

# ***DO MAJOR BRANDS HAVE MARKET POWER IN THE GERMAN RETAIL GAS MARKET?***

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## **Overview**

Whether there exists competition in the retail gas market is an ongoing debate. While German courts argued that there was competition, the German antitrust agency found that major brands have market power. In case major brands had market power, we would expect them to be better able to pass on price increases in crude oil compared to non-major brands. Applying quantile panel methods to roughly 4.5 million observations on gasoline and diesel prices collected from more than 13,000 gas stations over the period spanning January 2012 to January 2013, we put the assumption that major brands can charge extra to the test.

## **Methods**

We employ the quantile panel estimator suggested by Ivan Canay (2011) in *Journal of Applied Econometrics*. Quantile regression makes it possible to estimate the impact of the controls at any point in the conditional distribution of the response, in this case the diesel or gasoline price at the gas station. This enables us to estimate whether the major brands have market power depending on the level of the fuel price. It may well be that market power is only found for certain price levels. Moreover, quantile regression (Koenker 1978) is robust, especially with respect to outliers.

The basic assumption of the two-step procedure suggested by Canay (2011) is that the fixed effect is identical across the conditional distribution of the response. Under this assumption, the mean regression fixed effects estimator can be employed to estimate the fixed effect in the hypothesized model and consequently subtract it from the response variable, thereby effectively removing its influence.

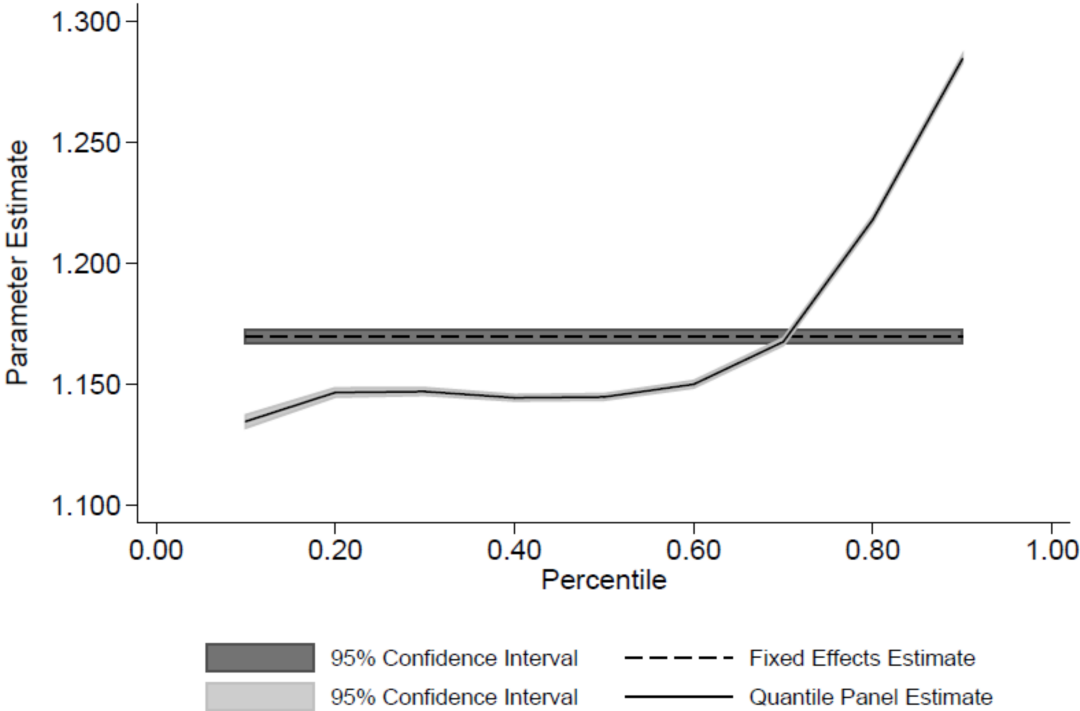
A prerequisite for applying Canay's quantile panel estimator is a sufficient number of observations on each observation unit. With an average of about 180 observations for more than 13,000 gas stations in Germany, this prerequisite is easily met and the fixed effect can be estimated very precisely.

## **Results**

With millions of observations, it is hardly surprising to find statistically significant differences in the pricing behavior between major and non-major brands. Major brands seem to pass on less of the price increase in crude oil to motorists compared to non-major brands. However, the price differences are negligible from an economic point of view. For example, when the crude oil price (brent) increases by 1 euro cent per liter, non-majors increase the gasoline price by about 1.145 cents per liter (result for the 50<sup>th</sup> percentile). Majors increase the price by approximately 0.08 cents per liter less.

Nevertheless, the application of quantile panel regression leads to insights otherwise barred. Turning to Figure 1, the reader learns that increases in the crude oil price have very different impact on the gasoline price depending on the price level at the gas station. Therefore, mean regression overestimates the impact of crude oil on the gasoline price when the gasoline price is low to medium and underestimates its impact when the price at the pump is high.

Figure 1: Impact of the crude oil price on the retail gasoline price



**Conclusions**

Applying quantile panel regression to gasoline and diesel prices indicates that the impact of the crude oil price depends on the level of the fuel price at the gas station. This finding cannot be made relying on mean regression techniques. In addition, the results indicate that there is no significant difference in the pricing behavior of major and non-major brands from an economic point of view. Thus, it seems that major brands do not have market power in the German retail fuel market.

**References**

Canay, Ivan A. "A simple approach to quantile regression for panel data." *The Econometrics Journal* 14.3 (2011): 368-386.

Koenker, Roger, and Gilbert Bassett Jr. "Regression quantiles." *Econometrica* (1978): 33-50.