

## Practice Question for the Final Exam No. q

### Question 1

1. Suppose you have data on auctions of oil wells, where some of them are drainage tracts (with neighboring oil wells) and others wildcat tracts (without neighboring oil wells). Suppose we estimate the following regressions for drainage and wildcat tracts separately.

$$Y_i = \beta_0 + \beta_1 V_i + \beta_2 \pi_i + \beta_3 A_i + \epsilon_i$$

where  $Y_i$  is the bid price for the bidder  $i$ ,  $V_i$  is the estimate of the ex post value of the tract, which is public information and  $\pi_i$  is the profit for tract, and  $A_i$  is the acreage of the tract. Suppose we want to get to know the value of private information from the coefficient estimates of the above regression equation. What should the results be when we can say that the private information has some value?

2. What can we say if the error term of the neighboring bidder  $i$ ,  $\epsilon_i$  and that of the non-neighboring bidder  $j$  for the same tract are correlated? What can we say if they are not?

### Question 2

Suppose the equilibrium price equation of a house is

$$p(z) = \gamma + \phi z + z' \pi z + \eta$$

and the demand equation of a characteristic  $z_i$  is

$$pc(z) = b_{0i} + b_{1i}z + b_{2i}x + b_{3i}\alpha + v_{1i}$$

and the supply equation of a characteristics  $z_i$  is

$$pc(z) = c_{0i} + c_{1i}z + c_{2i}x + c_{3i}\beta + v_{2i}$$

where  $pc(z)$  is the price of a characteristic,  $x$  is the observed individual controls,  $\alpha$  is the aggregate demand shifter, and  $\beta$  is the aggregate supply shifter. Assume that supply of housing is fixed.

1. Explain what you would choose as an instruments.
2. Explain how you would estimate the model.