

Distributional and Dynamic impact of Energy Subsidy Reform

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Abstract : Governments execute energy subsidy reforms by either increasing energy prices or reducing energy price dispersion. These policies make less use of energy per plant (intensive margin), vary the total number of firms (extensive margin), promote technological progress (technology channel), and make additional resources to redistribute (resource channel). We estimate a structural dynamic firm model with endogenous technology adaptation using data from the manufacturing firms in Iran and a country ranked the second-largest energy subsidy plan by the IMF. The findings show significant dynamics and distributional effects due to an energy reform plan. The price elasticity of energy consumption in the industrial sector is about -2.34, while it is -3.98 for large firms. The dispersion elasticity, defined as the amounts of changes in energy consumption by a one-percent reduction in the standard error of energy price distribution, is about 1.43, suggesting significant room for a distributional policy. We show that the intensive margin is the main driver of energy price elasticity, whereas the other channels mostly offset it. In contrast, the labor response is mainly through the extensive margin. Total factor productivity slightly improves in light of the reduction in energy consumption if, at the same time, the redistribution policy boosts the aggregate demands.

Keywords : energy reform, firm dynamics, structural estimation, subsidy policy

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