F 2020, econ 444 Instructor: Wong

Homework 2

Please write down your name and the last 4 digits of your B-number on your assignment. You do not have to type up your homework. Legible hand writing will do. Plagiarism will lead to zero score. Each question is worth 15 points.

1. Suppose a household consists of two agents, indexed by i=1,2. Let each agent i have a utility function given by

U\_i(l\_i, c) = α ln(c) + (1-α)ln(l­\_i), i = 1, 2,

where α is the preference parameter of each agent, l\_i is i’s leisure consumption, and c is the household consumption (as public good). The total amount of time available to each agent is 1, so the time constraint is given by 1 = l\_i + h\_i, where h\_i is work hours for i. The wage rate of agent i is given by w\_i. Non-labor income is Y = y1 +y2, with y\_i denoting the non-labor income of agent i. Suppose also each agent behaves non-cooperatively.

In class, we derive agent 1’s optimal work hour, and assert agent 2’s optimal work hour to mirror agent 1’s.

1. Derive the optimal hour choice for agent 2.
2. If agent 2 works and agent 1 does not, what is the optimal labor hour for each agent?
3. What is the threshold wage that induces each agent’s work decision in part (b), respectively?

Suppose wage has a cumulative distribution F(w).

1. What is the probability that this event -- with agent 1 not work and agent 2 work -- occurs? Express it in terms of F(w).

Suppose wage ranges between 0 and 1, and has a uniform distribution so that the cumulative distribution function is F(w)=w. Further, suppose Y=0.1 and from the data Pr(h1= 0, h2 > 0) = 0.2.

1. What is the value of α?
2. Use the value of α obtained in part f, calculate the probability that agent 2 works.

2. For this question, you must write a minimum two to three responses for each sub-question. The questions are meant to guide you to think about the central point(s) of the articles (or chapters) and to evaluate the methods, theory, and empirical investigation in each of them. You can add further details about the paper and the subject matter if it is relevant to a critical analysis of the article or chapter.

This question uses a posted reading called ‘A century of leisure and work’, you can find it under the folder ‘Content’ in MyCourse.

1. What are the objectives of the paper?
2. Briefly describe the authors finding.
3. Offer some explanations to the finding by the authors. It could be materials that we went through in class.