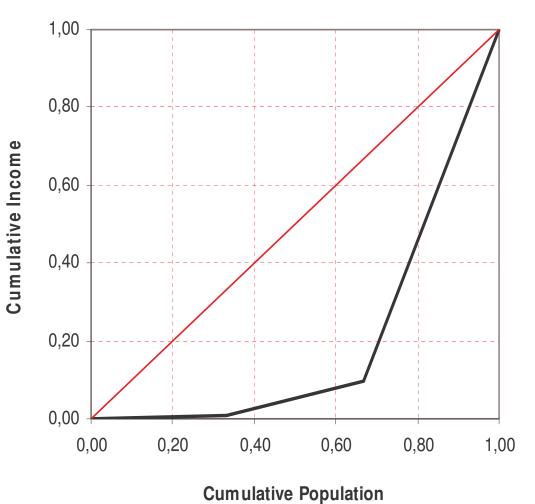
Bi-regional conference on social protection and poverty reduction

Conditional Cash Transfers and Inequality

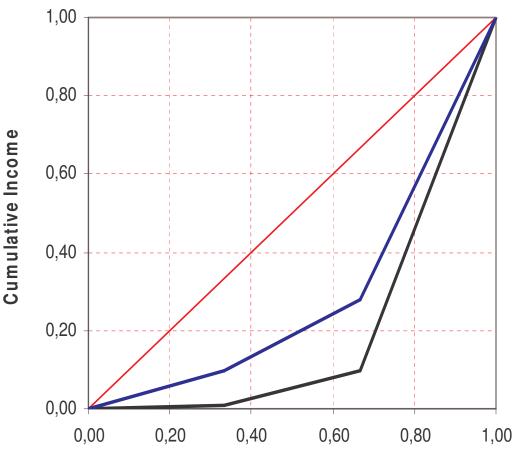
How to calculate the Lorenz Curve and Gini Coefficient

- Sort people according to income
- Accumulate on the horizontal axis the percentage of the population from 0% to 100%.
- Accumulate on the vertical axis the percentage of total income earned by the same population.
- Example: 3 people with incomes of R\$ 1, R\$ 10, R\$ 100



What happens if we levy a R\$ 20 tax on the wealthy and distribute it to the others?

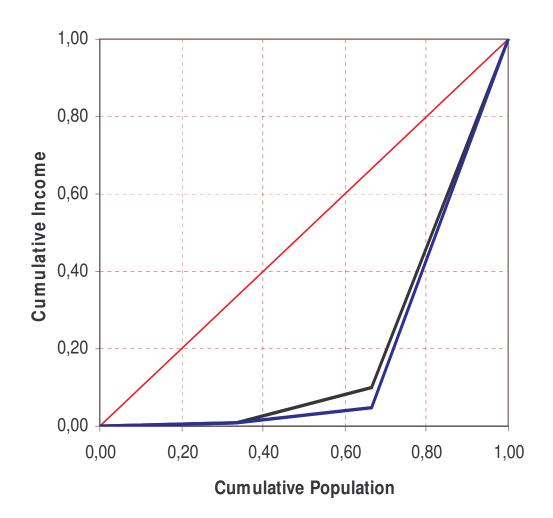
- The income distribution is now R\$ 11, R\$ 20, and R\$ 80.
- The new curve is located entirely *inside* the old one.
- We can unambiguously affirm that there is less inequality.



Cumulative Population

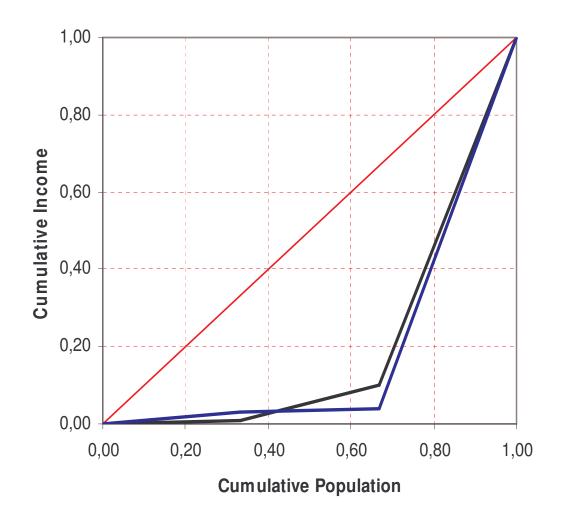
What happens if we levy a R\$ 5 tax on the middle individual and redistribute it to the rich one?

- The income distribution is now R\$ 1, R\$ 5, and R\$ 105.
- The new curve lies *outside* the old one.
- With no ambiguity, we can say there is more inequality.



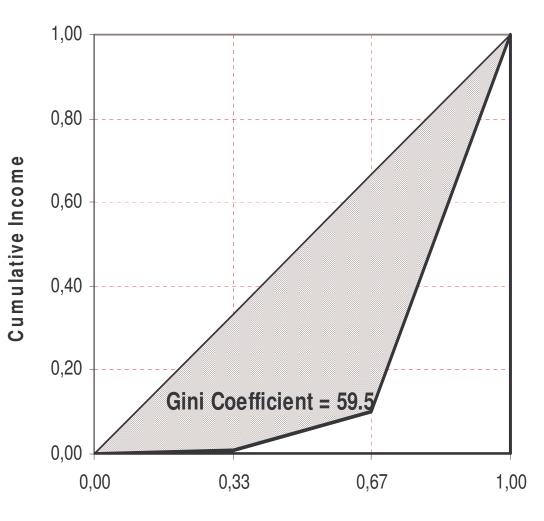
Now we tax the middle individual at R\$ 6, giving R\$ 2 to the poor one and R\$ 3 to the rich one. What happens?

- The income distribution is now R\$ 3, R\$ 4, and R\$ 103.
- The two Lorenz curves intersect.
- Neither can be classified as unambiguously more unequal.
- Some measures of inequality will elect the old distribution as the more unequal one and others, the new one.



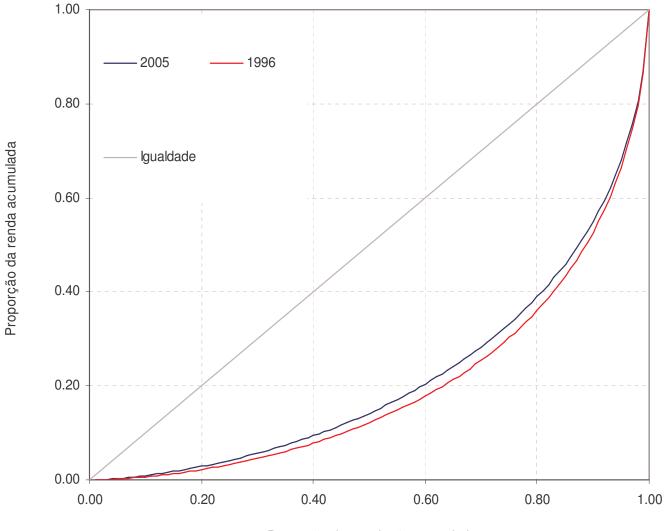
The Gini Coefficient

The Gini Coefficient is twice the area between the Lorenz Curve and the Line of Perfect Equality



Cumulative Population

Two Real Lorenz Curves: Brazil 1996 and 2005

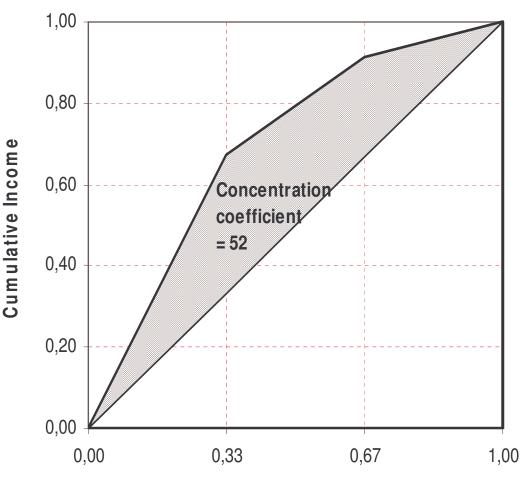


Proporção da população acumulada

Can we calculate the Gini Coefficient for only one income source?

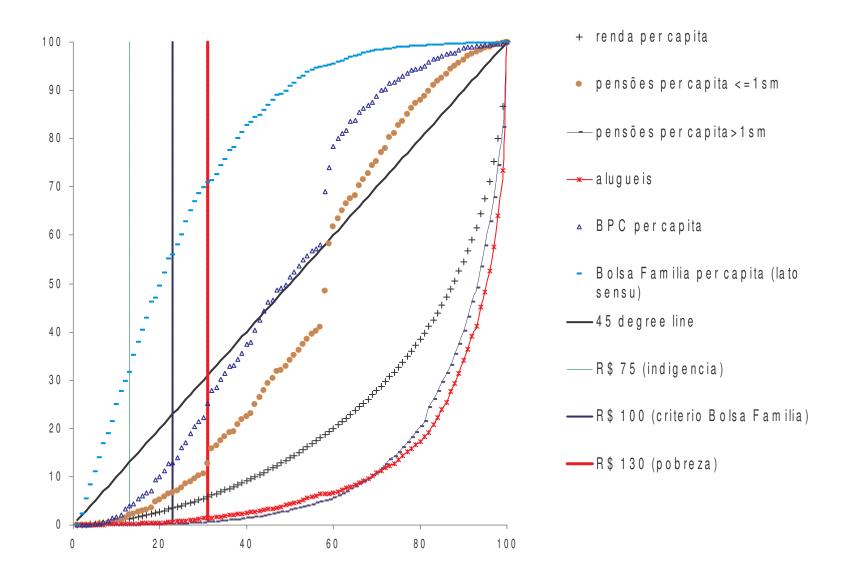
Yes.

- Keep people ordered according to *total* income.
- Accumulate, as before, on the horizontal axis, the percentage of population.
- But now accumulate income source *k* on the vertical axis.
- Example: A CCT applied to the previous income distribution providing the three individuals with additional R\$ 1, R\$ 0,36, and R\$ 0,13.



Cumulative Population

2004 Concentration Curves for Various Income Sources in Brazil

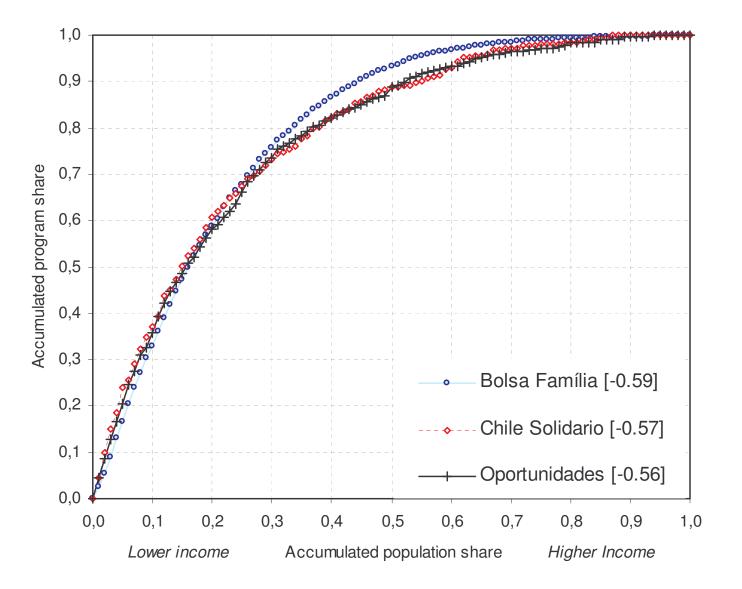


It so happens that the Gini coefficient is exactly the income-weighted sum of all its concentration coefficients.

$$G = \sum_{k} c_{k} \mu_{k}$$

G is the Gini Coefficient, c_k is the Concentration Coefficient for income source *k* m_k is the percentage of income k in total income.

Comparative conditional cash transfer programs



What are the concentration coefficients and weights?

	Income Sourc e	Brazil		Chile		Mexico	
		1995	2004	1996	2003	1996	2004
		0.5985	0.5711	0.5630	0.5620	0.5374	0.5103
<i>G</i> - Gini	Total						
	Labour	0.5943	0.5633	0.5692	0.5815	0.5420	0.5080
	Social Security	0.5858	0.6118	0.4778	0.4201	0.5646	0.6320
Conc.	Other	0.7422	0.6206	0.5715	0.5186	0.4764	0.5264
Coefficient			-0.5271		-0.5383		-0.4855
	ССТ						
Weight in total income	Labour	0.8204	0.7260	0.8319	0.8164	0.8906	0.8600
	Social Security	0.1425	0.2270	0.0701	0.0794	0.0298	0.0501
	Other	0.0371	0.0419	0.0980	0.1041	0.0795	0.0844
	ССТ		0.0051		0.0001		0.0055

Contribution to inequality reduction

		Brazil		Chile		Mexico	
	Income Sourc e	Value	%	Value	%	Value	%
		-0.0274	100	-0.0011	100	-0.0272	100
- Change in Gini	Total						
	Labour	-0.0239	87.3	0.0101	-941.2	-0.0297	109.5
Oonoontrotion	Social Sec.	0.0048	-17.5	-0.0043	401.7	0.0027	-9.9
Concentration effect	Other	-0.0021	7.5	-0.0048	450.2	0.0018	-6.7
	Labour	0.0006	-2.1	-0.0002	18.6	0.0000	0.1
Composition	Social Sec.	0.0012	-4.3	-0.0011	98.1	0.0015	-5.6
effect	Other	-0.0023	8.3	-0.0006	57.9	0.0022	-7.9
	Labour	-0.0234	85.2	0.0099	-922.7	-0.0298	109.6
	Social Sec.	0.0060	-21.8	-0.0054	499.8	0.0042	-15.5
	Other	-0.0043	15.8	-0.0054	508.2	0.0040	-14.7
Sum	сст	-0.0057	20.8	-0.0002	14.7	-0.0056	20.5

Conclusions (valid for middle-income countries)

- There are many paths to targeting.
 - Chile close support by agent
 - Mexico census of the poor (and sophisticated decision)
 - Brazil municipalities do the selection (with guidance)
- The "conditional" is perhaps not necessary for targeting, and thus, for inequality reduction.
- In the long run? In the long run we are all dead and people are hungry now.