

Subsidized energy and its effect on energy consumption in Saudi Arabia

Ezra Baker

Economics, The Ohio State University

Advisor: Dr. Ida Mirzaie, Ph.D., Department of Economics, The Ohio State University

As the top exporter of crude oil, the Kingdom of Saudi Arabia (KSA) accounts for almost a fifth of global oil exports. Large export earnings enable Saudi Arabia to keep domestic energy prices well below international benchmarks via subsidies. In 2012, the domestic price of gasoline, at \$0.16 per liter, was eight times lower, and the domestic price of diesel, at \$0.07 per liter, was eighteen times lower than the world averages. Such large subsidies on domestic energy prices are often criticized for resulting in domestic overconsumption of energy. However, the extent to which subsidized prices affect energy consumption in Saudi Arabia is debatable and difficult to estimate. Thus, it is also unclear how much energy consumption may change in the event of a subsidy reform, as is now underway in Saudi Arabia. The purpose of this study is to estimate the price elasticity of demand for refined petroleum products in Saudi Arabia, in order to quantify potential benefits of subsidy reform. Using data for the period 1990-2010 reported by the Saudi Arabian Monetary Agency (SAMA), I use ordinary least squares (OLS) to estimate the price elasticity of demand for refined petroleum products within Saudi Arabia. My model gives a price elasticity of demand of around -0.1, indicating that a 1 percent increase in price is associated with a 0.1 percent decrease in consumption of refined petroleum products. According to this estimate, the current subsidy reform in Saudi Arabia, which includes raising the price of gasoline by 50 percent, could decrease gasoline consumption by about 5 percent. Further, if Saudi Arabia were to continue to increase the price of gasoline to the average of the other five countries of the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, and the United Arab Emirates), it could decrease gasoline consumption by almost 10 percent. This finding indicates that the current subsidy reforms in Saudi Arabia may succeed in restraining domestic energy consumption, and that the government should continue to raise prices on refined petroleum products in order to realize greater benefits.