Measuring Vulnerability to Poverty

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What do we mean when we talk about measuring vulnerability to poverty?

Definitions

- **Poverty in a monetary sense**
  - Household income or consumption

- **Two types of vulnerability**
  - Vulnerability to falling into poverty
    - Non-poor households who experience a shock and fall into poverty (transient poverty)
  - Vulnerability to staying in poverty
    - Already poor households who cannot get out of poverty (chronic poverty)

A possible framework: three levels of measurement

Three Approaches to Measuring Vulnerability

1. **The vulnerable as those just above the poverty line**
   - Households with consumption below some multiple of the poverty line

2. **The vulnerable as those above the poverty line with a high probability of falling into poverty next year**
   - Use of panel data and transition matrices

3. **The vulnerable as those with a high probability of falling into poverty next year based on a number of current risk factors**
   - Use of predictive regressions

1. Vulnerability as living just above the poverty line: easy to calculate

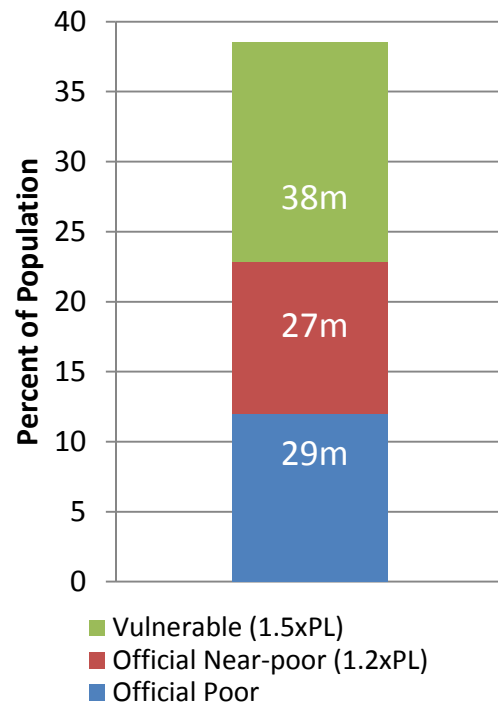## Indonesian Consumption Distribution 2010
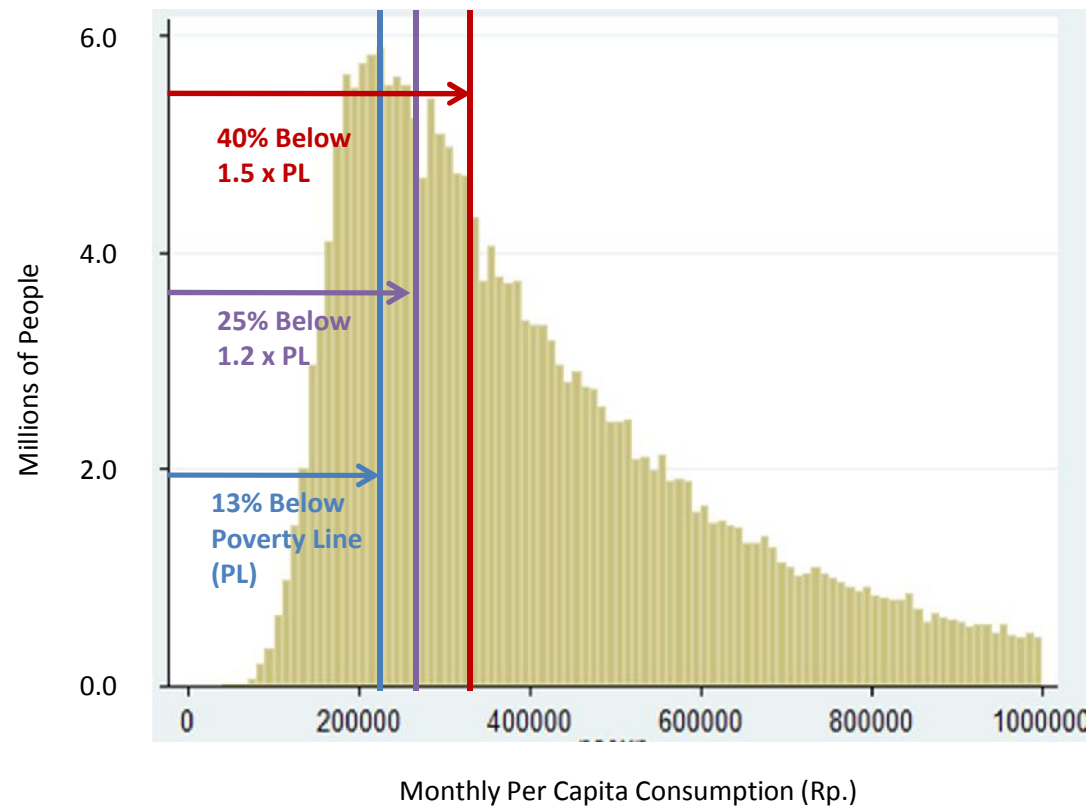
Source: Susenas
Notes: Household per capita consumption
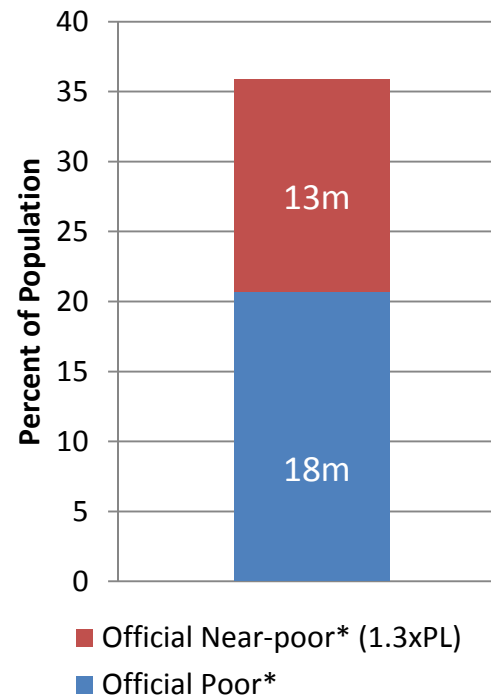
Vulnerability 1: Examples from East Asia

Vulnerability 1: Multiples of the Poverty Line

Indonesia 2012

- Vulnerable (1.5xPL)
- Official Near-poor (1.2xPL)
- Official Poor

Source: Susenas

Vietnam 2010

- Official Near-poor* (1.3xPL)
- Official Poor*

Source: 2012 Vietnam Poverty Assessment
*GSO-WB povertline

Philippines 2009

- Official Poor
- 1.2xPL
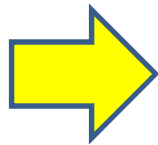
Source: World Bank estimates from 2009 FIES

However, how do we move beyond setting an arbitrary vulnerability line?

- An absolute monetary measure of vulnerability line appeals

- But setting the line as any multiple of the national poverty line is arbitrary

> What is a more objective manner for setting the line?

- An approach used in Latin America sets the line based on the probability of falling into poverty next year, given a household's current income/consumption

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2. Movement of households over time estimates probability of falling into poverty: more objective

Transition Matrices

- **Panel data allow us to track households over time**
    - Same households' consumption levels known across years

- **Can create transition matrix**

	Poor (t2)	Non-poor (t2)
Poor (t1)	Chronic poor %	Exiting poverty %
Non-poor (t1)	Entering poverty %	Not poor %

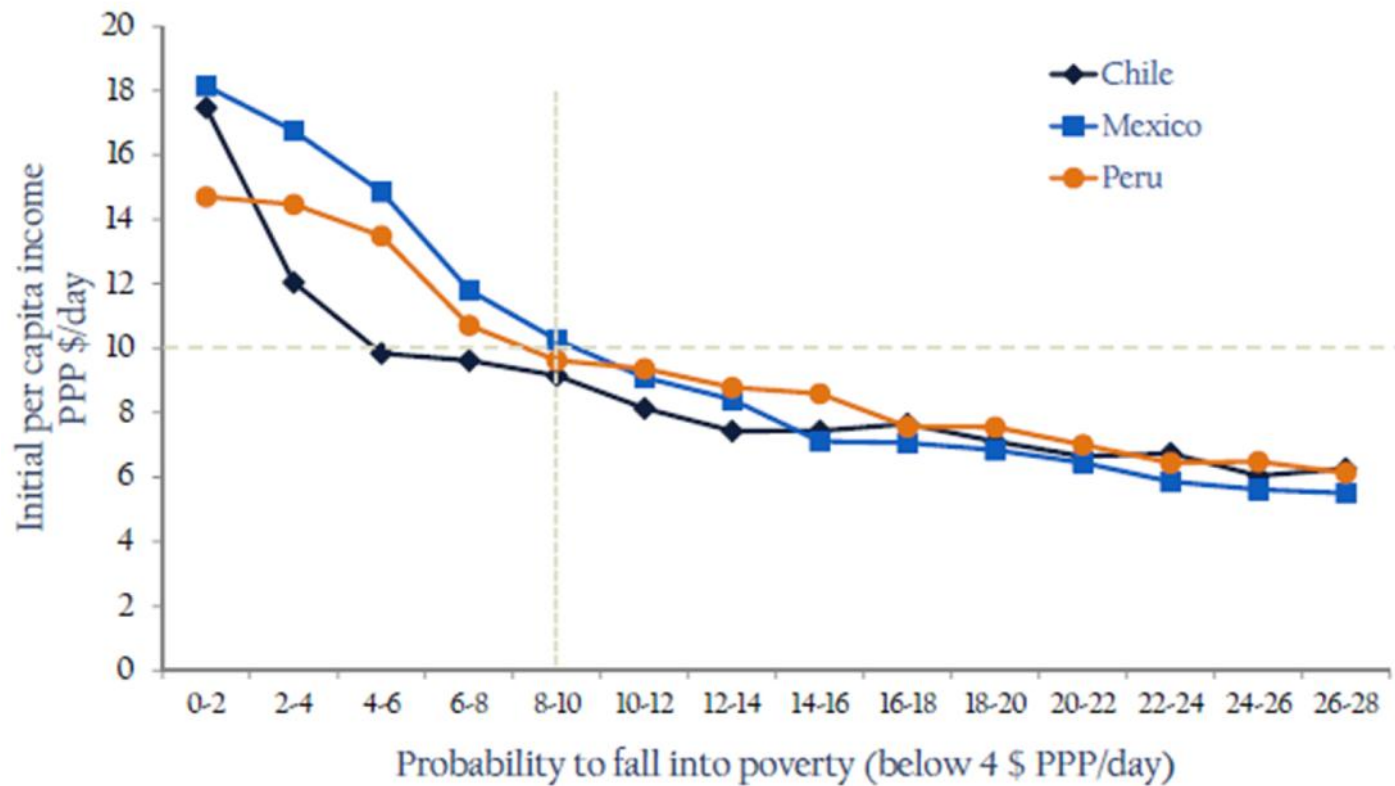Lopez-Calva. L.F. & E. Ortiz-Juarez (2011)

Vulnerability Curves

- **Can also create a vulnerability curve**
    - Estimate probability of being poor in t2 given consumption in t1
    - Plot against t1 consumption
    - Set probability threshold to define vulnerability line (e.g. 10%)

Probability of Being Poor in t2, Given Consumption in t1

10% chance of falling into poverty next year
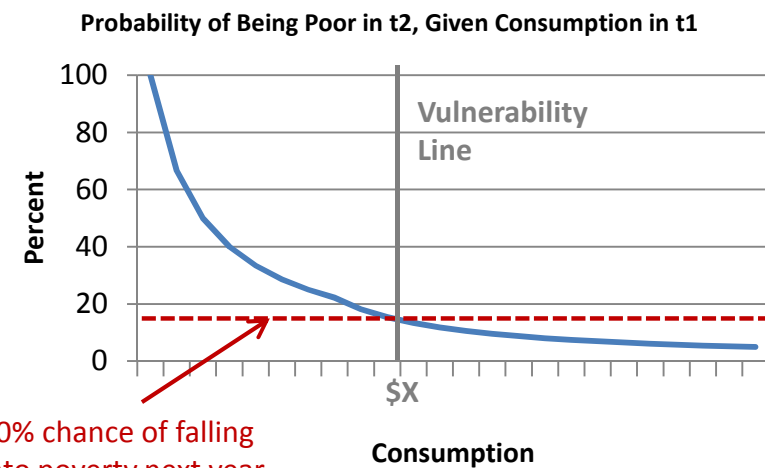
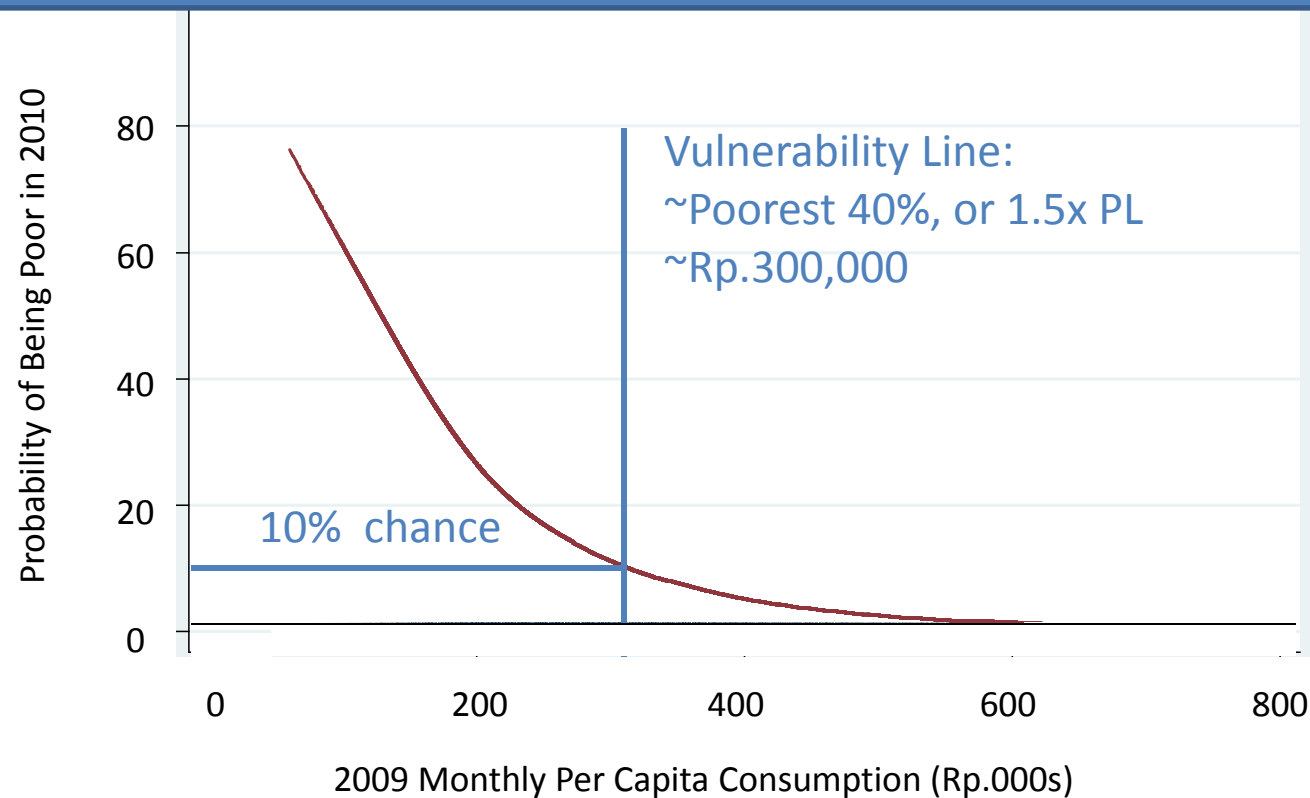# Vulnerability 2: Examples from Latin America

Vulnerability 2: Probability of Being Poor Given Income 5 Years Ago

Lopez-Calva. L.F. & E. Ortiz-Juarez (2011)

# Vulnerability 2: Applying the methodology to Indonesia

Vulnerability 2: Probability of Being Poor Given Last Year's Consumption

Source: Susenas (2009, 2010) and World Bank calculations

3. Vulnerability as risk-based : high probability of falling into poverty due to various risk factors

- **Some people below a certain income/consumption threshold fall into poverty, some do not: why?**
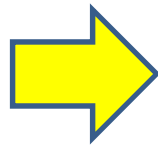
➡️ Can we identify and target the underlying risks?

- **Estimate probability of being poor based on household and other characteristics**
  - Demographics (age, sex, education, employment status, sector, type of job, dependency ratios), geographical location, housing characteristics (power, water and sanitation, housing quality), etc

- **Run regressions of poverty status on these characteristics to get predictors of vulnerability to poverty**

Vulnerability 3: Example from Indonesia

Transition Matrix

	Poor 2010	Non-poor 2010
Poor 2008	PP	PN
Non-poor 2008	NP	NN

Multinominal Logit

- **Estimate multinomial logit of the four categories on various explanatory vairables**

Source: Astuti and Illma (2012)

Risk Factors

- **Risk factors for both falling into poverty and remaining in poverty**
    - Young households
    - Female-headed (rural areas only)
    - Low education
    - Working in agriculture
    - High dependency ratio
    - Larger households
    - Nusa Tenggara (urban) and Papua (rural)