

About the Author



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Mr. Boison is a senior consultant in Pinnacle Actuarial Resources, Inc.'s New York office. He has more than 35 years experience in pricing for property/casualty insurance. A graduate of Fordham University, he was previously a senior vice president at Insurance Services Office, Inc., having been in charge of the International Services and Insurance Operations Divisions. He has served in numerous leadership roles within the Casualty Actuarial Society (CAS) and Actuarial Standards Board (ASB), serving as Vice President on the CAS Executive Council from 1999-2002.

Key points

- Historical gas prices
- Lessons learned from 1979-80
- Consumer reaction in 2005



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Will Post-Katrina Gas Shortages Impact Auto Claim Frequencies?

By LeRoy Boison



The ravages of Hurricane Katrina continue to bring forth many lessons for the insurance industry. One of those lessons is that escalating gas prices can change consumer behavior, which directly impacts automobile coverage. When gasoline gets too expensive, consumers respond by driving less. This results in lower exposure and a reduction in automobile insurance claims.

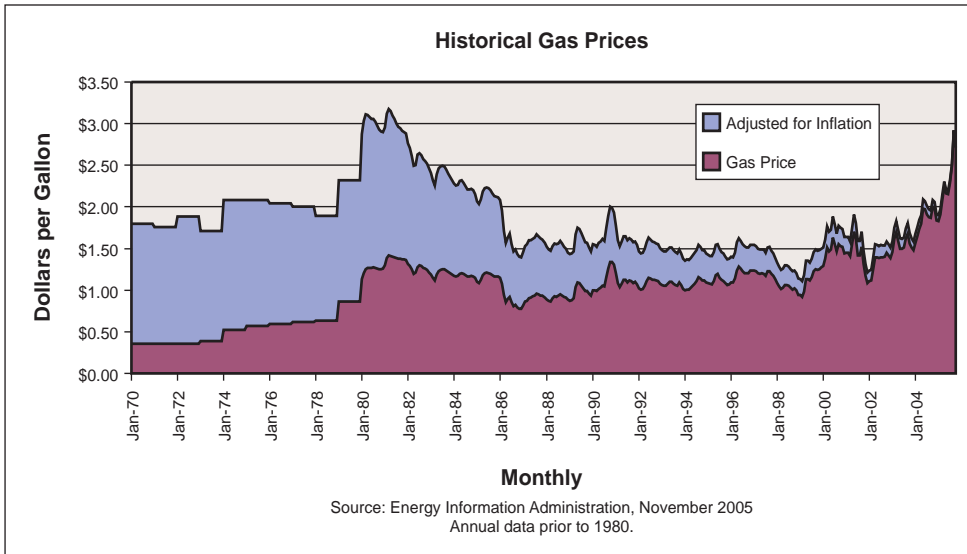
In fact, the recent temporary surge in gas prices serves as a reminder of the gas crisis of the early 1980s. The fallout from that crisis contributed to a long-term reduction in claims frequency, which changed how the automobile insurance industry made underwriting and pricing decisions. By understanding the valuable lessons stemming from the early 1980s energy crisis, insurers can prepare for any future gas crisis effects.

Déjà Vu

Gasoline prices had already been steadily on the rise this year before the fury of Hurricane Katrina disrupted production of the largest oil refining area in the United States, causing gasoline prices to surge to historic levels. Retail costs of gasoline rose more than 30% the week after Katrina, with some parts of the country experiencing significantly greater increases. Post-Katrina prices in Washington, D.C., for example, topped off at more than \$3.50 per gallon.

Lessons from the 1979 - 1980 Crisis

The United States experienced its last oil shock in 1979-1980 when turmoil in Iran sent gasoline prices soaring. That crisis did not just contribute to short-term reductions in auto claims frequency; it also contributed to a long-term decline. For several years after the political crisis had passed and gasoline prices declined from their historic highs, claims frequency failed to return to pre-crisis levels.



Several factors led to this long-term drop in frequency. One major consideration, however, is that drivers found other ways to get around and stuck with them. These other options include carpooling, public transportation and consolidating errands, which reduced drivers' exposure to the perils of the road.

During the early 1980s, claim frequencies¹ for insurers dropped precipitously as shortages pushed the price of gasoline higher. The claim frequency for Personal Automobile Property Damage

On September 12, 2005, immediately after Katrina's landfall, the national average cost of regular unleaded was \$2.97--up \$1.13 from a year earlier--and 56 cents from just a month earlier, according to the American Automobile Association's Daily Fuel Gauge Report. On an inflation-adjusted basis, the latest surge in gasoline prices mirrors that of the 1980 Energy Crisis. A gallon of gasoline peaked at slightly more than \$3 per gallon in 1981 in 2005 dollars, according to the *New York Times*.

Gas prices have since re-adjusted to approximately pre-Katrina prices following President Bush's release of a portion of the Strategic Petroleum Reserve and the restoration of refinery activities in the Gulf. However, the Hurricane Katrina experience revealed the vulnerability of the petroleum infrastructure and possible future shortages.

Liability Coverage² dropped more than 18% in the first quarter of 1980 compared with a year earlier. (Exhibit 1) Meanwhile, claim frequency for Collision Coverage dropped in excess of 14% for this period. The decrease

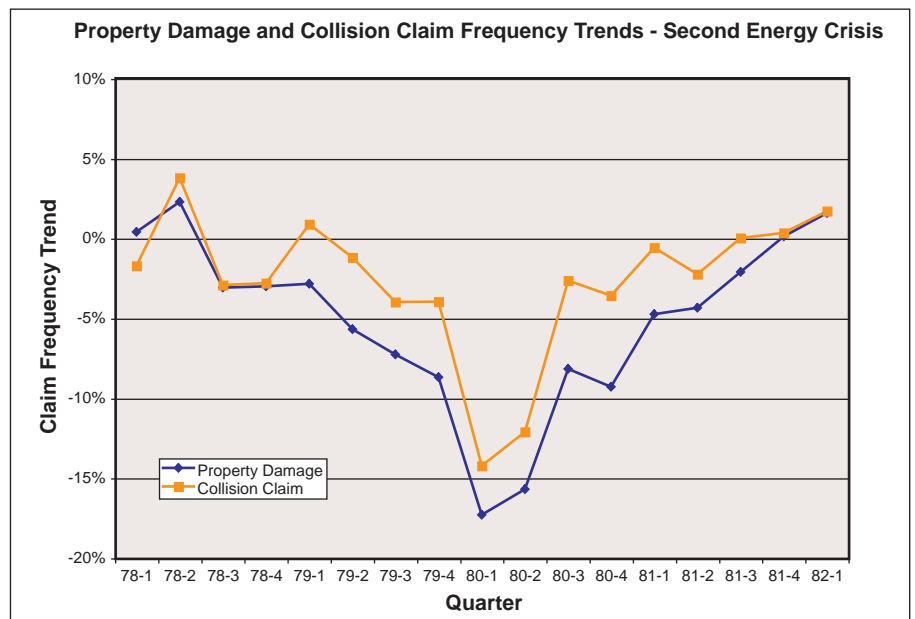
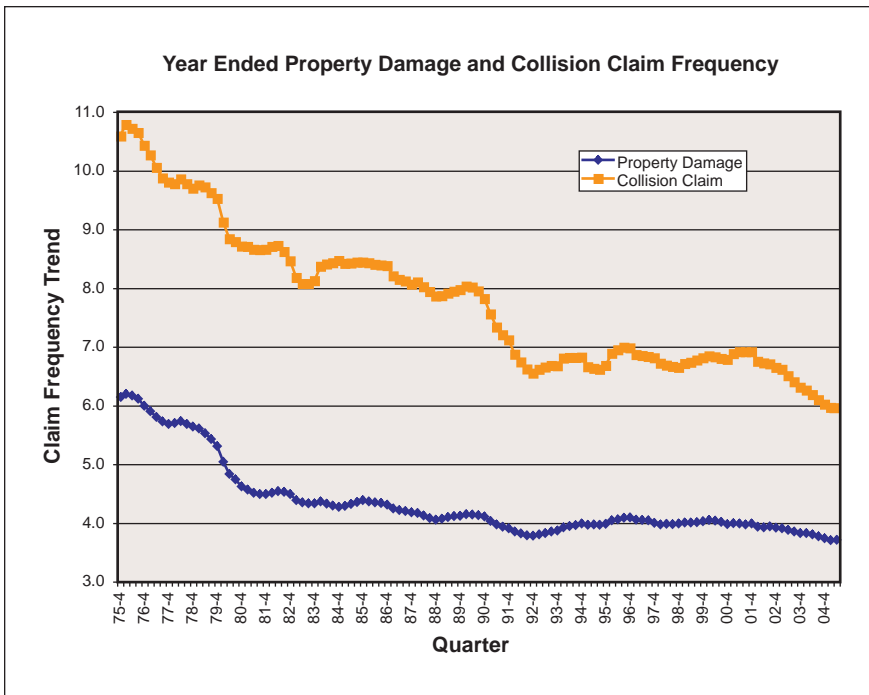


Exhibit 1

¹The data utilized for this study is from Insurance Services Office/National Association of Independent Insurers Fast Track Monitoring System, which ironically was created in 1976 under the auspices of the National Association of Insurance Commissioners (NAIC) to provide a mechanism to quickly monitor changes in automobile experience prompted by the decreases in automobile claim frequencies during the first "energy crisis."

²Data for Property Damage Liability and Collision coverages have been utilized since the losses for these coverages close quickly. Hence, the changes observed for these coverages would be most indicative of the changes associated with an event.



claim frequencies failed to return to their pre-energy crisis levels.

The change can also be observed by comparing the quarterly rates of change over a longer time period compared to the standard deviation for that interval. From the first quarter of 1976 through the second quarter of 2005, the standard deviation of the quarter to quarter annual change in claim frequency for the Property Damage coverage³ has been 3.7%. As can be seen, only the first and second quarter of 1980 had points outside of one standard deviation around the trend line without a corresponding rebound occurring subsequent to the crisis. (Exhibit 3)

was not isolated to this single quarter as the declines in claim frequencies for Property Damage were in excess of 5% in each of the quarters from the second quarter of 1979 through the fourth quarter of 1980.

Moreover, these reductions were not a one-time phenomenon. The actual level of claim frequencies per 100 insured stayed at the lower levels achieved during the height of the crisis. This can be seen by reviewing year-end claim frequencies over a longer time interval. (Exhibit 2)

Of course, the decline in long-term claim frequency was not the sole result of consumer behavior caused by the gasoline crisis. In particular, the data for Collision coverage shows a more rapid decline than the data for Property Damage. This may be due in large part to shifts to higher deductibles for the Collision coverage. Encouraging consumers to shift from lower to higher deductibles was particularly prevalent during the late 70s and early 80s because of double-digit inflation. In addition, the introduction of better and safer automobiles, better roads and stronger law enforcement have all contributed to the long-term decline in claims frequency. Nevertheless, the missing upward spike in this data would imply that

Exhibit 2

So, although there were indeed reductions in claim frequencies in 1979 and 1980 when prices were highest, it appears that the impact was longer lasting. This shows that drivers may have changed their driving habits going forward.

Consider the miles driven per vehicle registration data over these timeframes. During the 1970's and 1980's "energy crises⁴," the average number of miles driven decreased significantly and stayed below pre-energy crisis levels for fourteen and five years respectively before increasing steadily from the mid-80's to 1999.

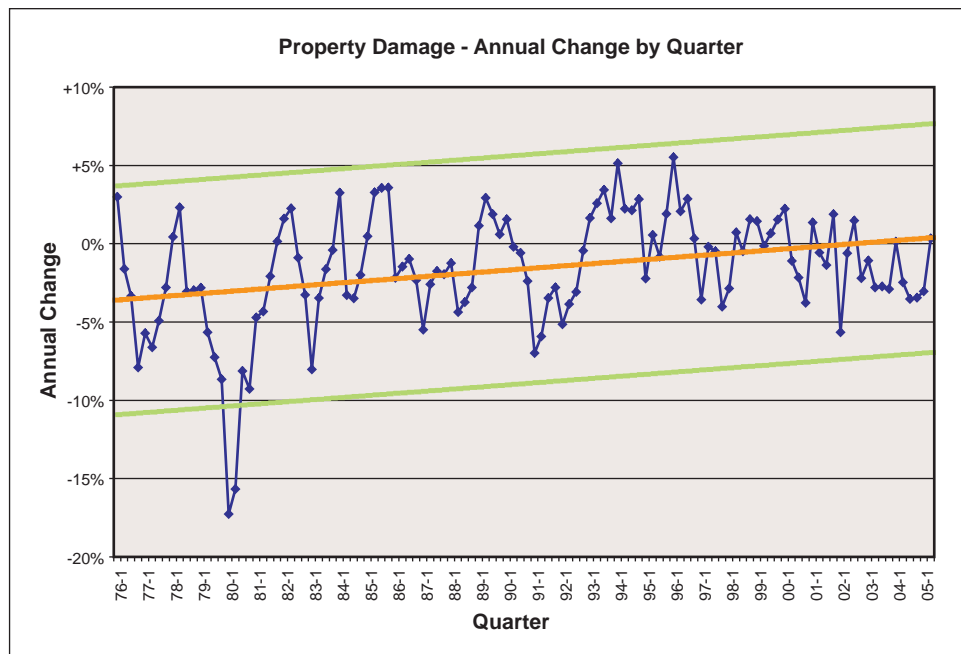


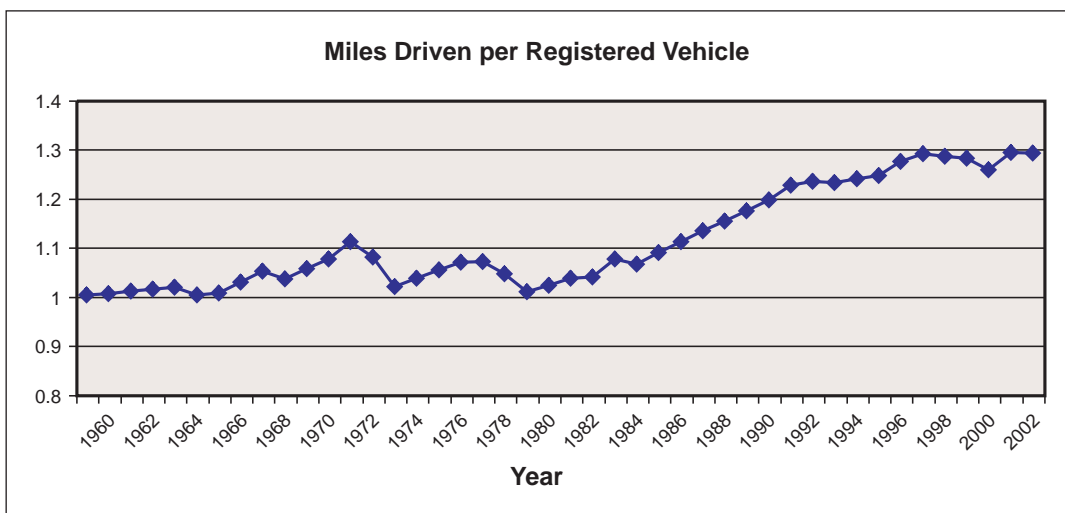
Exhibit 3

³The collision data was not subjected to this analysis due to the additional distortions caused by deductible shifts as noted earlier in this report.

⁴The United States additionally experienced an "energy crisis" in 1973 as a result of an oil embargo by OPEC which was imposed on Western countries that supported Israel. The embargo was lifted in March, 1974 but the price of oil continued at high levels throughout the 1970's and is considered to be one of the predominant causes of the "hyper-inflation" in the US during this period. Fast Track data is not available for this period.

While both of these statistics flattened out during the high gas price/shortage periods, they continued to rise afterward but they did not rebound to the prior levels that would have been anticipated post high price/shortage. (Exhibit 4)

In fact, miles driven per registration have been relatively flat or decreasing since 1999, according to data from the Department of Transportation, Federal Highway Administration.



Source: US Department of Transportation, Federal Highway Administration

Exhibit 4

more conservatively (73% in 2005 to 63% in 2004).” In addition, this survey indicated that “two-thirds of the respondents said that gas prices have had an effect on the size of vehicle they think about buying.” Moreover, over 94% of consumers stated an intention to drive less if gasoline prices reached \$2.76 a gallon.

With respect to potential energy shortages, it should be noted that some economists project that the potential for another energy crisis has never been greater. This prediction is based on the fact that U.S. dependence on foreign oil has never been higher. At the same time, petroleum inventories are at a low such that “the ability of the Strategic Petroleum Reserve (SPR) and commercial petroleum stocks to cope with an interruption in imports matches the historic lows preceding the 1973 and 1979 energy crises.”⁶

Lessons Learned

Since increases in gasoline prices contributed to a long-term decline in claims frequency as drivers opted to put fewer miles on the road, it is reasonable to assume the same could have happened after this crisis if the increase in gas prices was significant and remained at the higher level.

A recent poll conducted by Maritz Research’s Automobile Research Group (ARG)⁵ in August 2005 indicated that “significantly more people said that they are reducing unnecessary driving (79% in 2005 compared to 65% in 2004), not going on long trips or vacations (52% in 2005 to 36% in 2004), and driving



Conclusion

The rising gas prices resulting from Hurricane Katrina may have a significant reducing effect on accident frequency based on an analysis of the last “energy crisis.” Whether the current crisis produces similar declines in accident frequencies will depend on whether consumers, in fact, change their driving based on the higher gas prices.

This report has been provided in order to place the current personal automobile situation into historical perspective and to provide information to help estimate potential impacts of the gasoline crisis on automobile claim frequencies. If you would like more information about this subject, please contact LeRoy Boison at Pinnacle Actuarial Resources, Inc. by phone at (516) 746-7149 or by e-mail at lboison@pinnacleactuarial.com.

⁵Maritz’ Automotive Research Group (ARG) is one of the world’s leading providers of automotive research. Based in Toledo, Ohio, the group also has offices in Detroit, Los Angeles, Toronto, Hamburg, and London. Maritz currently conducts customer satisfaction programs that cover 70 percent of the new cars and light trucks sold in the United States.

⁶The Coming Energy Crisis, WTRG Economics