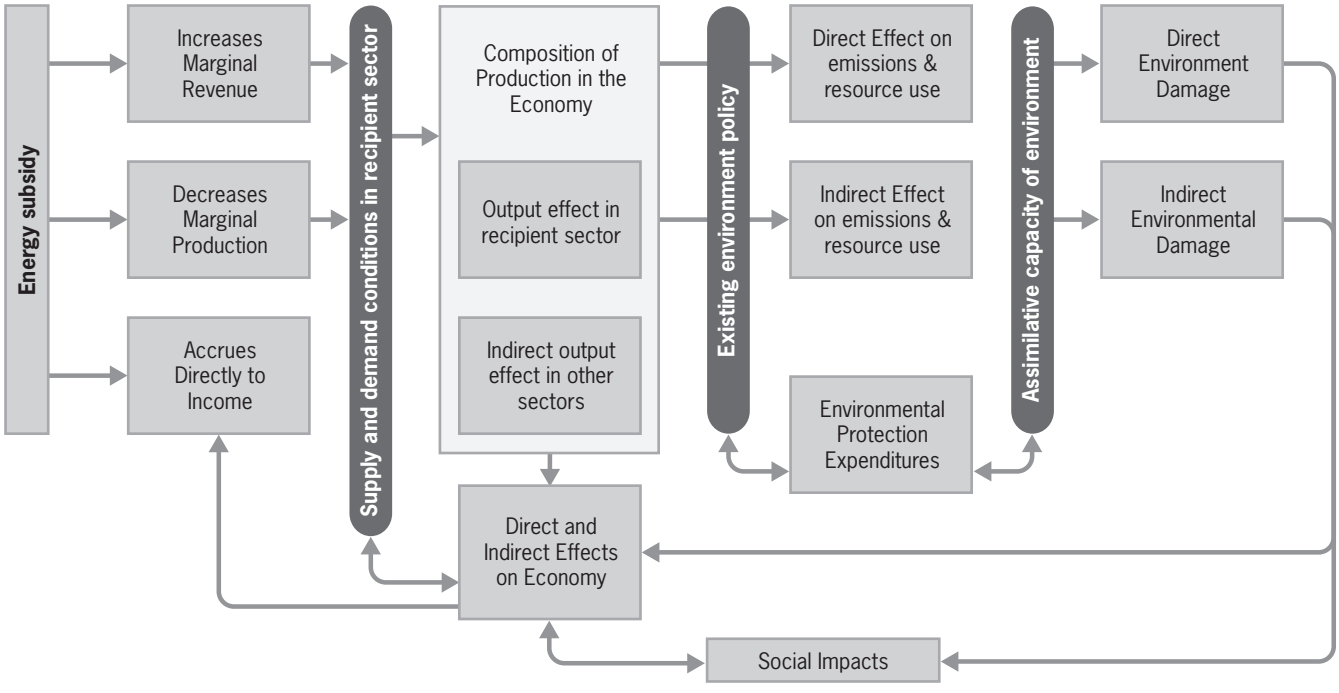
As has been mentioned already, the challenges for phasing out energy subsidies are significant and many recent cases have highlighted the economic sensitivity of such reduced support. This seems obvious, when taking into account the severe economic impact this could have on these developing economies, where the majority of the population is considered to be relatively poor. Modelled simulations of the economic consequences of such a policy for OPEC's Member Countries have shown a notable negative impact in the short-to-medium term, particularly when taking into account that, in many of these countries, the low prices of fossil fuels reflect the lower costs of production and that price increases would artificially burden, in many cases, populations that are already relatively poor.

These simulations were pursued with the Oxford Global Macro Model and analysed a phase-out of fossil fuel subsidies that was gradual and spread equally over five years. Furthermore, it was assumed that 60 per cent of the value of the fuel subsidy would be recycled back into the economy through government transfers, while the rest would be used to reduce budget imbalances. The actual level of expenditure on fossil fuels was estimated, using IEA data for 2009, on average subsidy rates as a proportion of the full cost of supply. Three main dimensions were analysed: the repercussions on GDP growth, the impact on inflation and the effects on the labour market.

- The analysis showed that, when phasing-out energy subsidies, the GDP effect on Member Countries would be an annual average of –3.4 percentage points for the first five years.
- The negative GDP effect for Member Countries in this scenario is triggered primarily by a significant increase in inflation, which negatively affects the competitiveness of the manufacturing sector as it lifts input prices for the non-oil sector and puts pressure on real income and consumption levels. The average consumer price index for Member Countries will rise by 4.4 percentage points, compared with the baseline assumptions.
- A major impact of this would be a significant loss of jobs. Employment would decline by 2.3 percentage points, compared with the baseline assumptions.

It is obvious that any call for increasing prices on fossil fuels in resource-abundant developing economies would significantly hurt these economies. This is even more the case, when considering that inflation in most of the potentially affected economies has risen significantly already in recent years and that any measure that increases the pressure on households can hardly be justified. This sensitivity is also supported by the findings of the World Bank's Poverty and Social Impact Analysis (PSIA), which has shown that the proportional impact of subsidy removal

Figure 1: Social, Economic and Environmental Impact of Energy Subsidies



Source: United Nations Environment Programme, 2003, Energy Subsidies – Lessons Learned in Assessing their Impact and Designing Policy Reforms, p29

(or price-increase) can be the greatest for the poor, even in those cases where the rich receive more.

Conclusion and Key Take-aways

The findings illustrate some of the challenges and sensitivities involved in phasing out energy subsidies and highlight the low levels of subsidies that are being used for fossil fuels, compared with non-fossil fuels. Furthermore, it is important to consider any decision on subsidies as being a sovereign matter, as well as the importance of the sovereign authority distinguishing between efficient and non-efficient energy subsidies. This can be pursued via a social cost-benefit analysis. The price-gap approach cannot provide this information, but instead supplies only a total amount that is potentially misleading, since it is not only impossible to distinguish between efficient and inefficient energy subsidies by means of the PGA, but it also treats lower production costs as subsidised prices and does not even adjust for purchase power parity assumptions.

Phasing out consumer subsidies for fossil fuels in many resource-abundant economies simply means raising prices. Those countries that decide to phase out subsidies may face challenges in implementing reforms, and the reforms may lead to some restructuring of the economy that will need to be managed carefully. Therefore, any reform has to be designed with great care and will require considerable time. In conclusion, it seems sensible to recall that these fossil fuel consumer subsidies are addressing the vital needs of the poorest people on the globe. No one-size-fits-all model exists. ■

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