

If Someone Replaced Your Car with a Prius, Would You Drive More?

8-10 minutes



Source: Caranddriver.com

Most of us drive cars that are less fuel efficient than a Prius, but this is likely to change over the next decade as the new Corporate Average Fuel Economy (CAFE) standards are phased in.

[Regulators project](#) that these new standards will increase the average fuel economy of new vehicles to [39 miles per gallon \(MPG\)](#) by 2025, compared to 26 MPG in 2010. A new Prius C is rated at 46 MPG on the highway.

While the Clean Power Plan has been getting a lot of attention this past week, the new CAFE standards are another major component of the Obama Administration's climate action plan. Increased vehicle fuel efficiency could account for nearly the same reductions in GHG emissions as the Clean Power Plan.

There is a lot of guesswork involved in coming up with the projected reductions in GHG's achieved by the new CAFE regulations. Some of it involves estimating how much people will drive as they buy more fuel-efficient vehicles.

One factor is what's known as the "rebound effect": as cars get more fuel efficient, the price of driving a mile goes down.

Economists project that a price reduction will lead people to consume more, which in this context means they will drive their fuel-efficient cars more. Regulators estimate that they will drive about 10% more.

I'm not sure this effect would hold in my family, though.

We rented a Prius one summer vacation in Maine. The back roads of Maine can be fun to drive, as they are built over the landscape and not through it, so they twist and turn over the rocky countryside. There's an aptly named "thrill hill" near our vacation spot that leaves your stomach in your mouth better than most roller coasters.



A Prius in Maine?

My husband – who prides himself on being an “aggressive” driver – taught my kids some new adjectives to modify “engine” the summer we had the Prius. One was “lawn-mower” and the rest aren’t printable. Uncharacteristically in our family, he let me drive

for some of the longer trips.

“Prius” has now become synonymous with “wimpy” in my household, as in, “Mom, why didn’t you pull out in front of that car? It’s a Prius.”

It’s not as though my husband goes out joyriding, but I would guess that if a Prius magically showed up to replace his higher horsepower car, there would be a couple instances each month where he would opt to carpool or ride his bike to work where he wouldn’t have otherwise.



Is this Monster Prius photoshopped?

A [recent paper](#) by Jeremy West, Mark Hoekstra, Jonathan Meer and Steve Puller (WHMP) suggests that my husband is not alone. It finds that higher fuel-efficiency cars similarly turn off other drivers. Counter to the predictions of the rebound effect, they find that drivers who were nudged into more fuel efficient cars by the Cash for Clunkers program end up driving if anything *less* than similar new-car owners who bought less efficient cars.

As WHMP point out, fuel efficiency is correlated with other vehicle attributes that drivers tend to dislike, including lower weight, which recent papers (see [here](#) and [here](#)) confirm is not good for occupants in an accident, and lower horsepower, which makes it

harder to accelerate enough to get thrill-hill bumps.

As an aside, the authors use a clever empirical strategy to show that more fuel-efficient cars led people to drive less. The difficulty is that most people buy cars anticipating how much they are likely to drive. So, just looking at the raw correlation between the fuel efficiency of a new car and the number of miles it is subsequently driven may wildly over-state the rebound effect if people who know they have long commutes purposely buy fuel efficient cars.

WHMP look at Texans in the year following the Cash for Clunkers program, which gave large incentives to households that turned in a clunker – defined as a car that got less than 18 MPG – as long as they replaced it with something considerably more fuel efficient. WHMP compare two groups of new car purchasers – those who were barely eligible for the program because their old car was 18 MPG and those who barely missed being eligible because their old car was 19 MPG. The households with 18 MPG clunkers bought new cars that were more fuel efficient (plus smaller and less powerful), while the households who just missed being eligible did not get nudged into fuel-efficient cars, so they serve as a kind of control group. Other than the fact that one group is eligible for the program and the other isn't, the two groups of households are very similar.

WHMP's findings do not mean that the rebound effect is wrong – it's just misapplied in this case. A pure rebound effect describes changes in the energy efficiency of a good, but leaves all other attributes unchanged.

Similarly, some people are quick to differentiate energy efficiency from energy conservation. Ideally, an energy efficiency investment

leaves everything else unchanged, and simply reduces the energy consumed to perform a particular function, like driving a mile.

If WHMP's result holds as the CAFE standards nudge more of us into fuel-efficient cars (at least given the current fleet), this will be good news for reducing greenhouse gas emissions. They don't report an implied increase in savings, but, roughly, I would guess they'd be about 10% higher if the current estimates embed a 10% increase in driving.

While good news for the climate, this result is bad news for drivers like my husband who dislike driving less powerful cars. In econ-speak, there is lost welfare as people are pushed into cars they don't like. That's OK – solving the climate crisis is bound to involve some sacrifices, but we should aim to select regulations that minimize what people have to forego.

On this dimension, both CAFE and the Clean Power Plan are lacking. Both are examples of standards, which are a form of what's known as “command and control” regulation. An ideal regulation would put a price on GHG emissions, either explicitly with a carbon tax or implicitly through a cap-and-trade program. Then, people and firms would make decisions appropriately embedding the damage they are imposing on the climate. (Note, however, that one compliance option under the Clean Power Plan is for states to join a cap-and-trade program.)





Regulation with standards may be the only device remaining in the Obama Administration's climate tool chest given the political environment (e.g., the Senate's failure to pass climate legislation in 2010), but the approach is necessarily worse. Figuring out how much worse is difficult, as WHMP's paper points out. It involves estimating things like how people are driving in cars subject to the regulations and how much worse off they are. It's important to keep these kinds of unintended consequences in mind, even if they hard to quantify.

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