Contest Quiz 7
Question Sheet

In this quiz we will review concepts of panel data and limited dependent variables covered in previous lectures.

Question 1: English auctions

You receive a dataset from a hypothetical experiment on bidding behaviour in auctions. In the experiment 2000 bidders are grouped into pairs of 2 bidders. In each group they bid for one item. Each bidder has a valuation for the item, though, the valuation is typically different for different bidders. In each group bidders will be called bidder 1 and bidder 2. Which is called bidder 1 and which is bidder 2 is entirely random. $v1$ and $v2$ are the valuations for bidders 1 and 2. The auction is an English auction, i.e. in each auction the price is increasing until one of the two bidders stops bidding. At this stage the other bidder wins the object. b contains the winning bid. wi is the identity of the winning bidder (1 or 2).

(i) We assume that the bid is a linear function of the valuation. In one sentence, explain why we have a censoring problem here.

(ii) Read the data in *data_x.csv*[1], estimate a linear bidding function and give the slope coefficient. [Hint: use the survreg function in R's survival package]

(iii) In no more than 2 sentences, interpret the difference between the bidding function estimated with OLS and that estimated with the Tobit model.

Several observations for one observation: It is typical, but a bit inconvenient that you find information for both bidders in the same record. You may find it useful to rearrange the data from wide to long format. Check: http://www.statmethods.net/management/reshape.html

```
> head(auctions.wide)         > head(auctions.long)
     v1    v2     b wi              b wi variable value
1 28.76 27.36 -6.78  2        1 -6.78  2       v1 28.76
2 78.83 59.39 39.17  2        2 39.17  2       v1 78.83
3 40.90 16.02 19.73  1        3 19.73  1       v1 40.90
4 88.30 85.34 91.44  2        4 91.44  2       v1 88.30
5 94.05 84.77 49.35  2        5 49.35  2       v1 94.05
6  4.56 47.79 43.90  1        6 43.90  1       v1  4.56
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[1]To access the data go to http://www.camcon.eu/data/series7/ and download *data_x.csv* where *x* is your group id, e.g. 1 for Group1, displayed in the upper right corner of the website after login.