Introductory Applied Econometrics
EEP/IAS 118
Spring
Villas-Boas

Daily Assignment Lecture 4 - Solution

1 Review Lecture Materials

Let *price* denote the world price of crude oil, and let *quantity* denote the quantity of oil consumed in a period by the world. A simple model relating quantity to price is:

$$quantity = \beta_0 + \beta_1 price + u$$

where u is the unobserveed error.

1. What kind of factors are contained in u?

   Sol. Technically, u=quantity-$\hat{quantity}$, that is, the data minus prediction. So u contains any other type of factor or source of variation that could contribute to the quantity of oil consumed in a period not accounted by crude oil price.

2. Give an example of one factor that is positively correlated with *price*, one that is negatively correlated with *price*, and one that is not correlated with *price*.

   Sol. Below are some possible factors that may affect price of crude oil in the world. There are nearly limitless possible variables that could affect quantity of oil purchased decisions. These are just examples of a few and by no means an exhaustive list.

   - Positively correlated factors: marginal cost of extraction, wars in oil producing countries that restricts capacity of production making oil scarce from cheap sources.
   - Negatively correlated factors: entry into opec cartel of more countries (if it happens the cartel is harder to sustain so prices drop,), discoveries of new oil reserves with large capacities.
   - Not correlated: Any type of randomly assigned intervention, local weather patterns that do not affect demand for oil... This is the most challenging category to come up with as almost anything that could affect demand for oil decisions (contained in u) is likely to be related, in some way, with price of oil (that is basically set by the opec cartel). An unexpected storm at sea that prevents trade of oil for example would be correlated...

2 Replication Lecture 4

use Lecture4.R that loads dataLecture4.xlsx data set.