

Willingness to pay for fuel economy in the Swiss car market

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Overview

This paper examines the evolution of consumers' preferences regarding new cars' fuel intensity and weight on the Swiss car market from 2006 to 2012 based on a dataset including both sales figures and technical characteristics, including list price, for each marketed model during this period. We analyse the trends in willingness to pay (WTP) for fuel intensity and weight over the period. While consumers certainly do not value weight per se, this variable serves as a catch-all proxy for correlated valuable attributes such as cars' size, comfort, social signalling value and security feeling. Our framework makes use of revealed market data and look at temporal variation of WTP, an approach that has not received much attention in the literature.

Methods

We use a multivariate log-log regression on car models' market share with year fixed effects and interaction terms to derive fuel intensity and weight elasticity of cars market shares. The use of year fixed effects make this model equivalent to a multinomial logit model commonly used for discrete choice analysis. We then compute the relative WTP for fuel economy and weight as the ratio between their respective regression coefficient and price's coefficient. Our model being derived from a standard MNL model we performed robustness check to IIA by running an alternative model with random effects.

Results

The results from our model provide the anticipated results, with all coefficients having the expected sign and significance. We obtain three important results. First, we show that the importance Swiss new cars buyers attach to fuel efficiency increased; all other things being equal, higher fuel intensity is more heavily penalized on the 2012 market than it was in 2006. Our second finding is that consumers' taste for heavier cars has increased. This supports the rebound-effect hypothesis that improved engines' technology is not fully transformed into fuel economy because of consumers trading some efficiency gains for heavier cars. Finally we find that there is a highly significant interaction between cars' weight and the importance attached to fuel intensity; ceteris paribus, higher fuel intensity is much more heavily penalized on the light car segment than on the high-end heavy cars category.

Conclusions

Our study shows that consumers WTP for fuel efficiency has evolved in a desirable direction, from policy makers' perspective, in recent years. We also show that a WTP for heavier car exist and is increasing, calling for adequate measures to curb this trend which holds back some of the potential improvement in fleet's fuel economy. We argue that a reform of the energy-label system, allowing in Switzerland heavier cars to have higher fuel consumption while receiving the same label, would be an important first policy step.

References

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