

Fuel Economy: A potential WIN⁴

David L. Greene

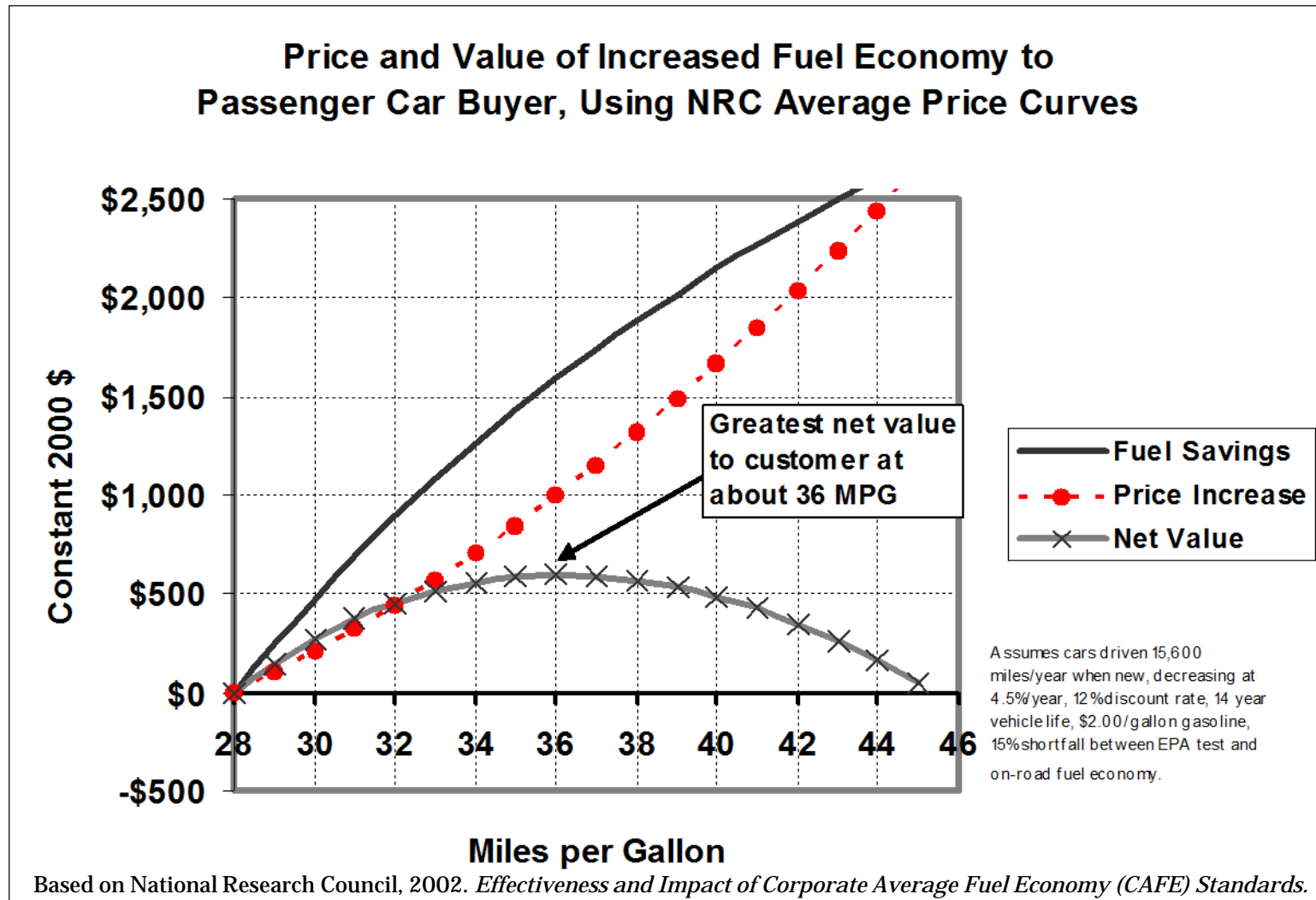
Howard H. Baker, Jr. Center for Public Policy, University of Tennessee
Center for Transportation Analysis, Oak Ridge National Laboratory

Environmental and Energy Study Institute
Washington, DC
February 29, 2012

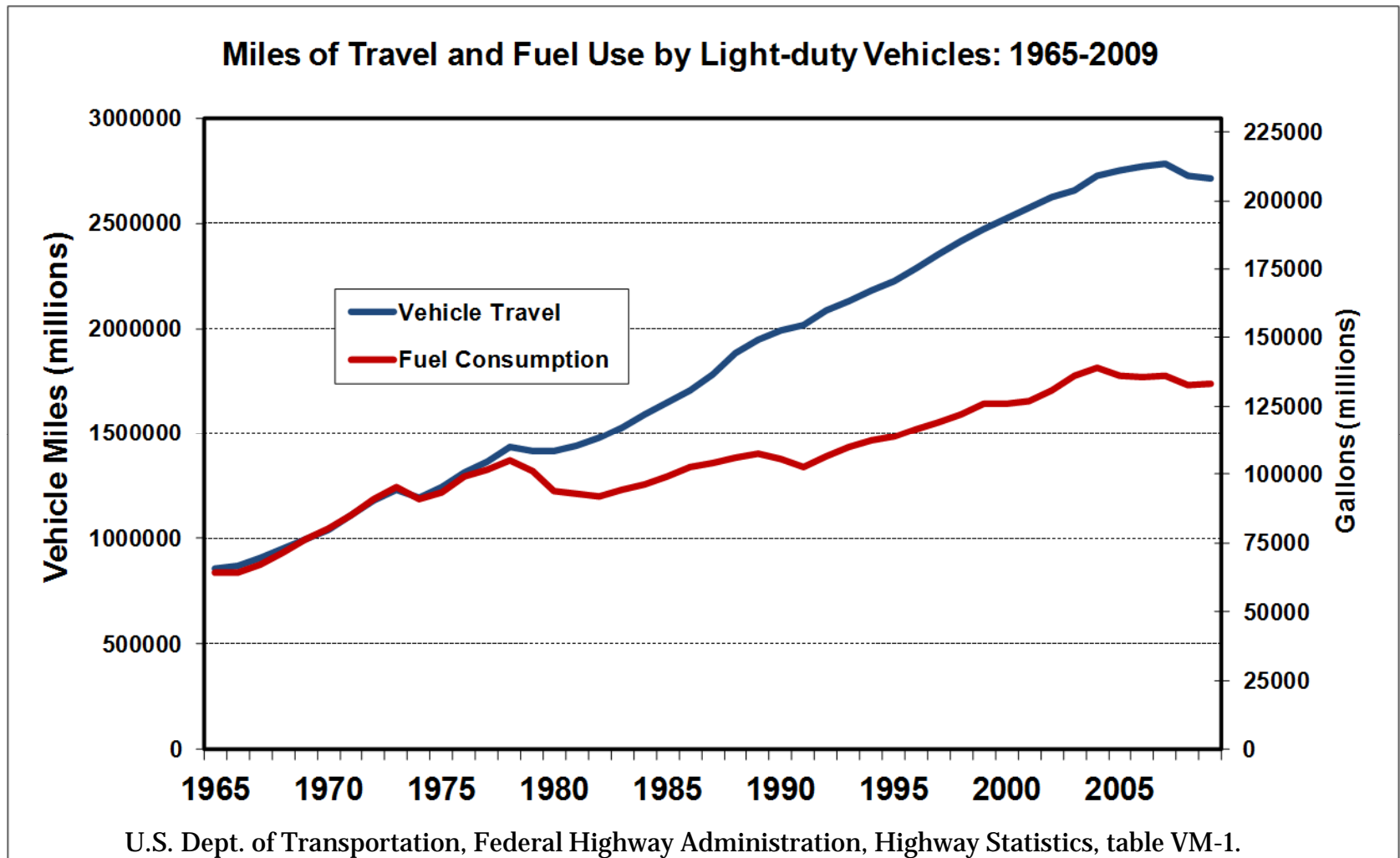
Cost-effective fuel economy improvements are a win-win-win-win.

1. Save consumers money
2. Reduce the costs of oil dependence
3. Reduce GHG emissions
4. Increase demand for U.S. jobs

Cost-effective fuel economy improvements save consumers money. Energy efficiency paradox?

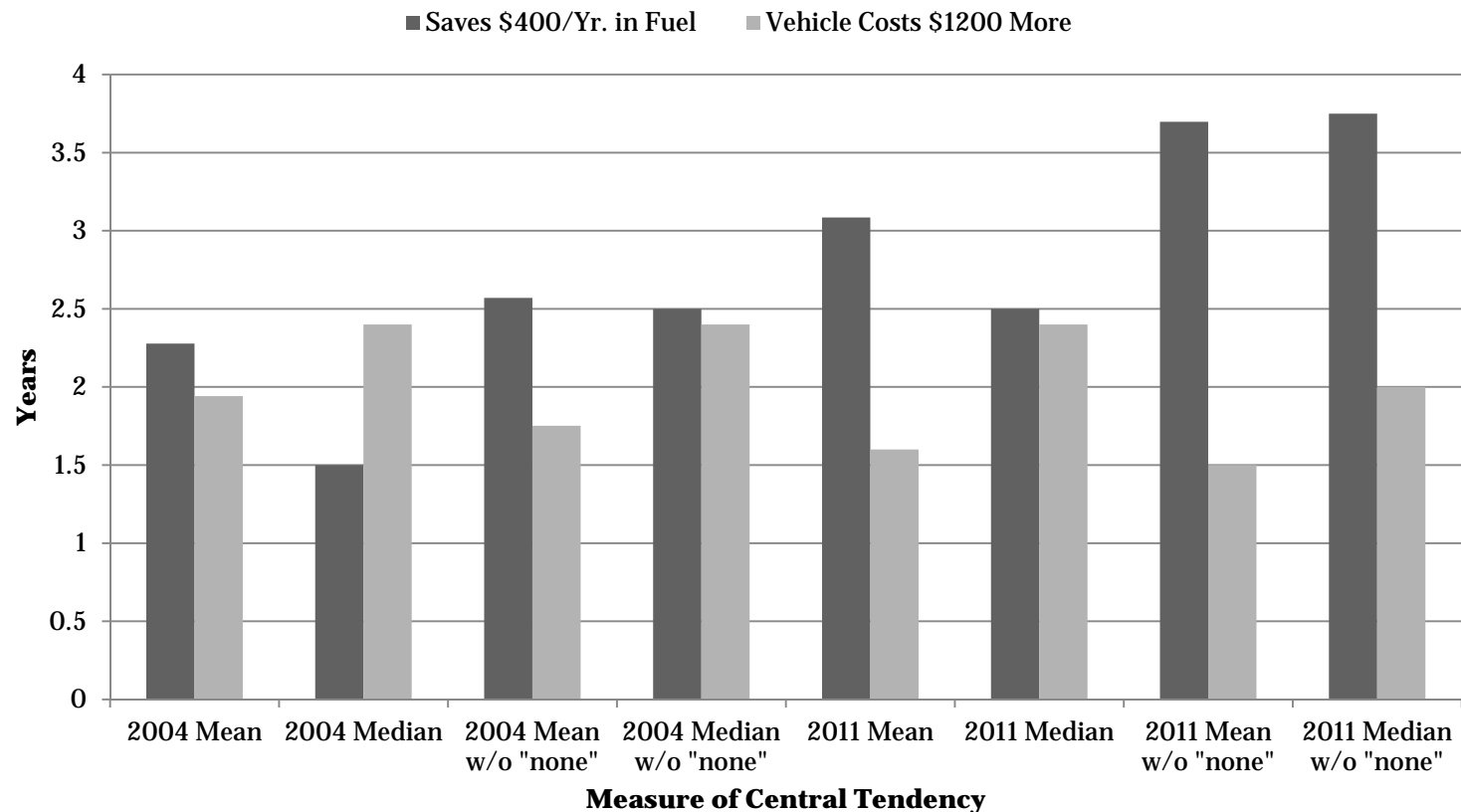


Fuel economy improvements after 1975 decoupled vehicle travel and fuel use, saving motorists about 70 billion gallons of fuel each year, about \$250B at today's prices.



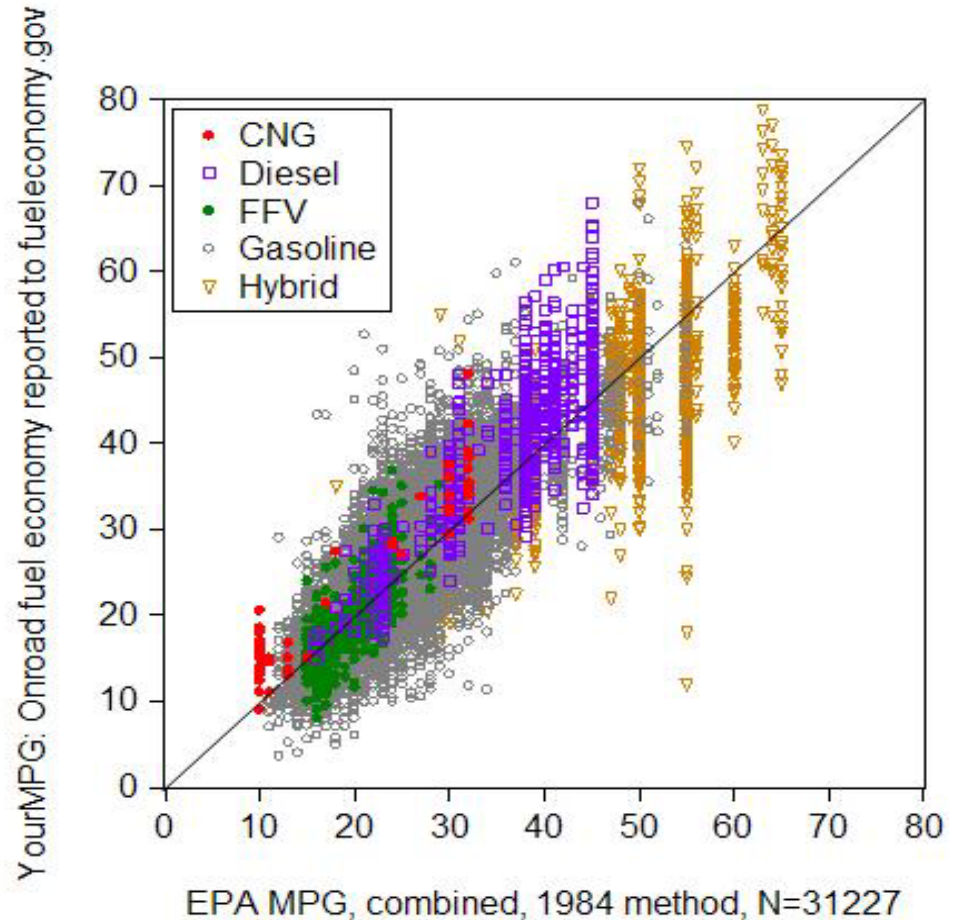
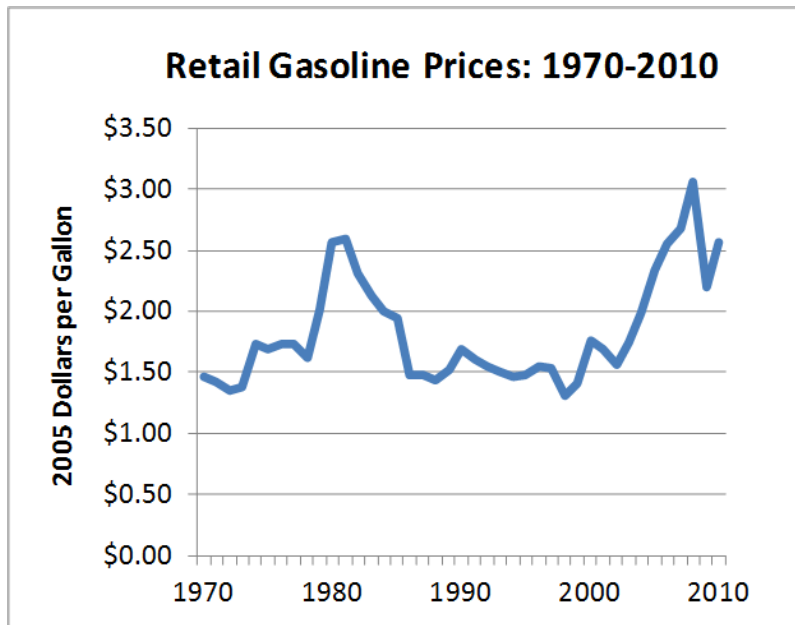
The energy efficiency paradox: It's not magic, it's behavioral economics.

Payback Periods Inferred from Responses to Two Survey Questions About Fuel Savings and Vehicle Costs in 2004 and 2011

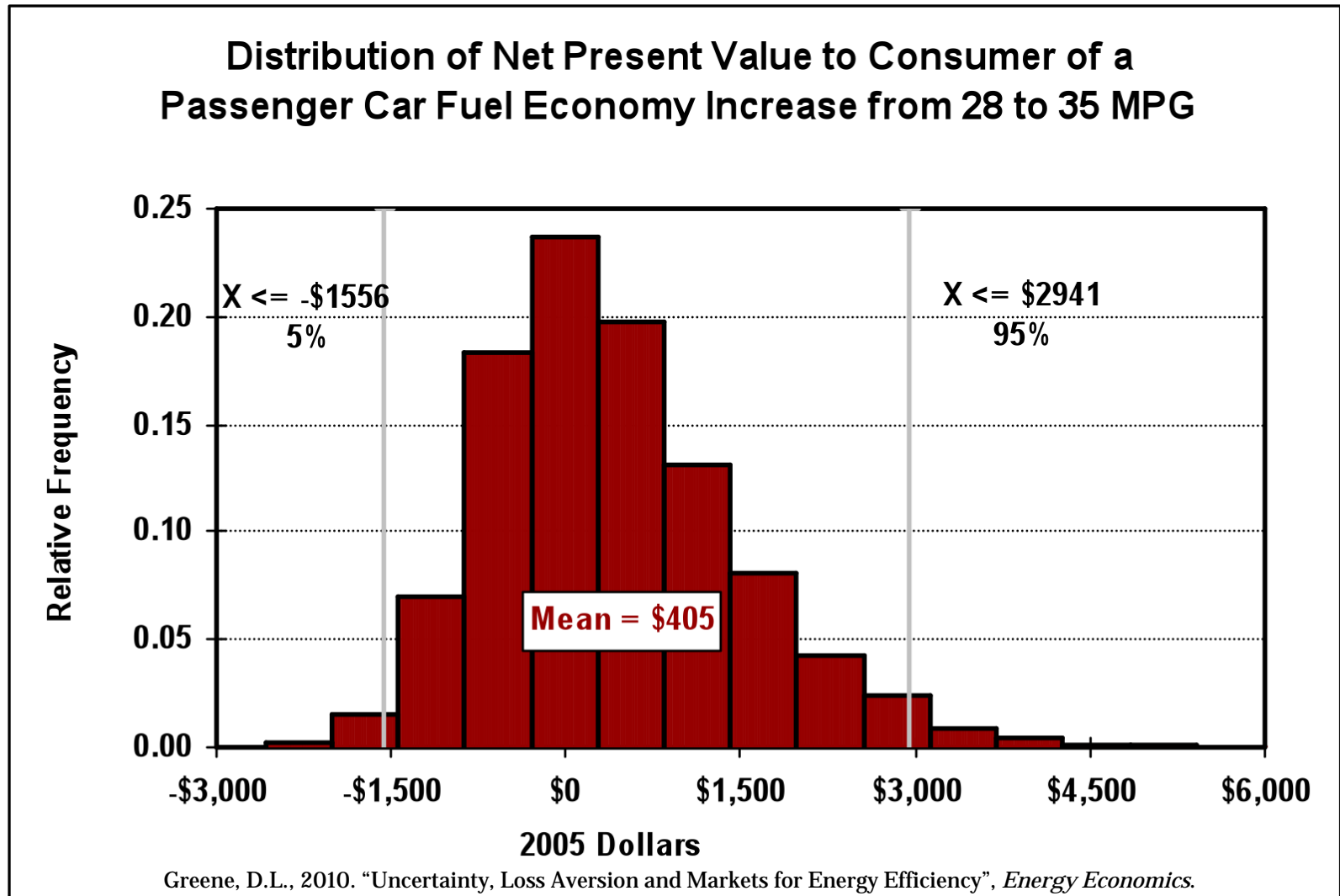


Hiestand, J. and D.L. Greene, 2012. "The Energy Paradox, Cumulative Prospect Theory and the Market for Fuel Economy."

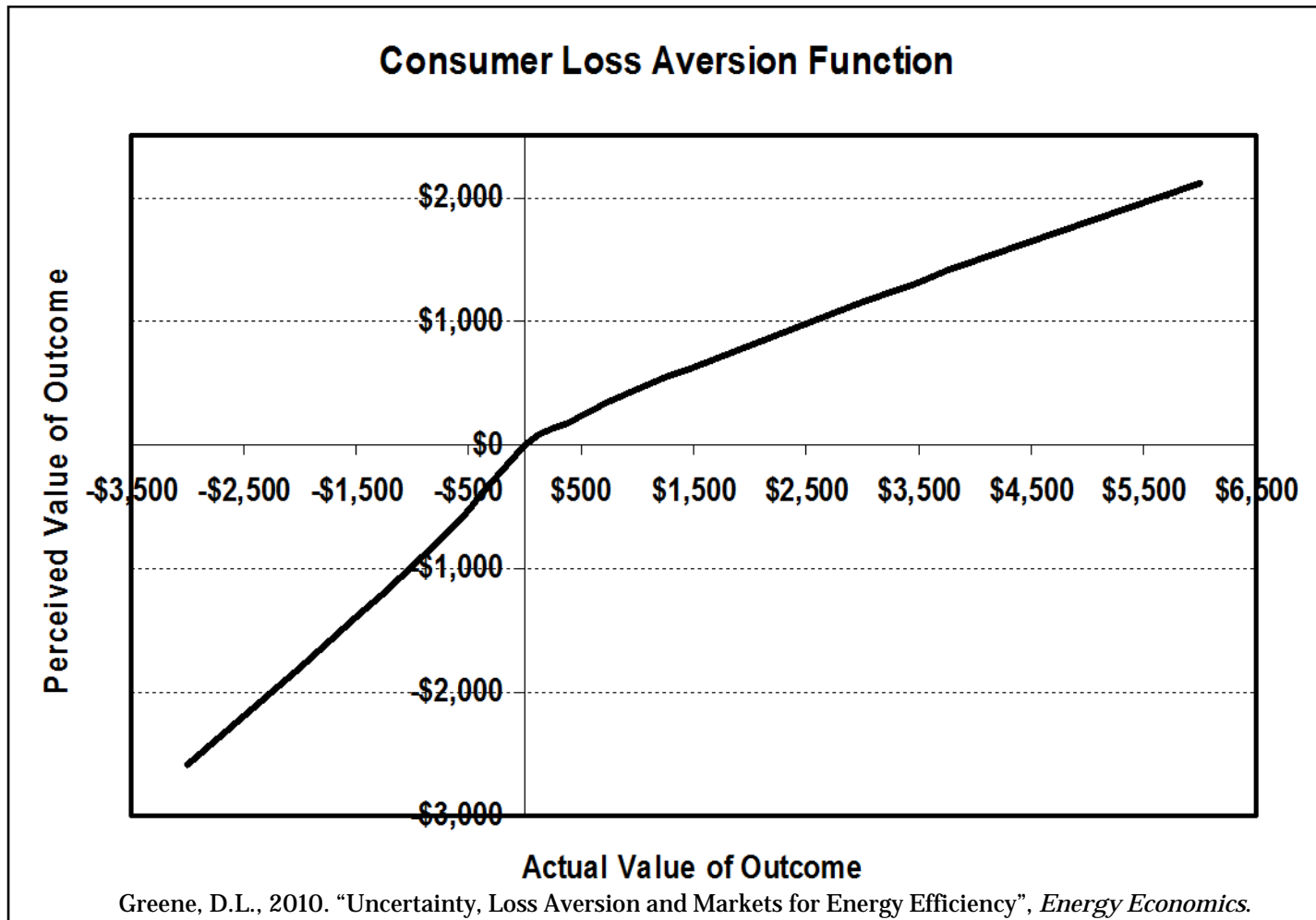
There's a fuel economy number on every car but your mileage WILL vary. And what will the price of gasoline be?



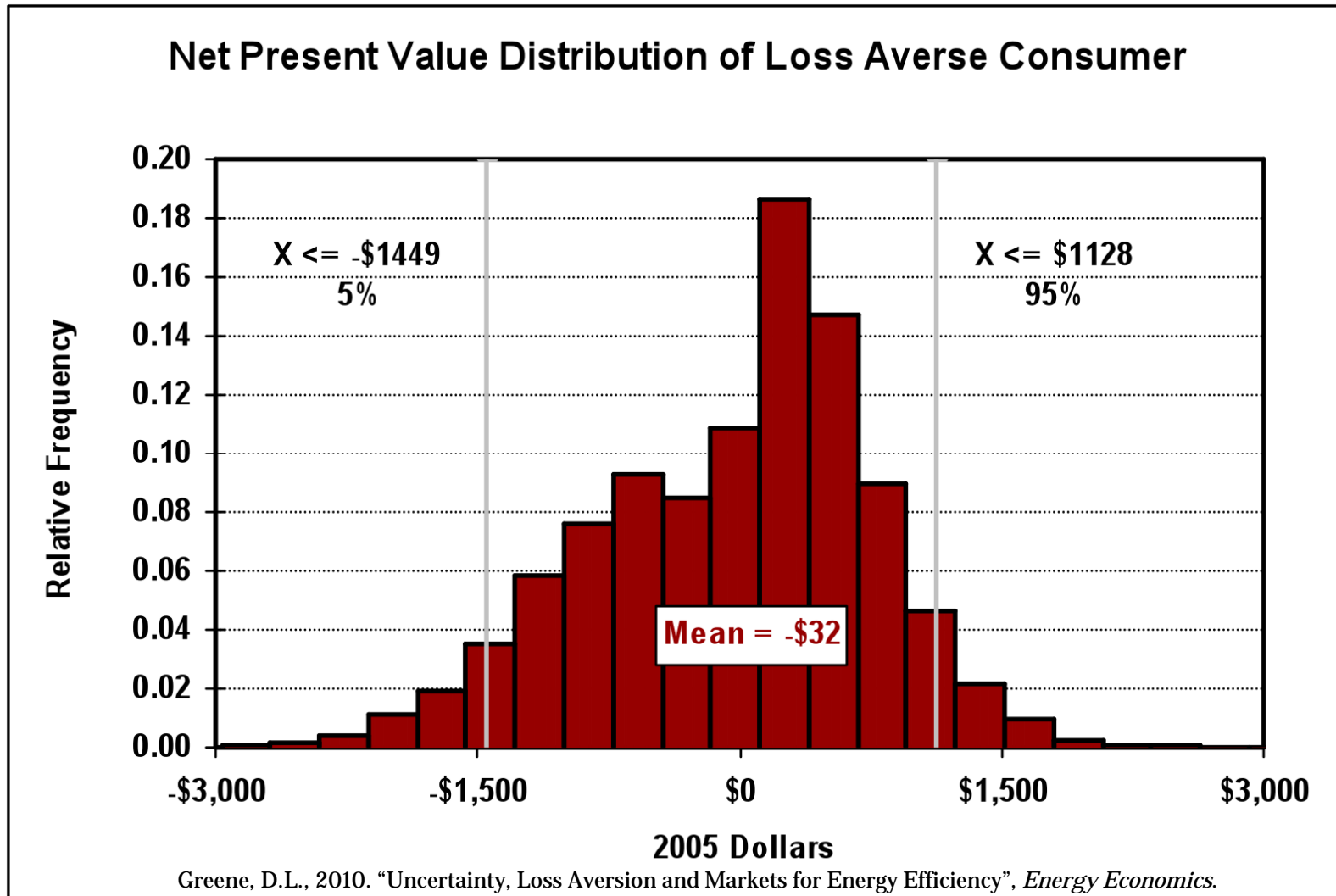
When uncertainties are taken into account, that \$500 in fuel savings turns into a probability distribution with a chance of losing.



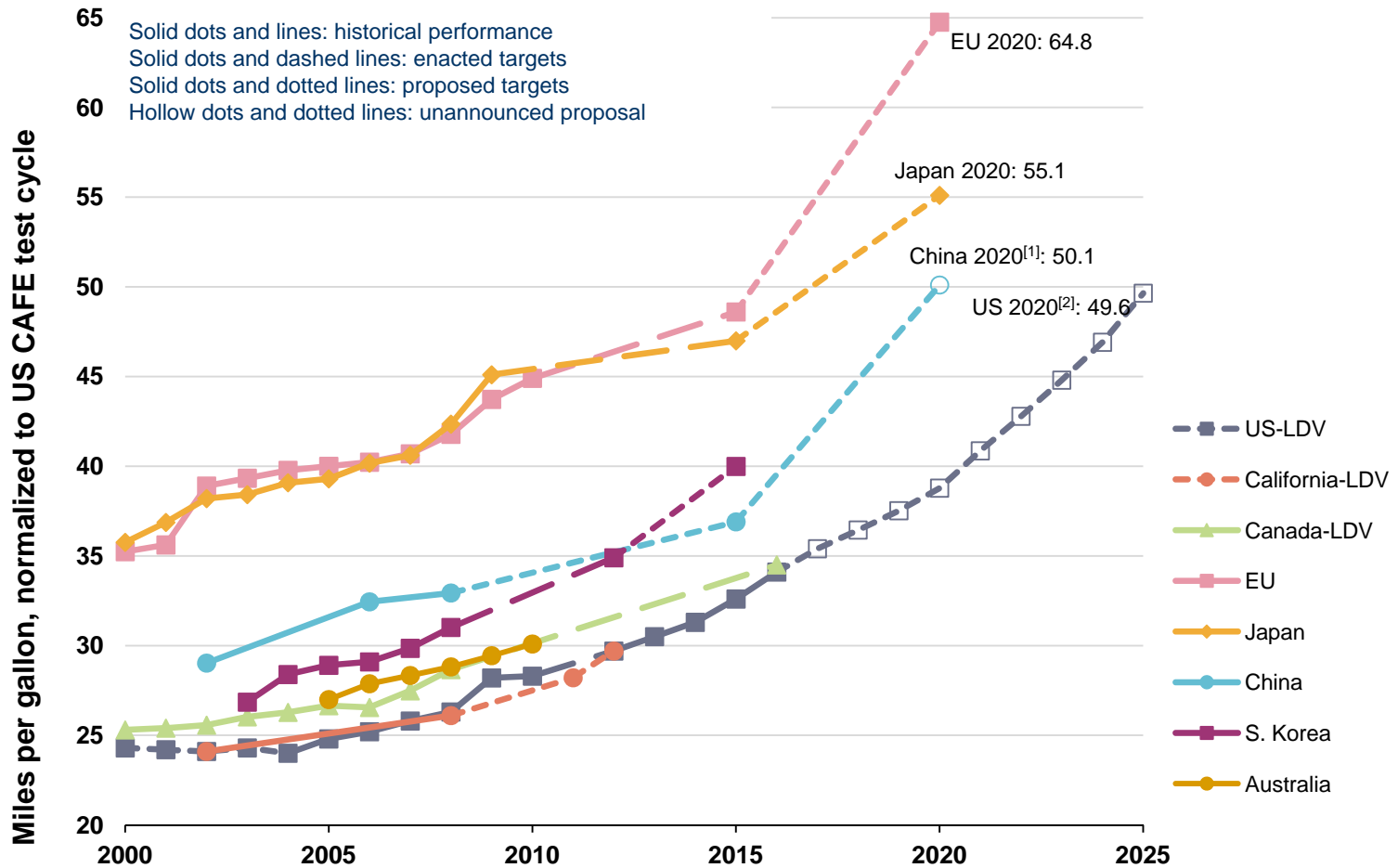
The 2002 Nobel Prize in economics went to behavioral economist Daniel Kahneman who proved that typical consumers are “loss averse” and count potential losses twice as much as potential gains.



Taking loss aversion into account, the expected value of \$405 becomes -\$32.

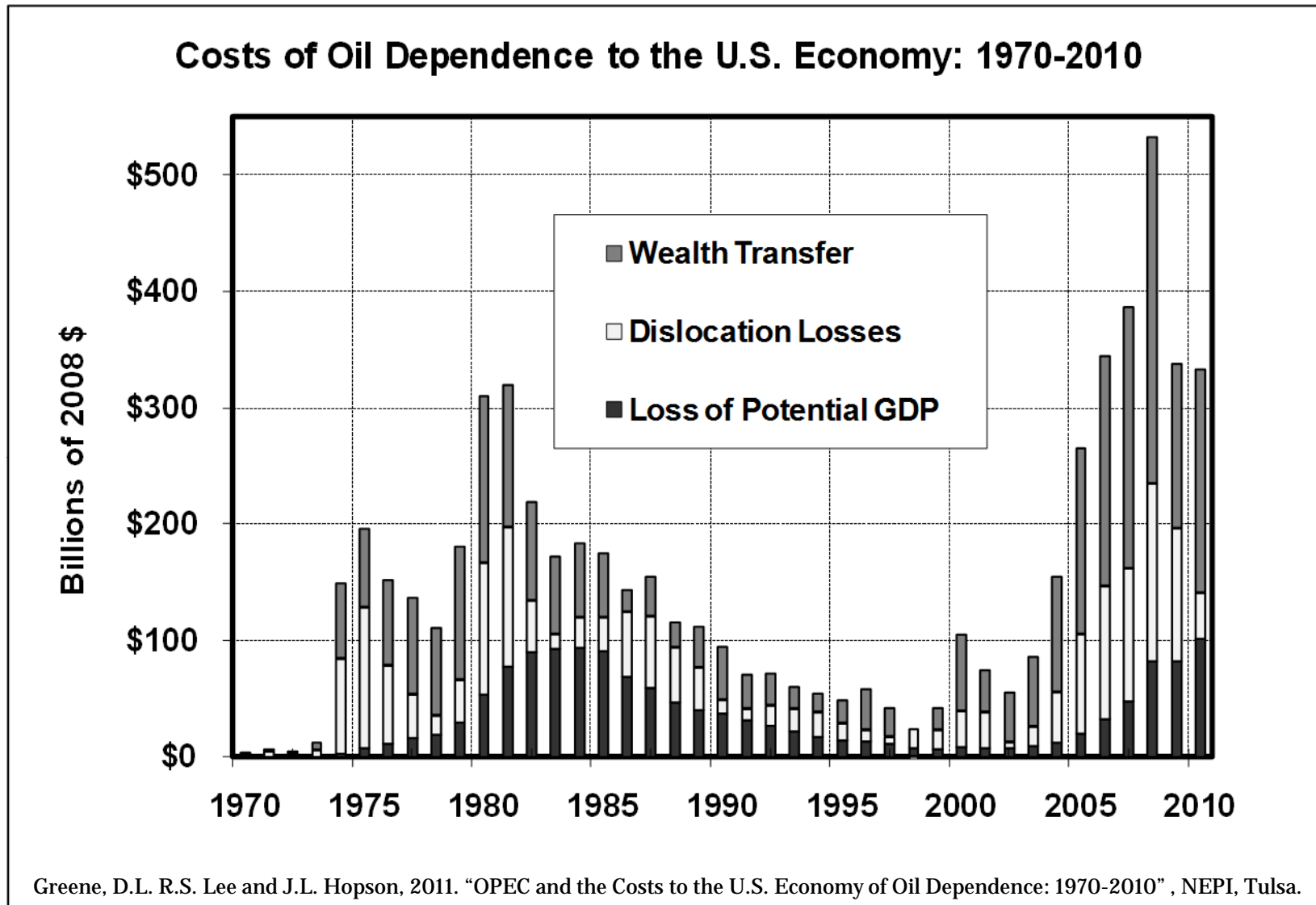


Why does every major automobile manufacturing economy in the world have fuel economy or GHG emissions standards? Behavioral economics.

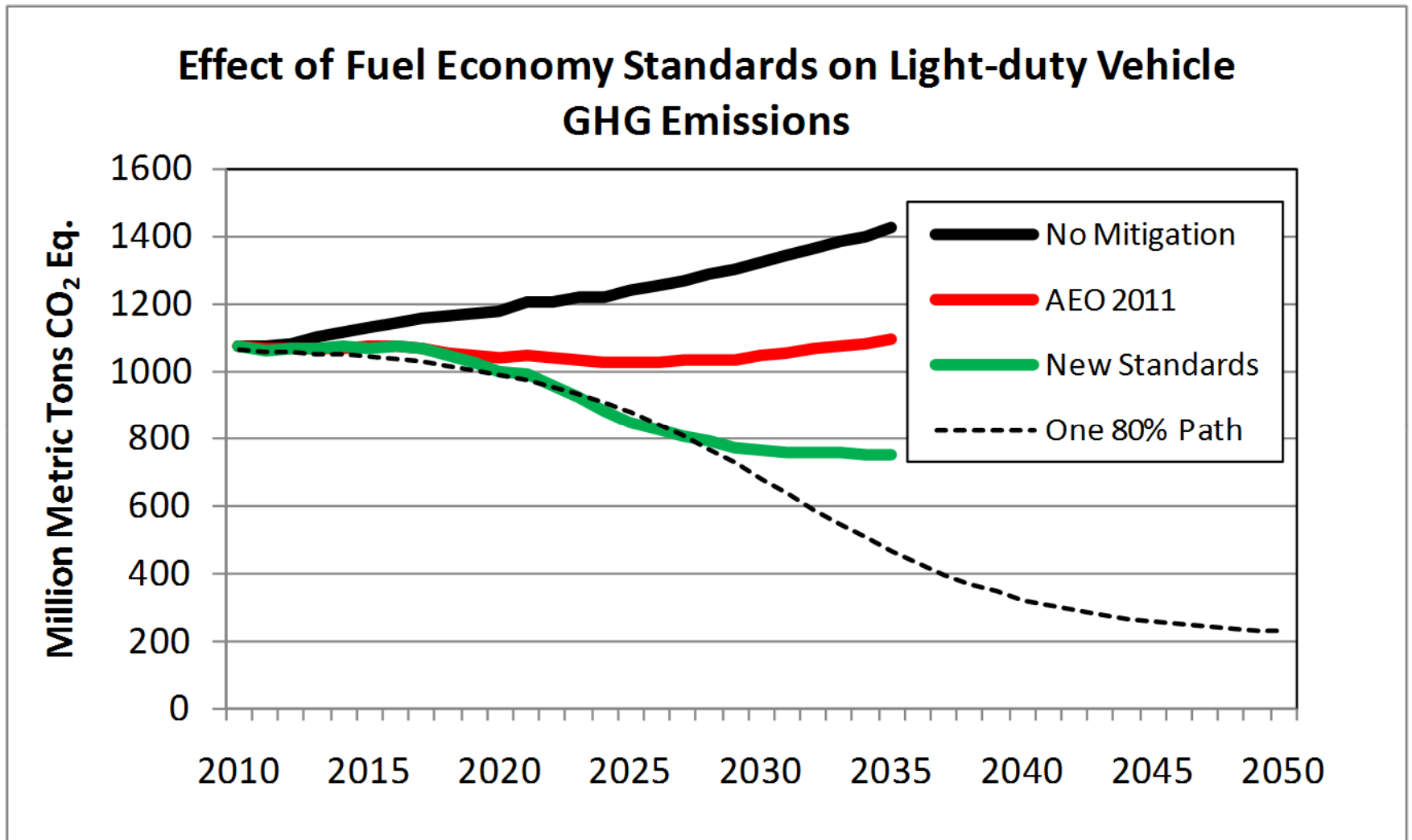


[1] China's target reflects gasoline fleet scenario. If including other fuel types, the target will be higher.
 [2] US and Canada light-duty vehicles include light-commercial vehicles.

Oil dependence cost our economy more than \$500B in 2008.



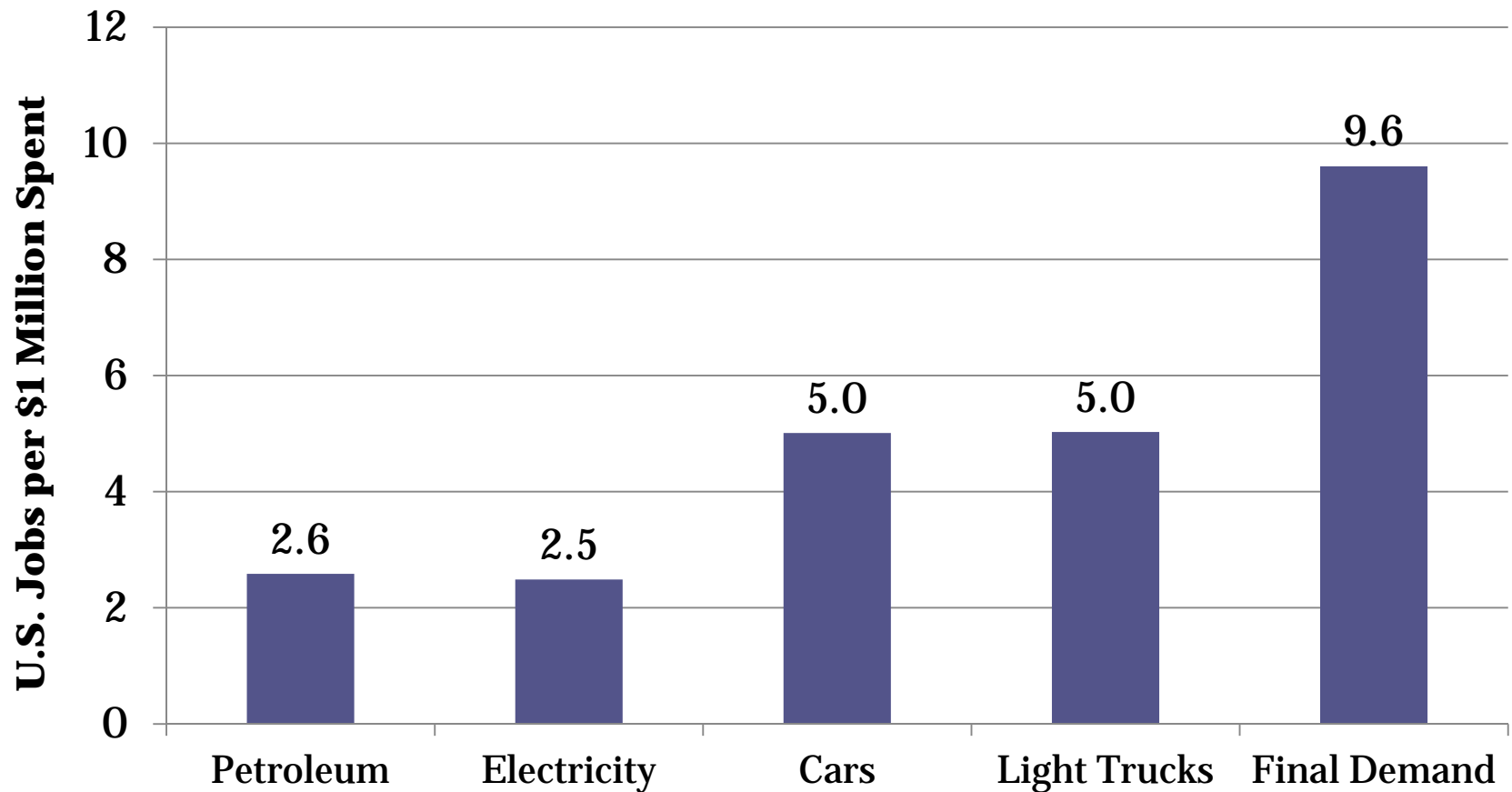
The proposed 2025 fuel economy/ghg emissions standards would put light-duty vehicles on a plausible path to an 80% reduction in GHG emissions by 2050, until about 2025-2030.



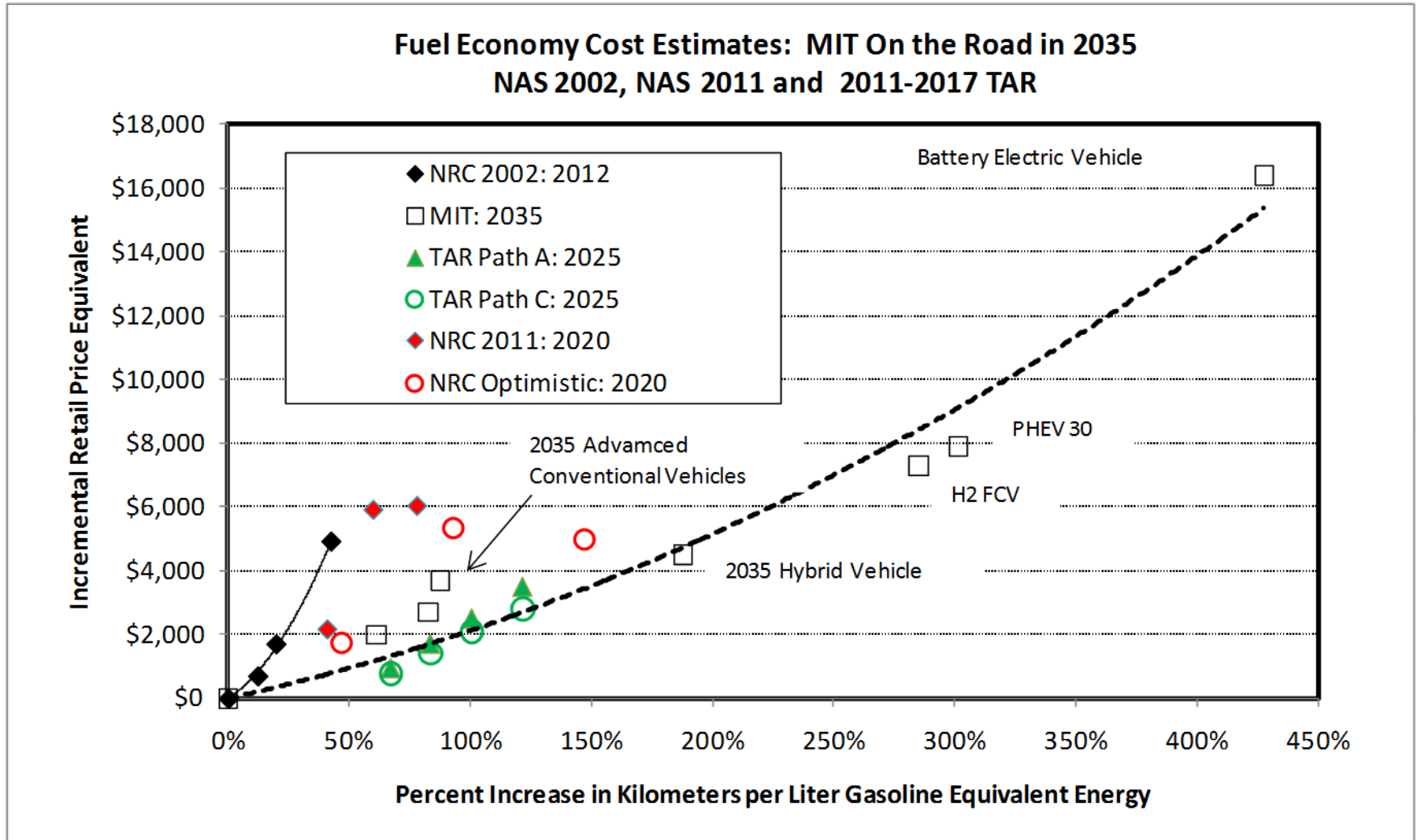
Cost effective fuel economy improvements help the economy grow and create jobs.

- **The ability to produce the same amount of vehicle travel with less energy increases our economy's productivity.**
- **Shifting dollars from petroleum to automobiles increases the demand for labor.**
- **Spending dollars that would have been spent on gasoline on consumer products instead increases the demand for labor even more.**
- **Impacts differ in times of full employment versus high unemployment but are still beneficial.**

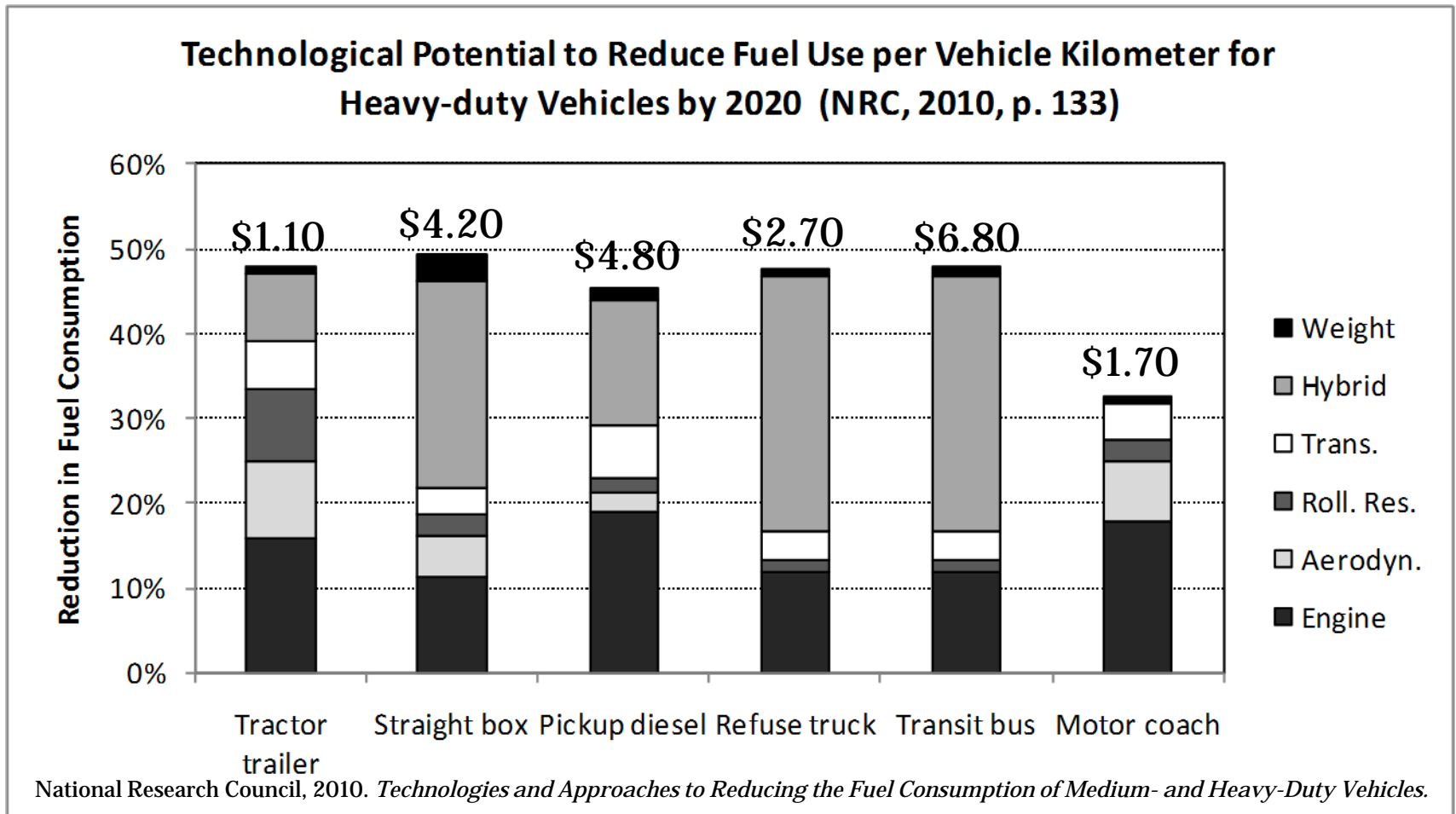
A dollar spent on a motor vehicle generates twice as many U.S. jobs as a dollar spent on gasoline. But a dollar saved on gasoline and spent on consumer goods creates almost four times as many.



How much can fuel economy be increased cost-effectively in the future?



The heavy-duty vehicle fuel economy/emissions standards call for 9-23% reductions in fuel consumption depending on the vehicle type. According to a recent NRC study much more will be possible.



Cost-effective fuel economy improvements are a win-win-win-win.

1. Save consumers money
2. Reduce the costs of oil dependence
3. Reduce GHG emissions
4. Increase demand for U.S. jobs



Thank you.