* Gender empowerment index

Midsem.

12/03/19

Functioning and capabilities

* commodities are demanded because they have desirable qualities.

6 → x_i = commodity vector owned by i

$C()$ = desirable characteristics vector

$f_i()$ = personal utilisation function. the individual i actually uses.

$F_i()$ = Set of personal utilisation function.

$v_i()$ = Valuation function, (rank different things

b_i : achievements

$b_i = f_i(c(x_i))$

* Book (x)

$C_i(x) = \{$ knowledge, Read pleas, Listen Pleas, Heat $\}$

$F_i() = \{$ Read ABility, Listen alulity, Make fire $\}$

$$RA(K(Book)) = Job$$

* $P(x_i) = \{ b_i \mid b_i = f_i(c(x_i)) \text{ for some } f_i \in F_i() \}$

$P(Book) = \{$ Job, story, H $\}$

set of achievements: functioning.

$V()$ ranks achievements.

X_i - set of all possible commodities / Endeavement set.

$S(X_i)$ = All possible achievements.

$P(x_i)$: functioning, $S(x_i)$ = All possible achievements.

* Even if one achieves best b^*, the $g(x_i)$ may be low.

	A	B
$g(x_i) =$	{Job, story, H, Mobil}	{Job, H, Mobil}
	↓	↓
	{Job}	{Job} → achieved.

∴ same achieved but B is 'poorer' in terms of choices.

~~* commodi~~

* commodities and capabilities : A K Sen. (Chapter- II)

Poverty
- Direct Poverty
- Indirect Poverty. (derived)
  / expenditure / money

Direct : unable to satisfy basic needs (food, ..)

food → calorie intake.

India → 2200 kCal / day / person. → urban

2400 kCal / day / person → rural.

converting calorie benchmarking → income benchmarking (indirect poverty).

18 March 2019

Poverty
- → Problem of identification. (Who is poor)
- → Problem of aggregation. (How to sum all poor)

Identification

$PL = z$

$Y_i \geq z$ 'i' is non poor else poor.

'Food' → calorie intake

Benchmarking calorie : provided by ICMR
- → activity level
- → Gender
- → Age

1979: First ICMR norm
- → 2400 kcal / person / day → rural
- → 2100 kcal / person / day → urban.

Consumer Expenditure Survey

Food items

	Quan	Price	Expenditure
350-400 Rice, Wheat, :		30 days, 365 days	Monthly per capita. Household consumption Expenditure. (≡ MPCE$_i$)

Non food items (durables)

$$\frac{1}{N_i}\left[\sum q_i^j p_j + \frac{1}{12}\sum q_i^{NL} p_k^{NL}\right]$$

Education, shoes

* Per capita Calorie - Availability

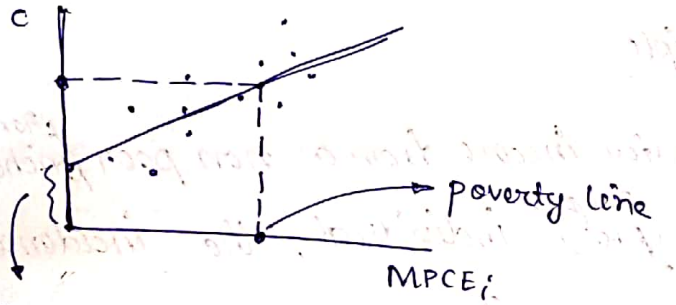
$$C_i = \frac{1}{N_j} \sum_{j=1}^{K} R_j q_{ij}$$

k: no. of food items.

R: calorific value of j^{th} food item

q_{ij}: quantity of j^{th} food item consumed by i^{th} house.

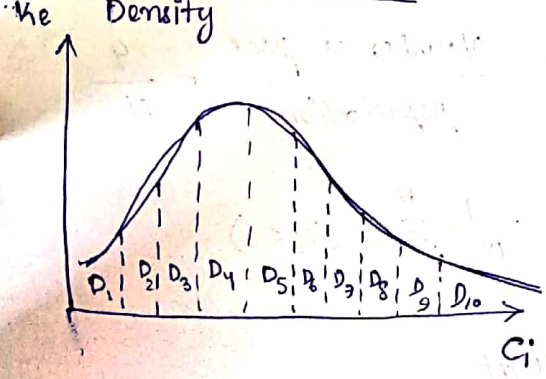
* $C_i = \alpha + \beta MPCE_i + e$ → error term.



autonomous consumption

$e \sim N(0, \sigma^2)$

Calorie distribution



D	$\bar{C}_D$
D_1	$\bar{C}_{D_1} = 1700$
D_2	$\bar{C}_{D_2} = 1900$
⋮	
	$\bar{C}_{D_3} = 2100$
D_4	$\bar{C}_{D_4} = 2400$
D_{10}	$\bar{C}_{D10} = 10000$

Poverty Decile Group.

mean for each decile

$\overline{MPCE_i}$ for D_1 (poverty class) represents poverty lines.

1978: Rural: 49.61 (~1 Dollar)

Urban: 56.5

World Bank (1$/day/person)

currently (1.25$ (developing), $2 (~~un~~developed))

* $H = \frac{\text{No. of Poor}}{\text{Population}}$ = Headcount ratio. $= 100 \times \frac{q}{p}$

* $10 = 1999.9$
  $999.9 \neq 10001$
  } fundamental problem (Depth of poverty)

Dalton's Principle

When one transfer income from a non poor (richer) to a non richer (poor) individual, the incidence of poverty to decline (increase)

Incidence of poverty.

25/03/19

① Head count ratio $(P_0) = \frac{\text{Number of poor}}{\text{population}} = \frac{q}{N}$

$= \frac{1}{N} \sum_{i=1}^{N} I(Y_i < z)$

z = Poverty line

Y_i = Income of i^{th} individual.

→ Does not consider depth of poverty.

② Poverty Gap: takes care of depth of poverty (P_1)

$P_1 = \frac{1}{N} \sum_{i=1}^{N} \frac{(z - Y_i)}{z} * I(Y_i < z)$

(6) Square Poverty Gap. (P_2 or SPGI)

$$P_2 = \frac{1}{N} \sum_{i=1}^{N} \left[\left(\frac{z - y_i}{z} \right) * I(y_i < z) \right]^2$$

Foster - Greer - Thorbecke

FGT: family of poverty.

$$P_{FGT}(\alpha) = \frac{1}{N} \sum_{i=1}^{N} \left[\left(\frac{z - y_i}{z} \right) I(y_i < z) \right]^{\alpha}$$

$\left(\frac{z - y_i}{z} \right)$ → Depth of poverty

$I(y_i < z)$ → identification of poor

$\alpha = 0$ $P_{FGT} \Rightarrow P_0$ (Head count)

$\alpha = 1$ $P_{FGT} \Rightarrow P_1$ (PG)

$\alpha = 2$ $P_{FGT} \Rightarrow P_2$ (SPGI)

* Sen's poverty index. (P_S)

$$P_S = P_0 \left(1 - (1 - G^P) \frac{\mu^P}{z} \right)$$

G^P = Gini coefficient for the poor

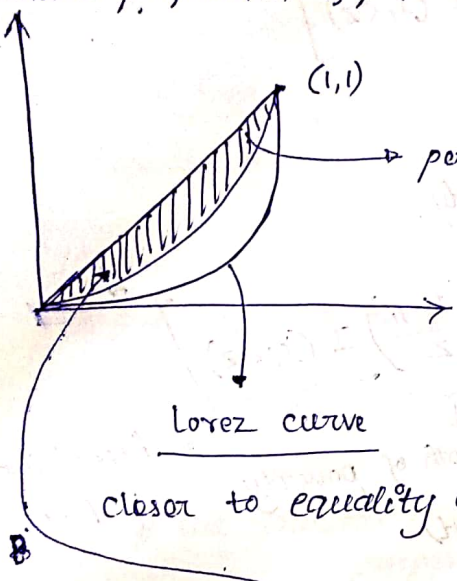
μ^P = Mean income of poor

* Gini Coefficient → 'Lorenz curve.

Individual	No. of ind	Cum. Inc.	Cum prop Inc	Cum prop Pop
y_1	1	y_1	y_1/y	1/q
y_2	1	$y_1 + y_2$	$y_1 + y_2/y$	2/q
⋮	1	⋮	⋮	3/q
y_q	1	$y_1 + y_2 + \dots + y_q (y)$	1	1

(income increasing)

Lorez Curve → average (Gini coefficient calc)



closer to equality line ⇒ more equality.

* Gini coefficient = $\frac{\text{Area under equality and Lorez curve}}{\text{Area of triangle}}$

$= 2(\text{Area under equality and lorez curve})$

Modified Sen's PI

$$P_{SST} = P_0 P_1' (1 + \hat{G}^P)$$

Sen-Shorrocks-Thor

P_0 = Head count ratio

P_1 = Poverty gap for poor

$\hat{G}^P$ = Gini coefficient for the population.

$$\ln P_{SST} = \ln P_0 + \ln P_1' + \ln(1+\hat{G}^P)$$

$$\therefore \Delta \ln P_{SST} = \Delta \ln P_0 +$$

↓ change in no. of poor

* 1962: Expert Committe

R ⇒ 20/- U ⇒ 25

∴ ⇒ 100/- 125

* 1977: Working commi

used 1973-74 consu

submitted report in

Uniform Recall Per

* for non food 30 d

* P.L. ⇒ R → 49.09

U → 56.64

statewise poverty li

* NAS: National

* $\frac{C^{NAS}}{C^{NSS}} = 1$ (

∴ increased con

* URP: expenditure

remains co

$\therefore \Delta \ln P_{SST} = \Delta \ln P_0 + \Delta \ln P_1' + \Delta \ln(1+G')$

- $\Delta \ln P_0$ → change in no. of poor
- $\Delta \ln P_1'$ → change in depth
- $\Delta \ln(1+G')$ → change in equality.

* 1962: Expert Committee

$R \Rightarrow 20\%-$ $U \Rightarrow 25\%-$ family size 05

$\therefore \Rightarrow 100/-$ $125/-$ = 4 consumption unit

* 1977: Working committee (Alagh committee)
Used 1973-74 consumption Expenditure NSSO
submitted report in 1979
Uniform Recall Period (for food (~~30~~ 1 days))
* for non food 30 days (but not correct)
* P.L. $\Rightarrow$ $R \rightarrow 49.09$ Calorie → $R \rightarrow 2400$
$U \rightarrow 56.64$. $U \rightarrow 2100$

statewise poverty line since 1993.

* NAS: National Account Statistics consumption.

* $\frac{C^{NAS}}{C^{NSS}} = 1$ (ideally) > 1 (actual)

∵ increased consumption expenditure by this factor.

* URP: expenditure on food and non food items remains constant for 30 days.

01/09/19

1993 expert group (Lakadawala)

→ Same methodology as 1973-74.

→ upgraded previous poverty line using Consumer Price Index.

R → CPI → Agric. Labour

U → CPI → Industrial ~~labour~~ worker.

→ Did not adjust NAS and NSS

→ Generated statewise poverty line → '73

→ R → 205.84 37.57 } Incidence of poverty

U → 281.35 32.36 }

2004-05 (Tendulkar Expert group)

→ Used same method

→ Reference period (Mixed reference period)

→ State specific PL

CPI-AL

CPI-IW

* URP > MRP

* Calorie intake reduced because of mechanization and ~~of~~ transport.

Rangarajan (2014)

Rural: 2155 kcal. } Based on 2011-12 consumption expenditure data.

Urban: 2090 kcal }

* Modified Mixed Reference period

→ food → 7 days
→ 30 days

→ non food → 365 days.

* URP < MRP < MMRP

	2004	2009-10	2011-12 (P_0)
R	447	673	816 25.7
U	519	860	1000 13.7
			21.9

Paasche

* Rangarajan

R - 972 U - 1407

(P_0) 30.9 26.4 → 29.5 } Laspeyres

Inflation

Increase in general price level.

$$Inf = \frac{P_{2011}}{P_{2010}}$$

* many methods of aggregating individual prices (weighted mean)

i) Laps PI

w_i = Base year quantity. ∴ LPI = $\frac{\Sigma P_{i1} q_{i0}}{\Sigma P_{i0} q_{i0}}$

ii) If current year quantity → Paasche PI

* Laps: Underestimate substitution effect

Paasche's: Over estimate substitution effect.

* CPI → General public, Services, Health, Intermed goods, Import.
  WPI → Policy decision, Daily Allowance

08/04/19

* Midsem: Numerical poochoga

Inflation

Continuous increase Average/Aggregate Macro prices

$$PI = \frac{P_{iq}}{P_{i0}} \times 100\%$$

$P_0 = \sum w_i P_{i0}$ $\quad P_1 = \sum w_i P_{i1}$. w remains constant

w_i = value share in the base year

$$= \frac{P_{i0} \cdot q_{i0}}{\sum P_{i0} q_{i0}}$$

$$PI = \frac{P_1}{P_0} = \sum_{i=1}^{n} (w_i) \cdot \frac{P_{i1}}{P_{i0}} = \frac{\sum q_{i0} P_{i0} P_{i1}}{\sum q_{i0} P_{i0} P_{i0}} = \frac{\sum P_{i1} q_{i0}}{\sum P_{i0} q_{i0}}$$

$= LPI$

$$PPI = \frac{\sum P_{it}\, q_{it}}{\sum P_{i0}\, q_{it}}$$ Paasche's Price Ind.

Time Reversal Test

$$PI_{01} * PI_{10} = 1$$

$$PPI_{01} = \frac{\sum P_t\, q_{ti}}{\sum P_0\, q_{ti}} \qquad PPI_{10} = \frac{\sum P_{i0}\, q_{0,i}}{\sum P_{i,t}\, q_{0,i}}$$

∴ does not follow Time reversal test

∴ Fischer Price Index (FPI) = $(PPI * LPI)^{1/2}$

CPI (consumer)

- → food inflation
- → Intermediate goods not inc
- → no imported goods
- → takes services into account

WPI (Wholesale)

- → policy decision
- → use intermediate goods
- → Imported goods considered
- → Does not take services in account.

CPI
- → Rural CPI
- → Urban
- → Agricultural labourers CPI
- → Industrial work.
- → unorganised workers

Central Statistical Organisation (CSO)

measures price index.

Shops remain same

Products not available in region: highest weights.