Development Engineering
TD 463
Lecture 3

Milind Sohoni

Centre for Technology Alternatives for Rural Areas, CSE
IIT-Bombay

www.ctara.iitb.ac.in
www.cse.iitb.ac.in/∼sohoni

What is Development?

- Tragedies and their causes and prevention.
- Rapid tragedies vs. slow motion tragedies.
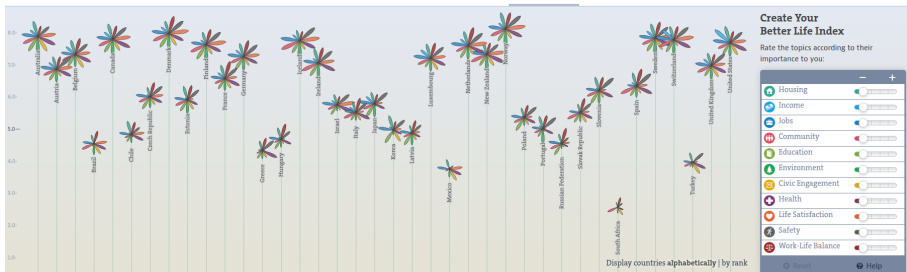- Natural vs. man-made.

Development as the non-tragic

Development as the desire for and pursuit of a predictable, comfortable and cultural life for an individual and her household.

- Basic needs: Food, water, shelter, health, reproduction. Cultural Needs.
- Contrast, say with a mughal king. Social and collective and not individual.
- Liberty, Equality, Fraternity, as a society. Means to an end.
- Modernity: Efficiency, Equity, Sustainability.
- Governmentality. The power of statistics. The ability to prevent and to pay the costs of prevention.

Millennium development goals

- elimination of extreme poverty and hunger,
- achieve universal primary education,
- promote gender equality,
- reduce child mortality and improve maternal health
- to combat diseases such as HIV, malaria,
- to ensure environmental sustain-ability, and finally
- to develop a global partnership for development.

No mention of money, companies or job or cultures. Also, why should education matter?

OECD

How's life?

OECD Index

Let us look at OECD, which is a group of rich countries, and their indices for countries.

- We see that they have 11 categories,
- housing, income, jobs, community, education, environment,
- civic engagement, health, life satisfaction,
- safety, and work-life balance.

One must also wonder how these are measured!

Human Development Index

3 components, geometric mean.

- Health. Life expectancy at birth.
- Education. Mean years of schooling for people above 25. Expected years of schooling.
- Well-being. per-capita GDP.

General rule:

$$I_i = \frac{Obs - Min}{Max - Min} \quad I = (I_1 I_2 I_3)^{1/3}$$

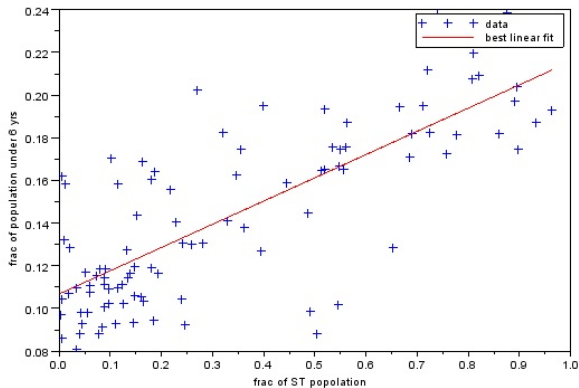Inequality Adjusted Index: Geometric mean/Arithmetic Mean.

Data-sets

Census.

- *All* individuals. Grouped at ward, village and then at all above levels.
- Part A. Demographic.
  - ▸ Population, age-wise group, SC/ST, literacy, employment.
- Part B. Amenities.
  - ▸ Household. Housing, Cooking DW, Electricity, Ownership.
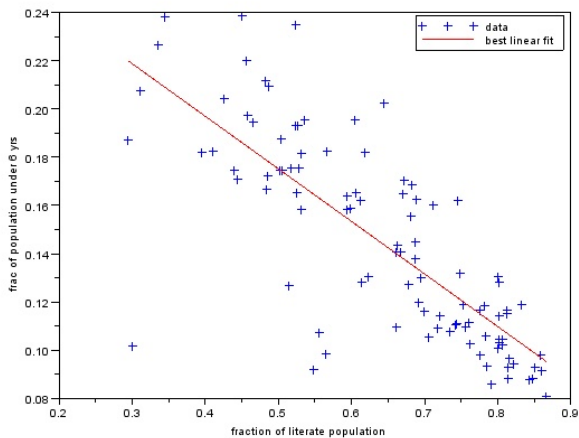 - ▸ Village PHC, school, college, large town, hospital.

NSSO.

- Sample, roughly 400-600 per district (rural). Careful selection and careful training.
- Specialized surveys.
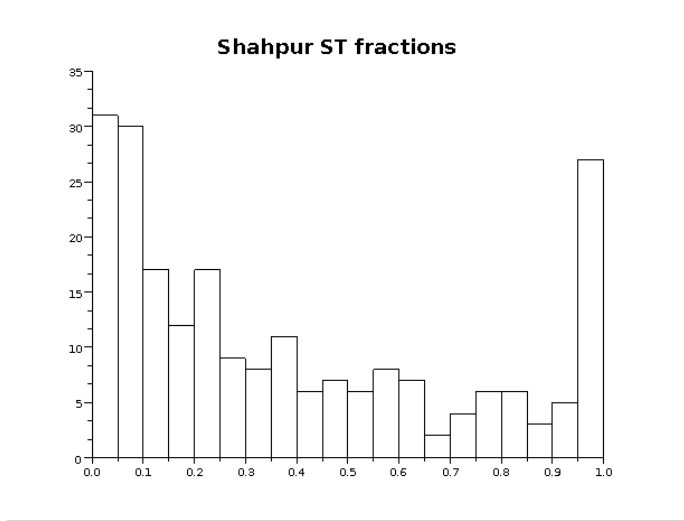 - ▸ Consumption. Amenities. Water. Education. Agriculture.

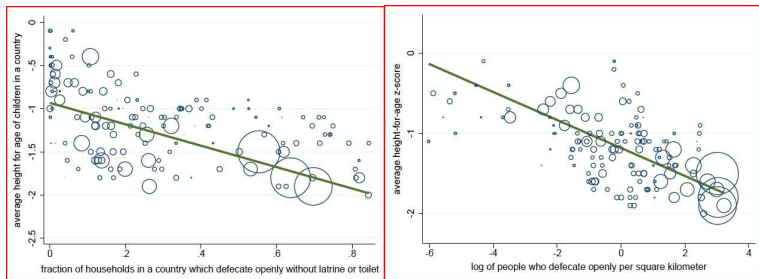# Relationships between development data-sets
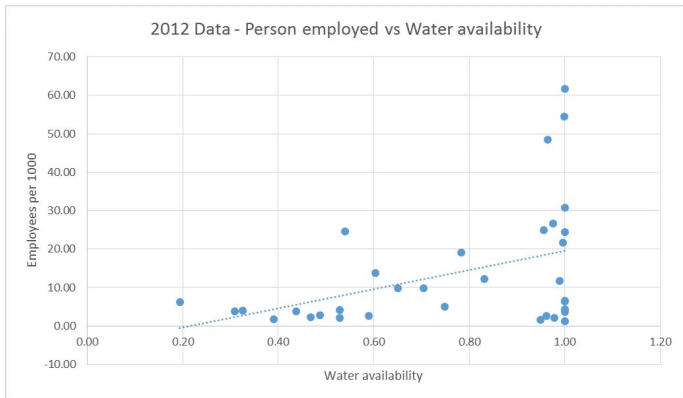
Relationships between development data-sets

Relationships between development data-sets

Shahpur ST fractions

Open Defecation vs. Stuntedness

Urban Drinking Water and Jobs

2012 Data - Person employed vs Water availability

Inequality and its determinants

Latrines on premises - Census 2011
Talukas - Urban and Rural Populations
Comparison of General vs. SC
populations.

- Greater geographical and
  rural-urban divide than social
  divide.

- Higher development index leads to
  more parity and equity.

- Tamil Nadu does worse!

- Needs analysis and strategy.

- Communities and regional agencies
  need support and hand-holding.

latrines

Latrines