Spring 2016

ECON 133 "Global Inequality and Growth"
Midterm

1. **True False Statement/Questions (10 points)**
   Explain your answer fully based on what discussed in lecture and in section (no more than 5 lines per question). All the credit is based on the explanation. (2 points for each question.)

   (a) The decline of top marginal income tax rates has played an important role in the rise of labor income inequality in the United States since the 1970s.

   (b) The Pareto coefficient a for the distribution of income is 1.7 in the US and 2.3 in France. This means that income is more concentrated in France than in the US.

   (c) There is strong empirical evidence supporting the argument that income inequality has a causal negative effect on economic growth.

   (d) In theory, whenever the supply of college educated workers stagnates, the skill premium always rises.

   (e) Changes in labor income concentration are the main reason why income inequality has changed over the course of the twentieth century in developed economies.

2. **Exercise 1 (10 points)**
   Consider the wealth accumulation equation $W_{t+1} = (W_t + s_t Y_t)(1 + q_{t+1})$.

   (a) What does this formula say about the sources of wealth accumulation? Make sure to define each component. (2 points.)

   (b) Use the fact that $Y_{t+1} = Y_t \cdot (1 + g_t)$ to express β_{t+1} in terms of β_t, s_t, q_{t+1} and g_t. (2 points.)

   (c) If there was no capital gain (q_{t+1} always equal to 0), how would it affect the equation derived in question (b)? Derive the steady-state wealth-to-income ratio in this case. What is this formula called? (2 points.)

   (d) Plot the evolution of the national wealth-national income ratio from 1870 to 2010 in Europe and the US in a graph. (2 points.)

   (e) Is it always the case that the capital share of income has to rise when the wealth-to-income ratio β rises? Explain. (2 points.)

3. **Exercise 2 (10 points)**
   Consider the case of Atlantis, a country where income is distributed as follows: the richest 10% of the population have 50% of total income, and the bottom 90% have the other 50% of total income.

   Assume income is equally distributed within each of the two groups.

   (a) Plot the Lorenz curve for Atlantis. (Make sure to label both axes and to include the line of perfect equality. 2 points.)

   (b) Calculate the Gini coefficient for this country (3 points.)

   Now assume income is Pareto-distributed within the top 10%. To belong to the top 10%, an individual needs to have at least \$100,000 in income. The average income for those in the top 10% is \$300,000.

   (c) Calculate b, the inverted Pareto-Lorenz coefficient. (2 point.)

   (d) What is the average income above \$2,000,000 in Atlantis? (1 point.)

   (e) Is income more or less concentrated at the top in Atlantis than in the US today? (2 points.)