

Imperfect Price-Reversibility of US Gasoline Demand: Asymmetric Responses to Price Increases and Declines

by
Dermot Gately

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Abstract:

This paper describes a framework for analyzing the imperfect price-reversibility ("hysteresis") of oil demand. The oil demand reductions following the oil price increases of the 1970's will not be completely reversed by the price cuts of the 1980's, nor is it necessarily true that these partial demand reversals themselves will be reversed exactly by future price increases. We decompose price into three monotonic series: price increases to maximum historic levels, price cuts, and price recoveries (increases below historic highs). We would expect that the response to price cuts would be no greater than to price recoveries, which in turn would be no greater than for increases in maximum historic price.

For evidence of imperfect price-reversibility, we test econometrically the following US data: vehicle miles per driver, the fuel efficiency of the automobile fleet, and gasoline demand per driver. In each case, our econometric results allow us to reject the hypothesis of perfect price-reversibility. The data show smaller response to price cuts than to price increases.

This has dramatic implications for projections of gasoline and oil demand, especially under low-price assumptions.

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send correspondence to:

Economics Department
New York University
New York NY 10003
(212 998 8955)

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