

Background

This study investigates the impact of government taxes on the automobile market, with an analysis of the Chinese automobile market with change in the engine size-based vehicle consumption tax.

January, 1994 to March, 2006		April, 2006 to August, 2008		Since September, 2008	
Engine Size	Tax rate	Engine Size	Tax rate	Engine Size	Tax rate
>2.2 Litre	8%	>4 Litre	20%	>4 Litre	40%
1-2.2 Litre	5%	3-4 Litre	15%	3-4 Litre	25%
<=1 Litre	3%	2.5-3 Litre	12%	2.5-3 Litre	12%
		2-2.5 Litre	9%	2-2.5 Litre	9%
		1.5-2 Litre	5%	1.5-2 Litre	5%
		<=1.5 Litre	3%	1-1.5 Litre	3%
				<=1 Litre	1%

Research Questions

- What are the impacts of the engine displacement (size) tax on vehicle engines?
 - Did the policy actually help to drive the automakers to downsize the engines?
 - Are vehicle engine sizes clustered around the cutoff points of the tax?
- Are other vehicle attributes affected?
 - Change in fuel efficiency for better or for worse?
 - Are vehicle sizes or class distributions altered?

Data

- China Passenger Car Association and China Automobile Market Research Association publishes model-level monthly sales data 2008-2016
- Trim-level specification data since 2001 retrieved from Autohome.com.cn

Methods

$$c_{jy} = \alpha + \beta Y_{jy} + \varepsilon_{jy}$$

c_{jy} are the change of vehicle j in model year y compared with the previous model year (tax rate cutoff, whether it's turbocharged, fuel efficiency);

Y_{jy} → are changes or potential changes of the model update

ε_{jy} is an error term.

A model update is identified by detecting change in wheelbase

Trends

