Taxes, Transfers, Inequality, and Poverty: Argentina, Bolivia, Brazil, Mexico, and Peru

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Outline

- Commitment to Equity Project: Background

- Standard Incidence Analysis: Methodological Highlights

- How much redistribution LA achieves through fiscal policy? How effective are governments at redistribution?

Commitment to Equity Project

- Commitment to Equity (CEQ) Project; Inter-American Dialogue and Tulane University's CIPR and Dept. of Economics.
- Currently: 12 countries
- 6 finished: Argentina (2009), Bolivia (2007), Brazil (2009), Mexico (2008), Peru (2009) and Uruguay (2009) (year of HH survey)
- 6 in progress: Chile, Colombia, Costa Rica, El Salvador, Guatemala, Paraguay
- To begin soon: Dominican Republic
- Branching out into other regions

Commitment to Equity Project

- <u>Argentina:</u> Carola Pessino (CGD and CEMA)
- <u>Bolivia:</u> George Gray Molina (UNDP), Wilson Jimenez, Veronica Paz and Ernesto Yañez (Instituto Alternativo, La Paz,
- <u>Brazil:</u> Claudiney Pereira and Sean Higgins (Tulane)
- <u>Mexico:</u> John Scott (CIDE and CONEVAL)
- <u>Peru:</u> Miguel Jaramillo (GRADE)
- <u>Uruguay:</u> Marisa Bucheli, Maximo Rossi, and Florencia Amabile (Universidad de la Republica)

References

- Lustig, Nora (coordinator). <u>Fiscal Policy and Income Redistribution in Latin America: Challenging the Conventional Wisdom,</u> Argentina: Carola Pessino; Bolivia: George Gray Molina, Wilson Jimenez, Verónica Paz, Ernesto Yañez; Brazil: Claudiney Pereira, Sean Higgins; Mexico: John Scott; Peru: Miguel Jaramillo. , Economics Department, Tulane University, Working Paper. 2011. Revised: Forthcoming.

References

- Lustig, N. and S. Higgins. <u>Fiscal Incidence, Fiscal Mobility and the Poor: a New Approach.</u> Economics Department, Tulane University, Working Paper. 2012.

- Bucheli, M., N. Lustig, M. Rossi and F. Amabile <u>Social Spending, Taxes and Income Redistribution in Uruguay.</u> Economics Department, Tulane University, Working Paper. Forthcoming.

Basic elements of incidence analysis

Start with:
- Pre-tax/pre-transfer income of unit *h, or* I_h
- Taxes/transfers programs T_i
- "Allocators" of program *i* to unit *h*, or S_{ih} (or the share of program *i* borne by unit *h*)

Then, post-tax/post-transfer income of unit h (Y_h) is:

$$Y_h = I_h - \sum_i T_i S_{ih}$$

All of this seems easy, and answers the key question:

Who pays the taxes or gets the transfers?

Methodological Highlights

There are lots of questions that must be answered.

- What is the "unit" (e.g., individual versus household)?
- What is "income"?
  - o Comprehensive income?
  - o Annual versus lifetime measure?
  - o Market and non-market measure (including tax evasion)?
- How are components of income measured (e.g., capital income)?
- Should "consumption" be used instead of "income"?
- What is the time frame of analysis (e.g., annual versus lifetime)?
- What taxes and transfers are included?
- What are the allocators?
- What happens when individuals change "ranks"?
- How can the results be easily summarized?

Methods to Allocate Taxes and Transfers

- Direct Identification Method

- Inference Method

- Simulation Method

- Imputation Method

- Alternate Survey

- Secondary Sources Method

Some additional considerations...

- Analyzing one part of the tax/transfer system in isolation of another can give misleading results

- Analyzing the effects of taxes/transfers at the "top" and at the "bottom" is especially difficult

- State and municipal taxes

- How to scale-up

- How to rank

- Implications of re-ranking

Definitions: Effectiveness Indicator

Example: Gini net mket income & Gini Disposable income

- Numerator: Gini (net mkt inc) - Gini(disp inc)/Gini(net mkt inc)

- Denominator: Gov. Spending on Direct Transfers/GDP

Defining Progressive and Regressive Taxes and Transfers
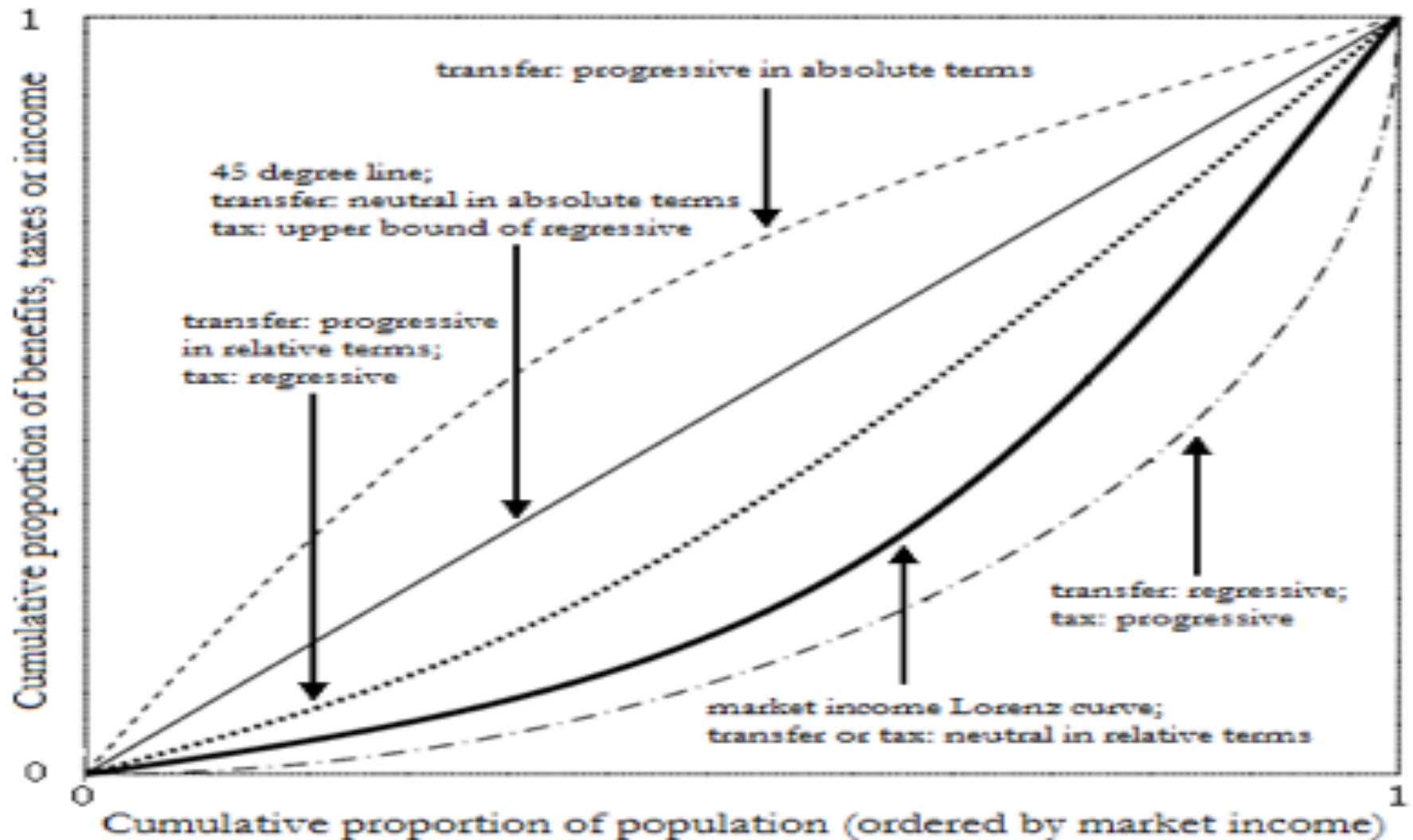
CEQ Project: Defining and Constructing Welfare Indicator

Fiscal Incidence: Welfare Indicator

Current Income per capita

– No adjustment for age, gender or economies of scale

– No adjustment for under-reporting

– Several household surveys in LA only have income data; so, if one wants to compare across countries, income data must be used in all, even in those in which there is data on consumption. But, for the latter, ideally one should do both.

Taxes and Transfers Included

Taxes

- Personal Income Tax
- Contributions to Social Security (Payroll Taxes)
- Indirect Taxes (mainly VAT)

Transfers

- Direct Cash Transfers
- Food Transfers
- Indirect Subsidies
- Transfers in-kind through public education and health

Fiscal Incidence Indicators

- Changes in inequality and poverty
- Incidence by decile/quintile
- Concentration shares by decile/quintile
- Leakages and Coverage
- Per capita transfers
- Probit of "excluded"
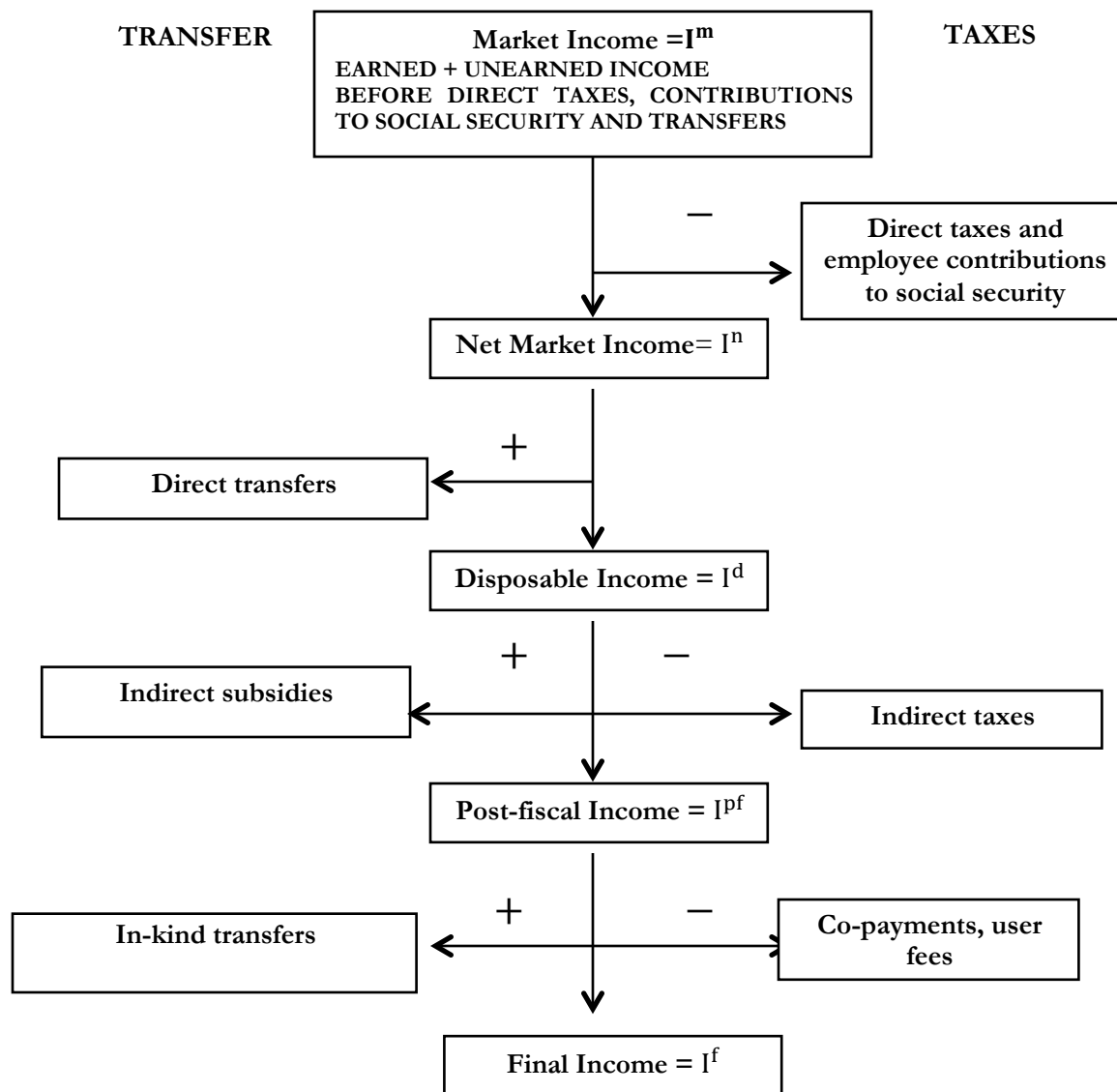- Fiscal mobility (transition) matrices

Fiscal Incidence: Caveats

- No modeling:
  - No behavioral responses (or almost none)
  - No inter-temporal dimensions
  - No general equilibrium effects
  - No fiscal sustainability analysis
- Average Incidence

Fiscal Incidence: Caveats

- One can <u>never</u> know the distribution of income that would have existed in the absence of the taxes/transfers.

- Most up-to-date and microdata-based analysis of taxes and transfers combined

Diagram 1 – Definitions of Income Concepts

TRANSFER   **TAXES**

Market Income $= I^m$
EARNED + UNEARNED INCOME BEFORE DIRECT TAXES, CONTRIBUTIONS TO SOCIAL SECURITY AND TRANSFERS

$-$ → **Direct taxes and employee contributions to social security**

Net Market Income $= I^n$

$+$

Direct transfers ←

Disposable Income $= I^d$

$+$ $-$

Indirect subsidies ← → **Indirect taxes**

Post-fiscal Income $= I^{pf}$

$+$ $-$

In-kind transfers ← → **Co-payments, user fees**

Final Income $= I^f$

What is *Market Income?*

– Labor and nonlabor income from all sources
– Private Transfers
– Auto-consumption
– Imputed rent for owner's occupied housing
– Alimony, Inheritance and Gifts
– Contributory pensions from individualized accounts
– NO: Incomes from sales of durables
– NO: Capital Gains

– Contributory pensions from social security:
  • Benchmark: YES
  • Sensitivity Analysis: NO

What is *Net Market Income*?

- Market Income minus Direct Taxes and Contributions to Social Security (Payroll Taxes)

- But, contributions to social security:
  - Benchmark: contributions going to pension, are NOT subtracted; all the other contributions are
  - Sensitivity Analysis: all contributions to social security are subtracted

Construction of Income Concepts/ Calculating Taxes & Transfers

- Unfortunately, it is not possible to construct income concepts directly from household surveys

- Household Surveys in LA are quite heterogeneous:
  - Some report income and not consumption
  - Some do not report autoconsumption
  - Some do not report owner's occupied housing rent; they do not have the information to run hedonic regressions

Construction of Income Concepts/ Calculating Taxes & Transfers

- Even more importantly:
  - Not clear if reported income is before or after taxes. SEDLAC database assumes that employees' income is net of taxes and contributions to social security and self-employment and capital incomes are before taxes and transfers
  - Not always clear if people include government transfers in the income they report (which we usually take as "market" income)

Construction of Income Concepts/ Calculating Taxes & Transfers

- Data on direct taxes, contributions to social security, government transfers, consumption (for indirect taxes and subsidies), use of government health services may be imperfectly captured or not captured at all

	Argentina	Bolivia	Brazil	Peru	Urugu
	2009 (urban only)	2007	2009	2009	2009
Consumption Data?	No	Yes	Yes	Yes	No
Data on Autoconsumpt	No	Yes	Yes	Yes	Yes
Data on Imputed Rent	No	Yes	Yes	Yes	Yes
Data on Direct Taxes	No	n/a	Yes	Yes	No
Data on Contributions to Social Security	No, although has data on who pays social security taxes	Yes	Yes	Yes	Yes
Data on Contributory Pensions	Data on pensions is grouped together with non-contributory pensions	Yes (AFP)	Yes	Yes	Yes

	Argentina	Bolivia	Brazil	Peru	Uruguay
Data on Non-contributory Pensions	Has to be inferedfrom total pensions	Renta Dignidad)	Yes (BPC)	-	Yes
Data on Other Cash Transfers (specify which ones)	Yes(Jefes y Jefas de Hogar, and then has another category that groups all other Government monetary transfers)	Bono Juancito Pinto, Beneméritos de la Guerra del Chaco (war veterans), Bono Juana Azurduy	Yes (Bolsa Familia, Bolsa Escola, Bolsa de Estudo, Erradicação do Trabalho Infantil, Public Scholarships, Special Circumstances Pensions, Programas de Renda Minima, Auxílios	Yes. Juntos.	Asignaciones Familiares, Pensiones no contributivas
Data on Unemployment Insurance Benefits	Yes	n/a	Yes	-	Yes
Data on Direct Transfers In-Kind (e.g., food transfers)	Has data on whether the houshold received transfers in kind, but not the amount	Desayuno Escolar, Program de Atención a niños y niñas menores de 6 años (PAN), Post literacy program " Yo si puedo"	No (uncommon in Brazil)	Yes	Tarjeta Uruguay Social, Comedores y merenderos

	Argentina	Bolivia	Brazil	Peru	Uruguay
Data on use of public education	Yes, if they attend public school	Yes	Yes	Yes	Yes
Data on use of public health facilities	Yes, if they have health insurance or they have to be attended in hospital, but not quantity of use	Yes	Not in POF, but yes in PNAD 2008 which we use for health calculations	Yes	No
Data on what service was received at public health facilities	No	Yes	Yes in PNAD 2008	Yes	No
Data on coverage by public health insurance schemes	Yes, but not quantity or which service	Yes	Not existent in Brazil	Yes	Yes
If none of above, what data is available on health to measure in-kind health transfers?		n/a	--	-	Public health coverage
Data on benefits from or use of housing and urban programs	No, it is infered from external sources	No	No	No	No

Options to Construct Income Concepts

- Direct Identification Method
- Inference Method
- Imputation Method
- Alternate Survey

- Simulation Method
- Secondary Sources Method

- Appendix shows what was used in each country and for every tax and transfer

Results: A Primer

Declining inequality in Latin America

- Reduction in higher education premia and pro-poor government transfers

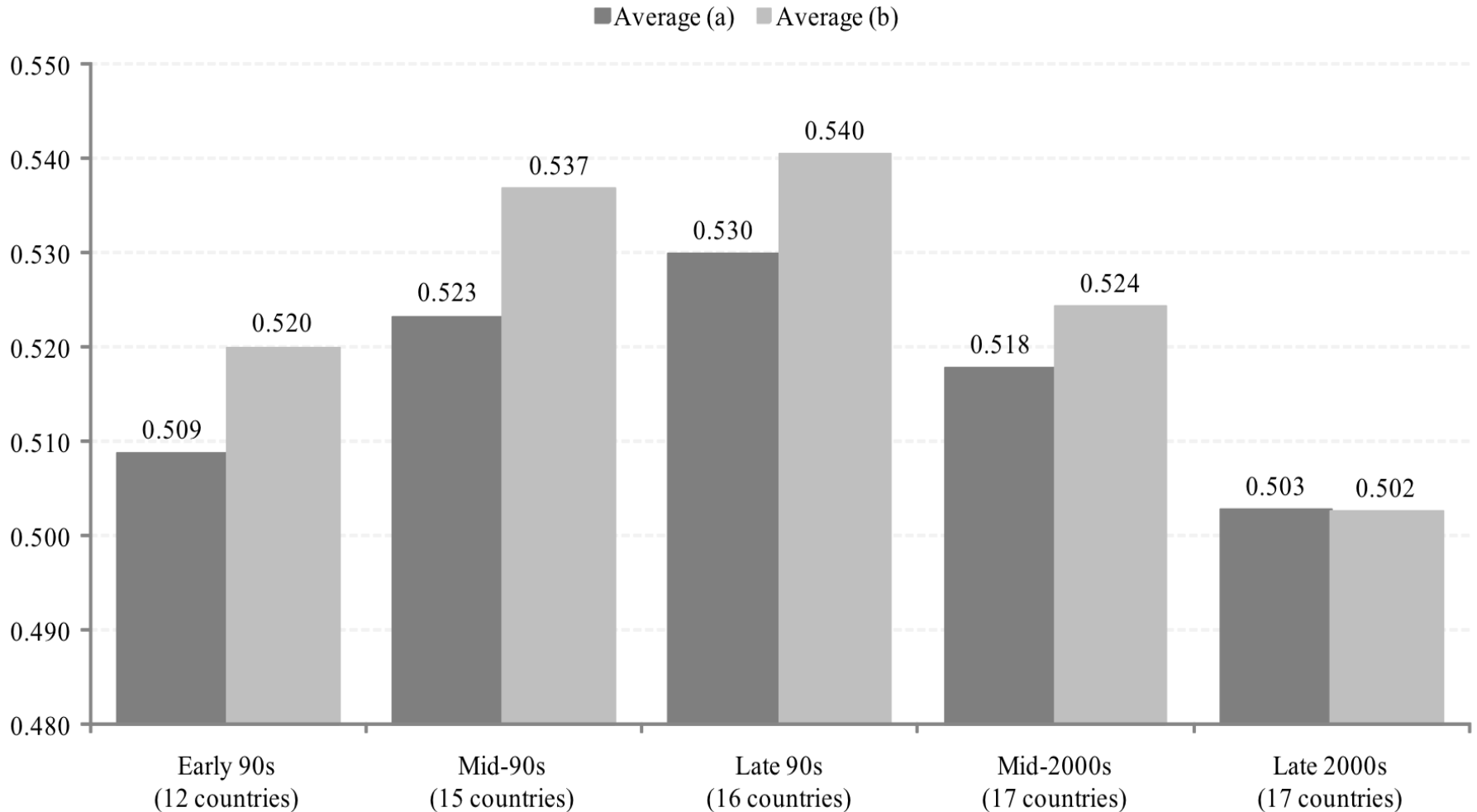- Incidence of Taxes and Transfers

DECLINING INEQUALITY IN LATIN AMERICA

A DECADE OF PROGRESS?

LUIS F. LOPEZ-CALVA & NORA LUSTIG

EDITORS

Trends in Inequality
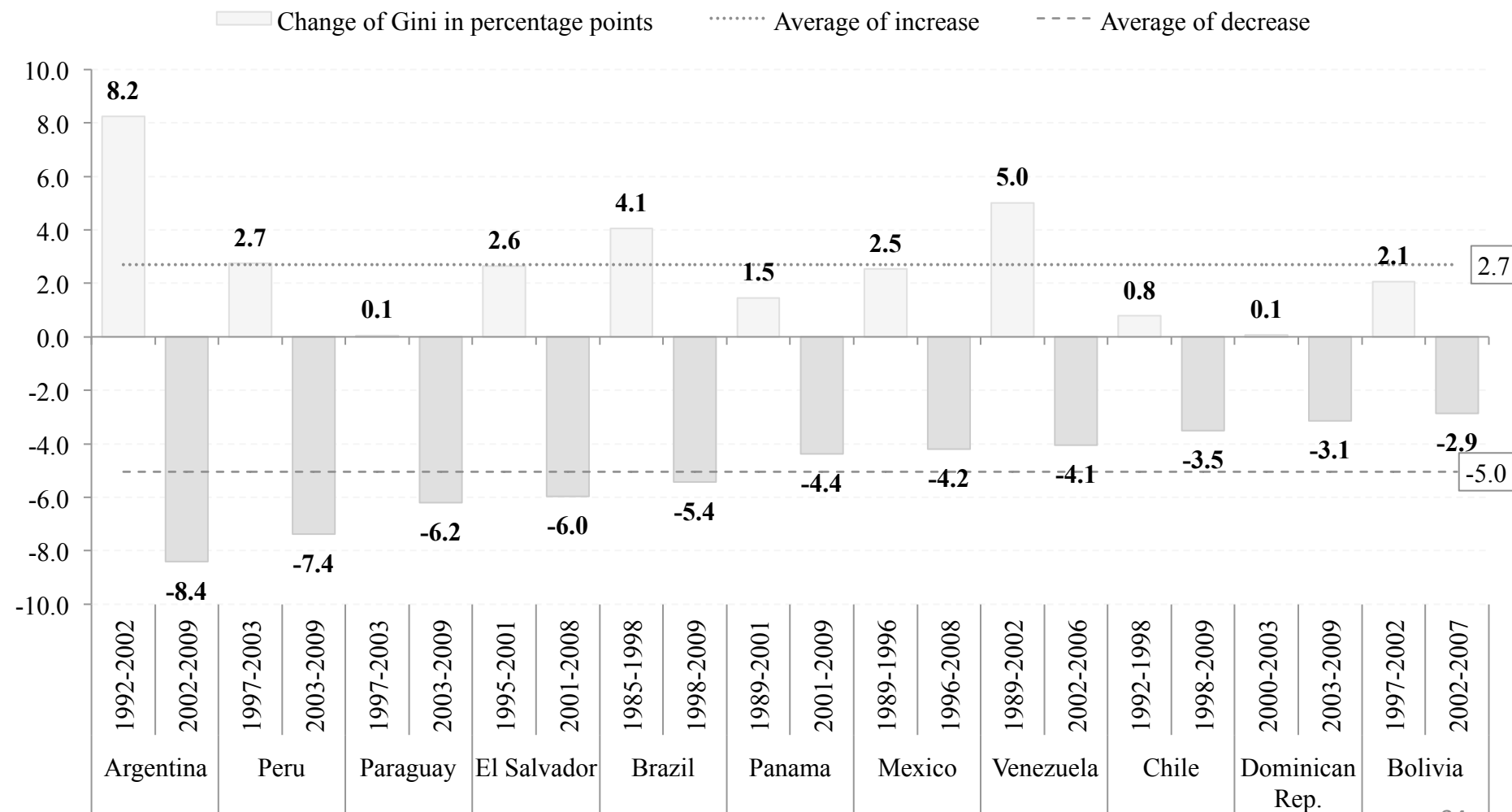## Gini Coefficient Early 1990's-Late 2000's (Unweighted ave.)
Light Grey: Countries with Falling Ineq (Lustig et al., 2011)

Change in Gini Coefficient by Country: circa 2000-2009 (yearly change in percent)

Bar chart titled with y-axis "Annual Percent Change" ranging from -2.00 to 2.50. Values by country:
- Ecuador: -1.71
- Paraguay: -1.49
- El Salvador: -1.29
- Argentina: -1.23
- Peru: -1.15
- Brazil: -1.07
- Panama: -0.97
- Mexico: -0.77
- Dominican Rep.: -0.66
- Chile: -0.66
- Bolivia: -0.36
- Venezuela: -0.24
- Honduras: -0.05
- Guatemala: 0.05
- Costa Rica: 0.08
- Uruguay: 0.12
- Nicaragua: 1.02
- Total 13: -0.90
- Total 17: -0.61
- China: 2.02
- India: 1.43
- South Africa: 0.30
- OECD-30: 0.25

Comparing the Increase in the 1990's with Decline in the 2000's (Lustig et al., 2011)

Results: A Primer

Incidence of Taxes and Transfers

1. Lots of heterogeneity in LA

2. No clear-cut correlation between government size, the extent of redistribution, redistributive effectiveness

3. Direct taxes achieve little in the form of redistribution

4. Direct transfers reduce poverty the most when coverage of the poor is high and average transfer is close to average poverty gap

5. Indirect taxes can make poor people net contributors to the state and a substantial portion of the poor poorer

Definitions of Income Concepts: A Stylized Presentation

TRANSFERS

Market Income =I^m
Wages and salaries, income from capital, private transfers; before government taxes, social security contributions and transfers; benchmark (sensitivity analysis) includes (doesn't include) contributory pensions

TAXES

$-$ → Direct taxes and employee contributions to social security

Net Market Income= I^n

Direct transfers $+$ →

Disposable Income = I^d

Indirect subsidies $+$ →

$-$ → Indirect taxes

Post-fiscal Income = I^{pf}

In-kind transfers (free or subsidized government services in education and health) $+$ →

$-$ → Co-payments, user fees

Final Income = I^f

Conclusions:

<u>First</u>, Latin America is heterogenous; can't talk of "a Latin America"

The extent and effectiveness of income redistribution and poverty reduction, government size, and spending patterns vary significantly across countries.

Heterogeneous LA: State comes in different sizes
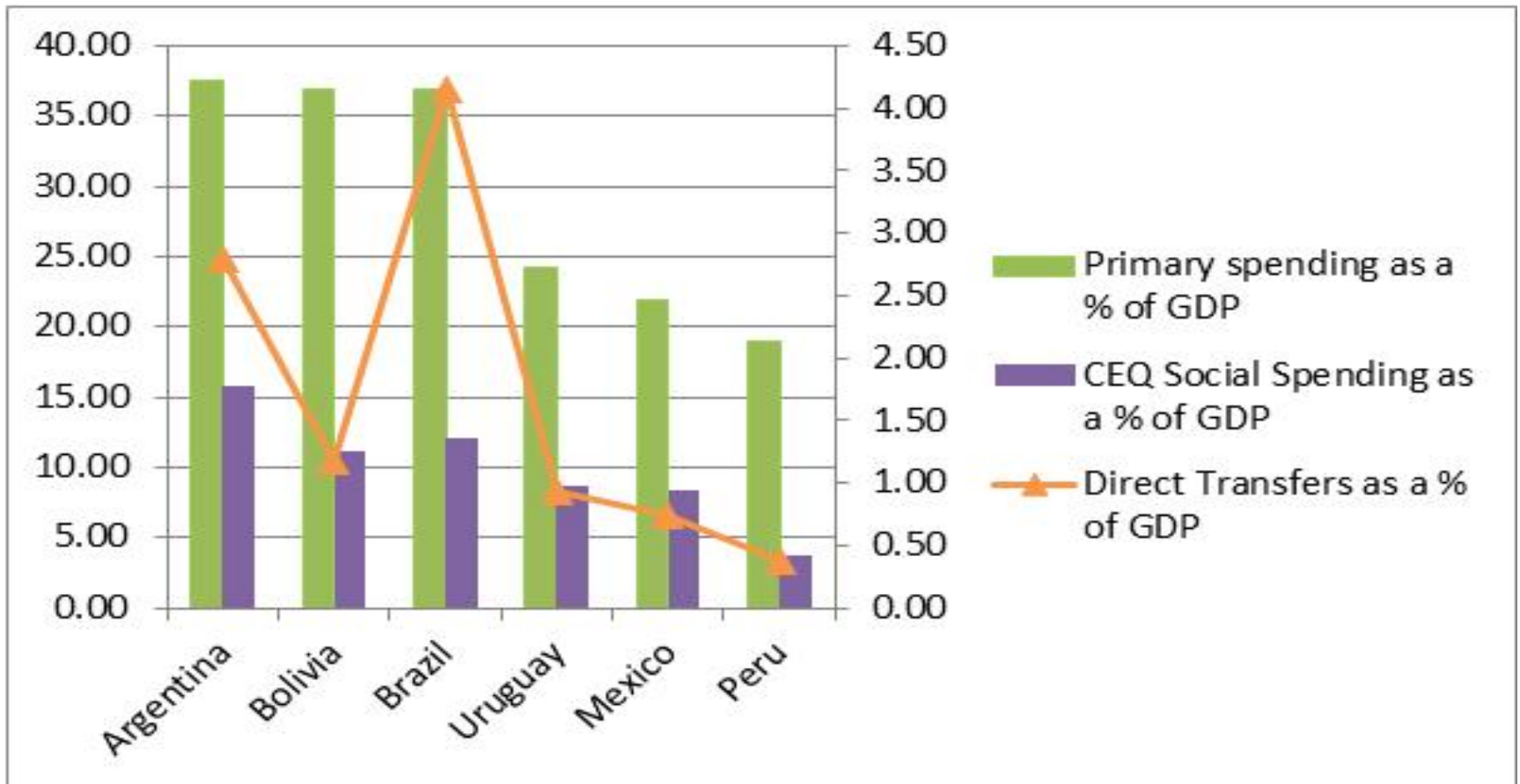
Decline in Gini and Effectiveness: Heterogeneous LA
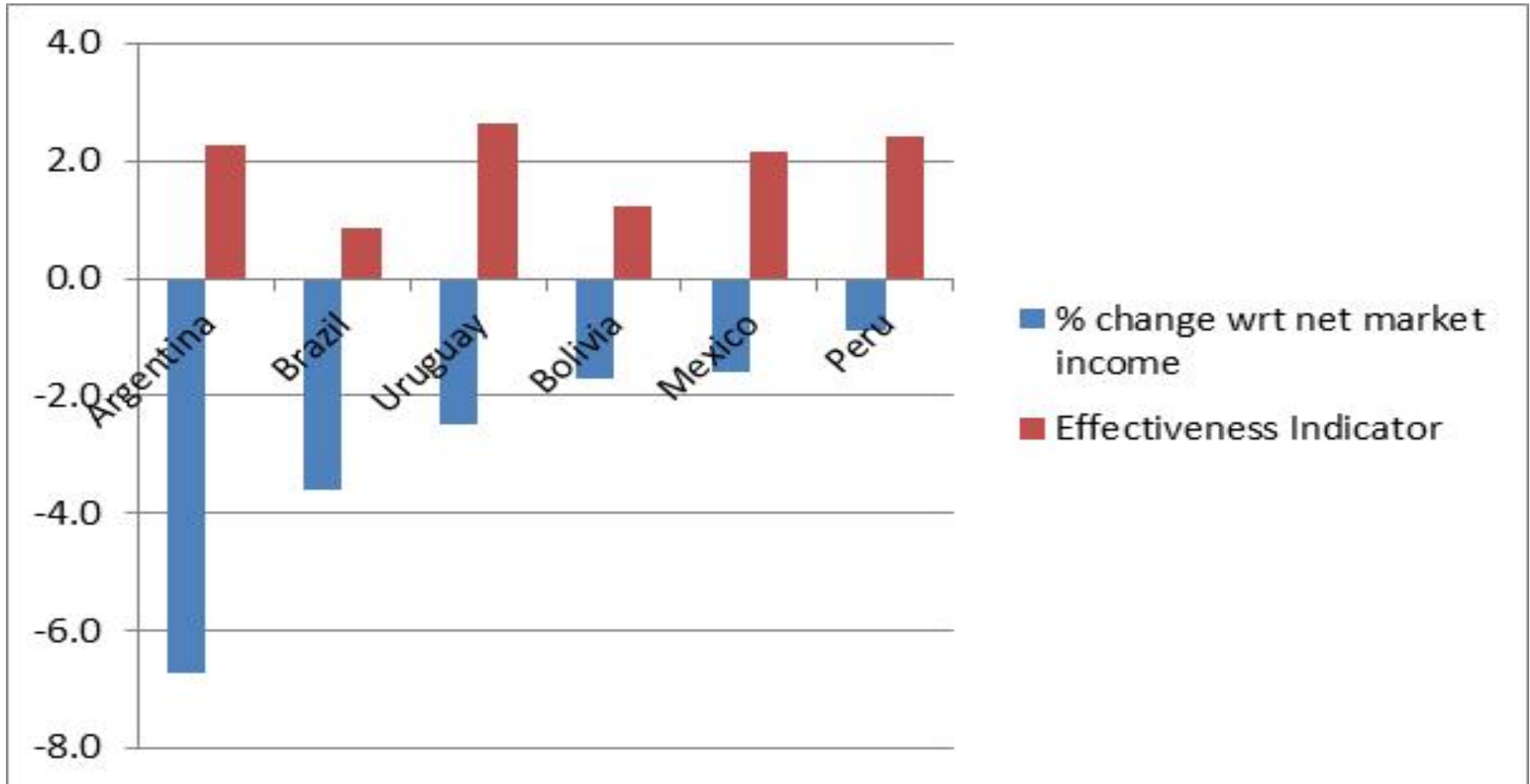
# Decline in Headcount Ratio $2.50 PPP and Pov. Reduction Effectivenenss
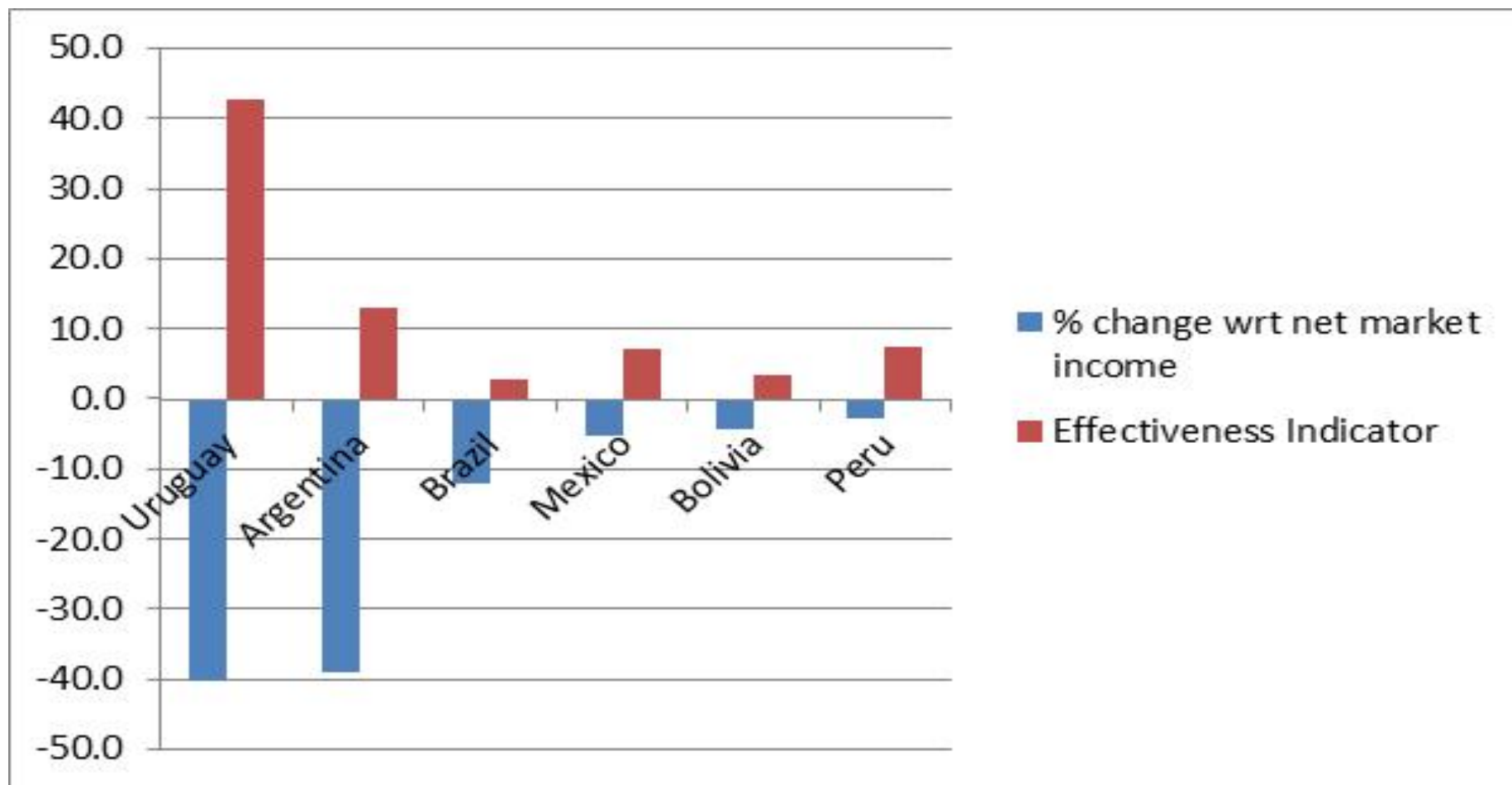
Conclusions

- <u>Second</u>, no clear-cut correlation between government size and the extent and effectiveness of redistribution and poverty reduction.

	Gini Mket Income	Gini Disposable Income	Headcount Ratio Net Mket Income	Headcount Ratio Disposable Income	Direct Transfers as % GDP	Primary Spending as % of GDP	GDP/cap U$PPP
Argentina	0.50	0.46	14%	5%	2.8%	38%	14030
Bolivia	0.53	0.52	22%	21%	1.2%	37%	4069
Brazil	0.57	0.54	15%	12%	4.2%	37%	10140
Mexico	0.53	0.51	12%	11%	0.8%	22%	14530
Peru	0.50	0.49	15%	14%	0.4%	19%	8349

Decline in Disp Inc Gini, Direct Transfers and Effectiveness Indicator
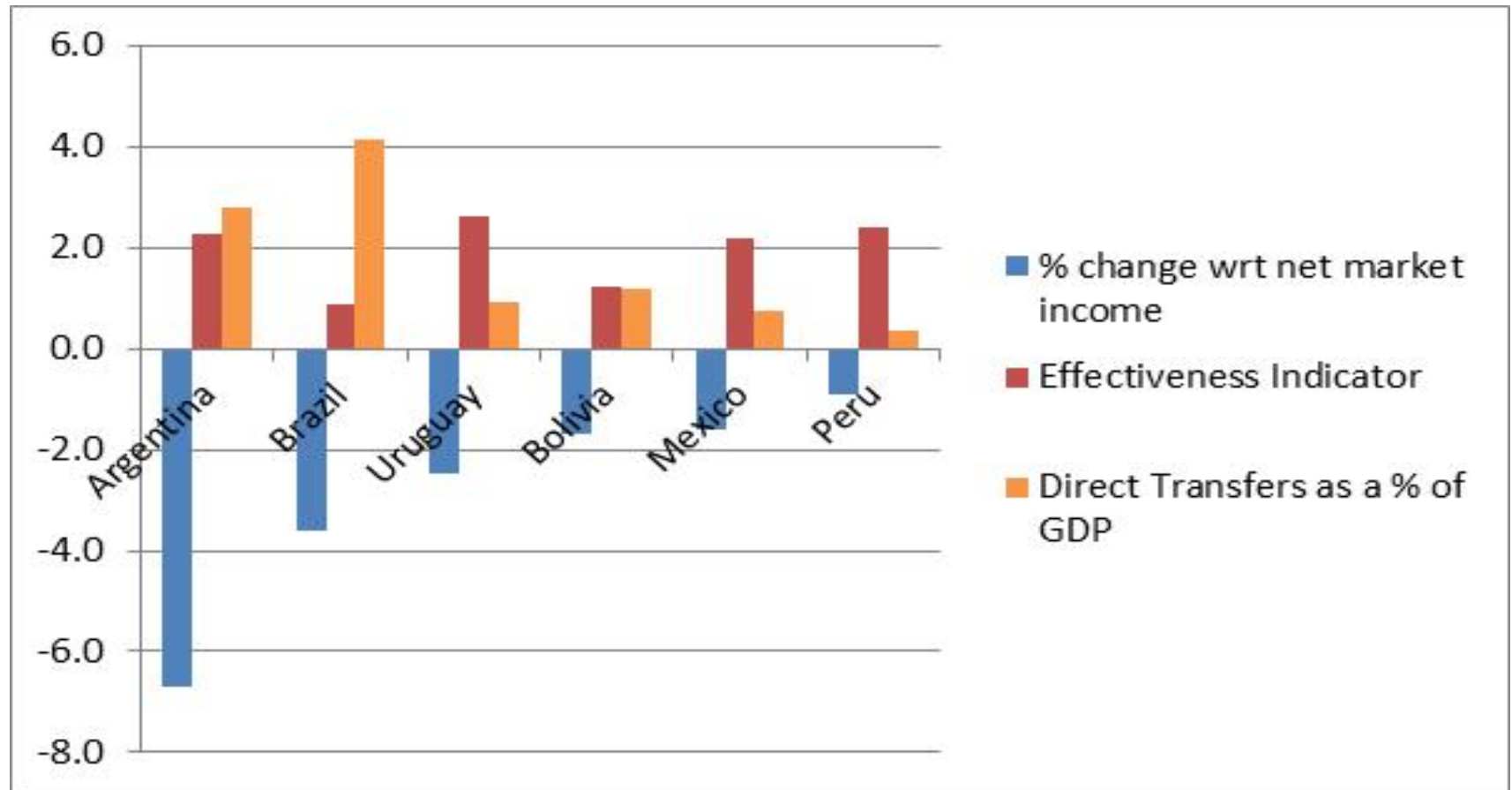
Decline in Final Inc Gini, Direct Transfers and Effectiveness Indicator
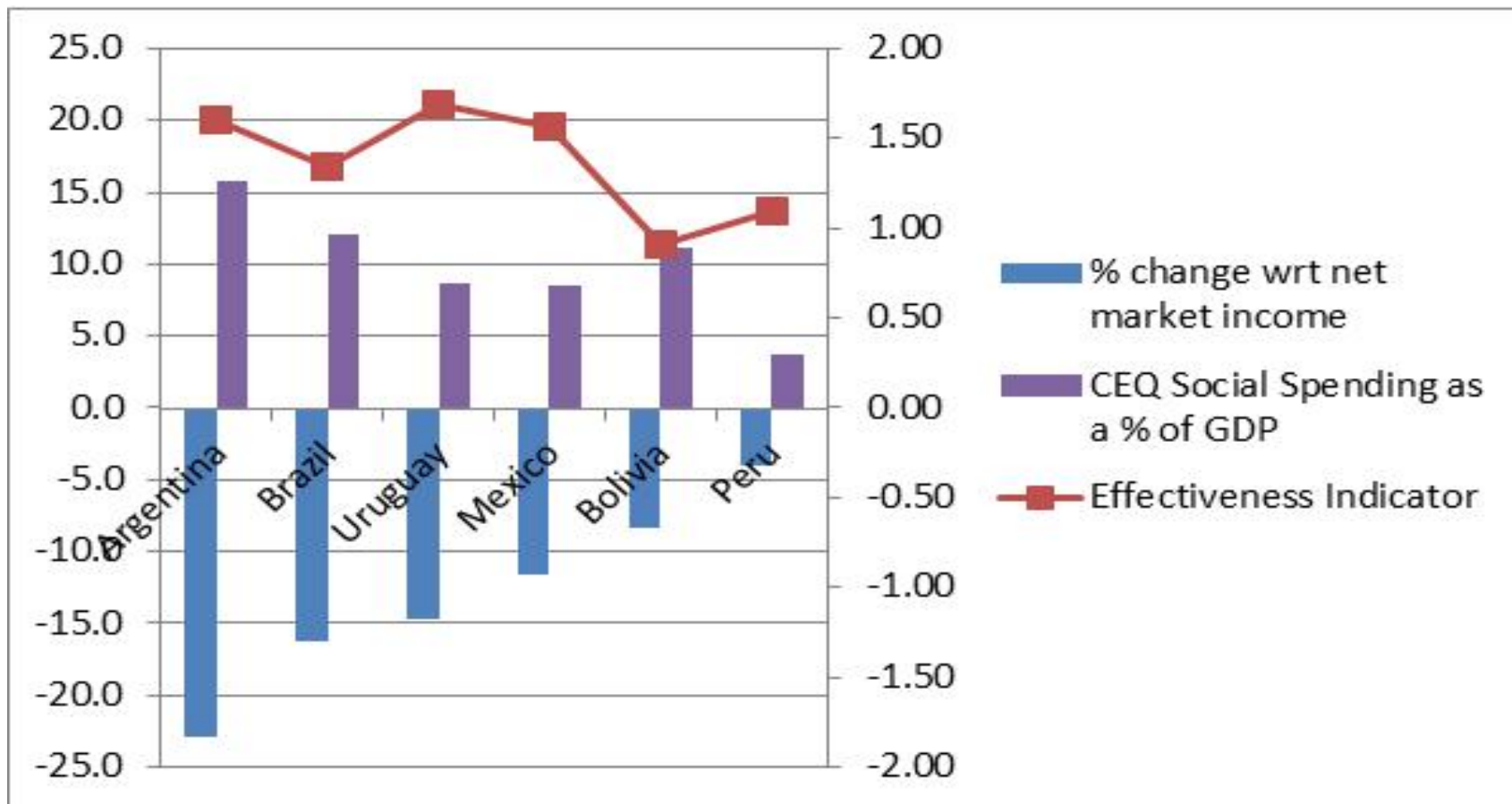
Conclusions

Third, direct taxes achieve relatively little in the form of redistribution.

Caveat:

- The rich are excluded from analysis using household surveys; need governments to share information from tax returns (anonymous of course) as all OECD countries do (except for Chile, Mexico and Turkey)
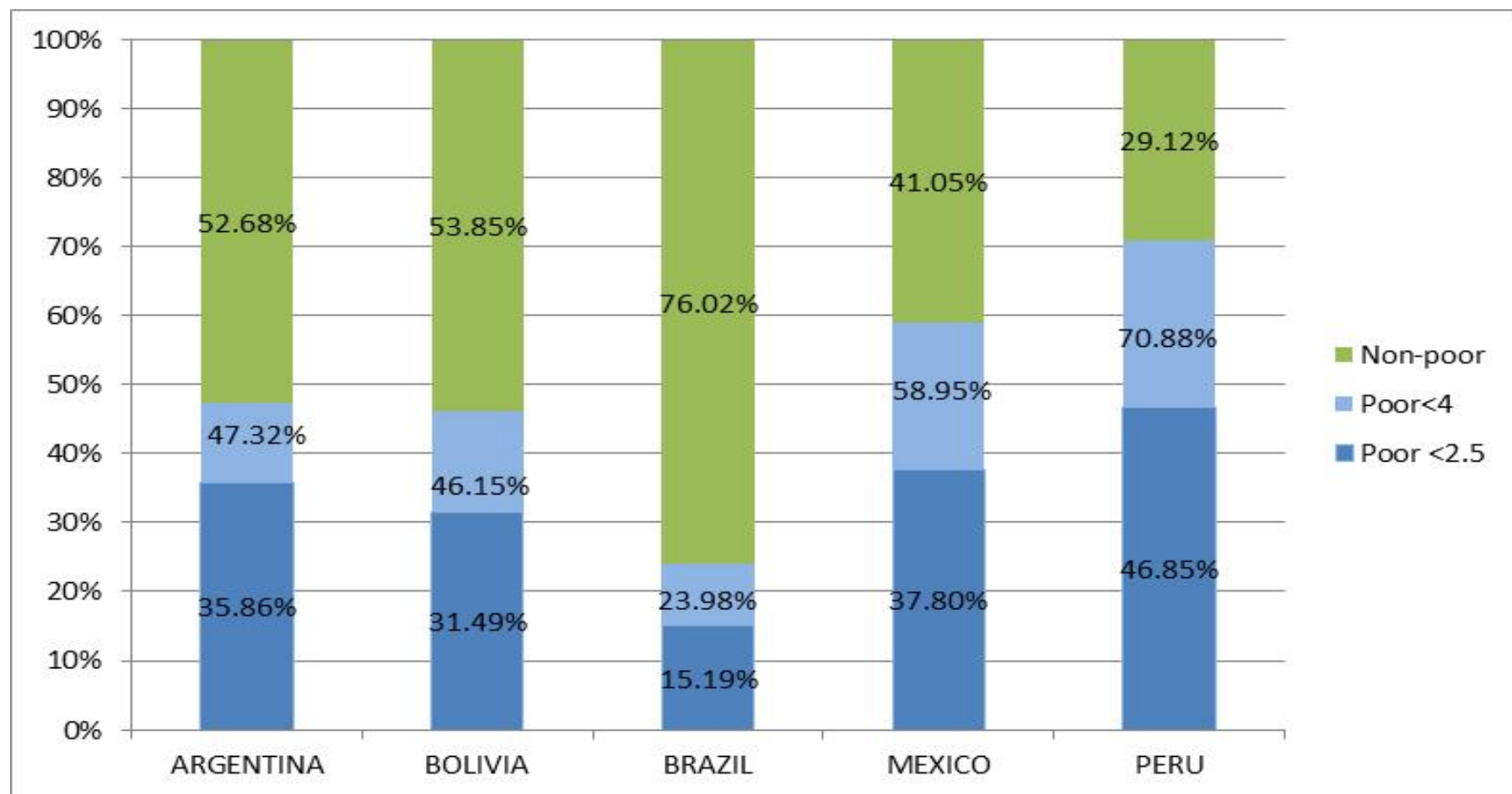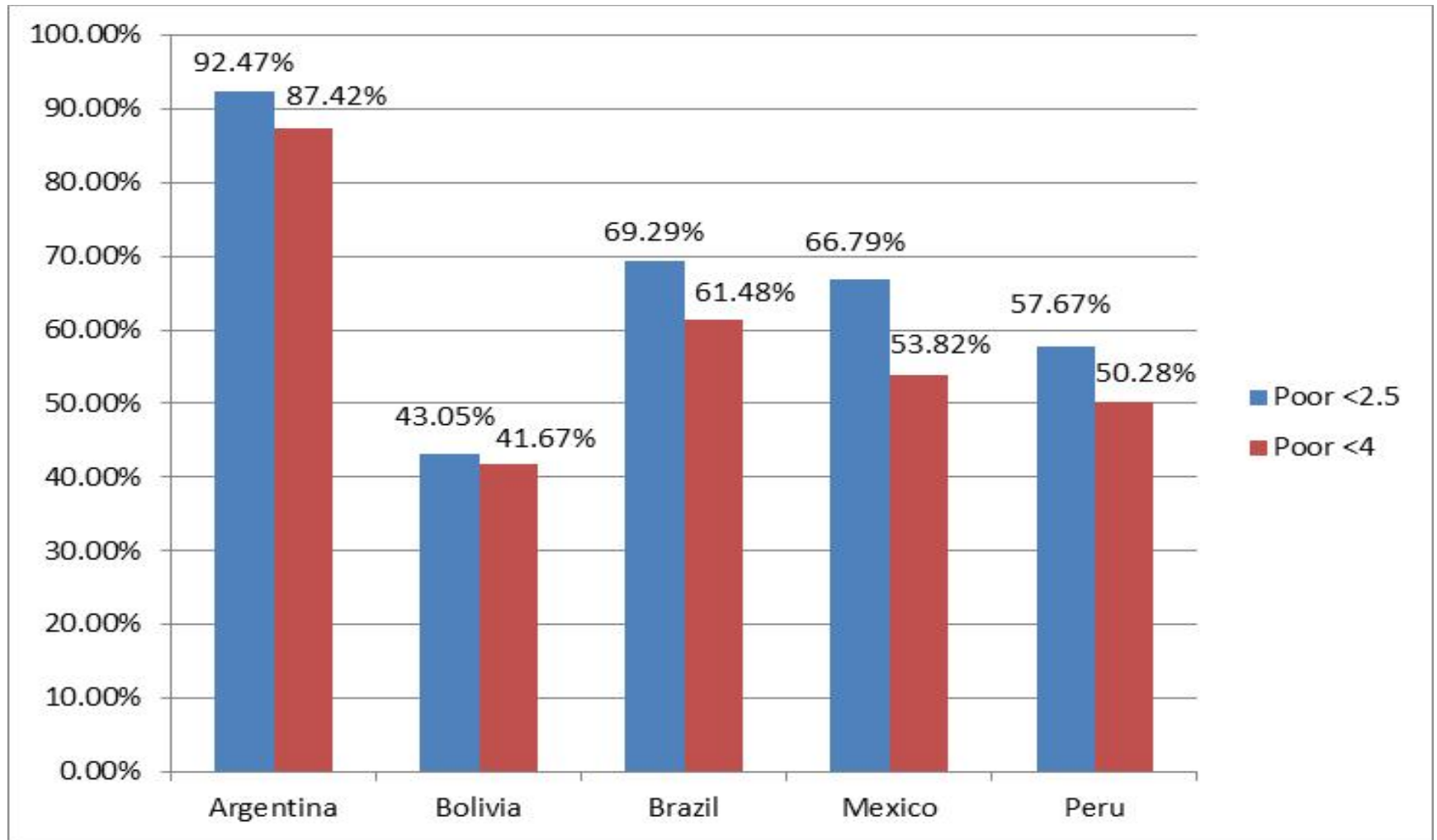
Fiscal Policy and Decline in Gini
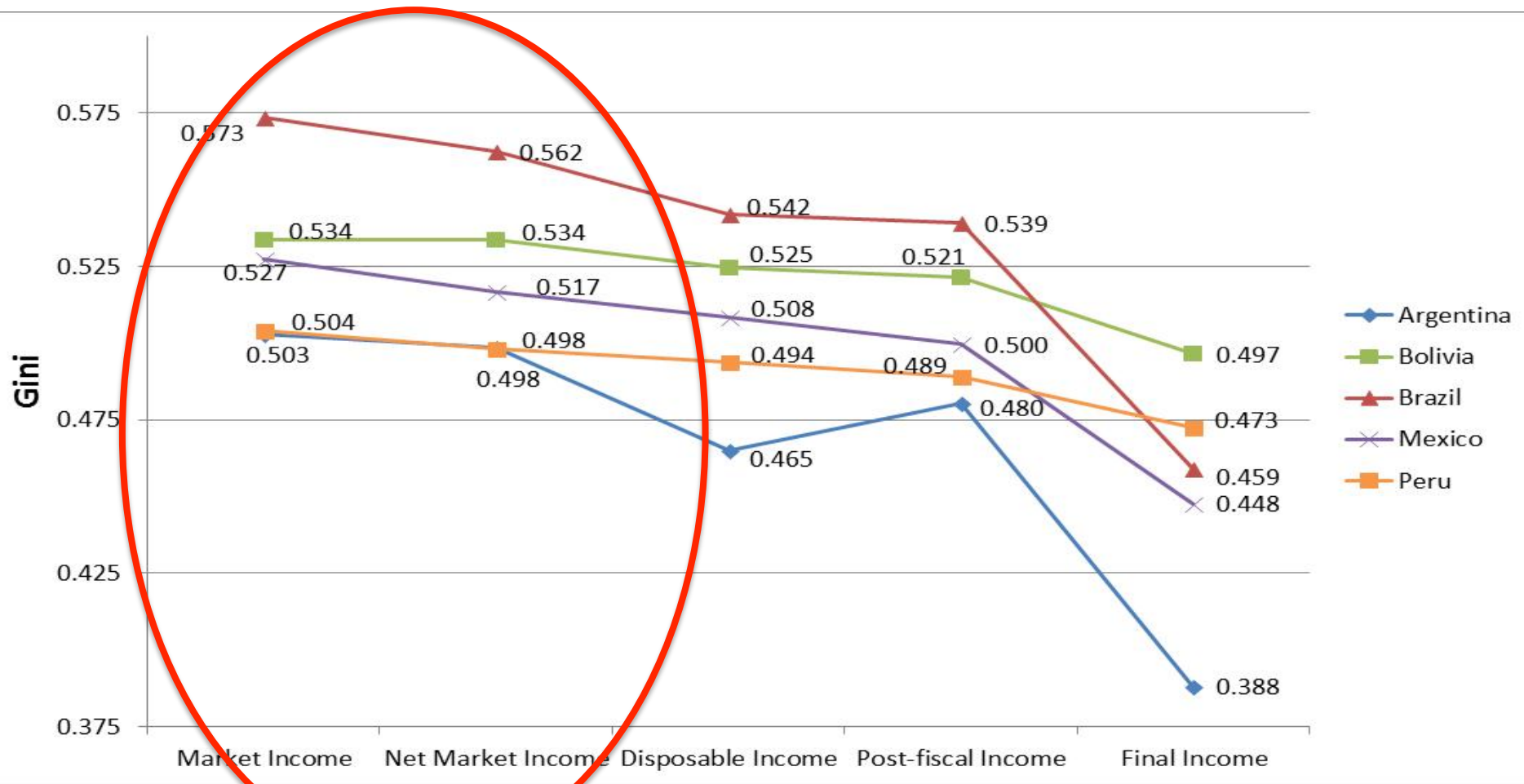
Conclusions

- <u>Fourth</u>, large-scale targeted cash transfers can achieve significant reductions in extreme poverty.

- The extent of poverty reduction depends on:

  - size of per capita transfer (related to leakages to nonpoor)

 - coverage of the poor

"Leakages" to Non-poor

Coverage of the Extreme and Total Poor

Conclusions

- <u>Fifth,</u> when indirect taxes are taken into account
  - The moderate poor and the near poor become net payers to the fiscal system (except for Mexico, 2008)
  - A significant share of the moderate (extreme) poor become extreme (ultra) poor in some of the countries; results for Brazil are striking

Impact of Indirect Taxes
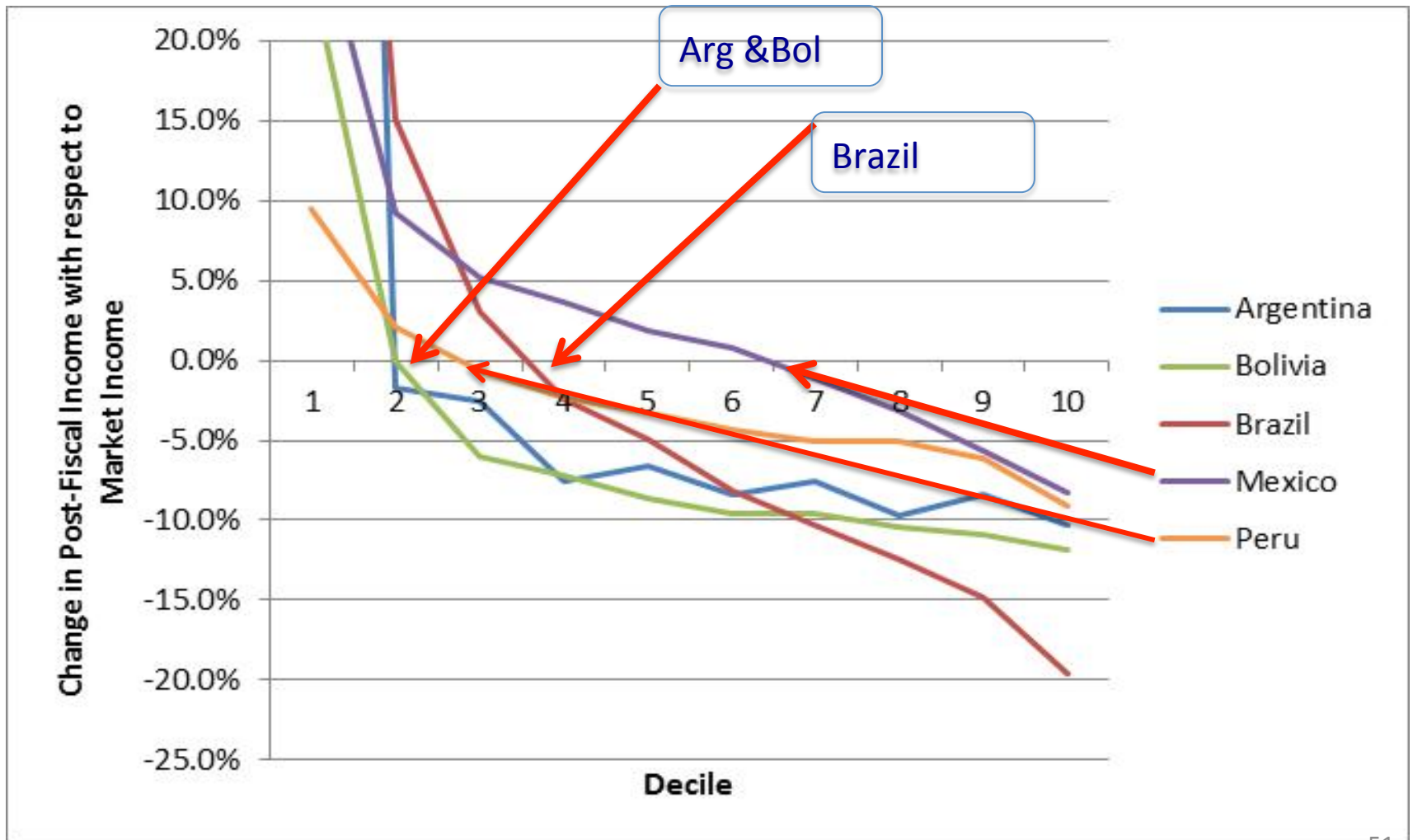
Indirect Taxes and the Poor in Brazil (Lustig and Higgins, 2012)

- Indirect taxes make around 11 percent of the non-poor poor, 15 percent of the moderate poor extremely poor, and 4 percent of the extremely poor "ultra-poor" despite any cash transfers they receive
- We would have missed this with standard analysis:
  - extreme poverty and inequality indicators decline
  - overall taxes are progressive

Fiscal Mobility: Fiscally-induced Upward and Downward Movement (in %). Brazil'09

Fiscal Mobility Matrix for Brazil

|	Post-Fiscal Income groups						Percent of pop-ulation	Mean income
Market Income groups	y < 1.25	1.25 <= y < 2.50	2.50 <= y < 4.00	4.00 <= y < 10.00	10.00 <= y < 50.00	50.00 <= y		
y < 1.25	69%	21%	6%	3%			5.7%	$0.74
1.25 < = y < 2.50	4%	81%	10%	4%			9.6%	$1.89
2.50 <= y < 4.00		15%	75%	9%	1%		11.3%	$3.24
4.00 <= y < 10.00			11%	86%	3%		33.6%	$6.67
10.00 <= y < 50.00				15%	85%		35.3%	$19.90
50.00 <= y					32%	68%	4.5%	$94.59
Percent of population	4.3%	10.7%	13.5%	35.8%	32.5%	3.2%	100%	$14.15
Mean income	$0.86	$1.91	$3.25	$6.61	$19.34	$88.70	$12.17	

Note: Mean incomes are in US$ PPP per day. Rows may not sum to exactly 100% due to rounding. Zeroes are omitted from the matrix for enhanced readability. Differences in group shares between the "before" and "after" scenarios are all statistically significant from zero at the 0.1% significance level.

Source: Lustig and Higgins (2009) based on POF (2008-2009).

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# Where public *contributory* pensions go matters…

- Benchmark: *contributory* pensions are treated as market income; assumes an actuarially fair system on average

- Sensitivity Analysis: *contributory* pensions are considered as a government transfer

- Redistribution and incidence results are sensitive to the placement of contributory pensions

- Here we shall present benchmark results but show a couple of examples for the sensitivity analysis

How sensitive are results to the placement of contributory pensions? Brazil vs. Mexico
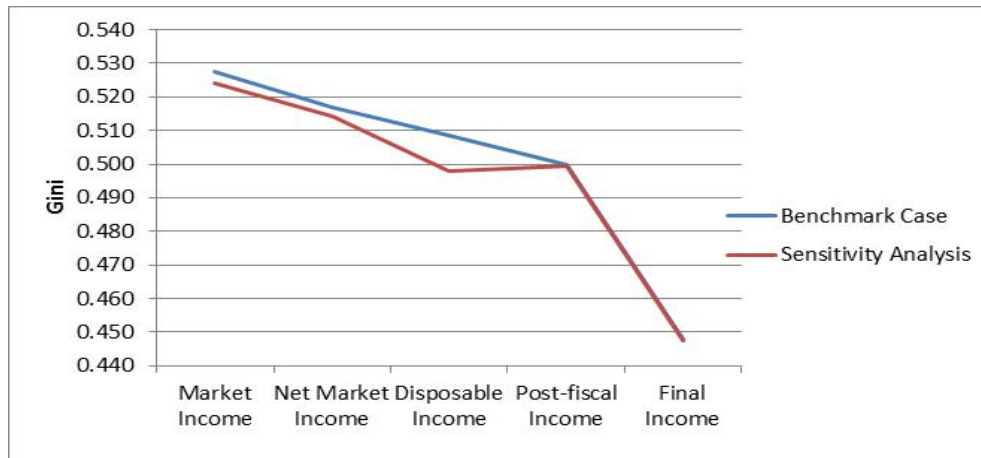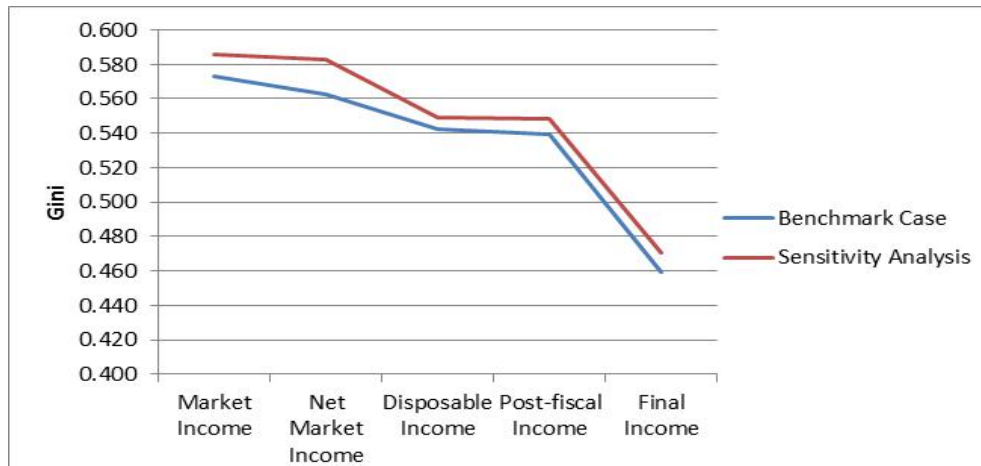
How sensitive to placement of contributory pensions: Uruguay incidence

Figure 4 - Changes in Income by Decile
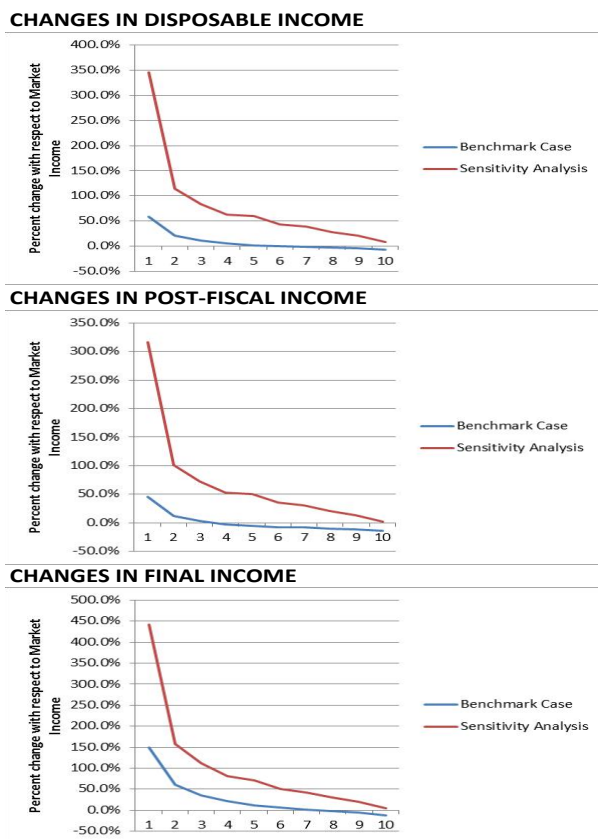
Source: authors' calculations based on Encuesta Continua de Hogares (2009) and Nat. Accts.
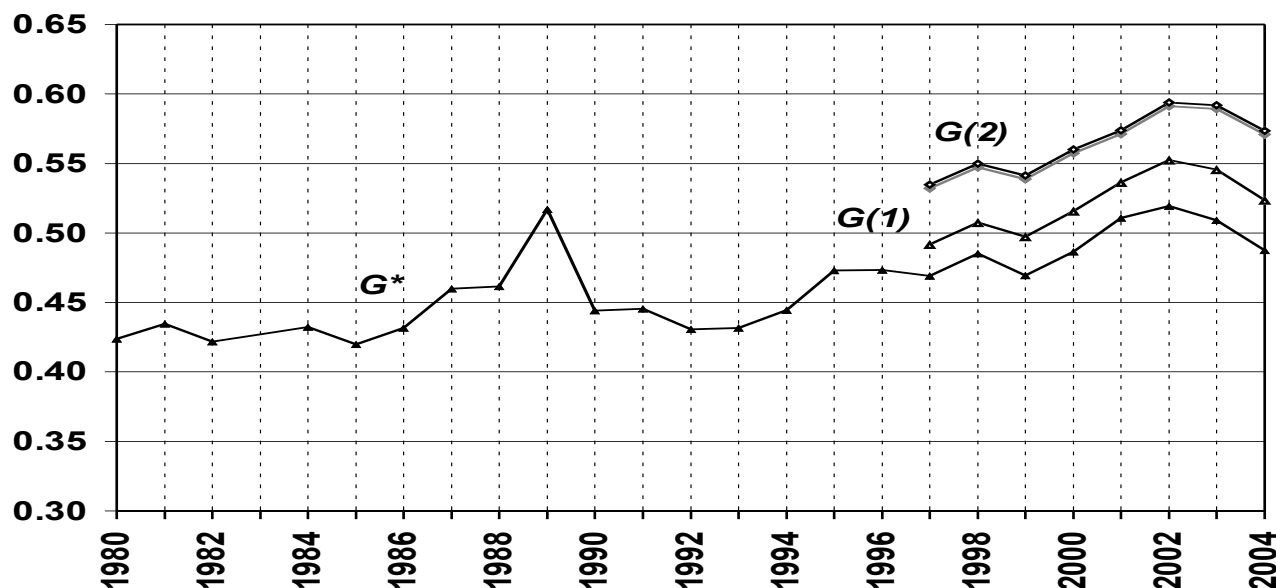Notes:
For definition of income concepts see text.
Benchmark: contributory pensions are included in market income.
Sensitivity: contributory pensions are treated as government transfers.

Adding the top; Greater Bs. As., Argentina (Alvaredo and Piketty en López-Calva y Lustig, 2010)

FIGURE 6
Gini coefficient in the Greater Buenos Aires 1980-2004

Notes: The black triangle denotes the Gini coefficient G^* of individual income based on the Greater Buenos Aires household survey, own calculations. Database for 1983 is missing. All results correspond to October surveys, except for 2003 (May). Only income earners with positive income were considered and no further adjustments were applied. The white triangle denotes the Gini coefficient $G(1)$$ÅS+(1-S)G^*$, where S is the estimate of the top 0.1% income share from Alvaredo (2010).
The white diamond denotes the Gini coefficient $G(2)$$ÅS+(1-S)G^*$, where S is the estimate of the top 1% income share from Alvaredo (2010).

Thank you