

## Rationalizing Transport Fuels Pricing Policies and Effects on Global Fuel Consumption, Emissions Government Revenues and Welfare

Yahya F. Anouti, Colorado School of Mines

Carol A. Dahl, Colorado School of Mines

SOCIETY bears many costs when consumers use transport fuels like gasoline and diesel. To name a few impacts, consumption of transport fuels adds to climate change, local pollution, traffic congestion, and traffic accidents. Fuel consumers do not directly bear the burden of those impacts. In addition, some countries (like Venezuela and Saudi Arabia) subsidize the consumption of gasoline to shield domestic consumers from volatile price changes. In short, the world market for transport fuels is highly distorted because consumers do not pay the full costs of fuel consumption.

With growing pressure to address climate change and the socioeconomic issues of transport fuel subsidies, there is interest in removing the distorted incentives of the transport fuel market. To “rationalize” transport fuel prices requires countries to remove fuel subsidies and account for external costs through the use of fuel taxes (or some other policy mechanism).

The optimal price for transport fuels will reflect direct, indirect, and external costs.

This analysis assesses the impact of rationalizing global transport fuel prices. Changing government policies to account for external costs and the removal of fuel subsidies will have broad impacts on fuel consumption, emissions from the transportation sector, and government revenue. The authors develop a statistical model to estimate the impact of optimal transport fuel prices for 123 countries, accounting for 98% of global demand of gasoline and diesel.

The authors conducted a survey of current transport fuel taxes and subsidies for the 123 countries. Next, they quantified the rationalized cost of transport fuels reflecting the direct costs (production), indirect costs (road maintenance), and negative externality costs (climate change, local pollutants, traffic accidents and congestion). Finally, the authors measured the change in fuel demand,

environmental emissions, and government revenues resulting from successively phasing in the three cost categories.

The model results estimate that rationalizing transport fuel prices reduces total demand for gasoline by 8.5% and total demand of diesel by 5.7%. Decreased fuel consumption results in a 6% decrease in CO<sub>2</sub> emissions, and the rationalization policies raise an estimated \$400 billion in tax revenue for governments. Specifically, removing fuel subsidies generates \$86 billion, raising funds for road maintenance adds \$51 billion, and accounting for externalities generates \$269 billion in tax revenue. For individual countries, the impact can be above 5% of a country's GDP, especially for those countries that export oil. Overall, resource-rich developing countries (like OPEC members) benefit the most, increasing the overall benefit to society between \$50 and \$300 per capita.