

# **TARGETING OF FUEL EFFICIENCY PROGRAMS IN CHINA'S AUTOMOBILE INDUSTRY**

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## **Overview**

Fuel efficient vehicles and electric vehicles are heavily subsidized in China. Understanding how fuel efficient programs are indeed taken up by consumers who are more distorted by market failures is important to design effective policy tools. In Chen, Hu, and Knittel (2017), the authors show that the national fuel efficient program in China from 2010 to 2011 was ineffective at the national level. However, they also show that there was some variation in program take-up rates across geographic areas. In this paper, we explore the possibility to redesign the program in order to better target consumers who are more likely to buy fuel inefficient cars. Using information about each vehicle owner's gender, age, and county of residence, we provide descriptive statistics for demographic groups who are more likely to buy fuel inefficient vehicles. We also explore the effect of limiting eligibility to consumers who were more likely to buy relatively fuel inefficient models instead of offering subsidies to all types of consumers.

We begin by discussing details of the fuel efficient program and the data. We then describe the empirical strategy and the corresponding estimating procedures. Finally, we present the empirical results and discuss the implications of targeting fuel efficiency program.

## **Methods**

Empirical regression analysis

## **Results**

First, for each consumer who purchased a subsidized vehicle, we predict the counterfactual fuel inefficiency of the consumer's original choice of vehicle had the program was not in place. We compare the predicted fuel inefficiency to the actual fuel inefficiency of the vehicle purchased by the consumer.

Second, geographic differences, instead of gender and age group differences, explain most of variation in vehicle fuel inefficiency in micro data.

Third, by conditioning on gender, age group, vehicle attributes, and location of residence, we can predict the savings in fuel inefficiency of the subsidy program across difference groups.

## **Conclusions**

In some places in China, there are relatively small groups of consumers who could be nudged to switch their vehicle choices to buy small, but fuel-efficient subsidized vehicles. We argue that the fuel efficient subsidy program can be more effective by not applying subsidies to such areas.

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