TAX REFORM, INCOME DISTRIBUTION AND POVERTY IN BRAZIL

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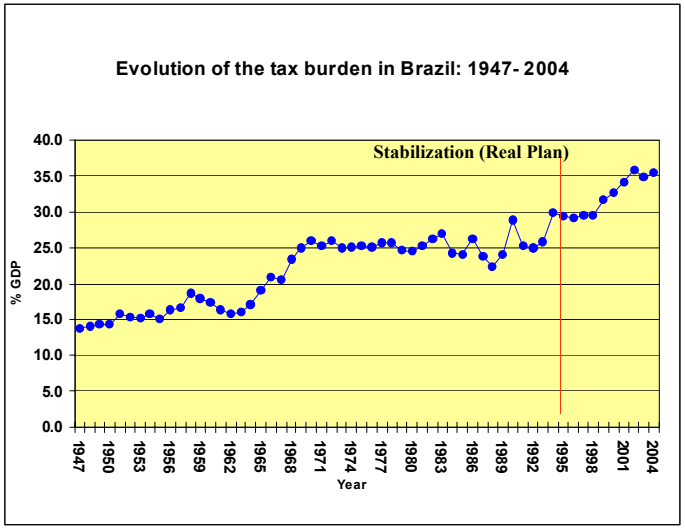
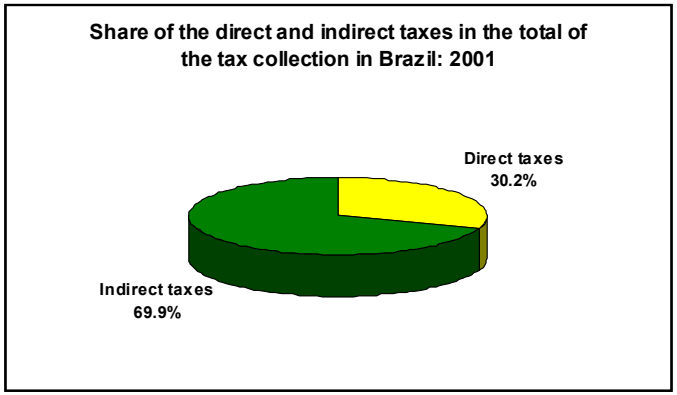
Objectives

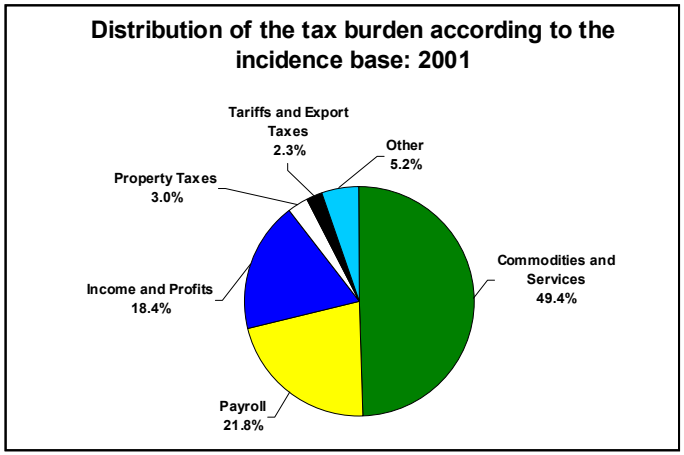
- Address the potential impacts of changes in the Brazilian indirect tax system upon poverty and income distribution in Brazil.
- Analyze regional effects inside the country.
- Reference year: 2001.

Background

- The 1988 Brazilian Constitution changed the tax system.
- Diagnostics: tax system complex, expensive, inefficient, socially unfair and stimulating of " fiscal war" among states: little attention to distributive effects.
- Some studies (partial equilibrium) point to the regressive effects of the indirect tax system in Brazil.
- Poverty in Brazil: has also regional implications.
- Indirect tax burden affects more the households in the poorer regions: importance of analysis at regional level.

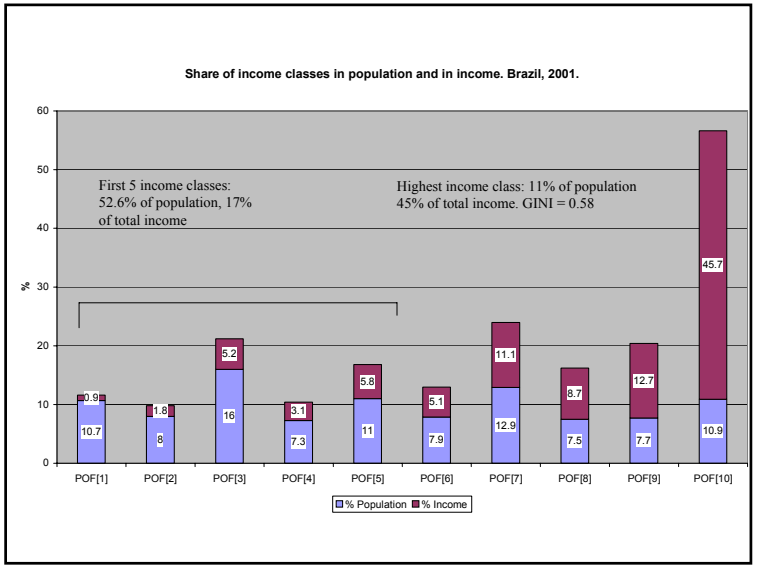


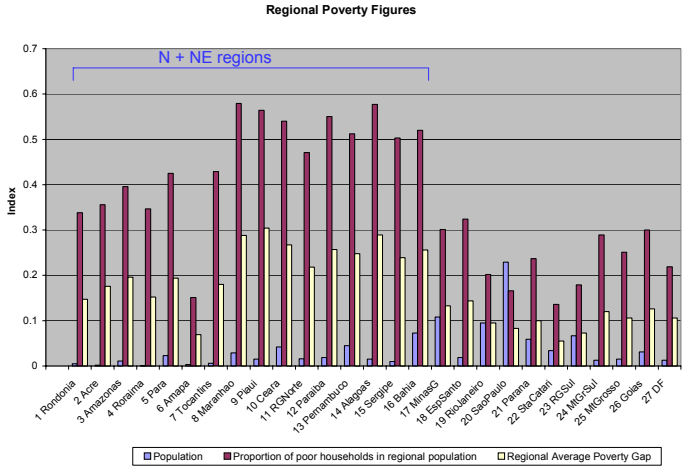




Poverty in Brazil: a brief summary

- One of the worse income distributions in the world.
- Inequality also appears in a regional basis.





Methodology: AGE model and linked micro-simulation model

- A general equilibrium model of Brazil (TERM-BR): linearized model.
  - Static
  - Inter-regional (trade flows link the regions)
  - Bottom-up
  - 27 regions, 42 industries, 52 commodities, 4 final demanders, 10 labor occupations (wage classes), 2 margins commodities.
- Calibrated with 2001 Brazilian Input-Output data.

The Micro-simulation model: Data sources.

- National Household Survey – PNAD, 2001: Wage by industry and region, personal and household characteristics.
- Household Expenditure Survey – POF, 1996
- After data preparation:
  - 112,055 Brazilian households;
  - 263,938 adults (older than 15 years);
  - 41 activities;
  - 41 commodities;
  - 27 regions.
  - 270 different expenditure patterns;

Individuals and households

- Each household
  - has 1 or more adults with his own occupation and wages,
  - zero or more children under 15 years (who do not work).
- Household income is pooled and consumption bundle is common.
- Alternatives approach: head of the family income.
- Brazil, 2001: share of the head of family income in total household income is 0.6540.
- Income changes tracked from persons to households. This procedure softens policy shock effects.
- Income computed on a adult equivalent basis.

Allocation of jobs in the model

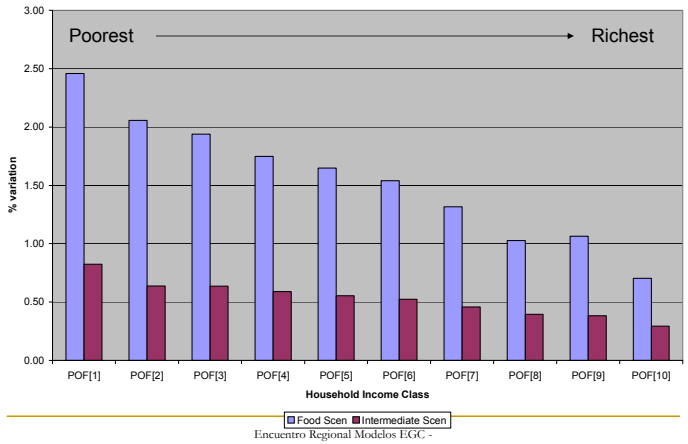
- Changes in labor demand from the CGE model must be communicated to the Micro-simulation model, by sector and region.
- Who gets hired, who gets fired?
- They all do: the job relocation mechanism is based on changes of sample weights.

Model closure: long run.

- Capital stocks in each industry are endogenously determined, flowing between industries and regions driven by a fixed rate of return.
- The level of investment by sector is endogenous, and follows the capital stock in each activity.
- The labor force is free to move between sectors and regions, driven by real wage differentials. The total employment is fixed nationally. Real wages vary to adjust labor demands at regional level.
- Government consumption was kept fixed at all levels. Fiscal neutrality obtained through an endogenous direct tax rate.
- The household real consumption is endogenous.
- The Balance of Trade/GDP ratio is exogenous. Household real consumption and investment, then, are the two endogenous terms of absorption, adjusting to satisfy the balance of trade constraint.

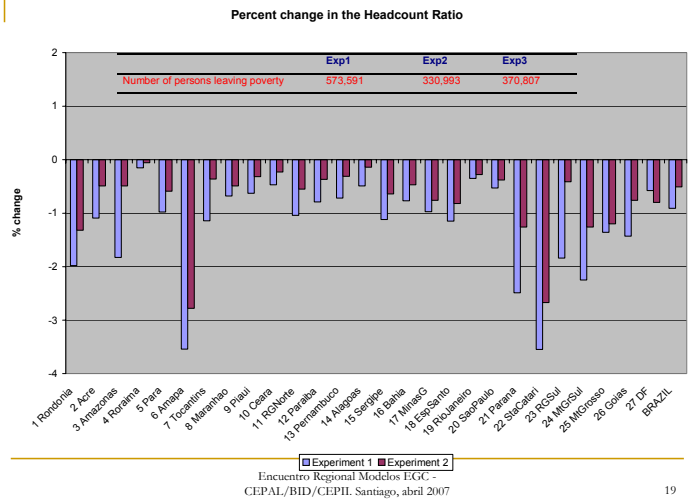
Simulations

- Experiment 1 : 50% reduction in the indirect tax rates of the main household consumption products.
- Experiment 2 : 50% reduction in the indirect tax rates over the main inputs used in Agriculture.



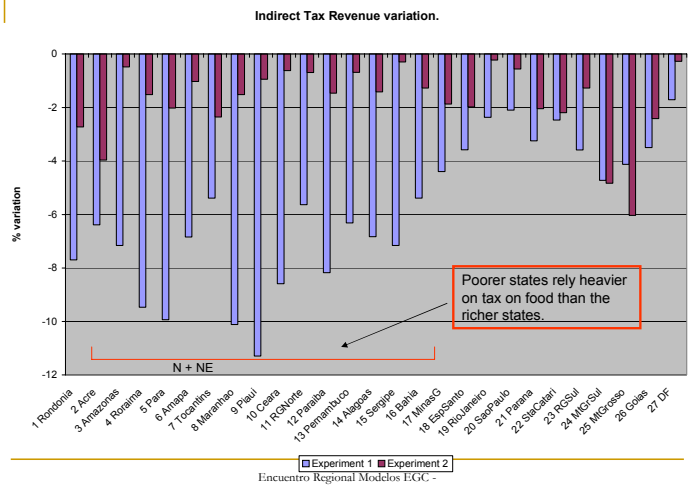
Results: aggregate poverty and inequality indexes. Percentage changes.

	Food	Ag inputs	
	Experiment 1	Experiment 2	Experiment 3
Proportion of poor households	-0.86	-0.46	-0.55
Proportion of poor persons (HR)	-0.91	-0.51	-0.58
Average poverty gap	-1.46	-0.63	-0.47
Average squared poverty gap (FGT)	-1.40	-0.64	0.00
GINI index	-0.04	-0.06	0.13

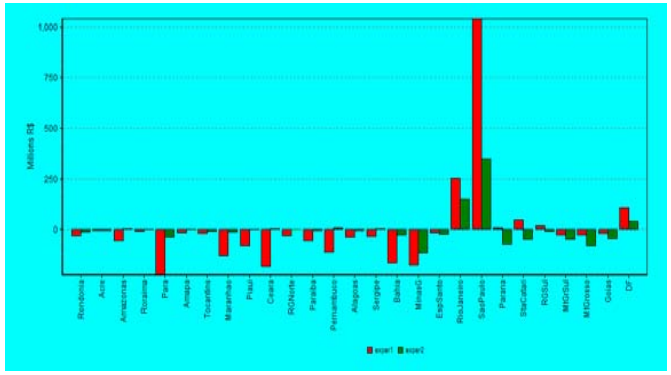


Model results. Variation in the number of poor households, by income class.

Income class	Experiment 1		Experiment 2		Experiment 3	
	% change	Number of households	% change	Number of households	% change	Number of households
1 POF[1] (poorest)	-0.23	-12,928	-0.12	-6,817	-0.62	-35,158
2 POF[2]	-0.25	-8,770	-0.15	-5,245	-0.27	-9,479
3 POF[3]	-0.89	-39,098	-0.34	-14,963	-0.64	-27,910
4 POF[4]	-4.16	-42,576	-2.71	-27,733	-3.32	-33,952
5 POF[5]	-5.27	-32,065	-3.9	-23,741	-2.26	-13,739
6 POF[6]	-3.47	-5,090	-1.17	-1,713	5.28	7,751
7 POF[7]	2.65	1,340	1.49	751	29.54	14,921
8 POF[8]	51.82	1,413	33.88	924	192.24	5,244
9 POF[9]*	*	1,233	*	850	*	4,804
10 POF[10] (richest)	*	989	*	825	*	3,835
Total (households)	-	-135,552	-	-76,862	-	-83,682



Direct tax transfers to compensate the fall in indirect taxes, by state.



Final remarks

- Reduction of indirect tax on food seems to be a promising policy in terms of poverty reduction.
- However, it is costly in terms of tax revenue loss: twice as much as the direct transfer programs at work.
- Losses are relative larger in the poorer states: political reaction (presently three projects of law in the Brazilian congress).
- Reduction on taxes on agriculture intermediates are more inequality reducing than the previous scenario.

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