Seminar 3
ECON4271
Spring 2015

Exercise I: Distributions

1. Assume first incomes are uniformly distributed on the interval $[0, \mu]$. Compute the mean income, the cumulative distribution function F, its inverse F^{-1} and the associated Lorenz curve $L(u)$. Explain what each of these tell us.

2. Consider next the Pareto distribution on the interval $[1, +\infty]$ with parameter α. Its probability density is given by $f(x) = \frac{\alpha}{x^{\alpha+1}}$. Again find the mean, the cumulative distribution function F, its inverse F^{-1} and the associated Lorenz curve $L(u)$.

3. Finally, consider a case where we are told that the Lorenz curve is $L(u) = u^3$. Derive the corresponding cumulative income distribution (which also depends on an unknown mean μ_3). Hint: It is easier to first solve for F^{-1}.

4. Compare inequality with the distribution from question 3. and the one we studied in question 1. Can there be cases where the distribution from question 3. stochastically dominates the one from question 1?

5. *Last question to come...*

Exercise II: Calculating Lorenz curves from data

On the course web site, you can find a data with two income distributions x and y. Both contain 100 observations and are ranked fro smallest to largest for your convenience.

- Calculate and plot cumulative distribution functions and Lorenz curves for the two distributions.

- Where is inequality highest? Does one distribution stochastically dominate the other? Discuss?