

Poverty and vulnerability to poverty in Ecuador: a microsimulation approach

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Motivation

- Over time people might flow in and out of poverty as a result of adverse economic shocks
- The concept of vulnerability to poverty considers the probability of being affected by such shocks
- In developing countries, vulnerability to poverty is often not considered due to data limitations

Poverty

ex-post measure of deprivation of some of life's basic needs, such as food, shelter, clothing, education, health care and social security among other dimensions of wellbeing

Vulnerability

ex-ante measure of the person's well-being, which reveals future expectations and risks of their realization: loss of production, price increase, illness, unemployment

Vulnerability ($v_{h,t}$)

$$v_{h,t} = \Pr \left(\underbrace{c(x_h, \beta_{t+1}, \alpha_h, e_{h,t+1})}_{\text{future consumption}} \leq z \mid \underbrace{c(x_h, \beta_t, \alpha_h, e_{h,t})}_{\text{current consumption}} \right)$$

where,

x_h is a vector of observable household characteristics

β_t describes the state of the economy

α_h time invariant household level effect, and

$e_{h,t}$ idiosyncratic factors (shocks)

$$v_{h,t} = \Pr(\textit{become poor}) = f[E(c_{h,t+1}), V(c_{h,t+1})]$$

This would be done using longitudinal data (where the same households are tracked over a number of periods) of sufficient length

Using cross-sectional data we estimate using a three-step feasible generalized least squares (FGLS). (Amemiya, 1977).

Methodology

- We use ECUAMOD, the tax-benefit microsimulation model for Ecuador
- ECUAMOD uses household representative microdata from the National Survey of Income and Expenditures of Urban and rural Households 2011/2012
for 39,617 households and 153,341 individuals

Estimation strategy

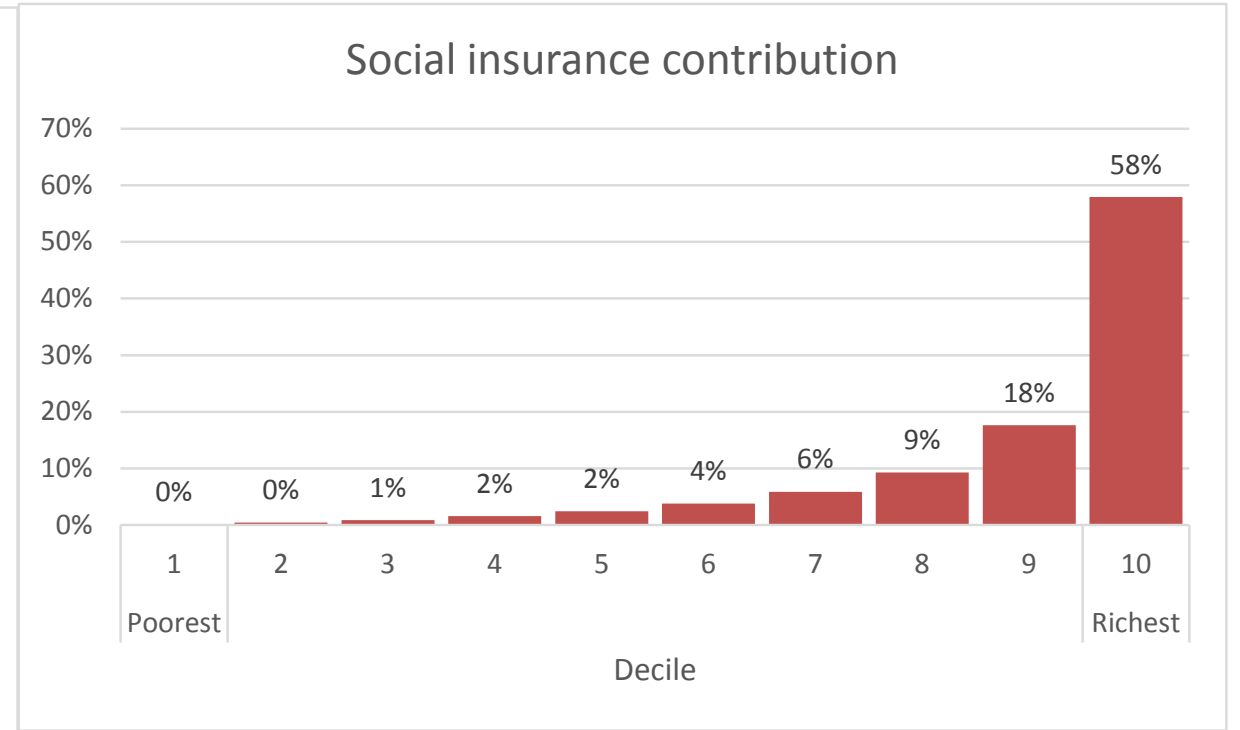
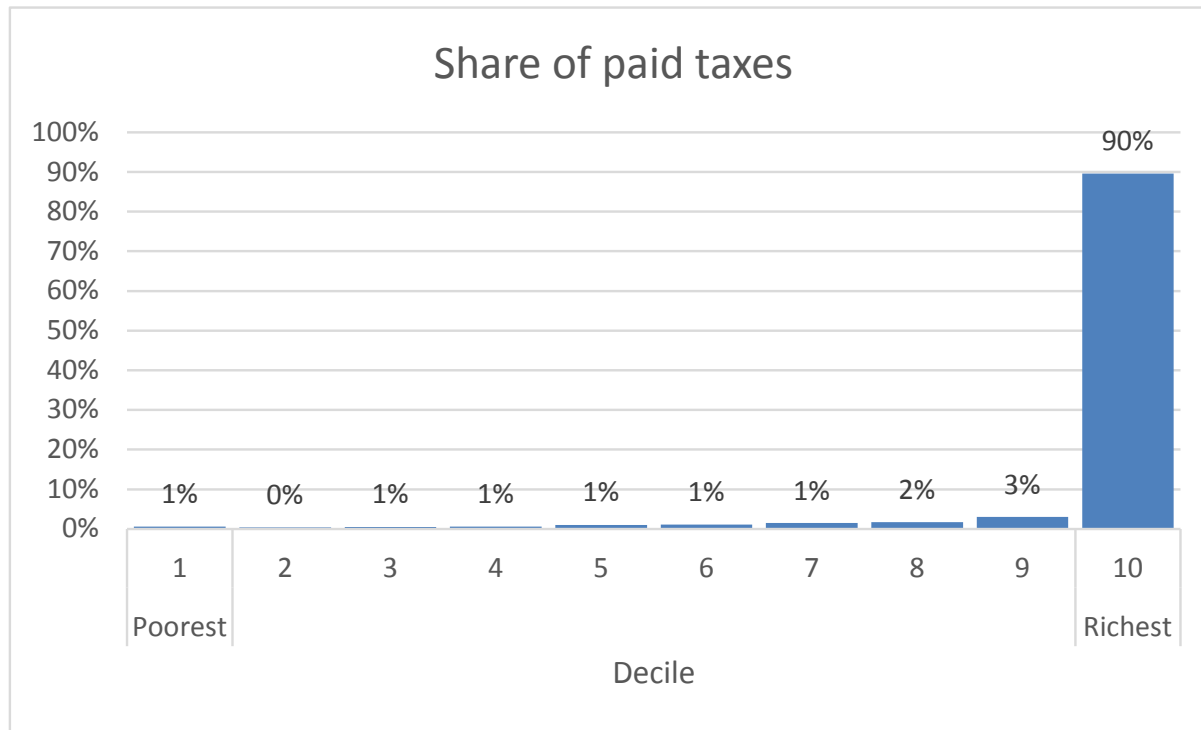
We estimate poverty and vulnerability to poverty by constructing a series of repeated cross-sections for years 2011 to 2016 using ECUAMOD based on ENIGHUR 2011/2012

- No large labour market changes over this period
- Focus on the role of the tax-benefit system

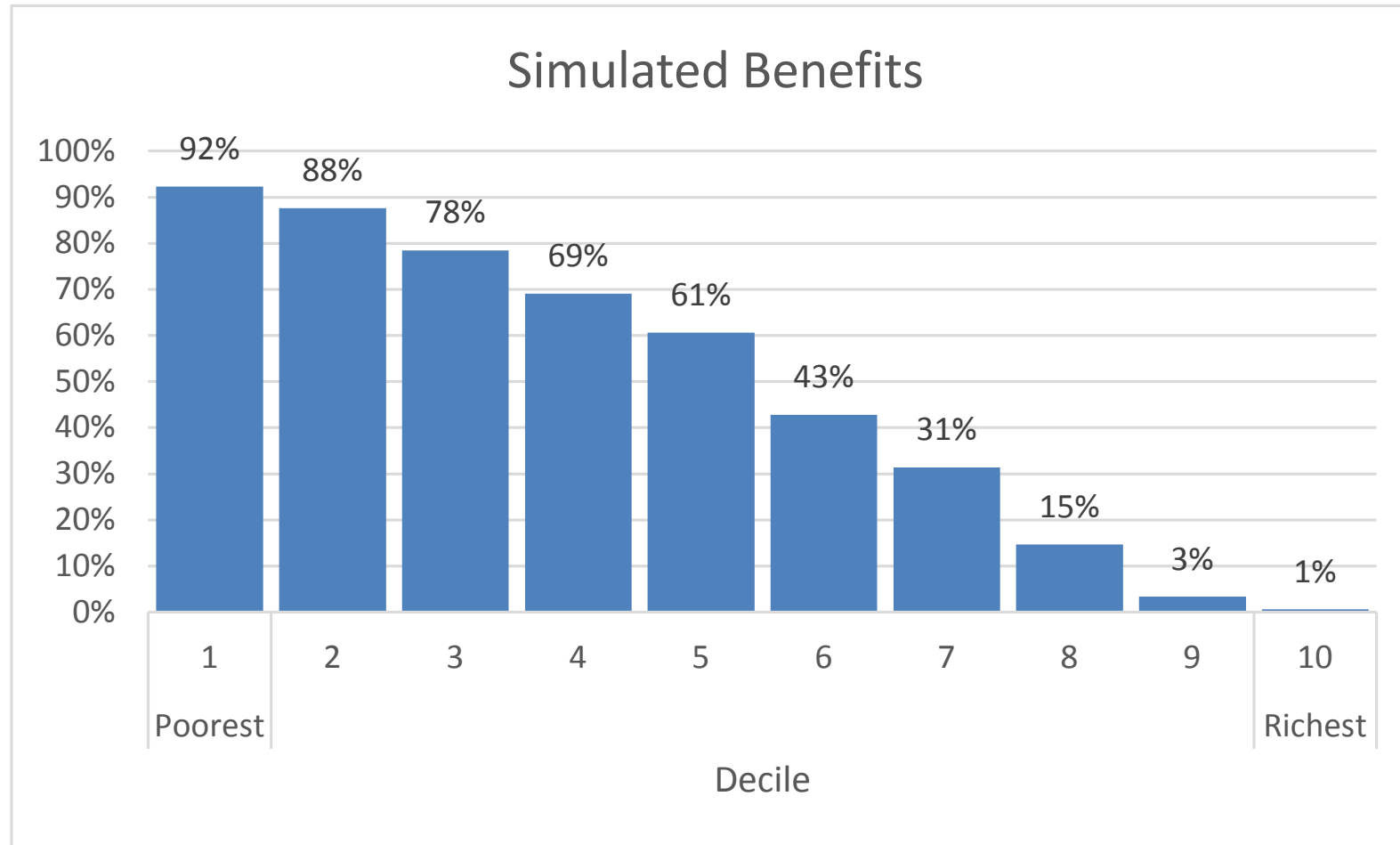
The typical household head (HHH)

		Female	Male
Age	median age (years)	50	45
Education	not completed primary	29%	20%
	primary	23%	29%
ethnicity	Mestizo	79%	79%
	Indigenous	6%	7%
Marital status	Separated	32%	
	Widowed	27%	
	Married		57%
	Single		34%
Social security	No social security	68%	57%
	Social security general	24%	32%

The tax policy benefits



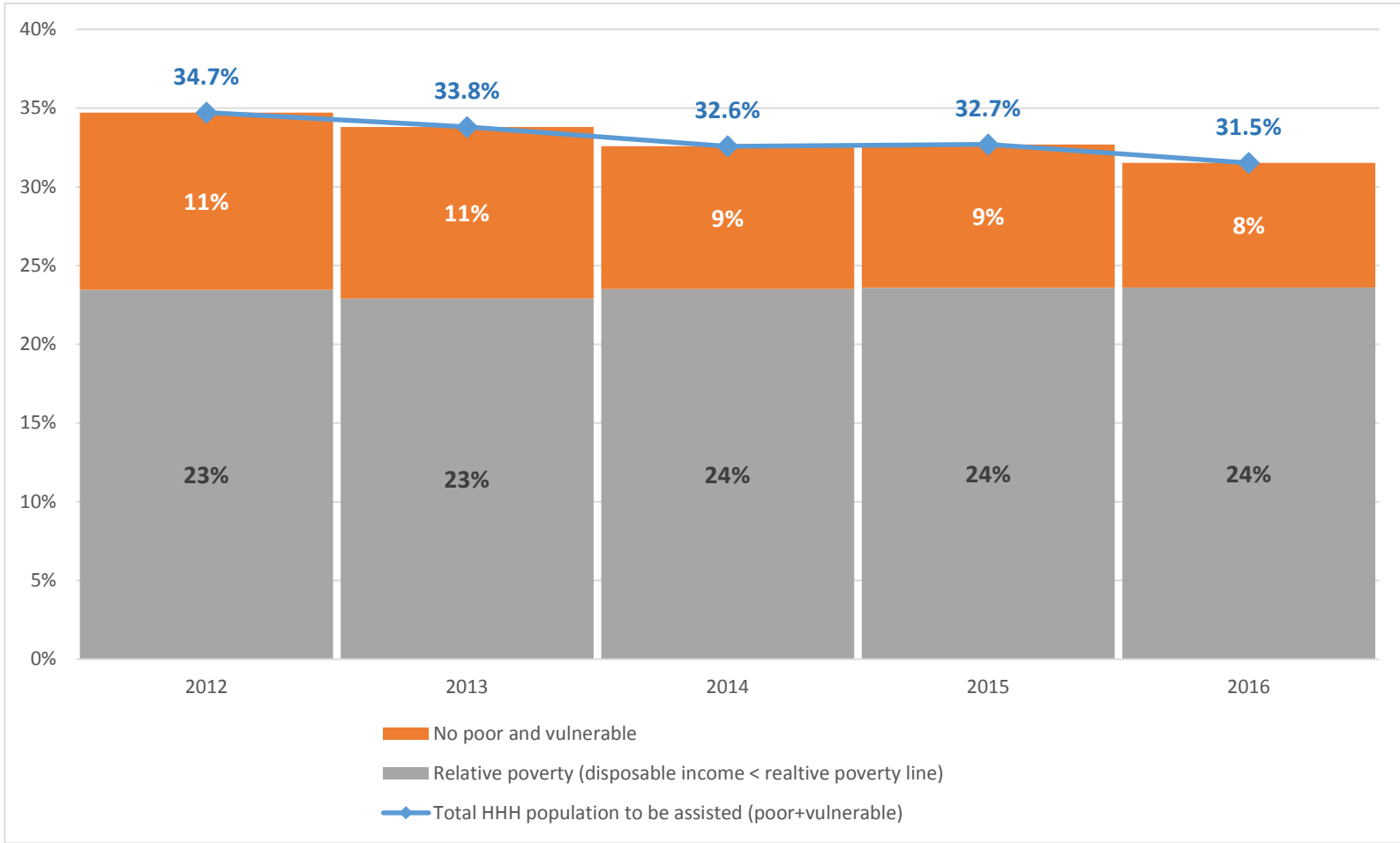
The tax policy benefits



The vulnerability results

	N	Mean	Standard deviation	Minimum	Maximum
poor-no-vulnerable	15%	93,2	38,7	0	155,5
poor-vulnerable	20%	89,9	37,4	0	155,3
no-poor-vulnerable	25%	340,6	240,8	155,61	2.296
no-poor-no-vulnerable	40%	512,2	844,4	155,55	31.544

Poverty and vulnerability to poverty



Concluding remarks

- Microsimulation techniques can be used to estimate vulnerability to poverty based on cross-sectional data
- In Ecuador:
 - Around 20% of the population is identified as poor and vulnerable
 - Around 25% of the population is identified as non-poor but vulnerable

Next steps

- Exploit the advantages of ECUAMOD to simulate the effect of increasing benefit amounts for certain population groups:
 - Poor and vulnerable
 - Non-poor but vulnerable
- Account for changes in the labour market in a rigorous way (e.g. as in nowcasting exercises using EUROMOD)



ECUAMOD

