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Can you believe EIA Weekly petroleum demand estimates?

Posted by Gail the Actuary on February 27, 2009 - 4:06pm
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On the post I put up yesterday called "A Few Thoughts about Petroleum Demand, Inventories, and Price", a couple of people commented that my forecasts of expected petroleum demand didn't match up well with recent weekly surveys. There is a reason for this, which is illustrated by EIA's demand numbers for December which were released today:

EIA Petroleum Demand for December 2008

	Thousand BPD
4 Weeks Ended 12/26/2008	19,936
4 Weeks Ended 1/2/2009	20,108
Gail's Estimate for December 2008	19,336
Actual for December (Reported Today)	19,199

If one looks at the weekly forecasts, they are considerably higher than the monthly actual amounts. This seems to happen on a regular basis. For the year 2008, EIA's forecasts averaged 654,000 barrels a day higher than I would have estimated based on weekly data. This is about 3.4% high - not great if that is the basis for statements about how demand is running.

The 654,000 barrel a day high bias is mostly on the "other than gasoline" portion of demand. Weekly gasoline demand averaged "only" 193,000 barrels a day higher than the corresponding monthly amount, or about 2.2% high. Other than gasoline weekly demand estimates averaged 461,000 barrels a day high, or 4.4% high.

Part of the problem seems to be misestimation of petroleum exports. These have been chronically underestimated, and affect diesel more than anything else--with is part of my "other than gasoline" pot. But other portions have been mis-estimated as well--tending in the direction of what amounts used to be. Thus, if exports are increasing, the estimates tend to be more in the direction of too little exports. When driving dropped off during the summer, the estimates tended to show too little impact. During the hurricane disruption, the weekly estimates tend to show too little impact of the hurricanes.

The EIA makes two kinds of comparisons to a year ago:

- Comparison to the original four week average demand estimates
- Comparison to the four week average demand, adjusted to the actual level (correct exports, etc)

Without looking carefully at the data, one cannot tell what one is looking at. If the high bias continues to be in the data, what you really want is a comparison of the most recent four week average estimate with the weekly estimates a year ago, before they were corrected to the actual level. This seems to be the approach TWIP uses.

The Weekly Petroleum Status Report seems to use the adjusted four week total as the base for its comparison. Thus, it compares the amount from a year ago, at its true lower level, with a current estimate, which if experience holds up, is probably too high. Using this approach, one gets the indication that total products supplied is only down 0.8% for the most recent four weeks. This is true if somehow the EIA suddenly started estimating the recent numbers without the high bias. If the weekly numbers still have a high bias, the real indication is that demand is down something like 4% (3.4% average bias, plus 0.8% change gives expected demand down about 4.2%).

Of course, at some point EIA may start getting the weekly estimates right, in which case one doesn't have to worry about this issue. Until then, if you see something that looks like great news about demand bouncing back, check carefully to see how the numbers are calculated.