

Tutorial 3: Health Inequality

I. Concentration Curve

1. Open the dataset *"dataset2_s10.dta"* in Stata. It contains data on women and their children in **India** and **Mali**.
2. Plot the **Lorenz curve** for malnutrition and the concentration curve with respect to wealth for India, adding the 45° line.
3. Plot the same curves for Mali.
4. Plot the concentration curves for under-five deaths with respect to wealth for India and Mali.
5. If we want to test for the statistical significance of **dominance**, why do we need a **decision rule**? What are the possible outcomes?

II. Concentration Index

1. How is the concentration index related to the **Gini** coefficient?
2. Calculate the concentration index of child malnutrition with respect to wealth for India using the following formula:

$$2\sigma_r^2 \left(\frac{h_i}{\mu} \right) = \alpha + \beta r_i + \varepsilon_i. \quad (1)$$

Is the concentration index significantly different from zero?

3. Standardize the concentration index by mother's education (*educ*), mother's age (*age*), time to get to water source (*watertime*), and electricity access (*electricity*). Do these covariates explain the estimated inequality in malnutrition by wealth level?

III. Decomposition of Inequalities

1. What is an **Oaxaca-Blinder** decomposition?
2. Compare the **mean difference** between poor and non-poor. Are they different? Does it seem reasonable to use the Oaxaca-Blinder decomposition in this setting?
3. Run a regression of malnutrition on the **poverty dummy** and its **interactions** with the following covariates: *childage*, *son*, *educ*, *bmi*, *watertime*. Check whether the differences in the effects on malnutrition between poor and non-poor are **systematic**.
4. Test whether an Oaxaca-Blinder decomposition would help in explaining the gap in child malnutrition between poor and non-poor in India, using the set of covariates from the previous question (**Wald test**).
5. Conduct the Oaxaca-Blinder decomposition and interpret the results.
6. What is the advantage of **decomposing** the concentration index over an Oaxaca-Blinder decomposition?