C5: THE IMPACT OF OIL PRICE ON BTX PRICE

What is the impact of rising (or falling) oil price on the price of the aromatics benzene, toluene and xylene (BTX)? Clearly since these products are made from oil derived intermediates such as naphtha by reforming or steam cracking, there is an expected positive correlation with the price of oil. The nexus between the price of oil and the prices for BTX is thus of considerable interest to participants in the petrochemical industry and most organisations have their own analysis. Here is a simple analysis based on the published spot prices for Brent Crude (data from the US EIA) and BTX as reported by European Chemical News and ICIS Chemical Business from 1997 to 2012.

The correlation between toluene EU price and crude oil as represented by Brent is very good over the range of about $10/bbl to almost $150/bbl (correlation factor $R^2$ of 0.94). This close relationship is probably a consequence of the use of toluene as a gasoline supplement (octane booster) rather than as a source of petrochemicals. In fact there are few direct uses of toluene in the petrochemical industry with toluene being used to produce other aromatics – benzene and xylene. Xylenes (i.e. mixed isomers) has a slightly poorer correlation but is still quite good. Again the dominant use is as an octane booster rather than petrochemical feedstock. By contrast, benzene is quite different:

For benzene there is far more scatter in the data and the correlation is not as good with a correlation factor ($R^2$) < 0.8. Nevertheless, there is a general impact of oil price on benzene price, which appears to be linear. Clearly other factors are in play. Unlike toluene and xylene, benzene has no role in fuels formulation and its demand is driven by its use as a petrochemical intermediate (e.g. for styrene and nylon); the vagaries of the business cycle demand for benzene influencing its traded price.