Gallons per mile would help car shoppers make better decisions

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Posting a vehicle's fuel efficiency in "gallons per mile" rather than "miles per gallon" would help consumers make better decisions about car purchases and environmental impact, researchers from Duke University's Fuqua School of Business report in the June 20 issue of *Science* magazine.

Inspired by debates they had while carpooling in a hybrid car, management professors Richard Larrick and Jack Soll ran a series of experiments showing that the current standard, miles per gallon or mpg, leads consumers to believe that fuel consumption is reduced at an even rate as efficiency improves. People presented with a series of car choices in which fuel efficiency was defined in miles per gallon were not able to easily identify the choice that would result in the greatest gains in fuel efficiency.

For example, most people ranked an improvement from 34 to 50 mpg as saving more gas over 10,000 miles than an improvement from 18 to 28 mpg, even though the latter saves twice as much gas. (Going from 34 to 50 mpg saves 94 gallons; but from 18 to 28 mpg saves 198 gallons).

These mistaken impressions were corrected, however, when participants were presented with fuel efficiency expressed in gallons used per 100 miles rather than mpg. Viewed this way, 18 mpg becomes 5.5 gallons per 100 miles, and 28 mpg is 3.6 gallons per 100 miles -- an $8 difference today.

"The reality that few people appreciate is that improving fuel efficiency from 10 to 20 mpg is actually a more significant savings than improving from 25 to 50 mpg for the same distance of driving," Larrick said. (See table below.)

Soll noted that replacing a large vehicle that gets 10 mpg with one that gets 20 mpg reduces gas use per 100 miles from 10 gallons to five, a 5-gallon savings. Replacing a small vehicle that gets 25 mpg with one that gets 50 mpg reduces gas use per 100 miles from 4 gallons to 2, a saving of only 2 gallons.

"Miles per gallon is misleading and can play tricks on our intuitions," Soll said.

"For families and other owners of more than one type of vehicle, the greatest fuel savings often comes from improving the efficiency of the less efficient car," Soll added. "When fuel efficiency is expressed as gallons per 100 miles, it becomes clear which combination of cars will save a family the most gas.

"We believe that everyone should try to be as fuel efficient as possible. For some people, that may mean driving the most efficient car available, such as a small hybrid car, but for others it may mean finding the most efficient option possible within their chosen class of car," Soll said. "There are significant savings to be had by improving efficiency by even two or three miles per gallon on inefficient cars, but because we communicate in miles per gallon, that savings is not immediately evident to consumers."

The authors recommend that consumer publications and car manufacturers list efficiency in terms of gallons per 10,000 miles driven, which is already the standard in many other countries. "This measure makes it easy to see how much gas one might use in a given year of

driving and how much gas, and money, can be saved by opting for a car with greater efficiency," Larrick said.

Source: Duke University