

# Research Question

Engine Size	Before March 2006	Engine Size	April 2006 to August 2008	Engine Size	After September 2008
>2.2	8%	>4	20%	>4	40%
		3-4	15%	3-4	25%
		2.5-3	12%	2.5-3	12%
		2-2.5	9%	2-2.5	9%
1-2.2	5%	1.5-2	5%	1.5-2	5%
		<=1.5	3%	1-1.5	3%
				<=1	1%

- How did the engine size tax impact the attributes of vehicles that automakers supplied to the Chinese market? Did the policy actually drive the automakers to decrease engine size and cluster sizes around the cutoff points?
- If the policy did significantly change manufacturing decisions, what is the impact of the change on fuel efficiency? Does it improve or deteriorate the fuel efficiency of vehicles supplied?
- Did the policy have similar effects on different manufacturers? Do domestic automakers respond to the policy change differently than foreign ones because of different levels of commitment to the Chinese market?

# Data

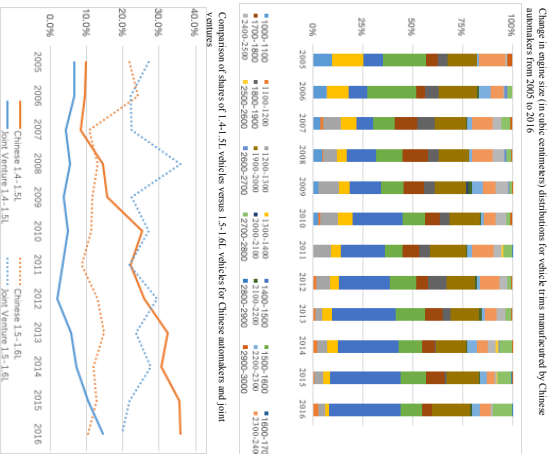
- Vehicle specification dataset from 2004 to 2016 including data on vehicle dimensions, weight, fuel efficiency rating, engine horsepower and engine sizes. Retrieved from an online database.

	Chinese	Joint Venture	Imports
MSRP (Chinese Yuan)	8.79	16.98	51.97
Fuel Consumption Rate (L/100km)	6.8	7.2	8.1
Power (kw)	89	108	177
Engine Size (L)	1598	1798	2498
Weight (kg)	1320	1395	1635
Length (m)	4570	4582	4729
Width (m)	1780	1798	1864
Height (m)	1680	1483	1500
Wheelbase (m)	2685	2685	2780

# Results

What happened after model redesigns in China?

	(1)	(2)	(3)
Clairif crossed	(1)	(2)	(3)
_constant	0.288** (0.052)	0.173** (0.035)	0.272** (0.058)
Downward difference as proportion of current engine size	-0.306** (0.217)	-0.738** (0.348)	-0.738** (0.348)
Downward engine size difference (L)	-0.237** (0.0026)	-0.626 (0.99)	-0.626 (0.99)
Potential reduction in engine size (tax rate)	2.18** (0.539)	3.35** (0.627)	2.51** (0.739)
Engine size (liters)	(1)	(2)	(3)
_constant	2.309** (0.238)	-2.201** (0.0209)	-2.201** (0.0209)
T (years)	-0.00161** (0.000202)	-0.00184** (0.000196)	-0.00184** (0.000196)
Post2006 (years)	-0.103 (0.0315)	-0.103 (0.0315)	-0.103 (0.0315)
Post2006 (years)	-0.269 (0.0282)	-0.269 (0.0282)	-0.269 (0.0282)
Engine_post2006 (years)	0.0402 (0.0259)	0.0402 (0.0259)	0.0402 (0.0259)
Engine_post2008 (years)	0.0444 (0.0351)	0.0444 (0.0351)	0.0444 (0.0351)



	(4)	(5)
Clairif crossed	(4)	(5)
_constant	0.376** (0.048)	0.399** (0.038)
Downward difference as proportion of current engine size	-0.965** (0.226)	-0.965** (0.226)
Downward engine size difference (L)	-0.161** (0.078)	-0.161** (0.078)
Paternal savings in engine size tax (Chinese Yuan ¥)	0.347 (0.223)	0.644** (0.110)

	(1)	(2)	(3)	(4)	(5)	(6)
Become Turbocharged/Supercarged	(1)	(2)	(3)	(4)	(5)	(6)
_constant	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)
Clairif crossed	0.094** (0.035)	0.094** (0.035)	0.094** (0.035)	0.094** (0.035)	0.094** (0.035)	0.094** (0.035)
Change in engine size (L)	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)	0.020** (0.0155)

