Estimating the impact of energy price reform on Saudi Arabian intergenerational welfare using the MEGIR-SA model (*EJ 17-189*)

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Executive summary

In December 2015, the Saudi Arabian government raised most of its administered retail energy prices. In the Kingdom of Saudi Arabia (KSA), the retail prices of energy (oil products, natural gas, and power) had long been set by public authorities resulting in the retail prices being below the international market price. This had allowed Saudis to benefit directly from the relatively low domestic marginal cost of oil production. A drawback of these implicit subsidies is that it potentially encouraged energy wastage, thus reducing the amount of oil available for exports and revenue for the Saudi government.

This paper investigates the possible aggregate effects – positive and negative, current and intertemporal – of raising Saudi retail administered energy prices, as in December 2015, with respect to public finances, private income/activity, and generations. We develop an energy sector augmented, dynamic macroeconomic model with overlapping generations for the KSA (called MEGIR-SA, *Model with Energy, Growth and Intergenerational Redistribution – Saudi Arabia*). This, as far as we know, is the first model of this type developed for any Gulf region country.

We show that the sizeable price increases implemented at the end of December 2015 may in fact increase the welfare and therefore benefit all current and living Saudi cohorts due to the favorable impact of oil exports for a given level of domestic production of oil. The question arises, however, as to how to recycle this additional oil income in the economy, either through public investment or through public current spending. Progressively raising public capital expenditures may well function as a desirable mechanism, however, if the future oil income in the KSA happens to diminish over time, whether because of lower prices on world markets and/or lower domestic production mirroring lower world demand.

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Our analysis informs current debates with high policy relevance. This paper suggests that higher retail prices of energy in oil-exporting countries – especially in the KSA – can increase welfare for households through lower domestic consumption and thus higher oil exports that can be redistributed in the economy.

Keywords: Energy prices; Oil-exporting country; overlapping generations; general equilibrium.
JEL Codes: D58 , D63 , E62 , L7 , Q38 , Q43