Problem Set #1

MACSS 30100, Dr. Evans

Joseph Denby

Problem 1.

a. Nave, G., Nadler, A., Zava, D., & Camerer, C. (2017). Single-Dose Testosterone Administration Impairs Cognitive Reflection in Men. Psychological Science, 28(10), 13981407. http://doi.org/10.1177/0956797617709592

b.
$$CRTScore = \beta_0 + \beta_1 Testosterone + \beta_2 Androstenedione$$
$$+\beta_3 DHT + \beta_4 Progesterone170H + \beta_5 MathScore + \epsilon$$

c. *Testosterone, Androstenedione, DHT, Progesterone170H,* and *MathScore* are all exogenous variables, since they are supplied to the model as outside parameters. *CRTScore* is an endogenous variable, since it is meant to be determined within the model itself.

d. This model is static, since there is no temporal component, linear (it is a straightforward linear regression model), and stochastic, as there is a random error term included.

f. I think this model could benefit from the inclusion of some temporal variable, since the effects of testosterone, androstenedione, DHT, etc., administration on Cognitive Reflection Test scores are sure to diminish over time.

Problem 2.

a.

$$Marry^* = \beta_0 + \beta_1 age + \beta_2 income + \beta_3 haspartner(relationshiplength) + \epsilon$$

$$Marry = \begin{cases} 1, \text{ if } Marry^* > 70 \\ 0, \text{ otherwise} \end{cases}$$

b. I think age, income and, if one has a partner, the length of time one has been with that partner are the key factors that influence one's decision whether get married.

c. To me, I see these factors as the most pertinent to one's decision about marriage; there may be other components to one's decision (e.g., religion, race, ethnicity, location, etc.), but I don't expect them to significantly improve the accuracy of the model. So, in the spirit of keeping the model parsimonious, I chose to exclude them.

d. I could do a preliminary check on my model by running a regression analysis on some demographic data. Given an individual's marital status, age, income, relationship status, and length of relationship at t_0, I ought to be able to predict (with a reasonable degree of accuracy) their marital status at t_1. From the census or another survey-based dataset, I could run a regression analysis for my model as specified and determine how accurate my model is.