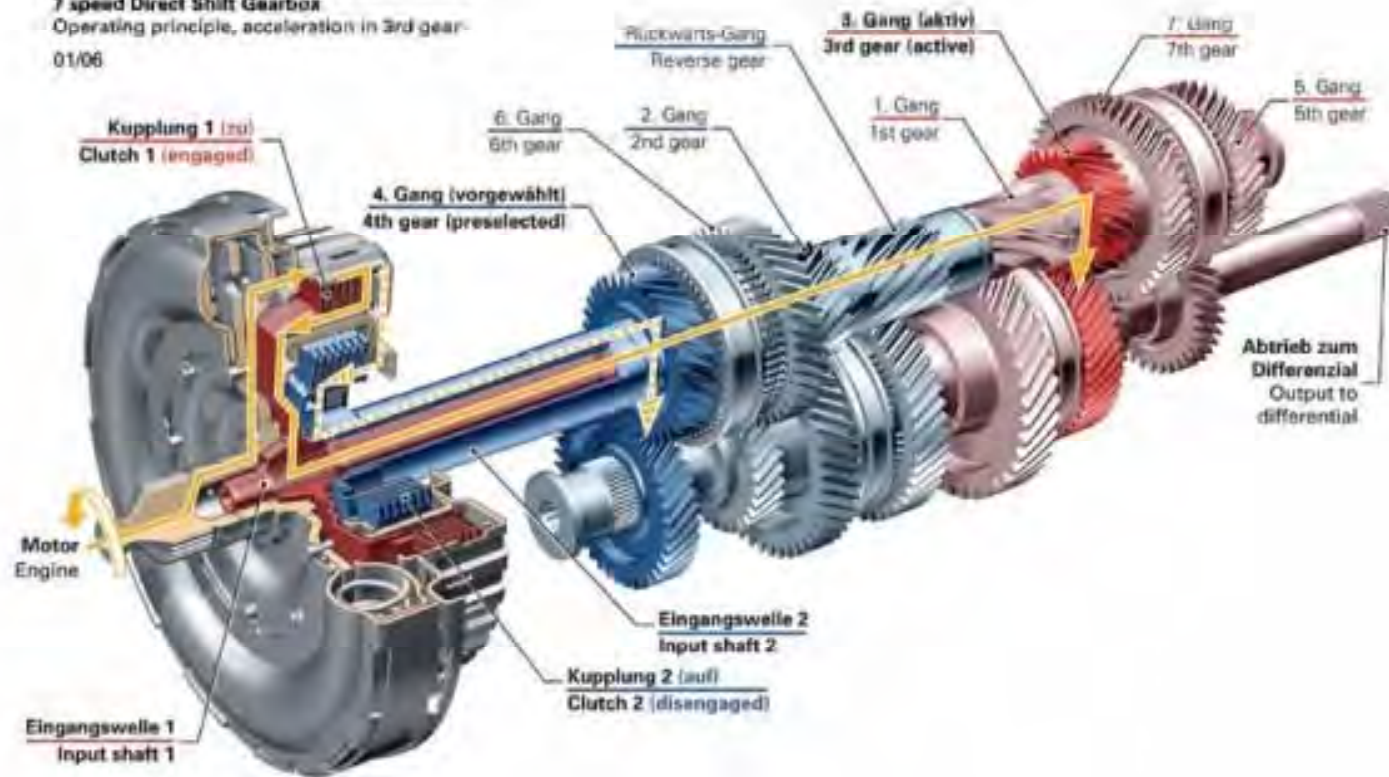


**7-Gang-Direktschaltgetriebe**  
 Funktionsprinzip, Beschleunigung im 3. Gang  
**7 speed Direct Shift Gearbox**  
 Operating principle, acceleration in 3rd gear-  
 01/06



## Driving Shifts Into Reverse

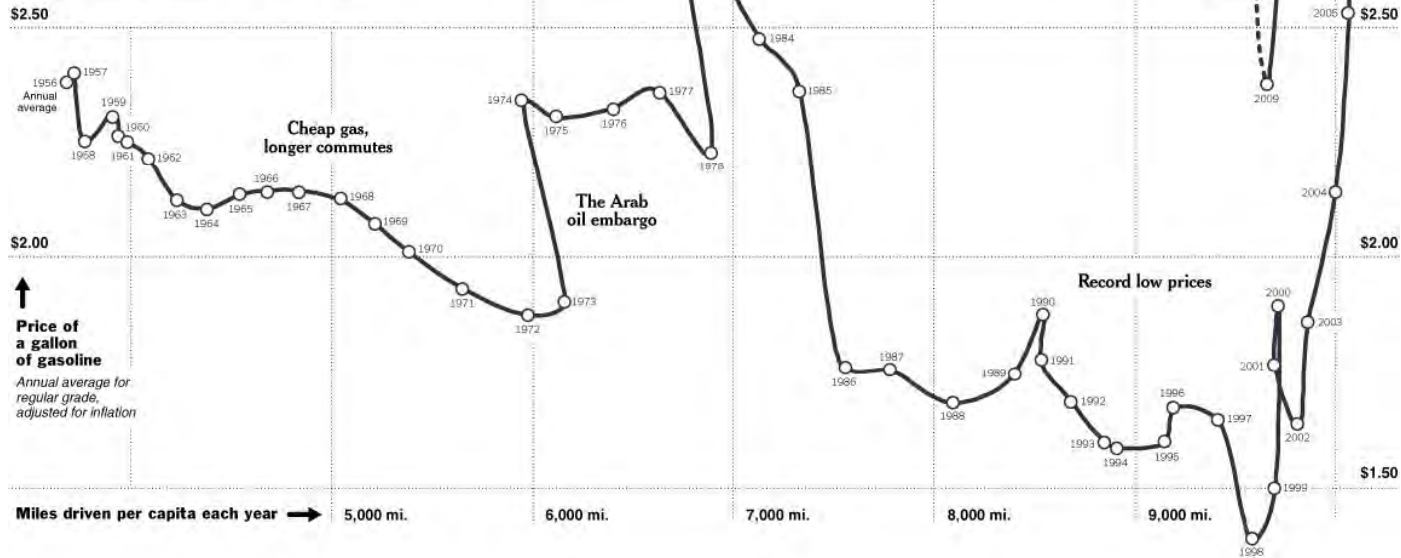
**E**CONOMISTS have long studied the relationship between driving habits and gasoline prices. Low gas prices can bring periods of profligate driving, and a quick jump in prices can cause many vehicles to languish in garages.

Until recently, Americans have driven more each year than the previous one, with a few brief exceptions. In 1956, Americans of driving age drove about 4,000 miles a year, on average. Fifty years later, that figure had climbed above 10,000.

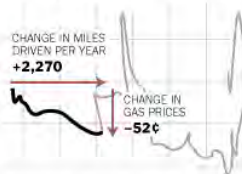
But the latest recession has caused some big changes. High unemployment meant that fewer people were driving to work, and a slump in consumer spending

meant that less freight needed to be moved around the country. As gas prices soared in 2005, the number of miles driven — including commercial and personal — began to fall, and continued to drop after 2008 even as gasoline became cheaper.

"People were surprised by the very rapid rise in gas prices, and they changed their driving behavior," said Kenneth A. Small, a transportation economist at the University of California, Irvine. "But my suspicion is that it is temporary. As soon as unemployment gets back to pre-recession levels, we will see Americans doing a lot more driving again."



1956-72  
**Cheap gas, longer commutes**



Americans spent more time in their cars as highways networks expanded and more workers commuted from new, far-flung suburbs. The number of commuters rose as more women joined the work force.

1973-74  
**The Arab oil embargo**



In 1973, many Arab oil-producing countries declared an oil embargo against the United States because of its support of Israel in the Middle East. The supply disruption caused oil prices to rise sharply, and gas consumption declined.

1978-81  
**Energy crisis**



Gas prices jumped as the Iranian revolution and the Iran-Iraq war caused a rift in the global oil supply. United States energy policy turned to conservation, and Congress imposed the first fuel-efficiency standards for cars.

1986-98  
**Record low prices**

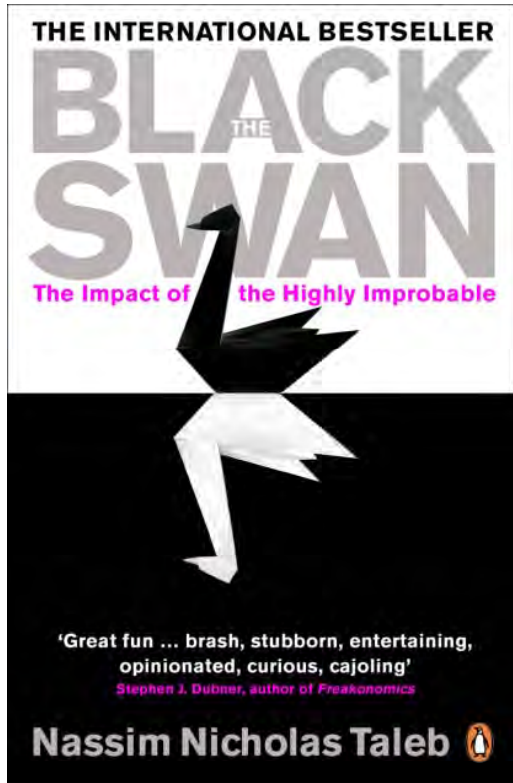


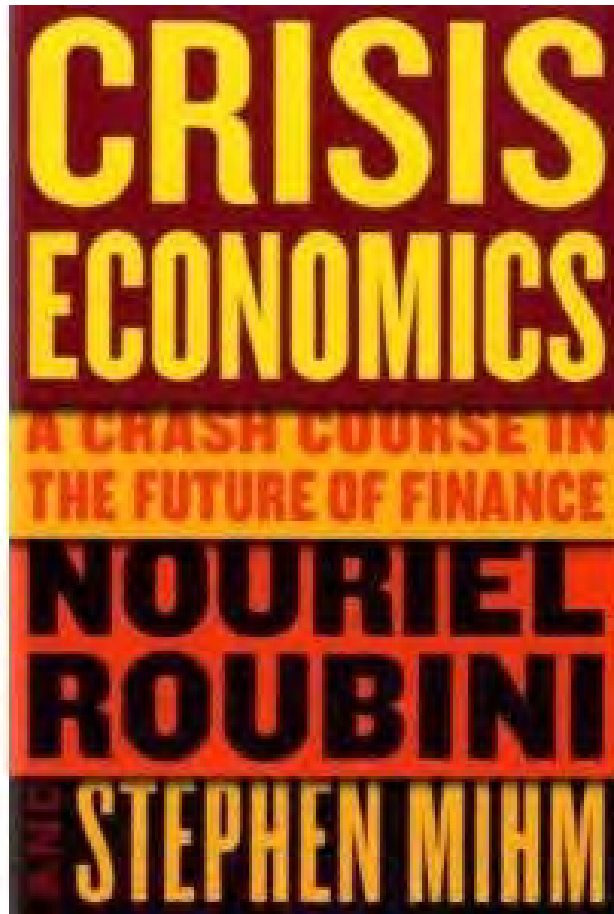
Gasoline remained cheap for more than a decade, and the average number of miles Americans drove annually jumped by more than 2,000. Economists observed that consumers became less sensitive to small gas-price changes as household incomes rose.

2005-10  
**The swing backward**

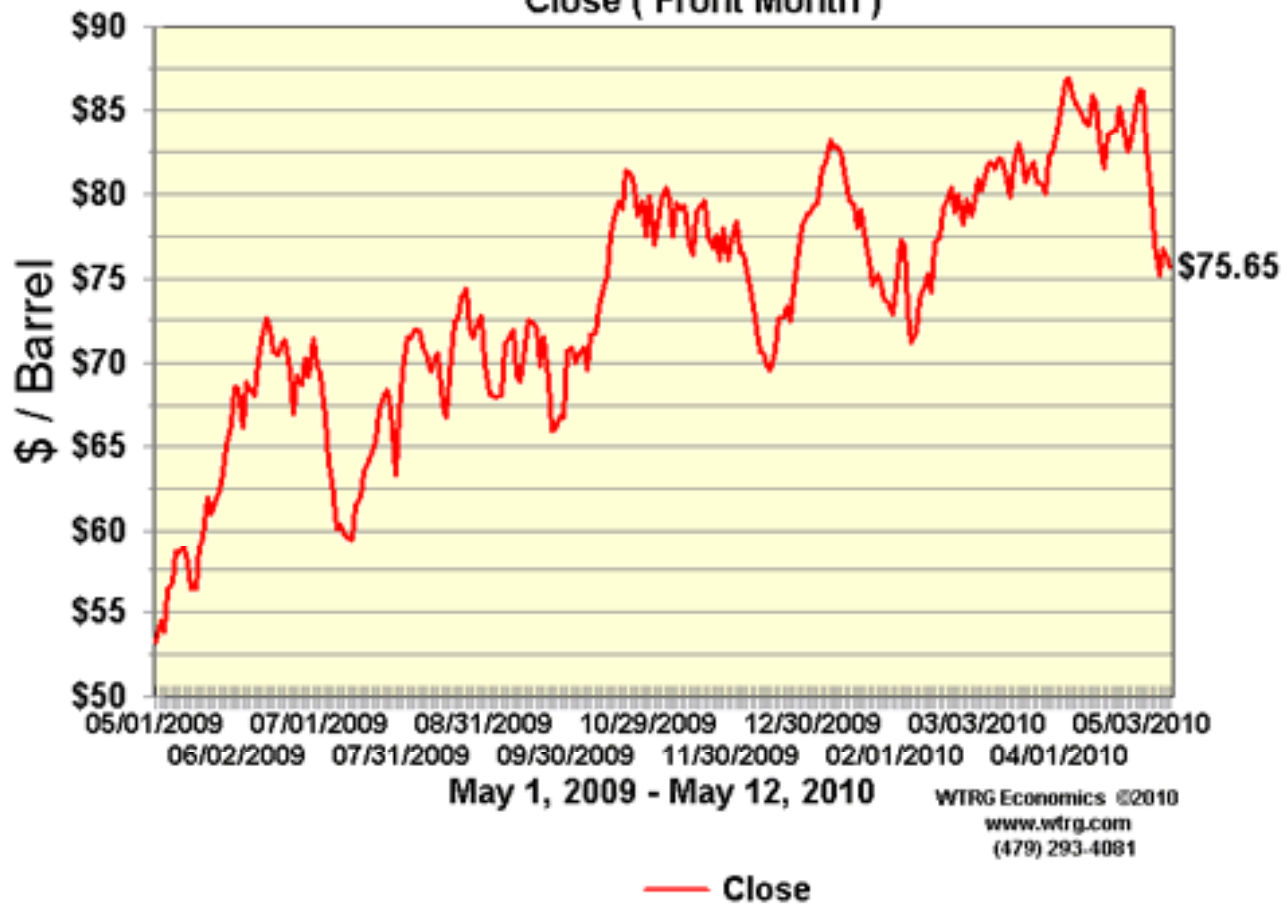


The growth in driving faltered as gas prices started to climb. But much of the sharp reduction in driving was caused by the long recession and its high unemployment rate. A small but growing number of thrifty and carbon-conscious commuters switched to bicycles and public transportation.



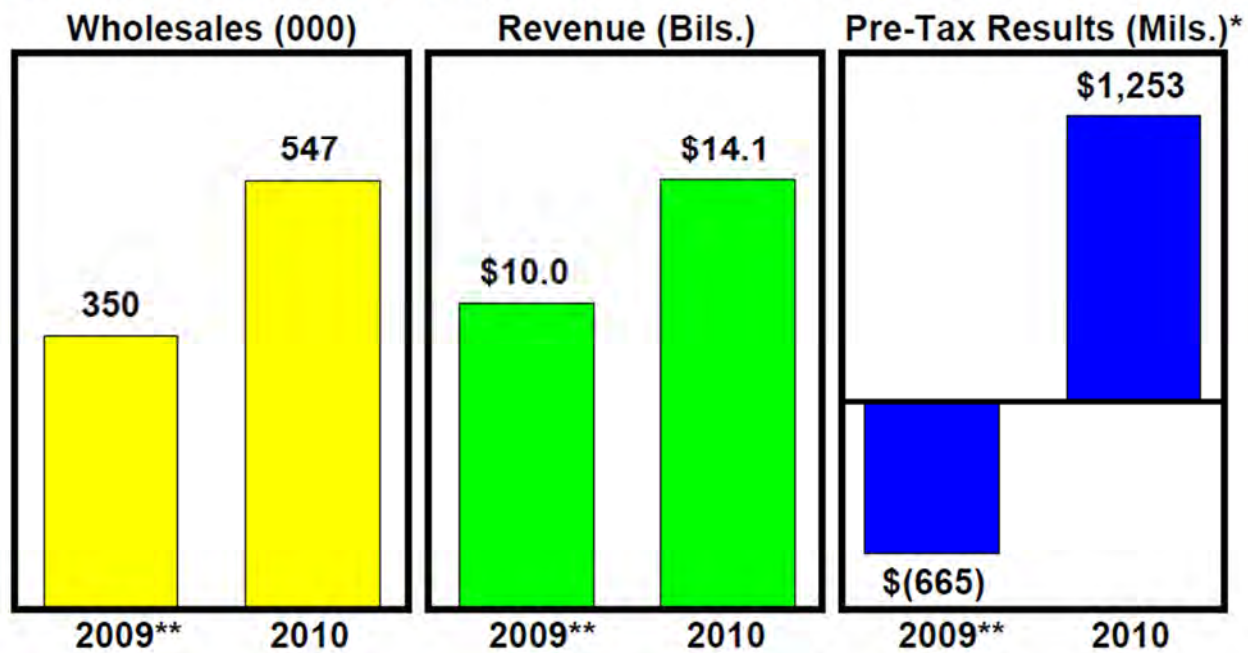


### NYMEX Crude Oil Futures Close ( Front Month )





# AUTOMOTIVE SECTOR -- FORD NORTH AMERICA FIRST QUARTER KEY METRICS -- 2010 vs. 2009



Memo:

U.S. Ind. SAAR (Mils.)	9.8	11.2
U.S. Market Share	13.9%	16.6%
U.S. Dealer Inventories (000)		
- First Quarter	410	405
- O / (U) Prior Quarter	(32)	23

\* Excludes special items, see Slide 9 and Appendix for reconciliation to GAAP

\*\* Adjusted to reflect the new accounting standard on VIE consolidation, see Appendix for 2009 adjusted data



- **Torque Converter** ● **Electric Motor**
- **Wet Multiplate Clutch Pack**

ZF offers three coupling options. The torque converter locks at 1200 rpm. Inserting an electric motor nets a 25-percent increase in fuel economy, and the wet-plate clutch pack minimizes shift times for performance cars. The transmission can handle a whopping 738 pound-feet, coincidentally the max torque of a Bentley V-8.

- **Planetary Gears**
- Shifting Elements:** ● **Brakes** ● **Clutches**

The four planetary sets [see yellow dots] are each made up of a sun gear at the center, the planetary gears orbiting that, and a ring gear on the perimeter. For each gear ratio, just two of the five shifting elements are disengaged.



# HX-23



Tri Component provides a complete line of Mercedes converter clutch plates and Drive Plates for the 722 transmission series. Effective and trouble free rebuilding of Mercedes converters requires maintaining critical clutch pack clearances. This is now easily achieved by using Tri's selective HX-23-1A 'problem solver' pressure plate and the new 'selective' HX-23-9 friction plate. The HX-23-1A is slightly thicker (2.00 mm vs 1.78mm) than the original HX-23-1 and allows for completing the converter setup where overall greater thickness is required.





**INTRODUCING**  
**LOCKJOINT™**  
**TECHNOLOGY**  
by TRI COMPONENT

**GMC**



**HONDA**



Tri Component LockJoint™ linings were pioneered by GM and are used by all European OEM in their production of clutch plates.



**CHRYSLER**



**RENAULT**




**TOYOTA**



**CITROËN**



**The segmented LockJoint™ is a proven  
Technology. Tri has mastered  
techniques to make your handling  
and application trouble free.**

A circular black ring with a white center, containing text. The ring is thick and has a slightly textured appearance. The text is centered within the white circle.

**Combined with Tri's adhesives,  
a bond results of the highest shear  
strength with exceptional shelf  
life and is compatible with all  
solvents(ie: MEK).**





**LockJoint™ lining  
retains it's integrity  
at all times**



**Magnified view  
of lock joint**



**LockJoint™ Lining bonded to the lockup clutch**



**The LockJoint™ lining is a valuable tool in achieving your goals and is available at the lowest cost in the industry.**

**Available in all friction materials (Kevlar®, Tan, Carbon, High Carbon and Red).**

**Contact us**

**800 366-3874 \* 718-402-2400 \* Fax 718-402-2151 [www.tricomponent.com](http://www.tricomponent.com)**