Exam 3

ECON 380
Fall 2016
UNC Chapel Hill

Name: _____

ONYEN: _____

Honor Code Signature: _____

- For partial credit, show all of your work on the following pages, and justify your answers where needed.

- Assume firms can hire a non-integer number of workers (e.g., 4.25 workers) and can produce/sell a non-integer amount of output (e.g., 2.59 units)

- Round final answers to the nearest hundredth.

- Points available: 50

- Write legibly, write legibly, write legibly!

- Good luck! ☺

Wage Inequality

1. Describe the trend in US wage inequality since the 1970s. Has this trend been driven by changes **[5 pts]** in the bottom, middle, or upper tail of the earnings distribution?

2. Consider a simple economy that contains 1,000 individuals. 800 citizens report an annual after-tax income of \$40,000 (the "low-income" group), while the other 200 report an annual after-tax income of \$300,000 (the "high-income" group).

   (a) Draw the Lorenz curve for this economy in the figure below. **[5 pts]**

   Share of Income

   Share of Households
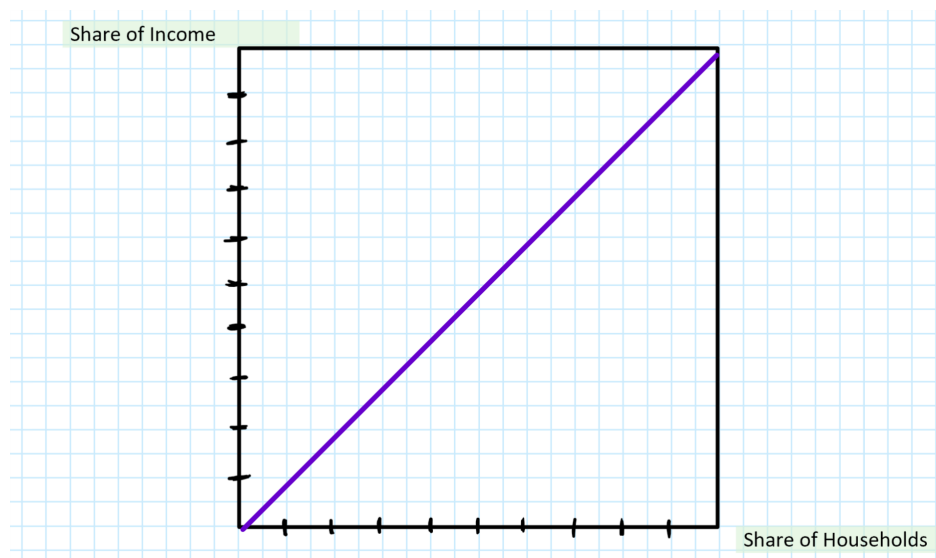
   Suppose that, under intense political pressure from lobbyists, the government lowers the tax rate for those individuals in the "high-income" group. The tax rate for low-income earners remains the same.

   (b) Will the post-tax Gini coefficient in this economy increase, decrease, or remain the same? **[4 pts]** What does this indicate about inequality in this country (i.e., will it fall, rise, or stay the same)?

Taste-Based Discrimination

1. Bunce's Beans production function is given by

$$q = 2\sqrt{E_b + E_w}$$

where E_b and E_w refer to black and white workers employed by the firm, respectively. Suppose the wage rates for whites and blacks are $w_w = \$15$ and $w_b = \$10$. The price of each unit of output is $\$25$. Finally, the marginal product of labor is given by

$$MP_E = \frac{1}{(E_b + E_w)^{1/2}}$$

    (a) Suppose the firm has some distaste for hiring black workers and has a discrimination **[3 pts]** coefficient of 0.4. What proportion of the firm's labor will come from white workers? Make sure to state <u>why</u>.

    (b) How many workers will this firm optimally hire? What will its profits be? **[5 pts]**

    (c) Compare the profit of Bunce's Beans to that of a non-discriminatory firm (i.e., is it smaller, **[4 pts]** larger, or the same). Explain why the profits are different or the same.

Statistical Discrimination

1. In 3-4 sentences, describe how statistical discrimination can lead to <u>long-run</u> wage gaps. **[5 pts]**

2. Suppose that firms statistically discriminate based on sex. The average "test score" for males and females is the same, but test scores are "noiser" for females, i.e., the test score is a bad predictor of female productivity.

   (a) Will female workers with lower-than-average test scores receive higher, lower, or the same wages as a "low-skill" male worker with the same test score? Briefly explain why. **[2 pts]**

   (b) Will female workers with higher-than-average test scores receive higher, lower, or the same wages as a "high-skill" male worker with the same test score? Briefly explain why. **[2 pts]**

Measuring Discrimination

1. Suppose the wages of males and females are determined as follows

$$w_m = 9 + 0.5 \cdot S_m$$
$$w_f = 8 + 0.4 \cdot S_f$$

where the m and f subscripts refer to males and females, respectively, and S refers to the number of years schooling a worker obtains. Assume schooling is the only relevant skill to a worker's productivity. Finally, suppose the average years of schooling for males is 10 years and for females it is 8 years.

   (a) What is the average male wage? The average female wage? **[2 pts]**

   (b) What is the raw wage differential between the two groups? **[2 pts]**

   (c) How much would an average female worker earn if "treated as a male?" **[2 pts]**

   (d) How much of the wage differential can be attributed to differences in schooling? **[2 pts]**

   (e) How much of the wage differential can be attributed to discrimination? **[2 pts]**

Discrimination Evidence

1. In recent years, how has the role of explicit labor market discrimination in driving different racial   **[5 pts]**
   socio-economic outcomes likely changed? Will policies targeting labor market discrimination or
   policies targeting school achievement gaps be more effective in closing the racial wage gap and
   other differences in socio-economic outcomes?