

# *Energy Subsidies Reform and Petroleum Price Volatility in Kuwait*

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## **Overview**

Reducing energy subsidies has become as an important economic priority for many countries. For instance, the G20 committed in 2009 to “rationalize and phase out ... inefficient fossil fuel subsidies that encourage wasteful consumption.” However, per the U.S. International Energy Agency (IEA), global subsidized consumption of fossil fuels continues to be very high, dropping only by 1.5% from 2008 levels down to US \$548 billion in 2013, the equivalent of 2% of the surveyed countries’ gross domestic product (GDP) adjusted to purchasing power parity. Recent petroleum price declines have rendered removing subsidies particularly critical for petroleum exporting countries, i.e., petrostates, as subsidies exacerbate fiscal sustainability challenges caused by petroleum price volatility. Nonetheless, removing subsidies has been difficult with various political implications.

Kuwait is a small open petroleum -exporting economy and represents an important case among petrostates to examine the political implications of removing subsidies. It is the 10<sup>th</sup> largest petroleum producer and a major supplier to Asia, as well as the second highest per capita energy consumer with increasingly rising energy demand. Its economy is especially susceptible to petroleum price volatility due to—(a) high dependence on petroleum exports, which generated over 56% of its GDP and 92% of its government revenue in 2014; and (b) high energy subsidies, which reached 5% of GDP in 2014 with an average subsidization rate of 78%. Subsidies are especially high in water, fuel, and electricity where the retail price is less than one-tenth of production costs. The Kuwaiti government removed some fuel subsidies in January 2015 following expectations of a 60% drop in its revenues when the average export petrol price hit \$39/barrel (bl) (down from \$103/bl in 2014). Yet subsidies were reinstated a month later due to local opposition.

Despite its political implications, subsidies reform is ever more important especially in light of expectations of recent trends in petroleum price declines to persist. Existing studies by BuShehri & Wohlgenant (2012), Gelan (2014), and Fattouh & Mahadeva (2014) show that the reduction of some subsidies in Kuwait generates a net welfare gain. These analyses, however, consider standard options of removing subsidies and focus solely on subsidies in electricity or in electricity and water sectors. They also ignore petroleum price volatility. This paper attempts to fill these gaps.

To that end, this paper quantifies the impact of implementing politically-viable options of subsidies reforms on the Kuwaiti economy taking into account changes in the petroleum price, while depicting energy subsidies across industries and labor-energy linkages. The first section of the paper offers a brief description of Kuwaiti energy subsidies and the political implications of removing them, outlining politically viable options. The following section constructs a social accounting matrix (SAM), and the third section details the computable general equilibrium (CGE) model constructed to quantify the impact of subsidies reform. Following are policy simulations of politically viable reform options in combination with alternative scenarios for the petroleum price, followed by conclusions.

## **Methods**

The first section of this paper analyzes the size and implications of subsidies. The method of the subsequent sections is CGE. It commences, first, with constructing a database for Kuwait in the SAM format. The SAM depicts interindustry interactions, trade flows, sectoral subsidies, and labor-energy linkages. It also depicts Kuwait’s unique economic structure, including the dominance of the public sector especially in hydrocarbons through the national petroleum company. This feature is important as publicly-owned firms are managed by utility maximizing employees in a manner to favor domestic consumer surplus and domestic employment (Hartley & Trengove, 1986). The SAM is a critical contribution given that there is no official published SAM for Kuwait.

The CGE model is calibrated using the SAM. It has an almost small economy assumption and has a fairly complete set of taxation/ subsidy mechanisms. It extends the model by Tyers & Walker (2013) by incorporating additional labor sources, sectors, and Kuwait’s economic structure. Adding various labor sources is motivated by Kuwaiti laborforce composition, of which 83% are foreign. Although omitted from the literature, this feature is particularly important for small economies like Kuwait with high dependence on temporary foreign labor. The model

aggregates nontradable sectors, and separates out certain key industries, like electricity and hydrocarbons. Policy simulations evaluate implementing politically viable subsidies reform options in combination with a set of alternative scenarios for trends in the mean petroleum price. They will be done in a comparative static framework, employing different closures to represent the response of the economy in both the short and the long runs. A critical contribution is including various energy subsidies, thus allowing subsidies' analysis across domestic industries. It also enables the examination of the tradeoffs between fiscal balance and cost of living stability during periods of high and low petroleum price, which is an important implication in any attempt at subsidies reform.

## Results

Subsidies in Kuwait are part of a larger welfare system embedded in its political economy. The constructed SAM sheds light on sectoral data and the extent of subsidies. For instance, electricity subsidies exceeded US \$4.3 billion in 2014, and the electricity and water sectors employ largely Kuwaiti labor. Simulating subsidy reduction shows net welfare gains, drops in local energy demand, and improvements in sovereign wealth funds' positions.

On a sectoral basis, the results are contrary to initial expectations, showing that removing subsidies negatively affects labor employed in the highly subsidized industries. Given guaranteed employment for citizens, employment levels will not be affected in industries dominated by Kuwait labor, like water. In other industries, foreign labor income and employment will be negatively impacted. Removal of energy subsidies will have impacts on other industries that use energy as an intermediate, with demand and output increasing in some. The net welfare gains are higher during episodes of low petroleum price, while household consumption is impacted with real inflation.

## Conclusions

The analysis shows that subsidies reform is critical to maintaining fiscal sustainability, allocating rent and resources efficiently, curbing energy consumption, and improving the overall efficiency of industries and energy supply systems. These results will contribute to economic growth and long term development. Due to the political economy of subsidies and political implications of removing them, reform must focus on politically viable options. While subsidies reduction in Kuwait will have net welfare gains, successful implementation ought to accompany carefully designed mitigation measures and microeconomic reforms that address the ensuing sectoral losses and labor effects, especially for industries dominated by foreign labor. In the electricity sector, reform should accompany investments in energy efficiency to improve service quality to meet the country's capacity demands.

A critical implication of subsidies reform is that it can be part of a larger solution in making the tradeoff between local consumption and exports, and between withdrawals from and investments into Kuwait's sovereign wealth funds. Increasing contributions to those funds will benefit future generations and provide resources needed for infrastructure and human capital development. Subsidies reform will curb local consumption, thus enabling Kuwait to remain as a petroleum exporter for longer periods of time and extending the life of the available resources. It will also ensure a constructive role in helping Asia's importing countries with increasing demands for petroleum meet their economic aspirations. This paper forms the basis of future research with a more detailed general equilibrium analysis that explicitly accounts for oligopoly behavior and its regulation and multiple households.

## References

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