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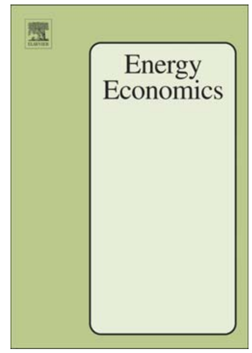

OPEC and Demand Response to Crude Oil Prices

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OPEC and Demand Response to Crude Oil Prices

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Abstract: This paper investigates demand response to crude oil price movements before and after the recent global financial and economic crisis. It employs several market power indices to structurally estimate price elasticities. A newly developed market power index for crude oil markets is implemented. In this approach OPEC is the central player and acts as a dominant producer in the global oil market. We quantify how a change in market structure (such as changes in marginal cost of production) would contribute to market power exercise of OPEC and have an ultimate impact on price elasticity of demand for oil. Our price elasticity predictions fall in a range reported in the literature, however estimates for pre-crisis deviate from the post-crisis ones. In fact, demand response to crude oil prices has almost doubled during the crisis. This severe change in price response can be associated with record price levels caused by supply shortages and surge in alternative renewable energy resources. The key advantages of this methodology over the existing literature are that it is simple to use and estimates price elasticity using a competition framework without specifying demand/supply function(s), and utilizes commonly observable market variables that can be applied to any admissible data frequency.

Keywords: Price elasticity of demand; crude oil; global financial/economic crisis; Brent benchmark; market power; GMM estimation.

JEL Codes: D22; L13; Q35; Q41.

1. Introduction