Chapter 4
Distributional Effects of Reduction in Energy Subsidy: Evidence From Kuwait

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ABSTRACT

This study examined the distributional effects of energy subsidy reduction in Kuwait. A computable general equilibrium (CGE) model was calibrated on a Kuwaiti social accounting matrix (SAM). A simulation experiment was conducted by applying a 25% energy subsidy reduction. The SAM consisted of 10 household groups, categorized into nationals and expatriates, and subsequently classified into five income levels. The employed labor force was classified into two groups (nationals and expatriates), each disaggregated by four skill levels. Industries were disaggregated into 65 branches. The CGE model was specified in such a way that it would be possible to quantify welfare effects on each household group and then trace the changes to distributional effects, factor income, and employment by industrial origins. When accompanied by compensation, the energy subsidy led to an aggregate efficiency (increase in GDP) and welfare gains. The welfare gains among Kuwaiti nationals were progressive; the lower-income groups gained more than higher-income groups.

INTRODUCTION

Kuwait is one of the most energy-intensive countries in the world. In 1990, just before the Iraqi invasion, Kuwait's per-capita energy consumption was 4.3 tons of oil equivalent (toe). This increased to 9.1 toe in 2000 (a 110% rise), corresponding to more than a twofold increase in a decade. By 2015, the corresponding figure slightly fell to 8.8 toe, which was a 3.9% drop from the consumption level in 2000, but

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still represented a 102% increase over the 1990 level. Consequently, Kuwait is now the second highest country in the world in terms of per-capita energy consumption (after Qatar) (World Bank, 2020).

The per capita CO_2 emission of Kuwait was 21.1 tons in 2018, again placing Kuwait second in the world after Qatar. Kuwait's excessive energy consumption pattern is the result of an extremely generous energy subsidy. In 2018, Kuwait came first in world in energy subsidies, at US$1,308 per person.

For two decades (2000-2020), the size of Kuwait's economy nearly doubled in real terms, while that of population more than doubled, with an annual average population growth rate of rate of 4% (IMF, 2021). These rapid economic and demographic expansions have given rise to a growing awareness among researchers and decision makers that the existing energy policy is not compatible with the country's sustainable development goals (Kiranmai *et al.,* 2022).

Attempts to reform energy policy have encountered rigid opposition in parliament (Al-Saidi, 2020; Shehabi, 2020). The cause of disagreement has been the possible adverse effects of a subsidy reduction on welfare, and the political backlash that would result from it. However, the recent sharp decline in the price of oil in the world market has compelled the authorities to soften their position. Not only has a consensus been reached, but energy tariff reforms have already started in earnest.

Partial equilibrium modelling studies (BuShehri & Wohlgenant, 2012) have shown that it is possible to gain public support and avoid political backlash by paying a cash equivalent to compensation consumers for welfare losses. Gelan (2018a) applied a computable general equilibrium (CGE) modelling approach and extended the scope of the study to show that compensation of energy users not only leads to a reinstatement of household welfare, but it also causes marginal increases in both aggregate household welfare and the gross domestic product (GDP). Additionally, there could be gains in terms of environmental benefits measured in terms of reduction in CO_2 emissions.

The objective of this study was to examine the distributional effects of an energy subsidy reduction in Kuwait. The main source of prolonged delay in deploying an energy subsidy reduction has been concern about the potential adverse effects on social welfare. This study thoroughly investigated designs in energy reforms programs, in order to avoid or minimize deterioration in social equity or production efficiency. This study built on the results of Gelan (2018a), and disaggregated households by income classes and conducted extensive simulation experiments, focusing on the distributional outcomes of subsidy reduction (Husaini, Puah, & Lean, 2019; Rentschler, 2016).

STUDY CONTEXT

Kuwait spent US$5.5 billion on energy subsidies in 2019 (IEA, 2020). The bulk of this money went to electricity (57%), while the remaining proportion was shared equally between petroleum products and natural gas. These energy subsidies constitute 4% of Kuwait's GDP.

Kuwait's energy subsidy is approximately US$1,308 per person. This value puts Kuwait at the top in terms of world ranking, just above Iran (US$1,038) and Libya (US$838). This lavish energy subsidy rate did not happen by accident. The Kuwaiti government has a long-held policy to maintain a welfare state, using various subsidies as mechanisms to transfer wealth acquired from exploitation of the country's natural resources to citizens. For instance, "the government owns a vertically integrated monopoly and manages the entire supply chain from electricity generation to retail distributions" charging consumers a nominal tariff of 6 cents per kWh, one of the lowest in the world (Gelan, 2018a).