



Clash over Clunkers

What the “Cash-for-Clunkers” Rebate System Did and Didn’t Do

Adam S. Hersh October 4, 2010

Introduction

Armed with a new research study from two business school economists, Atif Mian and Amir Sufi,¹ conservative pundits and editorial boards have trained their sights on the popular and successful Car Allowance Rebate System, more commonly known as the “Cash for Clunkers” program.² Yet the logic employed by conservatives when attacking the popular program would be like me blaming Wheaties when I can’t shoot hoops like Michael Jordan. I never expected to achieve such feats, yet Wheaties are still part of a complete and balanced breakfast.

The truth is that Cash for Clunkers was just one small, targeted program among many that helped to steer the U.S. economy away from the clutches of the Great Recession toward a fledgling (though not yet strong enough) private-sector economic recovery. The study by Mian and Sufi actually confirms that the program succeeded in shifting the timing of vehicle purchases, and in reviving employment in auto-producing regions of the country. But the conservative pundits who seized upon their analysis argue that the program did not increase auto sales overall—it only moved up purchases that would have been made later anyway—and caused a major spike in used car prices to boot. Both claims are either on shaky statistical ground or simply defy logic.

On its own, Cash for Clunkers could not and was never intended to save the economy from recession. Nonetheless, this little program punched well above its weight, delivering significant, positive momentum to our economy and our environment. (Remember, the program had the dual purpose of getting gas guzzling, exhaust-belching clunkers off the roads.)

Costing just 0.4 percent of what conservatives want to spend to give tax cuts to the richest 2 percent of Americans by extending the Bush tax cuts for the wealthy, Cash for Clunkers is an example of the kind of creative policy thinking that has been needed to put our economy back on track while encouraging investments that transform our energy-consuming infrastructure for a cleaner, more sustainable future. Here's how it really worked.

The little program that could

The logic was simple. In a recession, especially one threatening to tip into the next Great Depression, the economy's productive resources lay idle while consumers, for want of income or confidence, weren't buying the goods that could put workers and machines back to use. By incentivizing consumption at present instead of some time in the future, we could create jobs when they were most needed at the depth of the Great Recession.

The American auto industry—teetering on the brink thanks to the financial crisis and the Great Recession and whose industrial base provides an important foundation for the overall economy—needed a strong shot in the arm. Dealers in local communities would get a more modest boost from front-loading sales to help tide them over until the private economic recovery would take hold. Consumers would get the opportunity to purchase a shiny new car and save on gasoline costs. As an added bonus, by improving the overall fuel economy of America's light vehicle fleet, we would reduce our reliance on foreign oil, put downward pressure on gasoline prices, and lower emissions of greenhouse gases and other pollutants. Cash for Clunkers was a win-win-win-win.

From July 24, 2009 through August 2009, the program offered consumers a \$3,500 to \$4,500 bonus for trading in an old car or light truck with average fuel economy less than 18 miles per gallon and manufactured after 1984 for a new, more fuel-efficient (and typically safer) vehicle. Congress provided \$3 billion for the Cash for Clunkers program, or about 0.4 percent of the \$830 billion that conservatives want to spend on tax cuts for the richest two percent of Americans.³

The Chicago Federal Reserve Board estimated that 16 percent of cars on the road and 66 percent of light trucks would be eligible under the program's requirements. Of these, 85 percent to 88 percent were Chrysler, Ford, or GM cars.⁴ In total, an estimated 69.4 million cars and light trucks were eligible for trade-

in under the program. From just the four-week program, the Department of Transportation approved 677,842 applications for sales vouchers under the Cash for Clunkers program.

Effect of the program on the used car market

One truly misguided attack on Cash for Clunkers has to do with how the incentive program affected prices in the used car market. For people who cannot normally afford to buy a new car, the effect on prices of used cars is an obvious concern. Conservative columnist George Will and the *Chicago Tribune* imply that the clunkers taken off the road through this program caused used car prices to jump by 10 percent since the summer of 2009.

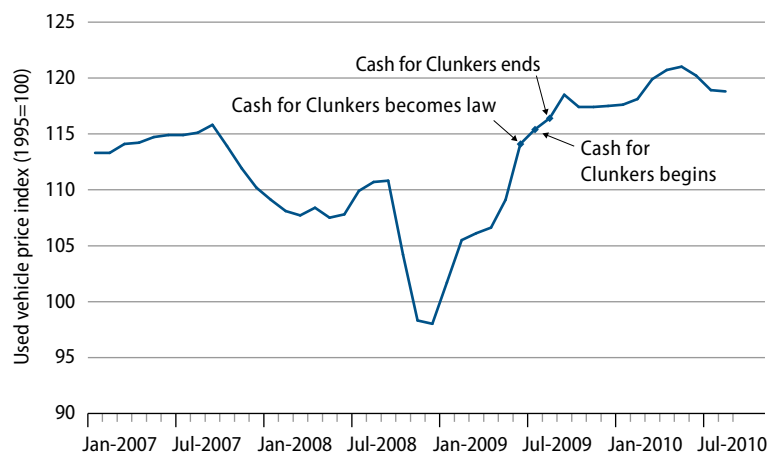
Conservatives should be applauded for paying attention in Econ 101—all things being equal, reducing the supply of used vehicles should cause the price of used cars to go up. But they did not pay close enough attention to the numbers. Used vehicle prices began falling several months before the start of the Great Recession, and continued falling through January 2009. Then from January 2009 to June 2009 used car prices increased sharply by 12.2 percent. (see Figure 1)

Cash for Clunkers only became law on June 24, 2009, and prior to this time there was little public attention on the program. From January 2009 to June 2009 no used cars had been removed from the market. It would be pretty remarkable if the program could cause a spike in used vehicle prices even before it was conceived, enacted, and implemented as law.

What else might have caused the increase in used car prices? In all likelihood, the cause of rising used car prices resulted from the same factors that put the American auto industry in jeopardy, warranting the Cash for Clunkers program in the first place—the Great Recession and declining household incomes.

FIGURE 1
Missing market forces

Used car prices were on the rise well before Cash for Clunkers kicked in



Source: Manheim Consulting.

Used cars are what economists call “inferior goods.” When incomes go up, people demand less of these things in favor of better quality goods, such as new vehicles. Conversely, when incomes go down, people demand more inferior goods. So, during the recent recession, people in the market for vehicles were more likely to shop for a used car than a new car. Demand for used cars pushes up their price.

How much additional effect the Cash for Clunkers program had on used vehicle prices by reducing supply is a tricky question. After the program took effect, prices did again rise another 3.9 percent *continuing the price trend of the preceding six months*, and peaking in September 2010. It is certainly possible that the program put some additional upward pressure on used car prices. Or for argument’s sake, assume for a moment that *all* of the price increase after June 2009 was due to the program. Given the exceedingly small number of vehicles taken off the road relative to the potential supply of 69.4 million cars (less than 0.1 percent), this would imply that a 1 percent change in the supply of used vehicles leads to an outlandish 41 percent change in used vehicle prices.⁵

In short, there is simply no way that Cash for Clunkers caused more than a negligible effect on used vehicle prices.

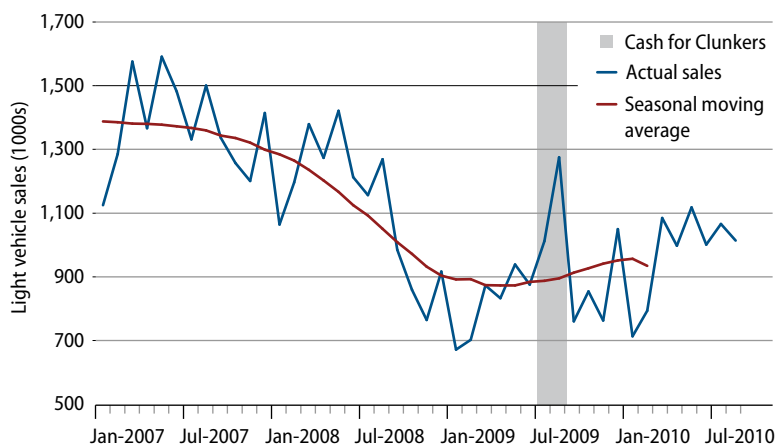
Effect of the program on new vehicle sales

Cash for Clunkers provided incentives for consumers to purchase cars and light trucks they would not have otherwise bought, or to purchase them sooner than they would have if the program did not exist. Sales of light vehicles spiked up sharply during the time of the program—from 875,000 in June to more than 1 million in July and almost 1.3 million in August. (see Figure 2)

But how many of the vehicles bought between July 24, 2009 and August 24, 2009 were a result of these incentives and how many were just due to normal market demand?

FIGURE 2
Dual incentives delivered

The Cash for Clunkers program led to more sales than would have otherwise happened, and the sale of cleaner cars than would have otherwise happened



Source: Author's calculations of BEA data.

And how many of the cars purchased due to the program were purchases that were vehicles that would have been purchased sometime in the near future and how many were vehicles that would not have been purchased without the consumer incentive provided by the program?

What is at issue is to what extent the program induced these purchases to be made within the Cash for Clunkers purchase window rather than at a time in the near future, or whether it prompted new purchases that would not have been made without the consumer incentives. Consumer surveys conducted by the National Highway Transportation Safety Administration indicate that only 30 percent of participants in the program would have purchased a new vehicle without the consumer incentive, 35 percent would not have replaced their vehicles, and another 35 percent would have purchased another used vehicle.

What's more, 23 percent of those surveyed reported they purchased a more fuel-efficient vehicle than they would have chosen in the absence of the program. The findings of the NHTSA survey correspond to auto industry analyses of Cash for Clunkers-induced sales. Estimates provided by a Ford Motor Company executive suggest 30 percent to 40 percent of sales in the program's purchase window were truly new sales. General Motors Corp. estimated the figure at about 29 percent and Moody's Investors Service estimated about 60 percent.⁶

In contrast, Mian and Sufi take a rather creative pseudo-experimental approach to estimating how many of the vehicles sold from July 2009 to August 2009 were due to the program, and how many sales during the purchase window were "pulled back" from future sales. They employ a statistical method that relies on differences between cities with high and low numbers of "clunker" vehicles. The logic is that cities with a lot of clunkers are more likely to have high program-related sales than cities with relatively few clunkers.

They argue that because low-clunker cities are less likely to respond to the government purchase incentives, these cities can serve as a kind of experimental control group by which to compare the program's induced effect on vehicle sales. If sales boasting Cash for Clunkers vouchers in high-clunker areas went up more than sales in the "control group" low-clunker areas, then they conclude these were due to the consumer incentive. Similarly, if after the program window sales in high-clunker areas fell below those in low-clunker areas, then they conclude these represent sales that had been pulled-back by the policy.

In short, they conclude that while Cash for Clunkers generated an additional 340,000 to 380,000 sales in July and August, the increase was offset entirely by foregone sales after August 24. By June 2010 they observe no net positive effect on sales from CARS.

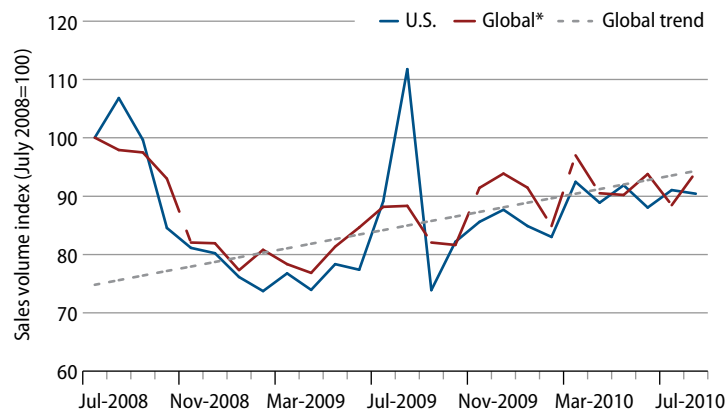
This would be a great experimental design if the difference in the numbers of old cars in high- and low-clunker metropolitan areas were the only relevant difference that might affect consumer demand for vehicles. It's not. For starters, Mian and Sufi's data show that metropolitan areas with high participation in Cash for Clunkers sales have higher average income levels, less credit card utilization, lower housing prices, and are more rural. The validity of Mian and Sufi's statistical approach relies on the population of clunkers being the only differentiating factor between the cities under comparison, but clearly the high- and low-clunker areas have more differences that affect vehicle demand than just their respective numbers of old cars.

Given the low overall participation in the Cash for Clunkers program relative to the large number of potentially eligible vehicles (677,842 out of 69.4 million, or less than 0.1 percent), it should be obvious that factors other than just having a clunker drive consumer demand for vehicles. In fact, Mian and Sufi's analysis shows that purchases under the program were not that sensitive to the number of clunkers. Based on their estimates, a city moving from the 10th percentile of clunker density (5.8 clunkers for every vehicle sold in 2004) to the 90th percentile of clunker density (14.6 clunkers) would only purchase an additional 0.03 to 0.04 vehicles under the Cash for Clunkers program. Obviously, clunker density did not have a big impact on sales. The differences must be explained by other economic factors.

Certainly some vehicle sales were pushed ahead in time by the consumer incentives offered through the Cash for Clunkers vouchers. But tepid sales after the program do not mean that the program sucked the life out of future vehicle sales. The point is made clear when comparing the path of monthly U.S. vehicle sales to vehicle sales around the world in countries that did not implement similar scrappage programs. (see Figure 3)

FIGURE 3
Missing the mark

Global sales trends show that broader macroeconomic conditions help explain the pace of post-Cash for Clunkers sales



Data are seasonally adjusted. *Includes countries without scrappage programs.

Remarkably, in the post-Cash for Clunkers auto marketplace, U.S. vehicle sales return rapidly to a common global growth trend. That the contours of the U.S. sales trend closely match the international trend for vehicle sales shows that broader macroeconomic conditions, not the local concentration of clunker cars, are driving vehicle sales in the medium term.

The broader economic impact of the program

Mian and Sufi attempt to evaluate the broader economic impact of increased vehicle sales due to Cash for Clunkers. In particular, they estimate the effects of the program on local employment growth, housing prices, household credit defaults, and on automotive industry employment. Of these potential outcomes, only auto industry employment could one reasonably expect to be affected by Cash for Clunkers because the program specifically targeted demand for auto industry products. In fact, Mian and Sufi find that the program did increase employment in areas with heavy auto industry concentrations.

Although it is likely that there would be local employment effects from the program, for example at car dealerships, salvage yards, and in related ancillary services, these employment effects relative to the labor market for an entire metropolitan area are just too small to be detectable in the overall rates of local employment growth. We should expect that the extra demand for cars and light trucks due to the program affects employment in areas where automotive production is located. Although Mian and Sufi bury their result at the end of their paper, they do in fact find positive effects on employment growth after the Cash for Clunkers program began in auto industry-intensive locations. For every percentage point increase in the share of employment in the auto sector, post-program employment growth rates increased by 0.6 percentage points. That's a big effect on employment.

It is curious that Mian and Sufi try to link the program to broader economic conditions in the housing market and household debts. These two issues are indeed important concerns that affect the well-being of people and remain central to the ongoing problems faced by families in our economy. But there is just no direct causal linkage between participation in Cash for Clunkers and these broader economic trends. The financial crisis and the Great Recession were caused by the largest housing and credit bubbles in our history. Economists estimate that these crises destroyed more than \$10 trillion in wealth. One cannot reasonably ask a \$3 billion program such as Cash for Clunkers to fix those problems. But the conservative pundits sure will try.

Cash for Clunkers punched above its weight

In fact, in addition to the employment effects in the auto sector and the benefits to vehicle consumers, there are a number of other less tangible benefits from the Cash for Clunkers program that conservative critics would rather not talk about.

Although not primarily an environmental program, the environmental benefits cannot be easily dismissed. The program targeted those vehicles that were the most polluting and the most in need of being retired from our roads. Even at the low-end estimates, the societal benefits of reducing carbon dioxide emissions and other pollutants from these vehicles reach \$330 million.⁷

As a result, trade-ins under Cash for Clunkers bumped up the average fuel economy of the replacement fleet by 8.1 to 9.2 miles per gallon. The Associated Press estimates that, because of vehicles replaced through the program, Americans will consume some 72 million fewer gallons of gas each year.⁸ The National Highway Transportation Safety Administration provides a more modest estimate of 32.9 million fewer gallons a year, with 823.7 million fewer gallons over 25 years due to the program. That adds up to big gasoline savings for those who participated in Cash for Clunkers.

Admittedly, the program incentivized destroying viable vehicles, requiring the use of more resources and energy in producing new replacements. We should consider this a fixed cost in transitioning our energy-consuming infrastructure toward a less polluting and less oil-dependent position. Creating demand for higher fuel-efficiency cars and the advanced materials, parts, and production technologies these vehicles require will help boost the productivity and competitiveness of these industries, leading to lower prices and greater dissemination of these technologies. And that's something we can all use.

Cash for Clunkers: It's a win-win-win-win.

Endnotes

- 1 Atif Mian and Amir Sufi, "The Effects of Fiscal Stimulus: Evidence from the 2009 'Cash for Clunkers' Program." Working Paper 16351 (National Bureau of Economic Research, 2010).
- 2 For example, "Money guzzler: The downside of Cash for Clunkers," *Chicago Tribune*, September 22, 2010; "Stimulus for Clunkers," *Wall Street Journal*, September 21, 2010; George F. Will, "Americans have good reason not to believe in Obamanomics," *The Washington Post*, September 12, 2010.
- 3 Michael Linden and Michael Ettlinger, "Three Good Reasons to Let the High-End Bush Tax Cuts Disappear This Year," *Center for American Progress*, July 29, 2010, available at http://www.americanprogress.org/issues/2010/07/let_cuts_expire.html.
- 4 Thomas Klier, "Clunkers for cash sells cars, hikes fuel economy," *Midwest Economy*, July 10, 2009, available at http://midwest.chicagofedblogs.org/archives/2009/07/cash_for_clunke.html.
- 5 George Will and the *Chicago Tribune* cite a larger 10 percent price increase. If we accept this figure as accurate, it would mean a 1 percent change in supply leads to a 104 percent change in price. Even more implausible.
- 6 Council of Economic Advisers, *Economic Analysis of the Car Allowance Rebate System* (Executive Office of the President, September 10, 2009), available at http://www.whitehouse.gov/assets/documents/CEA_Cash_for_Clunkers_Report_FINAL.pdf.
- 7 National Highway Traffic Safety Administration, *Consumer Assistance to Recycle and Save Act Report to Congress* (Department of Transportation, December 2009), available at <http://www.cars.gov/files/official-information/CARS-Report-to-Congress.pdf>.
- 8 Seth Borenstein, "Cash for Clunkers' Effect on Pollution? A Blip," *Associated Press*, August 5, 2009.