Economics of Crime
HW Assignment # 2

1.

a. Becker's model of crime suggests probability of apprehension and punishment could reduce criminality.

a. Why would higher income levels potentially reduce crime?

b. If you have a cross-section of individuals, and you consider running the regression $crime_i = \beta_0 + \beta_1 * income + u_i$, what assumption do you need to have hold for OLS to be unbiased?

c. Do you expect that assumption to hold true? Why or why not?

d. Other economists have tested this assumption by aggregating crime rates and comparing them to aggregate economic conditions. Generally, economists have found higher unemployment rates is associated with more property crime. Does make sense given your answer to part a?

2. Suppose you are studying a community that has 10 individuals. Each individual has the utility function $U(c, p) = c + ln(p)$.

a. Suppose each individual has an income of 30. P is a unique good because its a public good. This means that if I purchase police, my neighbors gets to consume whatever I purchase, and vice versa. How much c does each individual consume consume, and how p does everyone consume if the price of c is 2, and the price of p is 20?

b. What is the socially optimal level of P, based on the Samuelson condition?

c. How does your answer to part b, compare to a? What is a way we could get people to purchase more police?

3.

Use the data file speeding.dta for this problem. This is the dataset for every speeding ticket giving in Oregon from 2008-2013 (yes I'm in there, twice).

a. In speeding there are natural jumps in punishments for every 10 miles an hour someone exceeds the limit. If you wanted to estimate a regression for how punishments received for speeding affect future speeding (recidivism) what would the equation for a regression discontinuity look like (write an example).
b. One critical assumption in RD is that there is no sorting at the thresholds.

To see if there is sorting in this data, type "histogram relspeed, d". Do they do bunch at the thresholds? Do they bunch in other places? If so, why do think this bunching happens?

c. To see if it looks like having a speed over the speed limit reduces future speeding, type "collapse (mean) recid, by(relspeed)", then type "scatter recid relspeed". Does recidivism decline at the 10 MPH thresholds where fines go up? Do you think any patterns you observe here are free from bias given your answer to part b?