CSUN Econ 433 Week 3 Problem Set

Name:

Hatfield and McCoy are two cattle ranchers that share a common pasture. They each independently decide how many cows to graze on that pasture. The utility that each rancher gets from letting cows graze on the pasture is:

where is the ecological value of the pasture.

Sadly, the ecological value of the pasture goes down as more cows graze on it. The relationship between and the total number of cows grazing, , is:

1. What total number of cows grazing would maximize the combined utility of both ranchers? (5 pts)
2. In the Nash equilibrium, how many cows will each rancher let graze on the pasture? How many total cows are grazing in the Nash equilibrium? (5 pts)
3. What economic concept does this example illustrate? (1 pt)
4. Describe an action, either public or private, that could lead to a more optimal outcome than the Nash equilibrium. (5 pts)

The following questions pertain to Lab 3.

1. Write down the formula to calculate the weighted mean of:  
   where   
   are the weights. (5 pts)
2. In the IPUMS data, which variable tells you the population weight of the survey unit? (1 pt)
3. You have a dataframe, df, with the variables SEX, EMPSTAT, and PERWT. Write down a command to calculate the employment rate by sex using this dataframe. (5 pts)