

Econ Quiz – 02/25/10

The cost of a 10 cent increase gasoline prices

By Bill Pinkovitz and Colette Hershey

Gasoline prices are rising again. As the global economy recovers, the demand for oil increases. Add the unrest in the Middle East, and prices at the pump are likely to continue moving higher rather than lower.

Every penny increase in gasoline prices costs Wisconsin drivers an estimated additional \$68,000 per day. That might not sound like much, but that equates to almost \$25 million per year – and that's just for each penny increase! A fifty cent increase costs Wisconsin drivers \$1.2 billion. That's \$1.2 billion that won't be spent on other goods and services, invested, or added to savings accounts.

Question: How much will each 10¢ per gallon increase in gas prices cost the 31,000 Marinette County licensed drivers?

Answer: Every 10¢ per gallon increase in gasoline prices will cost Marinette County licensed drivers an estimated \$5,360 per day, or \$1,956,400 per year.

HOW TO: Similar estimates for other Wisconsin counties

You will need three pieces of data to calculate the cost of a 10¢ per gallon increase in the price of gasoline:

1. average miles driven per licensed driver
2. average miles per gallon per vehicle
3. number of licensed drivers in the county

The data you will need is available from the following three sources:

1. Federal Highway Administration, [*Our Nation's Highways: 2010*](#)
2. Bureau of Transportation Statistics, [*National Transportation Statistics*](#)
3. Wisconsin Department of Transportation, [*2009 Facts and Figures*](#)

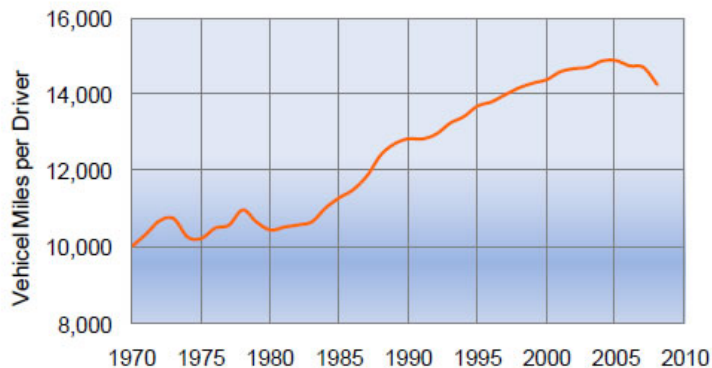
The cost of a 10 cent increase gasoline prices

Step 1: We begin with the average vehicle miles traveled per licensed driver. For this estimate, we will use data from the Federal Highway Administration. Simply click on the following link:

http://www.fhwa.dot.gov/policyinformation/pubs/pl10023/fig4_4.cfm

Our Nation's Highways: 2010

Figure 4-4. Annual Vehicle Miles Traveled per Licensed Driver: 1970-2008



Data available in Excel format

This webpage includes a page with the graph showing the trend in average miles traveled since the 1970s. To find the numbers you need, click on **Table in Excel Format**. This will open an Excel spreadsheet with data for the past forty years.

In 2008, U.S. licensed drivers averaged 14,734 miles driven.

32	1999	14315.61
33	2000	14410.10
34	2001	14615.60
35	2002	14696.72
36	2003	14734.74
37	2004	14895.20
38	2005	14907.94
39	2006	14768.76
40	2007	14726.33
41	2008	14273.72
42		

The cost of a 10 cent increase gasoline prices

Step 2. Average fuel efficiency of passenger cars can be obtained from the Bureau of Transportation Statistics *National Transportation Statistics* (Table 4.23). The latest statistic (2008) is 22.6 miles per gallon.

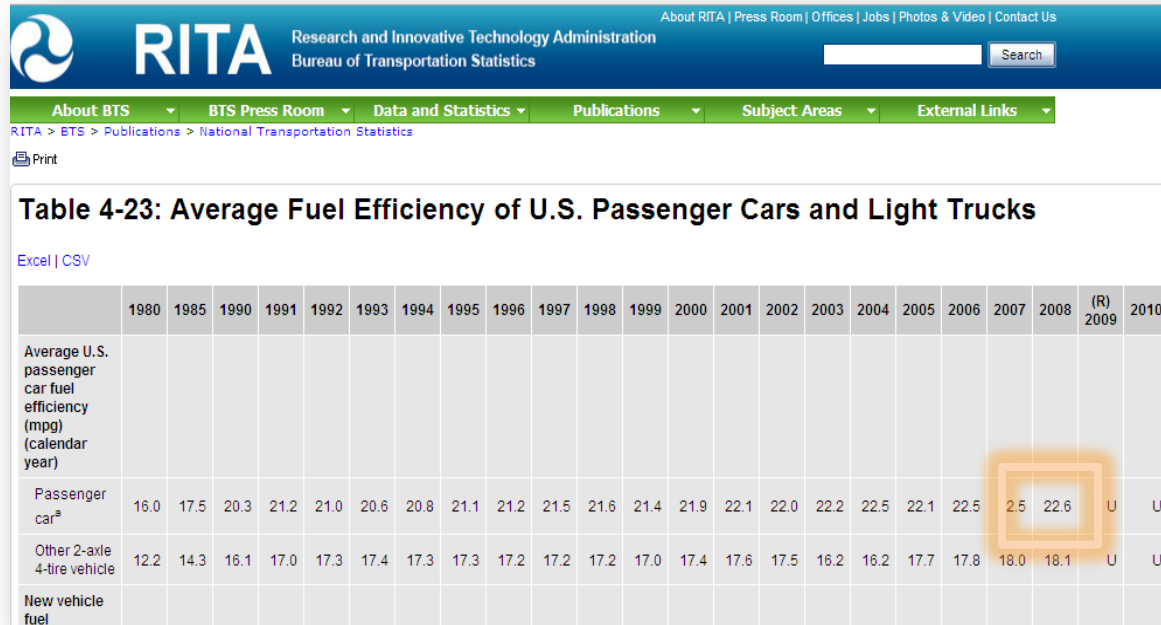


Table 4-23: Average Fuel Efficiency of U.S. Passenger Cars and Light Trucks

Excel | CSV

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	(R) 2009	2010
Average U.S. passenger car fuel efficiency (mpg) (calendar year)																							
Passenger car ^a	16.0	17.5	20.3	21.2	21.0	20.6	20.8	21.1	21.2	21.5	21.6	21.4	21.9	22.1	22.0	22.2	22.5	22.1	22.5	22.5	22.6	U	U
Other 2-axle 4-tire vehicle	12.2	14.3	16.1	17.0	17.3	17.4	17.3	17.3	17.2	17.2	17.2	17.0	17.4	17.6	17.5	16.2	16.2	17.7	17.8	18.0	18.1	U	U
New vehicle fuel																							

Passenger vehicles account for less than half of all vehicles in Wisconsin. Using 22.6 MPG understates the actual cost. However, it is used in this case as it provides a conservative, yet useful estimate indicator of the cost.

http://www.bts.gov/publications/national_transportation_statistics/html/table_04_23.html

How does a 10 cent increase gasoline affect drivers?

WISCONSIN DEPARTMENT OF TRANSPORTATION
Drivers & Vehicles

Drivers & Vehicles | Safety | Travel | Plans & Projects | State Patrol | Doing Business | Programs

Drivers & Vehicles links
 Change of address
 Facts and figures
 Name change
 Obtaining vehicle or driver record information
 Opt-out
 Wisconsin motor vehicle laws

Drivers & Vehicles > Drivers and Vehicles links

2009 facts and figures

Accidents | Dealers | Drivers | Miscellaneous | Motor Carriers | Vehicles

All files are in Adobe PDF format and are less than 250 K

Accidents
[Accident reporting](#)
[Safety responsibility administrative hearings](#)
[Safety responsibility law](#)
[Accident statistics](#)

Dealers
[Buyer identification \(BID\) card](#)
[Consumer complaint investigation](#)
[Dealer inspection](#)
[Dealer license](#)
[Motor vehicle salesperson license](#)
[Buyer's license](#)

Drivers
[Abstracts \(driver records\)](#)
[Citations and convictions](#)
[Driver license](#)

License types:
[Commercial driver license \(CDL\)](#)
[Commercial drivers licensed by county](#)
[Commercial driver license statistics - Er](#)
[Commercial driver license statistics - Er](#)
[Graduated driver license \(GDL\)](#)
[Instruction permit](#)
[Instruction permit statistics](#)
[Motorcycle license](#)
[Motorcycle license statistics](#)
[Occupational license](#)
[School bus endorsements](#)

Driver license/ID cards issued
[Drivers licensed by county](#)
[Drivers licensed - probationary](#)
[Drivers licensed - probationary & regular](#)

[Employer notification program](#)
[Medical evaluation for drivers](#)
[Organ donor](#)
[Photo identification card \(ID\)](#)
 Points

Step 3. The number of licensed drivers in your county. This data is available on the WiDOT website at: <http://dot.wisconsin.gov/drivers/facts.htm>

Scroll down to *Drivers Licensed by county*. This will open a PDF with all the valid, withdrawn, and expired licenses per county. In Marinette, there were 30,960 licensed drivers in 2009.

LINCOLN	21,475	512	21,987	2,739
MANITOWOC	59,318	1,300	60,618	7,231
MARATHON	94,236	2,224	96,460	11,449
MARINETTE	30,960	739	31,699	5,731
MARQUETTE	11,338	307	11,645	1,564
MENOMINEE	2,057	207	2,264	559
MILWAUKEE	530,221	26,462	556,683	132,252
MONROE	29,345	800	30,145	4,346
OCONTO	27,421	560	27,981	2,855

44 Drivers Licensed by County Facts & Figures 2009

County	Valid (1)	Withdrawn (2)	Total (1) and (2)	Expired (3)
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How does a 10 cent increase gasoline affect drivers?

Now, you have the three pieces of data that you need to develop your own estimate.

- **14,274** miles per year per licensed driver
 - **30,960** licensed drivers in Marinette County
 - **22.6** mpg
-

Step 1: 14,274 miles per year per driver \div 365 days per year = 39.1 miles per day per driver

Step 2: 39.1 miles per day per driver \div 22.6 mpg = 1.73 gallons per day per driver

Step 3: 1.73 gallons per day \times \$.01 = \$.017 per day per driver for every penny increase in price

Step 4: \$.017 per day per driver \times 30,690 licensed drivers in Marinette County = \$526.26 per day **per penny increase**

Step 5: \$526.26 \times 365 days per year = \$192,085 per year per penny increase

Step 6: \$192,085 per year per penny increase \times 10 = \$1,920,850 per year per ten cent increase per gallon