CSUN Econ 433 Week 2 Problem Set

Name:

Arnold, Betty, and Carlos share non-excludable access to a public park. They derive non-rivalrous utility from trees in the park. Each person’s marginal benefit for an additional tree, as a function of the number of trees , is shown below.

The marginal cost of planting a tree is 3.

1. If Arnold was deciding how many trees to plant on his own, how many would he plant? What about Betty and Matt? (5 pts)
2. What is the socially optimal number of trees? (5 pts)
3. Would anyone be willing to pay for the marginal tree in your answer to question 2? Why or why not? (5 pts)
4. You are a Parks Director with the power to tax and spend. Design a policy where you:
   * Decide on the total number of trees to plant.
   * Decide how much each person should pay for each tree.
   * Arnold, Betty, and Carlos should each be willing to vote for this policy.

When designing the policy, you may charge each person a different amount for each tree. Assume that they don’t care about fairness, and are willing to vote for any policy as long as they don’t pay more per tree than their marginal benefit. (5 pts)

*Hint: What is the marginal benefit of each person at the optimal number of trees?*

The following questions pertain to Lab 2.

1. Suppose a person has the following data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SEX | AGE | RACHSING | EMPSTAT | MARST |
| 1 | 24 | 2 | 1 | 1 |

What would be the output of (SEX==1) & (AGE>=25) & (AGE<=65)? [TRUE / FALSE] (1 pt)

1. What would be the output of (EMPSTAT==1) & (EMPSTAT==2)? [TRUE / FALSE] (1 pt)
2. For each of the following logical operators, write down the correct R syntax. (1 pt each)
   * And
   * Or
   * Equal to
   * Not equal to
   * Greater than
   * Less than

Don’t forget to submit your response for the Public Goods Experiment.