Econ 230B
Spring 2024
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Problem Set 1

DUE DATE: March 4

1. Lorenz Curve and Gini Coefficient

The IRS posts online tabulations of the distribution of annual individual incomes based on Federal Individual Income Tax data. We will focus on statistics for year 2021 available online in Table 1.4 posted at (link here).

a) Use columns (1) and (2) of the excel Table 1.4 for year 2021 to draw the dots of the Lorenz curve for the Adjusted Gross Income (AGI) distribution for all returns (but excluding returns with no AGI). Feel free to use any software (such as excel, STATA, or R) for this. Connect the dots of the Lorenz curve to compute the Gini coefficient.

b) Using the interpolated Lorenz curve from a), compute the following inequality statistics: top 10% income share, top 1% income share.

c) If, instead of having only of few dots, you had access to the complete underlying microdata to draw the exact Lorenz curve, would you have found more or less inequality in your responses to a) and b). Or is this ambiguous? Make sure to explain your answer.

d) Repeat the analysis of a) and b) using year 1993, the earliest year available on the IRS webpage.

e) Has inequality increased or decreased since 1993 by comparing d) and a-b)? Is this compelling or misleading evidence of the true trends in inequality in the United States over the last 30 years?

2. Chasing Natural Experiments within a Country

As seen in class, many of the best papers on labor supply responses to taxes and transfers exploit a policy change (a so-called "Natural Experiment") in order to obtain convincing estimates. This exercise asks you to find a Natural Experiment and propose an estimation methodology.

Download the pdf copy of the OECD annual publication *Taxing Wages* for years 2019 and 2023. Those publications are available online (link here) in pdf format (when connected through UC Berkeley). Part II of this publication describes the tax/benefits systems (including payroll taxes, income taxes, and various benefits) faced by wage income earners for each OECD country. Note that recent changes in the tax/benefit system are explicitly described in Section 4 for each country.

a) Find one reform in one country which took place between 2019 and 2023 that could be used to estimate labor supply responses to taxes or transfers for some group of interest in the population. Make sure the reform is large enough to be useable for compelling identification. Describe the reform you have picked.

b) Describe the methodology you would use to estimate such labor supply responses. In particular, make sure to be fully explicit about the assumptions you need to identify the labor supply response parameters. Try to explain whether your estimates capture participation versus intensive elasticities, uncompensated versus compensated elasticities, income effects, etc.

c) Describe the data you would need to carry out the analysis. Survey or administrative data, variables, realistic sample size, time period, panel or repeated cross section, etc. Search online to investigate whether such data exist and how they could be obtained for the research analysis you are proposing.

d) (FOR FUTURE WORK): If you find a really promising Natural Experiment, the next step is to look for the related literature (you want to be the first to analyze this change!) and then try and get the data to carry out the research project.