

Development Economics I

Project II: Poverty and Inequality

Due Date: Friday, Azar 30th

Objective

This project aims to analyze the socioeconomic landscape of Iran by examining both poverty and inequality. It includes estimating poverty metrics such as the poverty line, poverty gap, and multidimensional poverty index (MPI), as well as inequality indicators like the Gini coefficient and the share of the top 1%. The analysis incorporates comparisons across different datasets and visualizes findings through interactive maps.

Scope

- Assess both poverty and inequality for urban and rural zones separately.
- Include demographic considerations with weighted household members:
 - Head of Household (HH): Weight = 1
 - Non-head above 18 years old: Weight = 0.8
 - Non-head under 18 years old: Weight = 0.5
- Analyze and compare results using multiple data sources:
 - Iranian welfare database (2% sample)
 - Household Income and Expenditure Survey (HEIS)

1 Poverty Analysis (50 points)

1.1 Estimation of the Absolute Poverty Line

- Use the **Ministry of Health food bundle**, providing 2,100 calories per day and required protein content.
- Estimate the cost of this bundle for urban and rural zones to determine the absolute poverty line.

1.2 Estimation of the Relative Poverty Line

The relative poverty line can be calculated in one of two ways:

1. **Traditional Approach:** As a percentage of the median or mean per capita expenditure (e.g., 50% of median expenditure).
2. **Hybrid Approach:**
 - Rank households by per capita non-durable expenditure.
 - Identify the bottom 20% of households in both urban and rural zones.
 - Analyze the food bundle typically consumed by these households.
 - Based on this bundle, determine the amounts that provide 2,100 calories.
 - Use the cost of this new bundle as a refined poverty line.

Estimate the relative poverty line using both methods and compare the results.

1.3 Calculation of the Poverty Gap

- Calculate the poverty gap for each province using the poverty line as a benchmark.

1.4 Multidimensional Poverty Index (MPI)

- Define dimensions (e.g., education, health, living standards) and thresholds for deprivation.
- Calculate MPI using weighted averages for households in poverty.

2 Inequality Analysis (40 points)

2.1 Estimation of Inequality Metrics

- **Gini Coefficient:** Measure income inequality using both the welfare database and HEIS data.
- **Top 1% Share:** Estimate the share of total income/expenditure held by the top 1% of households.

Note: In order to utilize the welfare database, you need to use an alternative proxy for income, because `daramad_total_rials` is zero for many observations.

2.2 Comparative Analysis

- Compare results for the Gini coefficient and top 1% share across the two datasets.
- Investigate differences in results, ensuring the calendar year is the same for both datasets.
- Discuss potential causes of variation, such as sampling, survey methodology, or data definitions.

3 Geographic Analysis and Comparison (30 points)

3.1 Geographic Atlas

- Use **Shiny and Leaflet libraries in R** to create interactive maps at the province level:
 - Map poverty indicators (poverty line, poverty gap, MPI).
 - Map inequality indicators (Gini coefficient, top 1% share).

3.2 Illustration and Comparison

- Highlight spatial patterns in poverty and inequality.
- Discuss correlations between poverty and inequality across provinces both for rural and urban areas (e.g. whether provinces with high inequality also experience higher poverty rates).

- Conduct sensitivity analysis for poverty and inequality metrics using different thresholds or assumptions.

4 Report and Presentation (20 points)

- Set up a public repository for this project. Name it clearly, including your project topic.
- Upload all relevant materials to your repository, including your code, data files, report, and presentation.
- Ensure your code is organized, readable, and well-documented for reproducibility. Including a README.md file explaining the purpose of each file, any setup instructions, and how to run your analysis would receive extra credit.