Inequality

Gini Index

- $\gamma = \frac{N+1}{N-1} - \frac{2}{N(N-1)\mu} \sum_{i=1}^{N} \rho_i x_i$
- $\gamma = \frac{1}{\mu N(N-1)} \sum_{i>j}^{N} \sum_{j}^{N} |x_i - x_j|$

Theil-T

- $T = \frac{1}{N} \sum_{i=1}^{N} \frac{Xi}{\mu} Ln(\frac{Xi}{\mu})$

Theil-L

- $L = -\frac{1}{N} \sum_{i=1}^{N} Ln(\frac{Xi}{\mu})$

J-Divergence

- $J = (Theil - T) + (Theil - L)$

Social Welfare

BES function (Sen)

- $W = \mu(1 - \delta)$

BES Graff

- $W = \mu(1 - \delta)^{\rho}$, $\rho \, \epsilon \, [0, 1]$

Social Welfare Function

- $W = u(x^*) = \int_o^{\infty} u(x)w(x)f(x)dx$

Atkinson Index for $\epsilon \neq 1$

- $W = \frac{1}{N} \sum_{i=1}^{N} \frac{Xi^{1-\varepsilon}}{1-\varepsilon}, \varepsilon \neq 1$

Inequality trough the Atkison Index

- $I = 1 - [\frac{1}{N} \sum_{i=1}^{N} (\frac{Xi}{\mu})^{1-\varepsilon}]^{\frac{1}{1-\varepsilon}}$

Labor Economics

Definitions

- E(Occupied Population): People working
- U(Unemployed Population): People looking for job but not occupied
- I(Inactive population): People not occupied neither looking for a job
- AAP(Active Age Population - PIA): Population with working age ($AAP = E + U + I$).
- PEA(Economically Active Population): People within the labor market (E+U)
- l(Participation Rate): $\frac{PEA}{PIB}$
- Unemployment Rate: $\frac{U}{PEA}$
- Occupation Rate in PEA: $\frac{E}{PEA}$

Relation between indicators

- $E = \frac{E}{E+U} X \frac{E+U}{E+U+I} X (E + U + I)$
- $y = lX(\frac{e}{l})X(\frac{h}{e})X(\frac{y}{e})$, where y is per capita income.

Poverty

FGT Indicator

- $P^{\alpha} = \frac{1}{n}\sum_{i=1}^{q}(\frac{Z-Yi}{Z})^{\alpha}$

Poverty Index

Sen

- $P_s = P^0\delta + P_1(1-\delta^P)$

Watts

- $P_W = (\frac{1}{N}\sum Ln(\frac{Z}{y_i})$

Clark, Hemming and Hulp (1981)

- $P_{C-H-U} = (\frac{1}{nc})\sum[1-(\frac{y_i}{Z})^c]$

Pro-Poor Policy Index

- $\lambda = \frac{1}{b\eta\theta}\int\frac{\partial P}{\partial x}b(x)f(x)\partial x$

Polarization and middle class

Inter temporal social welfare function

- $Ln(\mu^*) = \frac{1}{n}\sum_{t=1}^{n}Ln(\mu_t)$

Global Social Indicators

Human Development Index (HDI)

- $HDI = \sqrt[3]{IhXIeXIi}$

where:
lh = health index;
Ie = education index;
Ii = income index

Inequality-adjusted HDI (IHDI)

- $Ax = 1 - \frac{\sqrt[n]{X_1 \ldots X_n}}{\bar{X}}$
- $Ix^* = (1-Ax)Ix$
- $IHDI = \sqrt[3]{Ih^* * Ie^* * Ii^*}$