SIMULATION EXCERCISELET

Suppose that in the supply and demand model

$$p_t = a - bq_t + \varepsilon_t^D \tag{1}$$

$$p_t = \alpha + \beta q_t + \varepsilon_t^S \tag{2}$$

we believe that b and β are independent of each other, with $b \sim N(1, .5)$ and $\beta \sim N(.3, .1)$. In this model we can solve to represent p_t and q_t as functions of constants and linear terms in ε_t^D and ε_t^S.

(a) Find as functions of the parameters in (1) and (2) the four coefficients that show the influence of supply and demand shocks on p and q .

(b) Use the computer to generate an estimate, using both a histogram method and a kernel method, of the pdf's of each of the four coefficients. Comment on why the pdf's take the shape they do.