

Problem Set #7: Income Inequality

Due: Friday, November 3rd. Reading Assignment:

- Chapter 7, Course Book (At Atticus and on electronic reserve) + attached corrections and extensions.
- Rebecca Blank, "Fighting Poverty, Lessons from recent U.S. History," *Journal of Economic Perspectives*, Spring, 2000, pp 3-19
- Economics Annual Editions, 00/01, #20: Gary Burtless, "Growing American Inequality: Sources and Remedies," *Brookings Review*; #22: "The State of the Poor," *Challenge*; #23: Judith Havemann, "Most Adults Find Jobs after Leaving Welfare: Many Struggle on Low Pay or Rejoin Rolls," *Washington Post*; #25: Doug Bandow, "Corporate Welfare Remains Unchecked," *Business and Society Review*; #26: Henry Arron & Robert Reischauer, "Should we Retire Social Security," *Brookings Review*.

1. Consider the data on income inequality on Table 7.E1 on the distribution of income in the United States in 1975.
 - a. Calculate the T20/B20 ratio for 1975 and compare with the 1997 ratio for the data on Table 7.2.
 - b. Plot the Lorenz curve based on the data for 1975 and compare it with the Lorenz curve for 1997.
 - c. Estimate from your graph the area between the Lorenz curve for the 1975 data and the line of complete equality; then estimate the 1975 Gini Coefficient.
 - d. The Gini coefficient may be calculated from quintile data using the following equation: $G = .8(Y_5 - Y_1) + .4(Y_3 - Y_2)$, where Y_{ith} is the percent of total income received by the i th quintile (e.g., $Y_1 = 7.1\%$). Compare this estimate with the number you estimated in c.

2. Your firm's production function is $q = L^{2/3}K^{1/3}$, the inverse demand function for your product is $p = 20 - 0.3q$, you have $K = 5$ machines which cost you \$4 each per hour to operate. The wage you must pay your workers is $w = 3 + 0.7L$.
 - a. How many workers should you hire in order to maximize your profits?
 - b. What will be your level of employment, output, the price of your product, the wage that you pay and your profit?

Please replace the first paragraph of Section 7.2 of the course book with the following:

The data on Table 7.1 have much to reveal about the well-being of the inhabitants of 82 countries for which data are readily available. These countries constitute about 85% of the world's population. Some of the concepts reported on the table are fairly easy to explain. The first column of data reports the countries population, the second reports life expectancy at birth, and the third presents the infant mortality rate, which is the number of deaths during the first year of life per 1,000 live births. These data indicate that in the majority of the regions of the world life expectancy is much shorter and infant mortality is much higher than in the United States. But in seven countries people on average do live longer than in the United States. The infant mortality rate is lower in Japan than in the United States. While these measures are readily understood, the concepts presented in the remaining columns of the table require considerable explanation.

