

# Fiscal Policy and Redistribution in Latin America

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*LACEA-LAMES*

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# Commitment to Equity (CEQ), joint project of Tulane University and Inter-American Dialogue.

[www.commitmenttoequity.org](http://www.commitmenttoequity.org)



## What is CEQ

The Commitment to Equity (CEQ) is a joint project of CIPR and the Department of Economics at Tulane University and the Inter-American Dialogue. Directed by [Nora Lustig](#) and [Peter Haskins](#), the CEQ was designed to analyse the impact of taxation and social spending on inequality and poverty in individual countries, and provide a roadmap for governments, multilateral institutions, and nongovernmental organizations in their efforts to build more equitable societies.

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Latin America

Rest of the World

Handbook and  
Diagnostic Questionnaire

## RECENT PUBLICATIONS

New



[CEQ WP13  
An Overview](#)



[CEQ WP7 Brazil](#)



[CEQ WP8 Mexico](#)

## NEWS

[4/1/2013](#): CEQ Working Paper 13, *An Overview*, is now available, [link](#).

[3/21/2013](#): CEQ Featured at Colombia Equity Day Event

[3/13/2013](#): Brazilian President Dilma Rousseff announced the end of federal indirect taxes on all items in the basic needs basket

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# References and Teams

- *Handbook*: Lustig, Nora and Sean Higgins. 2013. Commitment to Equity Assessment (CEQ): Estimating the Incidence of Social Spending, Subsidies and Taxes. Handbook, *CEQ Working Paper No. 1*, July 2011; revised January 2013. New Orleans, LA.
- *Introduction to PFR* special issue: Lustig, Nora, Carola Pessino, and John Scott, editors. Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.
- *Overview*: Lustig et al. 2013. The Impact of Social Spending and Taxes on Inequality and Poverty in Latin America: Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay. [\*CEQ Working Paper No. 13\*](#), August, New Orleans, LA.
- *Impoverishment Measure*: Lustig, Nora and Sean Higgins. 2012. Fiscal Mobility and the Poor: A New Approach. Tulane Economics Department Working Paper 1202, New Orleans, Louisiana, April.

# References

- *Argentina:* Lustig, Nora and Carola Pessino. Social Spending and Income Redistribution in Argentina in the 2000s: The Rising Role of Noncontributory Pensions. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.
- *Bolivia:* Paz Arauco, Veronica, George Gray Molina, Wilson Jiménez Pozo, and Ernesto Yáñez Aguilar. Explaining Low Redistributive Impact in Bolivia. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.
- *Brazil:* Higgins, Sean and Claudiney Pereira. The Effects of Brazil's High Taxation and Social Spending on the Distribution of Household Income. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.
- *Chile:* Dante Contreras and Jaime Ruiz-Tagle

# References

- *Colombia (top incomes)*: Alvaredo, Facundo and Juliana Londoño (2013) “High Incomes and Personal Taxation in a Developing Economy: Colombia 1993-2010,” *CEQ Working Paper No. 12*, March.
- *Colombia*: Carlos Hurtado, Nora Lustig and Marcela Melendez
- *Costa Rica*: Pablo Sauma and Juan Diego Trejos
- *El Salvador*: Margarita Beneke, Nora Lustig and Jose Andres Oliva
- *Guatemala*: Maynor Cabrera, Nora Lustig and Hilcias Estuardo Moran
- *Mexico*: Scott, John. Redistributive Impact and Efficiency of Mexico’s Fiscal System. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.
- *Mexico (comparative)*: Lopez-Calva, L., N. Lustig, J. Scott and A. Castaneda. Gasto social, redistribución del ingreso y reducción de la pobreza en México: 1996 y 2010. Book chapter (in-progress)

# References

- *Paraguay*: Sean Higgins, Nora Lustig, Julio Ramirez and William Swanson (for 2011 Jose Manuel Gomez)
- *Peru*: Jaramillo, Miguel. The Incidence of Social Spending and Taxes in Peru. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.
- *Uruguay*: Bucheli, Marisa, Nora Lustig, Máximo Rossi, and Florencia Amábile. Social Spending, Taxes, and Income Redistribution in Uruguay. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.

# Assessment of existing tax and transfers system

- What is the impact of taxes and transfers on inequality and poverty?
- Who bears the burden of taxes and receives the benefits?
- How progressive are taxes and public spending?
- How effective are taxes and transfers?

# Types of Incidence Analysis

- Partial or Comprehensive
- Point-in-time or Lifecycle
- Average or Marginal



# Types of Incidence Analysis

- Economic incidence:
  - Exogenously assumed
  - Behavioral responses explicitly modeled:
    - Partial equilibrium
    - General equilibrium

# CEQ Project

- Point in time
- Average incidence
- Economic incidence
  - uses exogenous assumptions
  - no behavioral responses are modeled

# CEQ Project

- Comprehensive:
  - Direct taxes (personal income)
  - Direct transfers
  - Indirect subsidies
  - Public spending on education and health (in-kind transfers)
- Comparable methodology and results across countries
- Results at the national level and by rural/urban and ethnicity and race

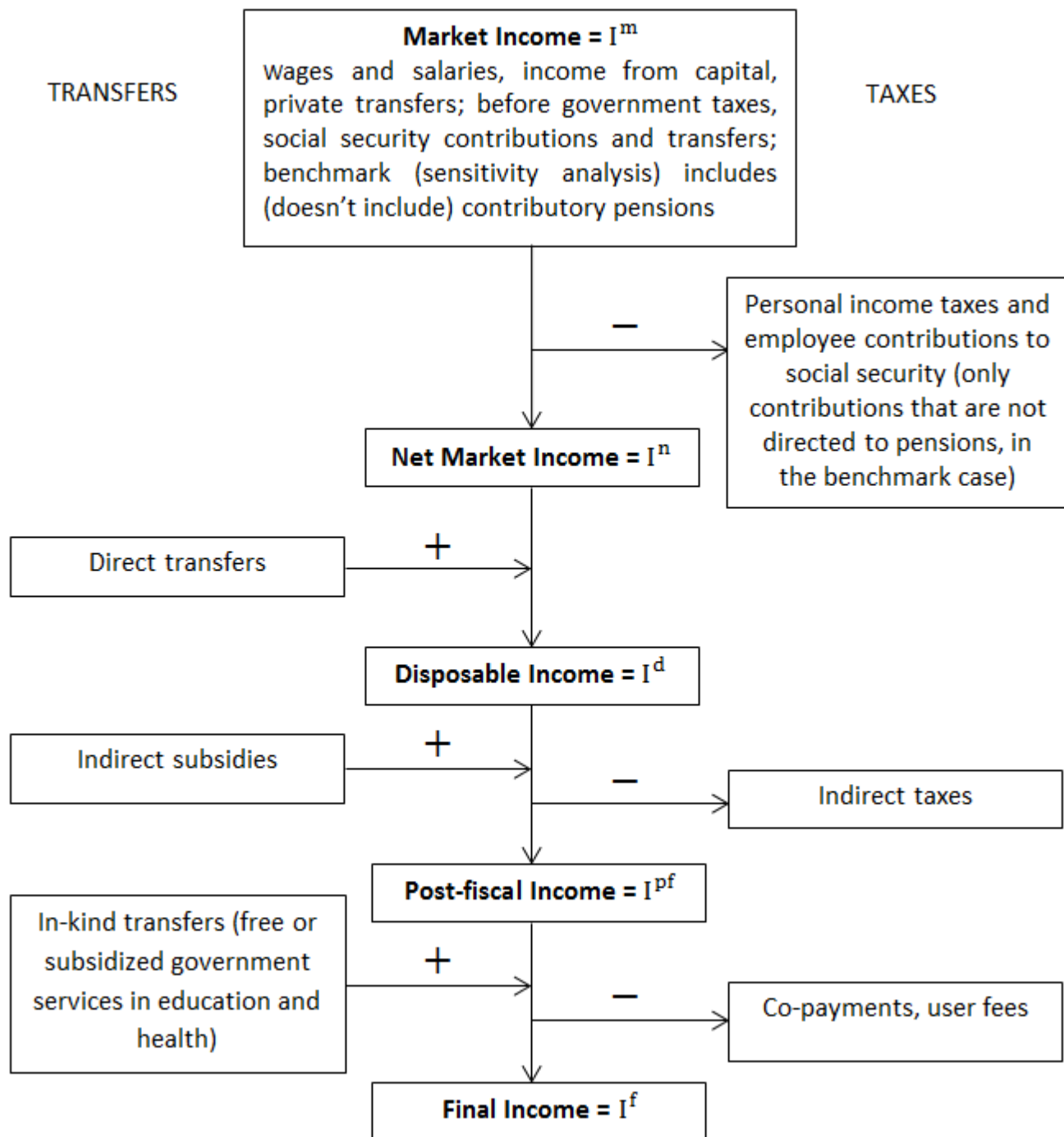
# CEQ Project

- Concluded: Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay
- Preliminary results: Chile, Colombia, Costa Rica, El Salvador, Guatemala, Paraguay, and the United States
- Early stage: Ecuador, Honduras, Nicaragua and Venezuela
- Other regions: with WB, Armenia, Ethiopia, Indonesia, Jordan, South Africa and Sri Lanka

# Basic elements of standard fiscal incidence

- Before taxes/transfers income of unit  $h = I_h$
- Taxes/transfers =  $T_i$
- “Allocators” of tax/transfer  $i$  to unit  $h = S_{ih}$
- $S_{ih}$  = share of tax/transfer  $i$  borne/received by unit  $h$
- After taxes/transfers income of unit  $h$  ( $Y_h$ ) is:

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



# Allocation Methods

- Direct Identification in microdata
- If not in microdata, then:
  - Simulation
  - Imputation
  - Inference
  - Alternate Survey
  - Secondary Sources

# Allocation Methods

- Tax shifting assumptions
- Tax evasion assumptions
- Take-up of cash transfers programs
- Monetizing in-kind transfers



# Tax Shifting Assumptions

- Economic burden of direct personal income taxes is borne by the recipient of income
- Burden of payroll and social security taxes is assumed to fall entirely on workers
- Consumption taxes are assumed to be shifted forward to consumers.
- These assumptions are strong because they imply that labor supply is perfectly inelastic and that consumers have perfectly inelastic demand
- In practice, they provide a reasonable approximation (with important exceptions such as when examining effect of VAT reforms) and they are commonly used

# Tax Evasion Assumptions

- Income taxes and contributions to SS:
  - Individuals who do not participate in the contributory social security system are assumed not to pay them; Brazil's survey includes a question on tax payments so tax evasion is assumed to be as reported in the survey.
- Consumption taxes:
  - Bolivia, Mexico, and Peru, assumed purchases in informal markets evaded taxes.
  - Mexico and Peru, that assumption was extended to purchases in rural areas and small villages, respectively.
  - Brazil, the indirect tax rate for each type of good or service was obtained from a secondary source that estimated the effective rates taking into account evasion
  - Uruguay, the legal rate of the VAT was applied to every purchase

# Monetizing in-kind transfers

- Incidence of public spending on education and health followed so-called “benefit or expenditure incidence” or the “government cost” approach.
- In essence, we use per beneficiary input costs obtained from administrative data as the measure of average benefits.
- This approach amounts to asking the following question:
  - How much would the income of a household have to be increased if it had to pay for the free or subsidized public service at the full cost to the government?

# Methodological Definitions

- Progressivity and Regressivity
- Effectiveness Indicators
- Anonymous (inequality and poverty measures) and non-anonymous indicators (incidence, concentration shares, progressivity)
- Some innovations: disaggregating changes into market and redistribution effects; rate of impoverishment

# Definitions of Progressive and Regressive

# Public Spending Effectiveness Indicators

- Numerator: change in percentage points of indicator for relevant income concepts
- Denominator: ratio of relevant spending category to GDP
- For direct cash transfers, for example:
  - Numerator: Disposable Income Gini (Headcount)  
– Market Income Gini (Headcount)
  - Denominator: Ratio of spending on direct transfers/GDP

# Disaggregating Changes into Market and Redistribution Components

$$G_d^t = G_m^t - R^t \quad (1)$$

$$G_d^{t'} = G_m^{t'} - R^{t'} \quad (2)$$

Subtracting (2) from (1) and re-arranging yields:

$(G_d^{t'} - G_d^t)$	$=$	$(R^{t'} - R^t)$	$+$	$(G_m^{t'} - G_m^t)$
Change in Disposable Income Inequality (Poverty)		Redistribution		Change in Market Income Inequality (Poverty)

# Rate of Impoverishment

- Extent to which poor (nonpoor) people who are made poorer (poor) by fiscal system
- Traditional indicators of poverty, inequality, stochastic dominance, horizontal inequity, progressivity fail to capture impoverishment
- Proposed measures (show example for Brazil later):
  - Fiscal Mobility Matrix
  - Impoverishment Headcount
  - Impoverishment Gap

*See Higgins and Lustig (2013)*



# Main Results

- Six countries publication in progress in Public Finance Review: Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay
- Six countries finished recently: Chile, Colombia, Costa Rica, El Salvador, Guatemala, Paraguay

# Main Results: the Foreseeable

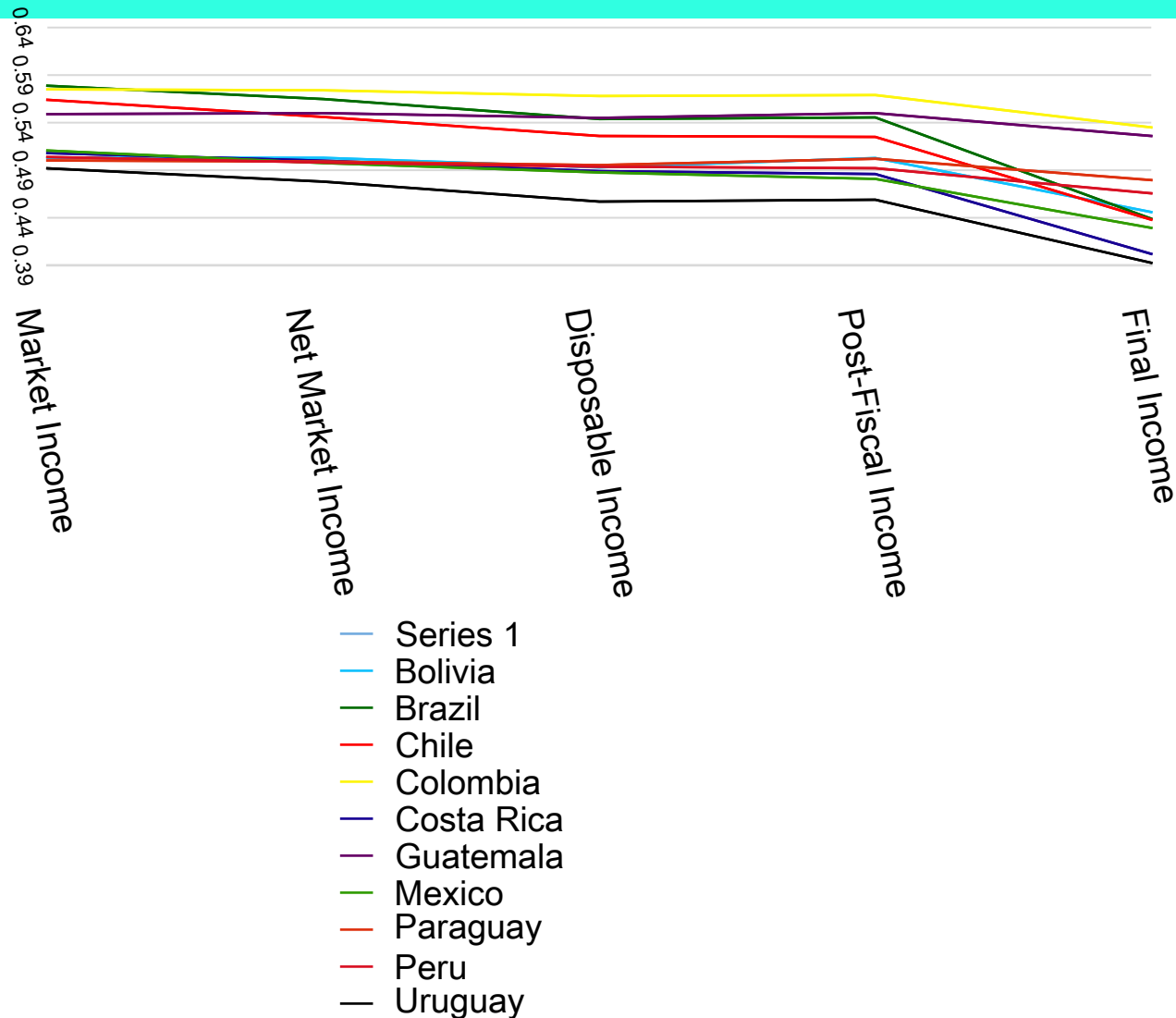
- Direct Taxes progressive but with little impact on inequality
- Indirect taxes regressive or neutral
- CCTs progressive in absolute terms; well targeted in practically all countries
- Redistribution is larger through in-kind benefits in education and health than cash transfers

# Progressivity of Taxes & Transfers

			Argentina	Bolivia	Brazil	Mexico	Peru	Uruguay
<b>Gini Market Income</b>			<b>0.49*</b>	<b>0.50</b>	<b>0.58</b>	<b>0.51</b>	<b>0.50</b>	<b>0.49</b>
		<b>Direct Taxes</b>	na	ne	0.19	0.30	0.43	0.25
		<b>Indirect Taxes</b>	na	-0.13	-0.06	0.01	0.02	-0.05
		<b>All</b>	na	-0.13	0.02	0.11	0.08	0.07
<b>Concentration Coefficient</b>		<b>Noncontributory Pensions</b>	-0.27	0.01	-0.48	-0.10	ne	-0.53
		<b>Flagship CCTs<sup>a</sup></b>	-0.50	-0.25	-0.58	-0.54	-0.65	-0.61
		<b>All</b>	-0.31	-0.07	0.03	-0.30	-0.48	-0.47
		<b>Pre-school</b>	na	-0.21	-0.33	-0.24	-0.25	-0.45
		<b>Primary</b>	-0.39	-0.25	-0.31	-0.25	-0.34	-0.43
		<b>Secondary</b>	-0.24	-0.12	-0.21	-0.08	-0.20	-0.12
		<b>Tertiary</b>	0.20	0.30	0.44	0.32	0.31	0.47
		<b>All</b>	-0.20	-0.02	-0.15	-0.09	-0.17	-0.11
		<b>Health Spending</b>	-0.23	-0.04	-0.11	0.04	0.18	-0.10

# Fiscal Policy and Inequality

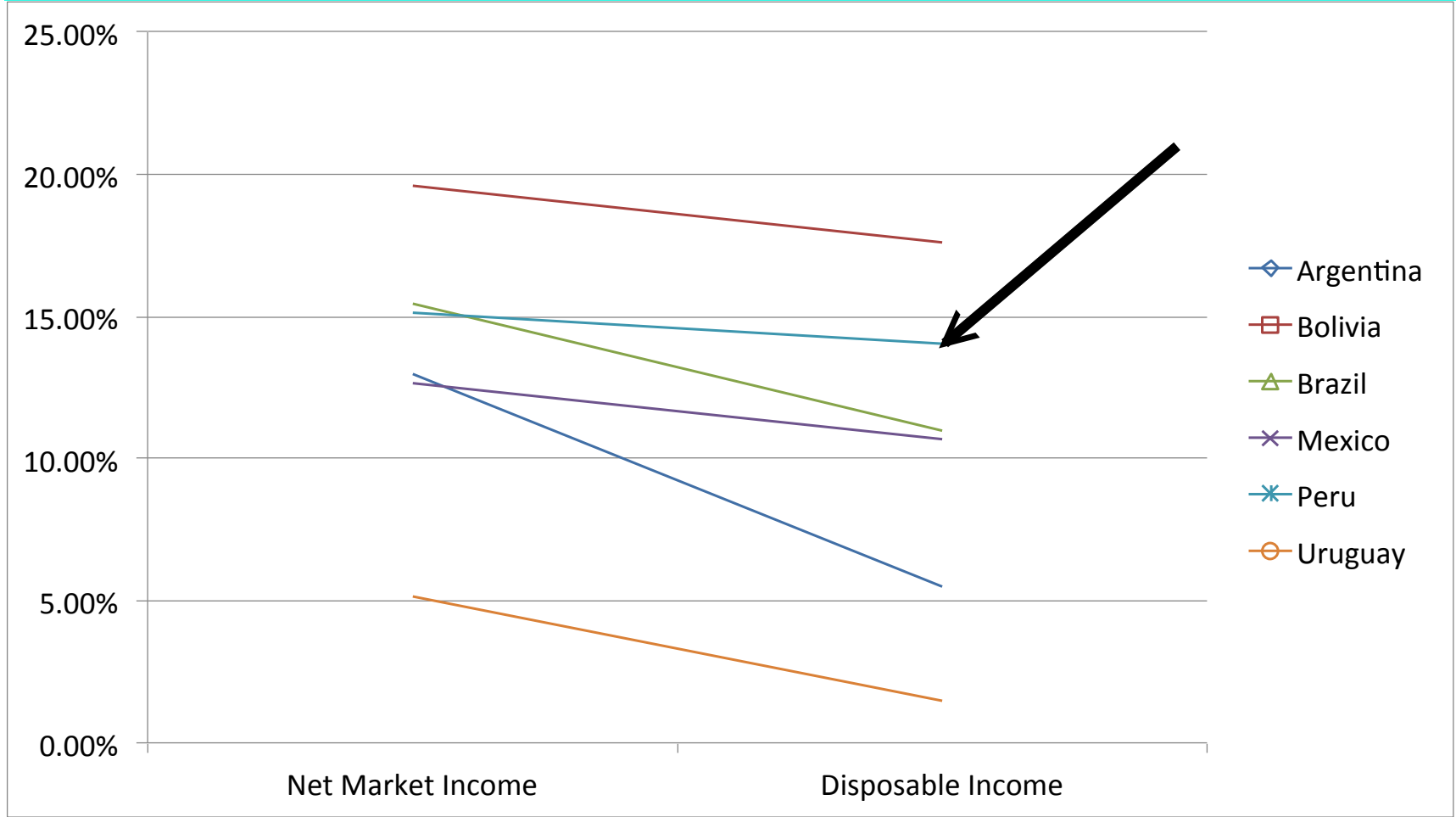
## Gini Coefficient by Income Concept



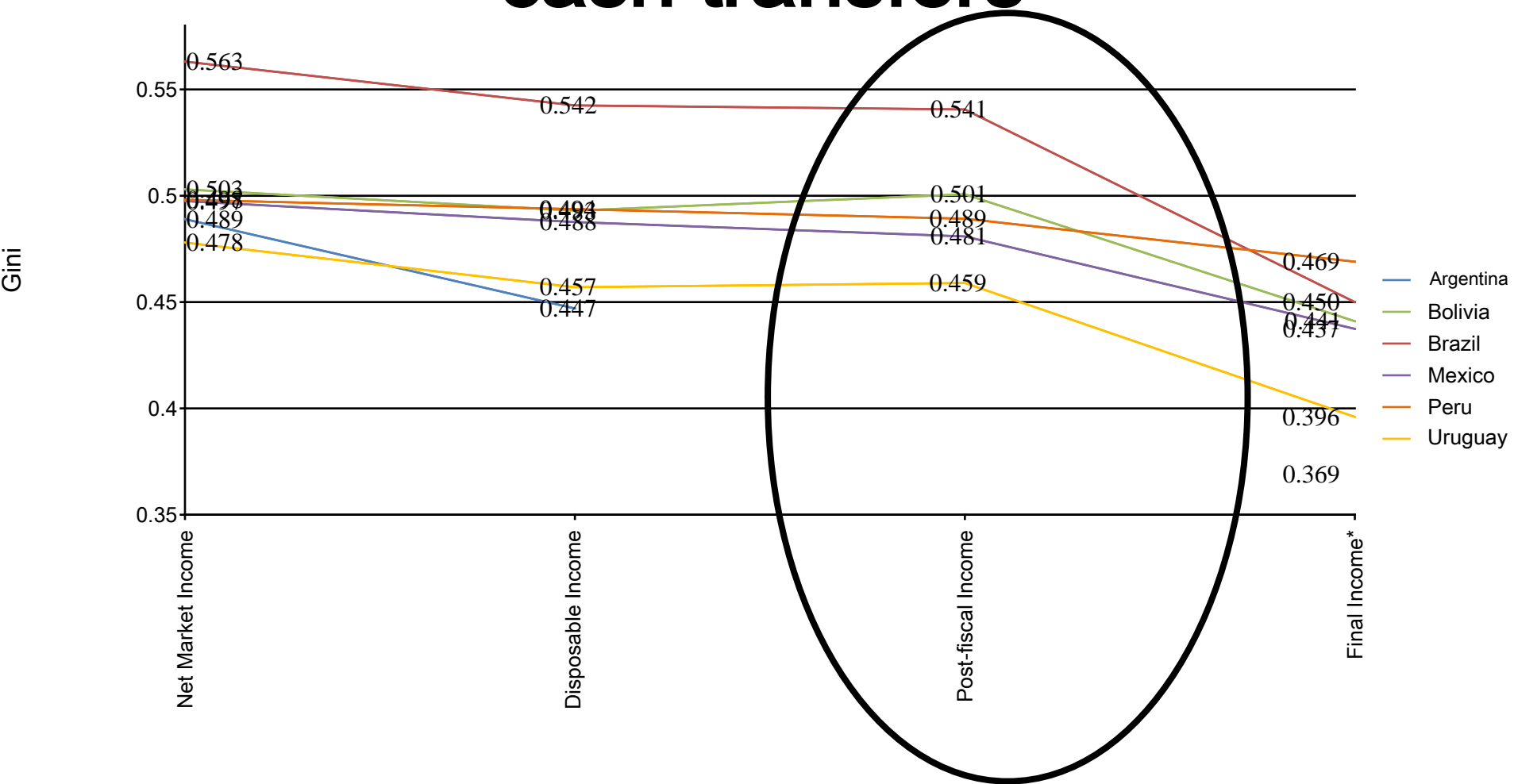
# Cash Transfers reduce poverty notably only when targeted and of significant magnitude

- Cash transfers reduce extreme poverty by more than 60 percent in Uruguay and Argentina...  
....but only by 7 percent in Peru, which spends too little on cash transfers to achieve much poverty reduction

# Headcount: Before and After Cash Transfers



# Public spending on education and health is a more powerful equalizer than cash transfers

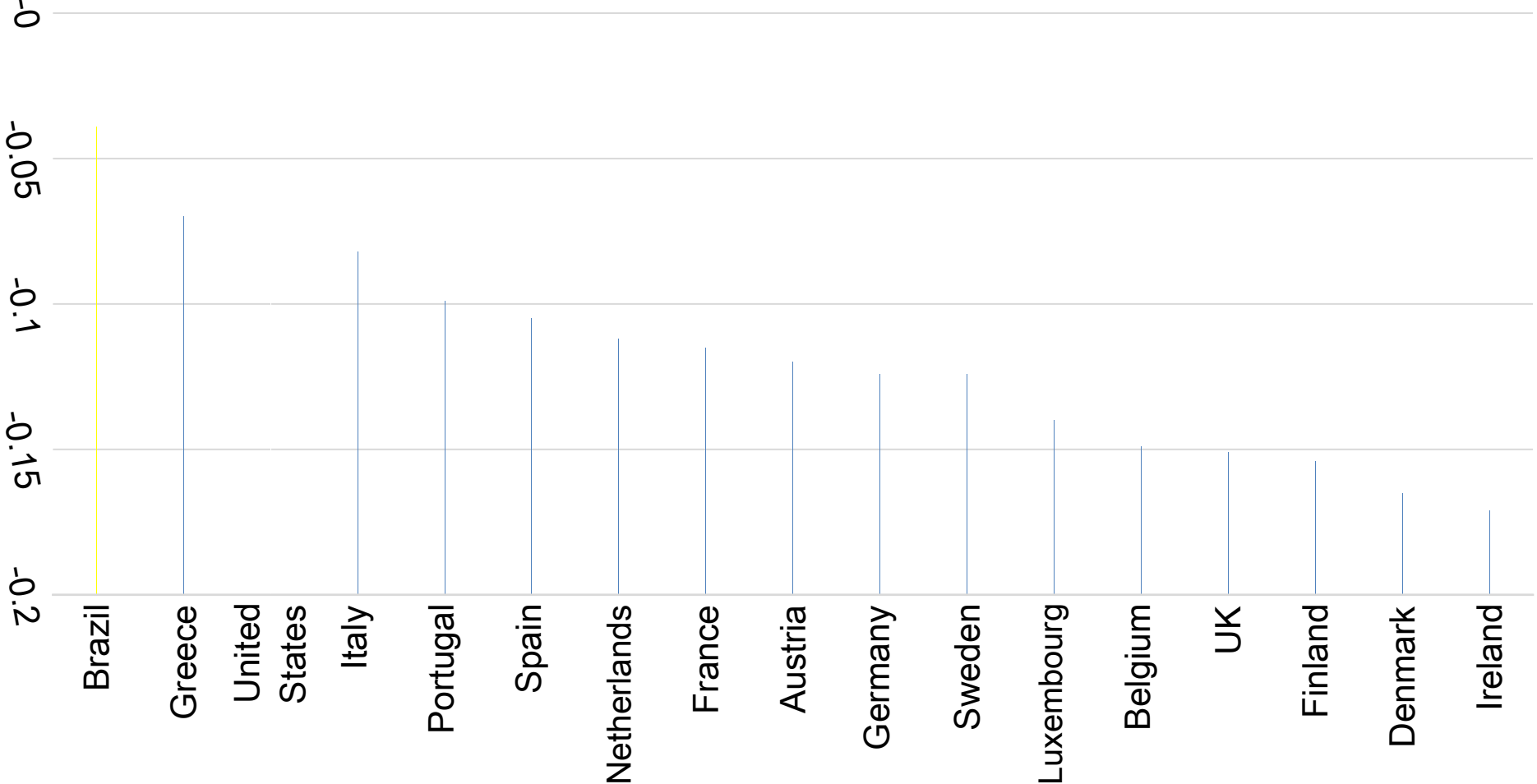


# Main Results: the Foreseeable

- Redistribution through cash transfers higher than shown in past studies: from 1-2 to 2-4 ppt reduction in Gini
- Still considerable less than in Europe and the US
- Leftist governments tend to be more redistributive; or is it more state capacity?



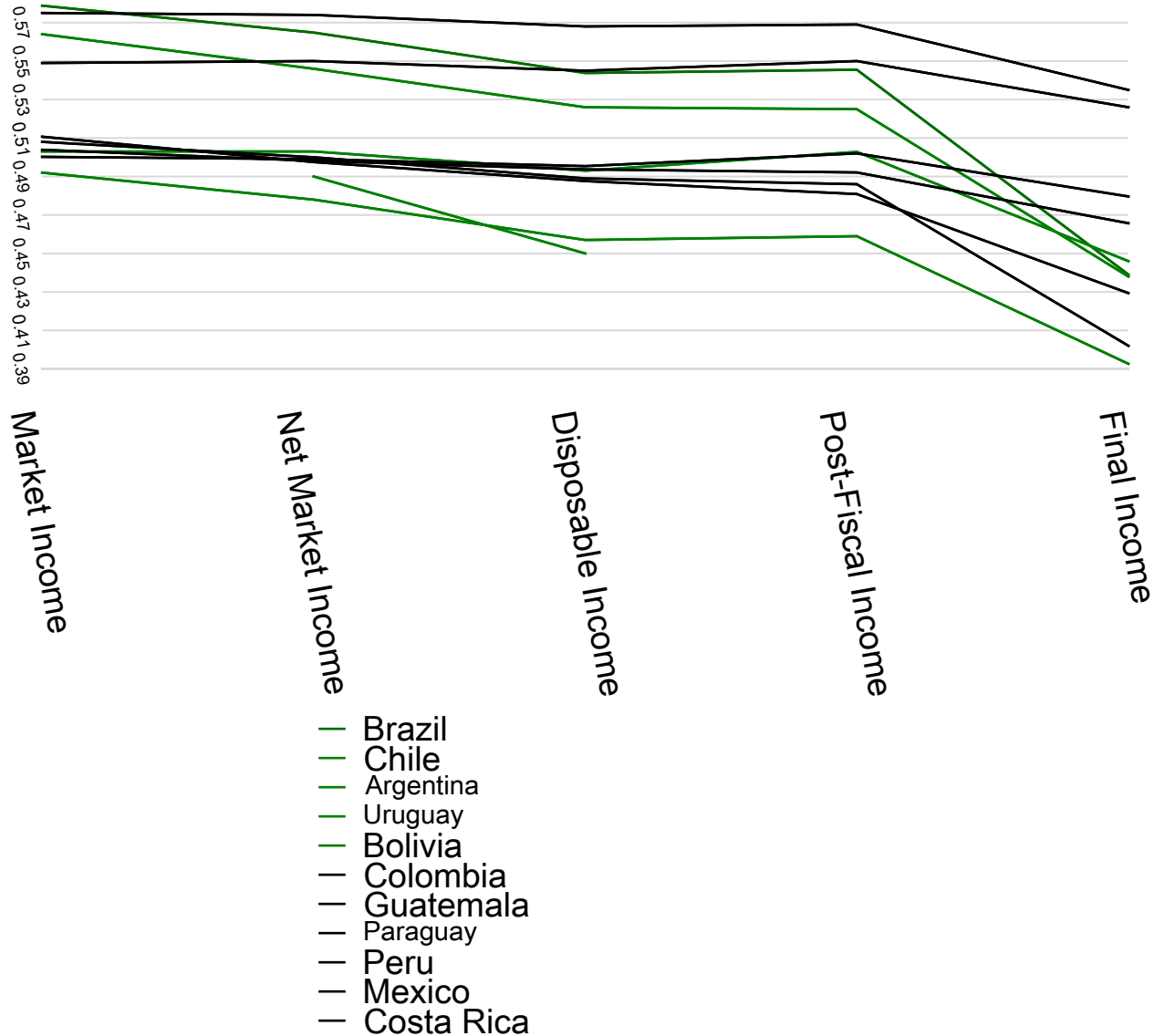
# Inequality Reduction by Direct Taxes and Transfers: Brazil, Europe and US



Source: Higgins et al. (2013) for Brazil and US;  
Immervoll et al. (2009) for Europe

# Fiscal Policy and Political Regime

Gini: Left (Green) Nonleft (Black)

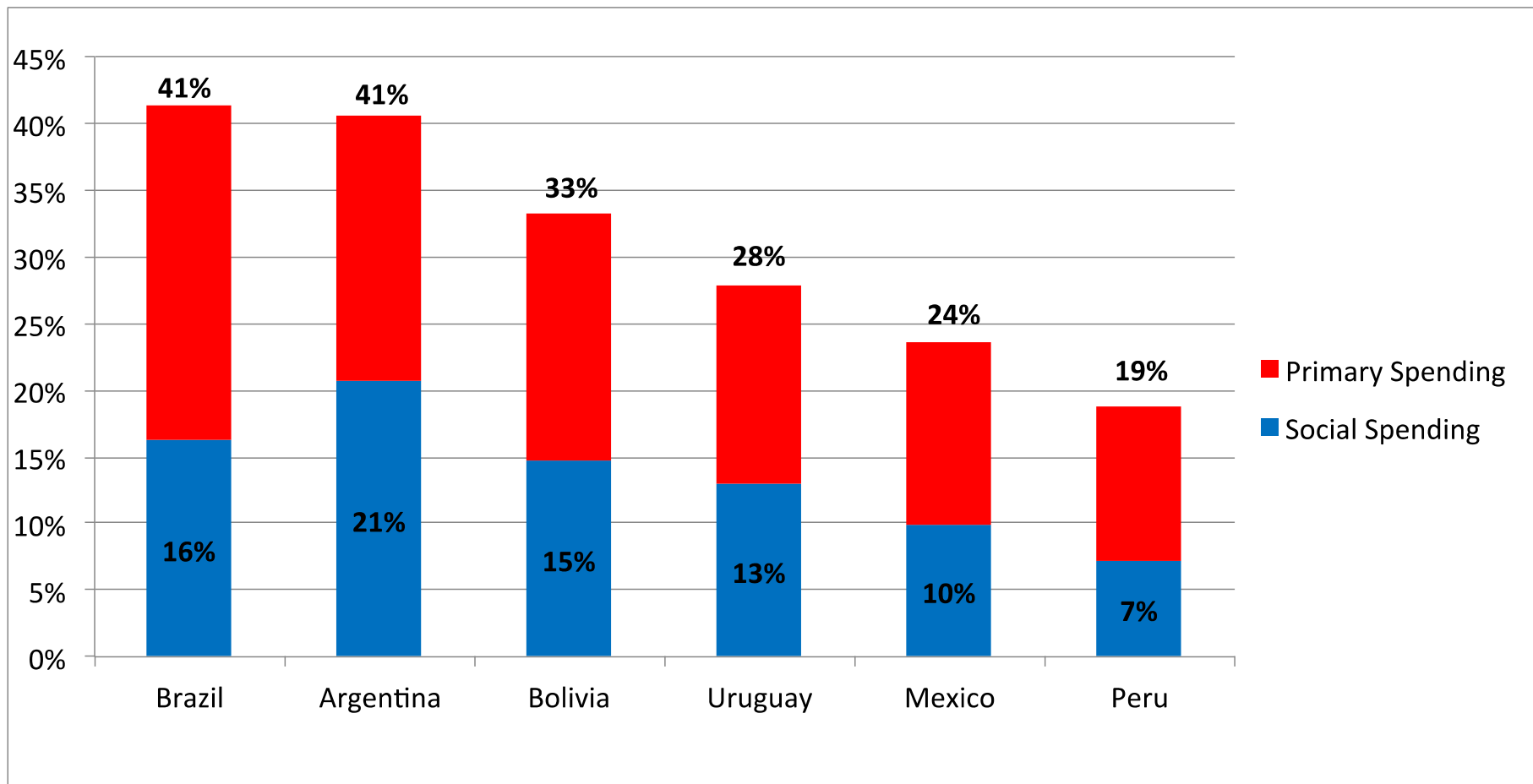


# Main Results: the Unexpected

- Diversity:
  - government size: primary spending from 40 in Brazil to 14 percent of GDP in Guatemala
  - extent of redistribution: 3.8 pts in Chile to 0.4 in Gua
- Net payers to the fisc (in terms of cash) start at relatively low deciles

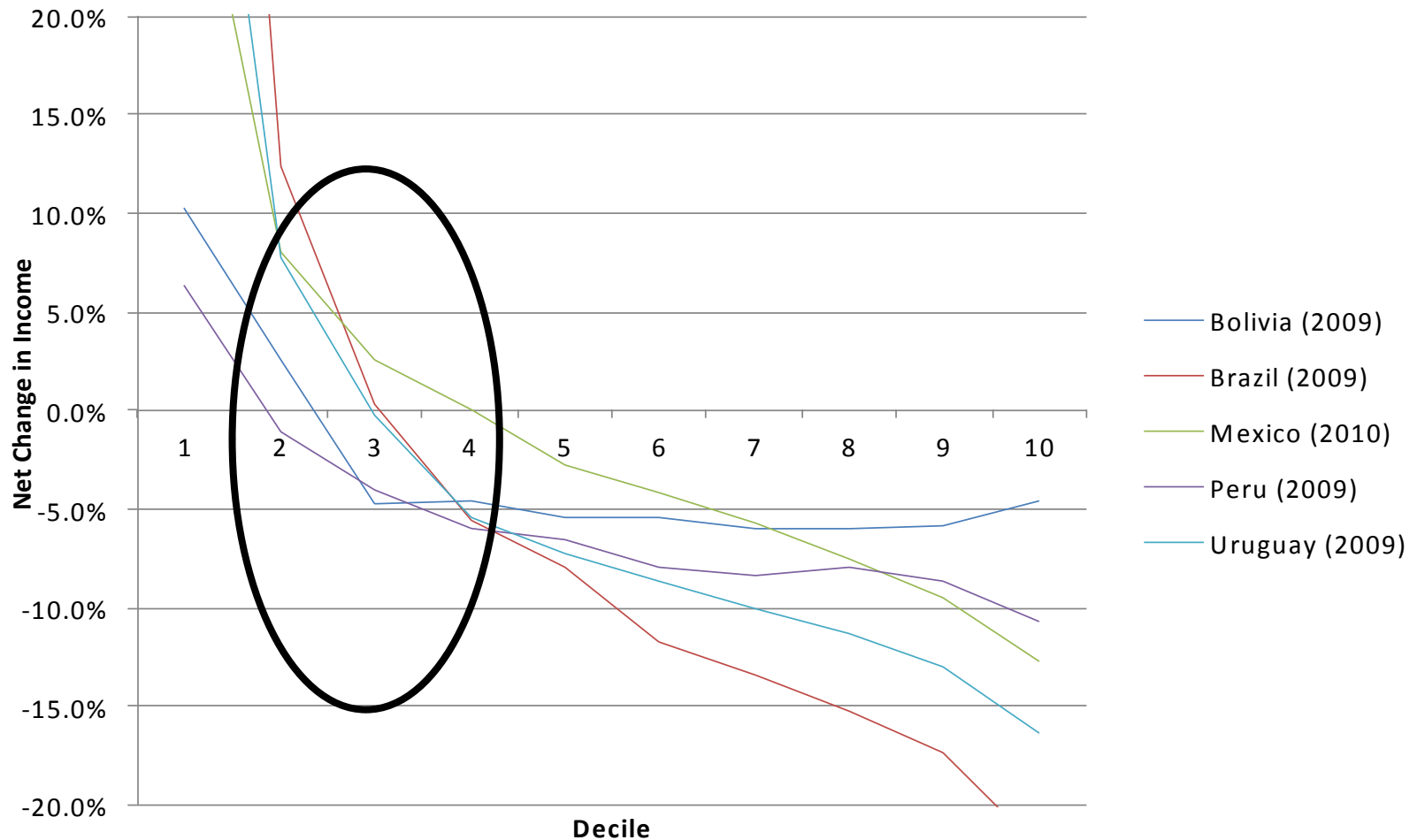
# Budget Size and Composition

## Primary and Social Spending as % of GDP



# Net Payers to the Fisc

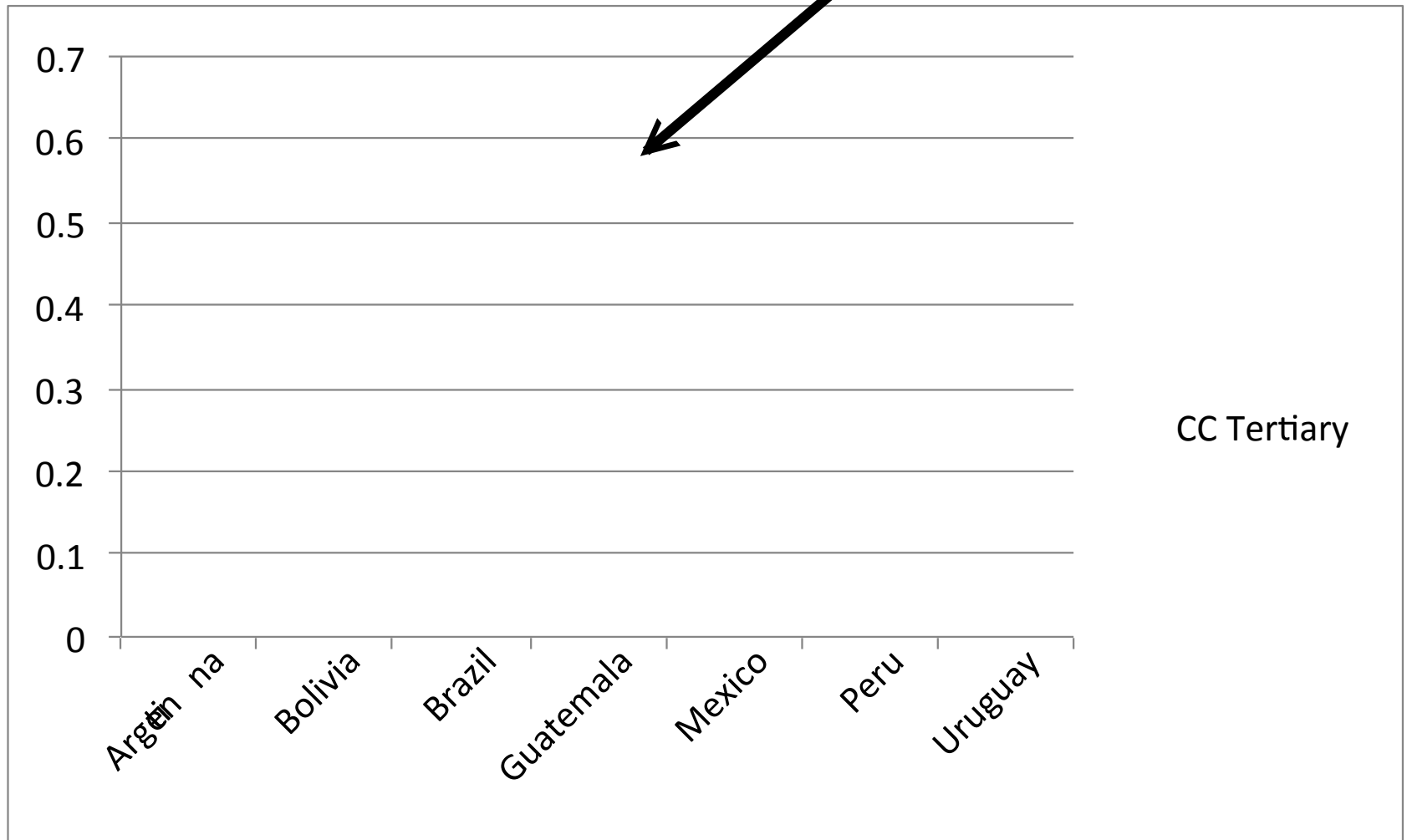
## Incidence of Post-Fiscal Income by Decile



# Main Results: the Unexpected

- Tertiary Education is progressive in relative terms or neutral, except for Guatemala where it is regressive
- Contributory Pensions are progressive (in relative terms) or regressive depending on the country

# Concentration Coefficient of Tertiary



# Contributory Pensions and Inequality

	Argentina (2009)	Bolivia (2009)	Brazil (2009)	Mexico (2010)	Peru (2009)	Uruguay (2009)
Pensions as %GDP	7.2	3.5	9.1	3.7	0.9	8.7
Gini pre-pensions	0.506	0.503	0.600	0.509	0.503	0.527
Gini post-pensions	0.489	0.503	0.579	0.511	0.504	0.492
Change in ppts	-17	0.0	-21	0.2	0.1	-3.5

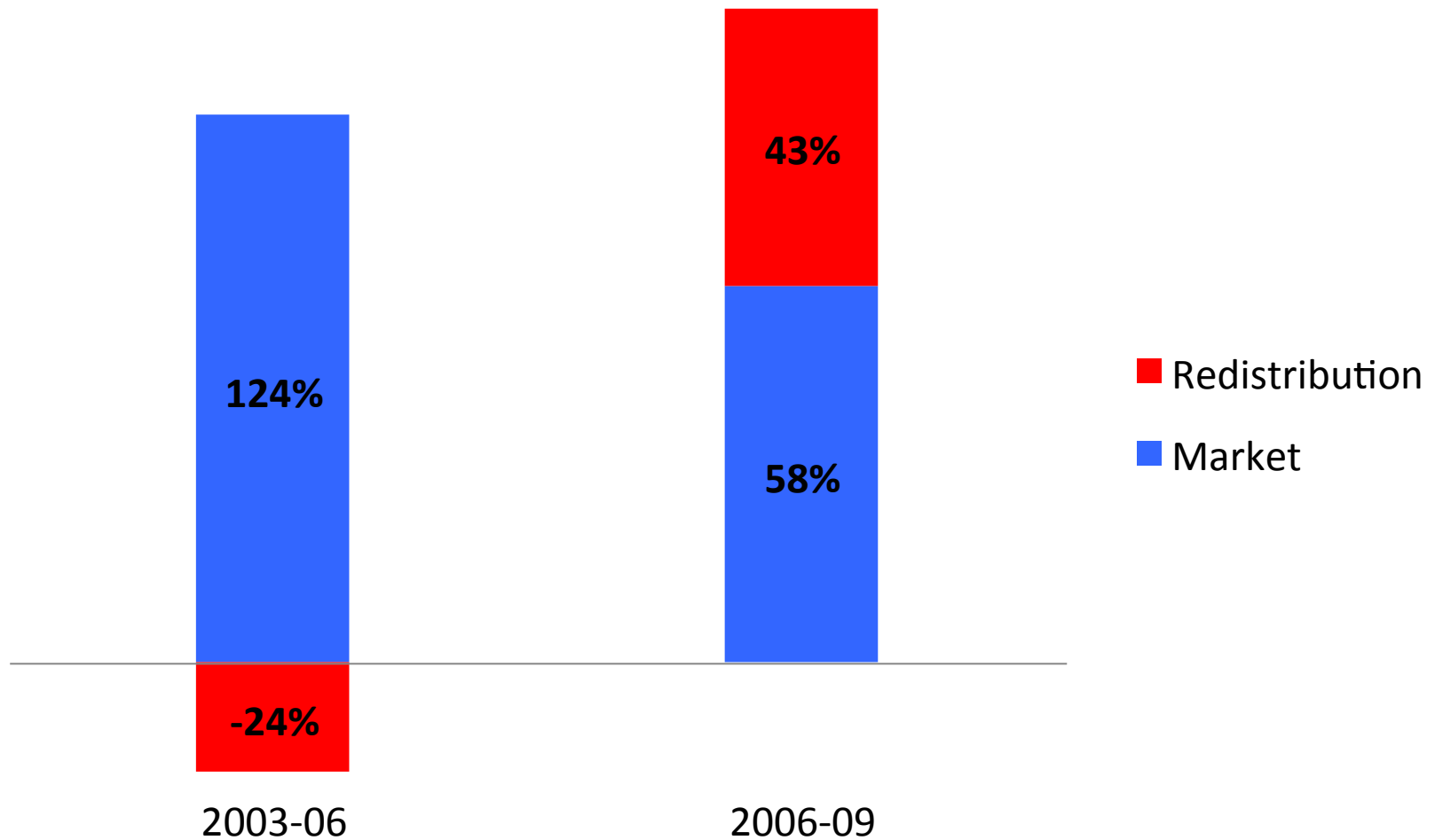


# Main Results: the Unexpected

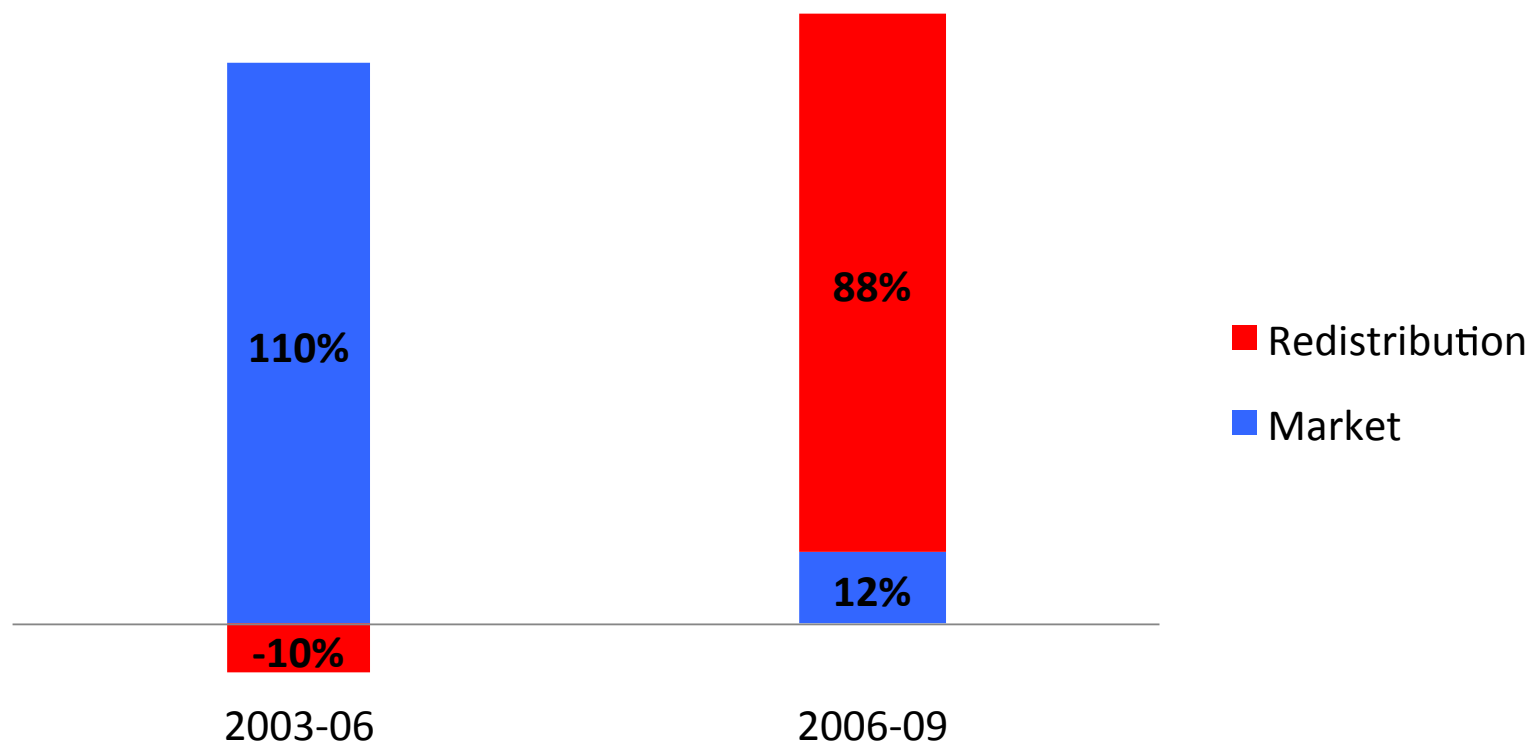
- Argentina is among the most ‘effective’ countries at redistribution and poverty reduction; however, redistribution might have gone “too far”
- Bolivia is a leftist government that redistributes little
- Brazil
  - indirect taxes wipe out cash transfers’ benefits to the poor and cause a significant amount of impoverishment
  - the poor whites receive more in cash transfers than the poor black and pardos

# Argentina: Redistributive Effectiveness

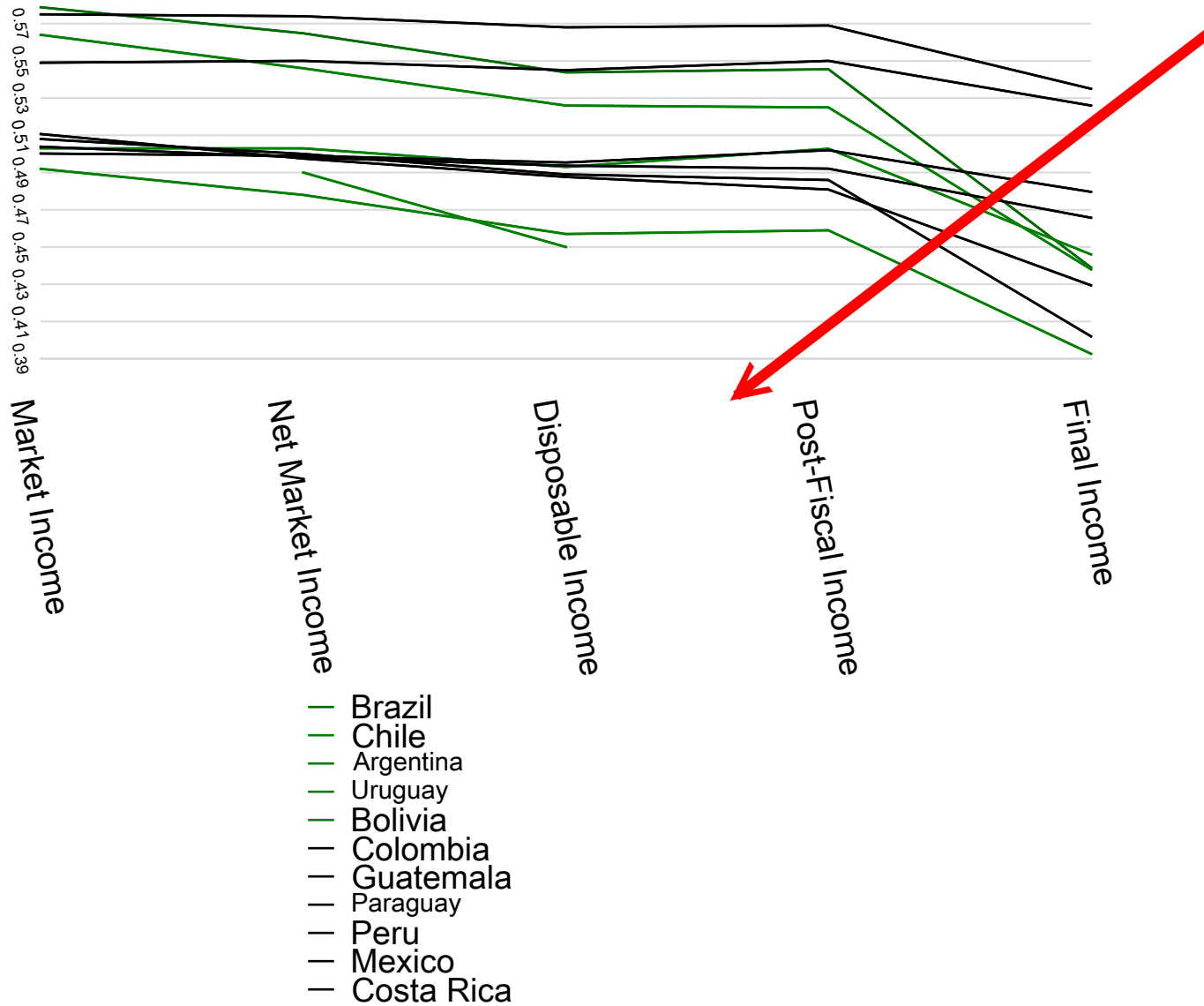
## Argentina-Reduction in Inequality: Market (blue) vs. Redistribution (red)



## Argentina-Reduction in Poverty: Market (blue) vs. Redistribution (red)

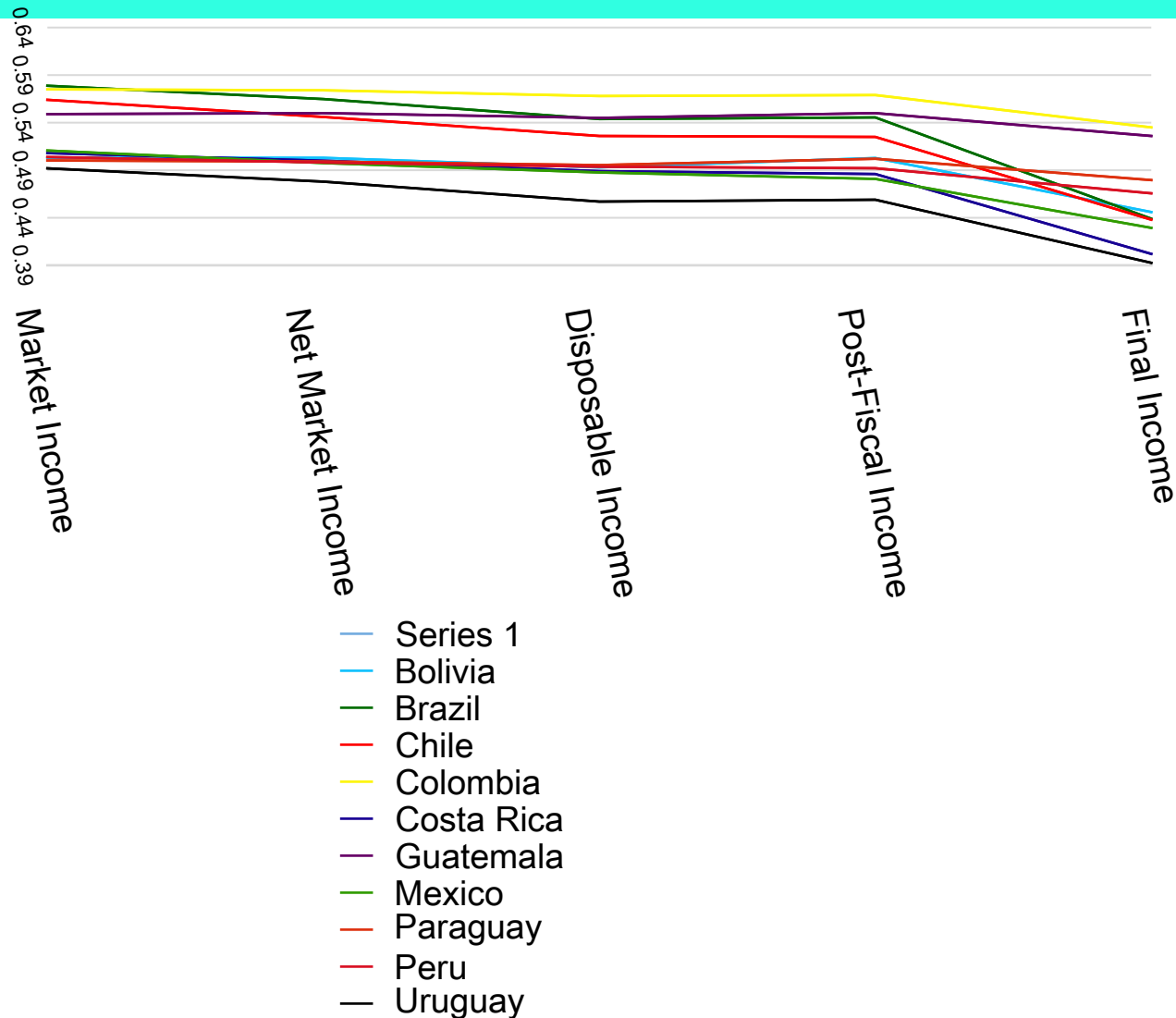


# Bolivia: a Leftist Gov that Redistributes Little

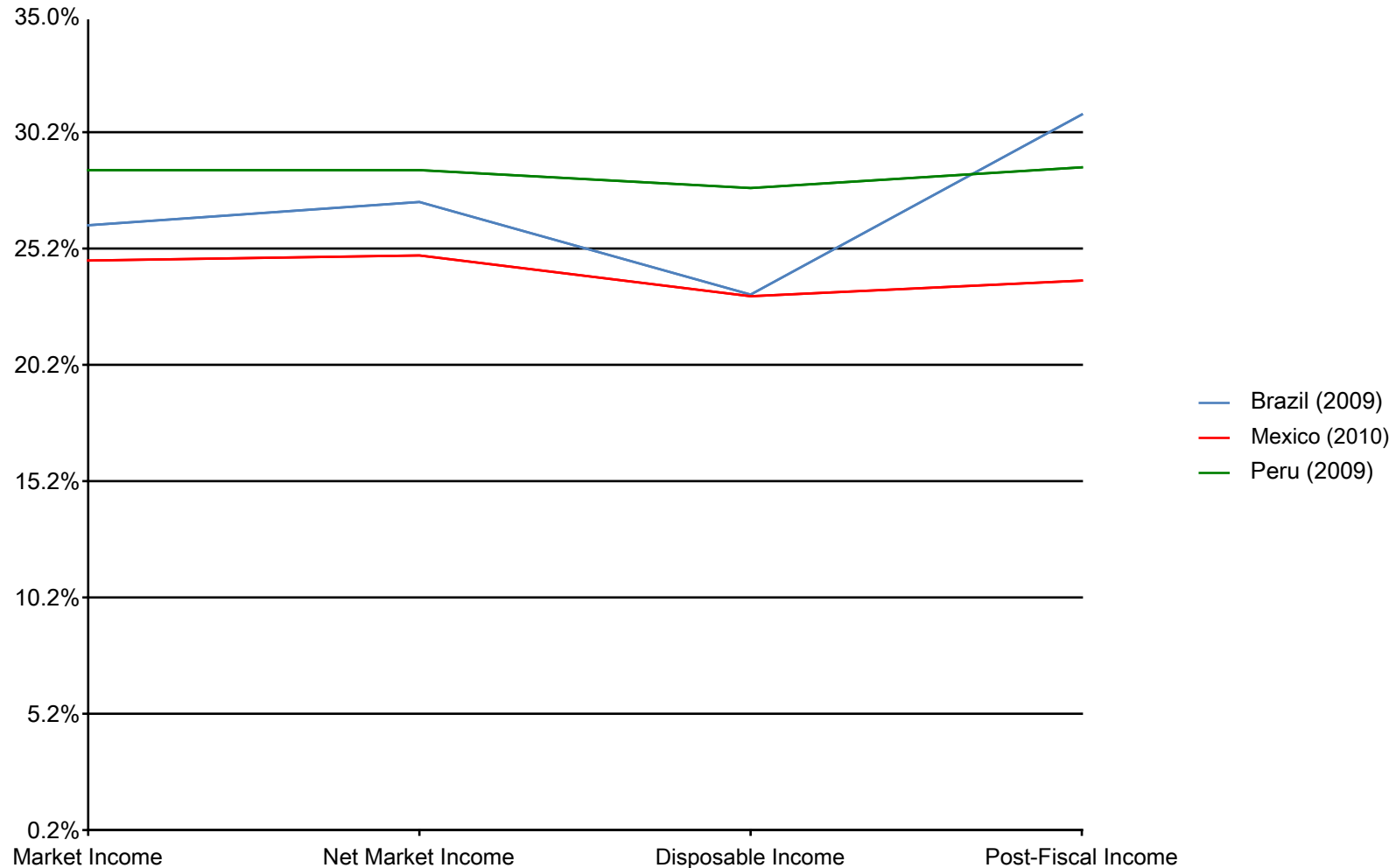


# Brazil Reduces Inequality Significantly

## Gini Coefficient by Income Concept

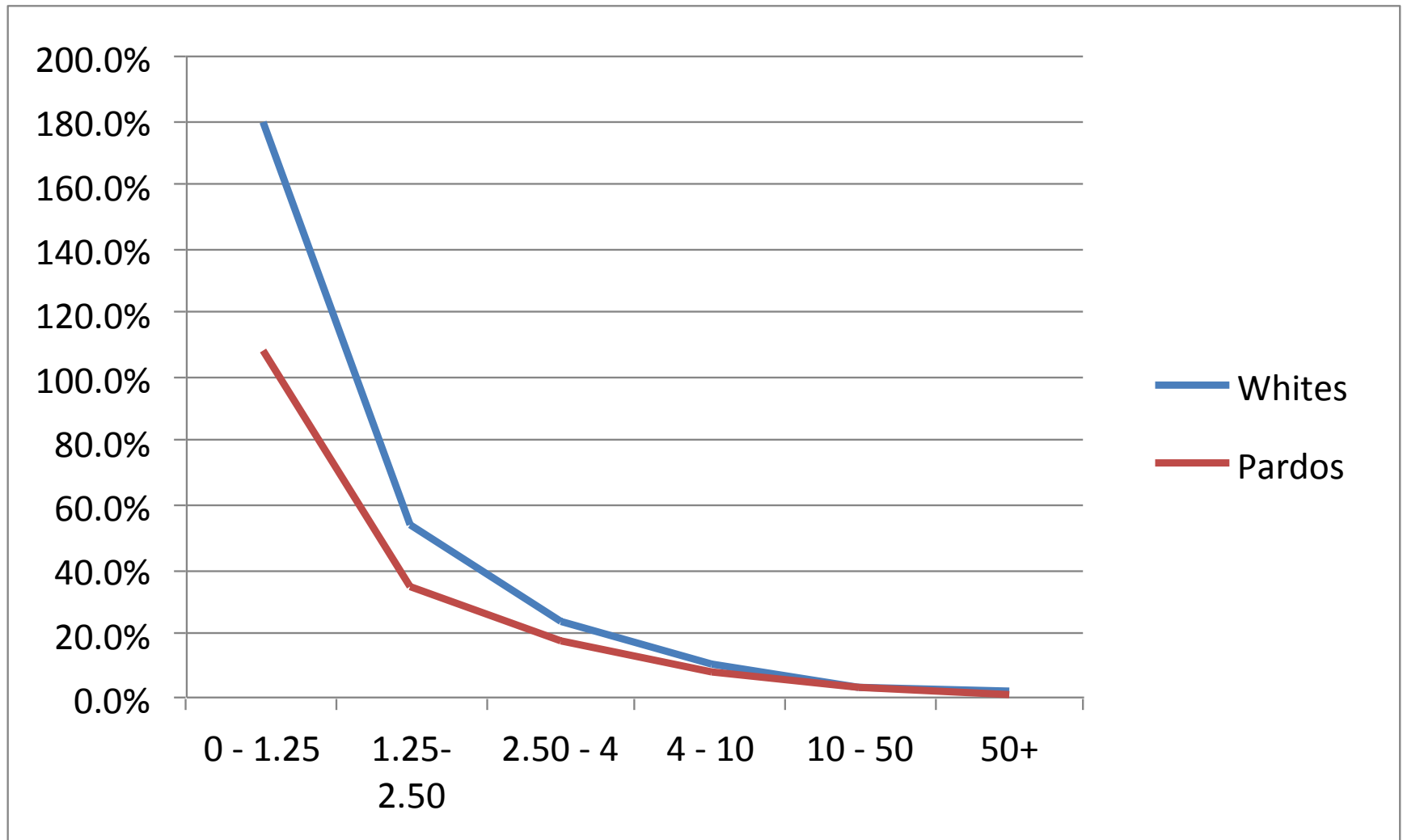


# However, indirect taxes wipe out the poverty-reducing effect of cash transfers



# Poor Pardos in Brazil Receive Less in Cash Transfers than Equally Poor Whites

## (Incidence of Cash Transfers by Race)





# Impoverishment in Brazil is Significant

		Post-tax and transfer income groups				% of Pop.
		< \$2.50	\$2.50 –4.00	\$4.00 –10.00	> \$10.00	
Pre-tax and transfer income groups	< \$2.50	85%	10%	4%	1%	15%
	\$2.50 –4.00	14%	75%	10%	1%	11%
	\$4.00 –10.00	0%	13%	84%	3%	33%
	> \$10.00	0%	0%	16%	84%	40%
% of Pop.		14%	14%	36%	36%	100%

# Main Results: the Unexpected

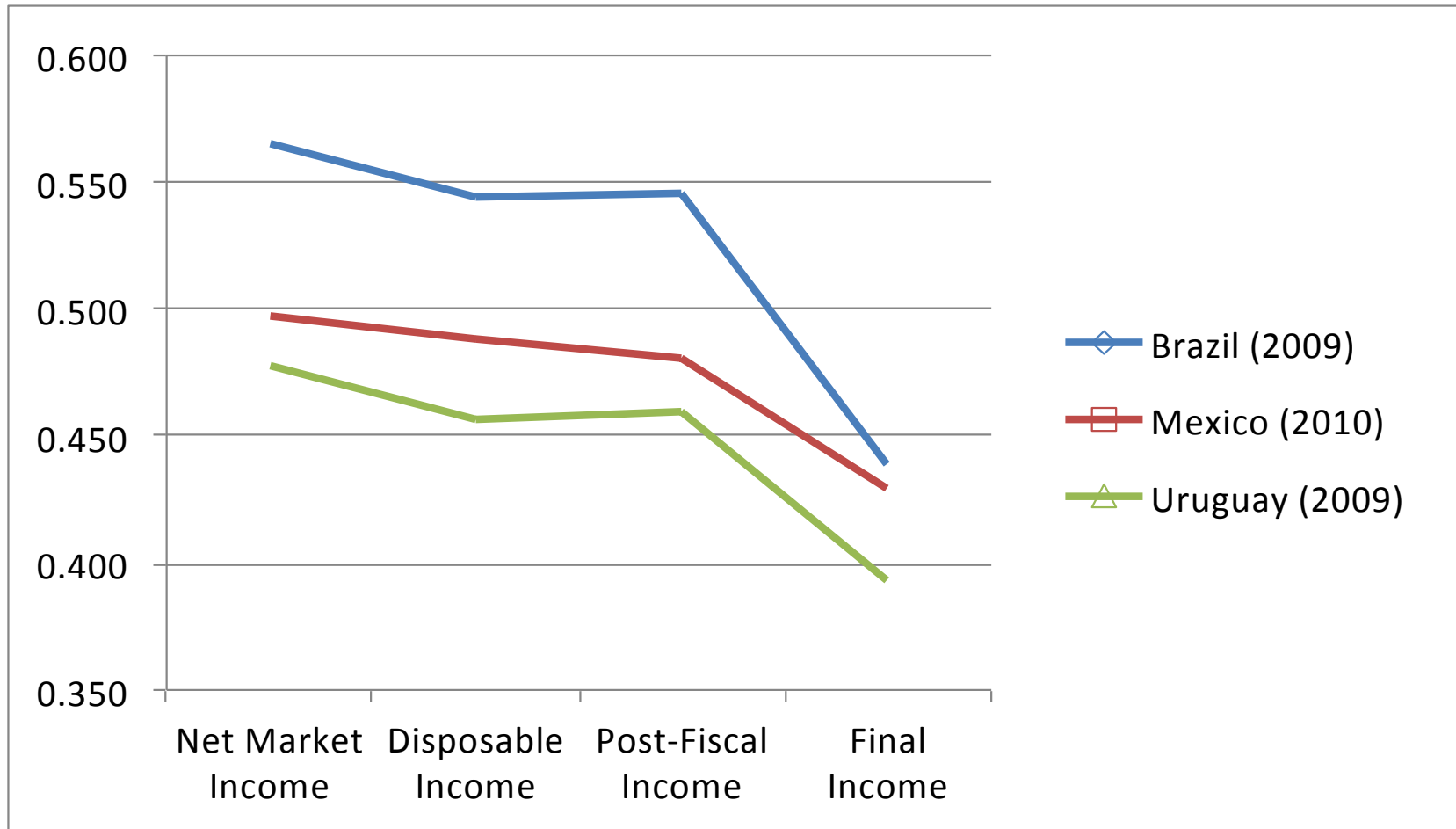
- Guatemala: even direct taxes are regressive
- Mexico:
  - Over time, redistribution has increased but Mexico still lags behind its peers such as Arg, Bra and Ury
  - coverage of Oportunidades and other cash transfers leave about 30 percent of extreme poor without safety net
- Peru: health spending is progressive only in relative terms

# Guatemala: Concentration Curves for Taxes

# **Mexico: Inequality Reduction 1996 vs. 2010**

**(Impact of Social Spending)**

# Mexico still less redistributive than peers

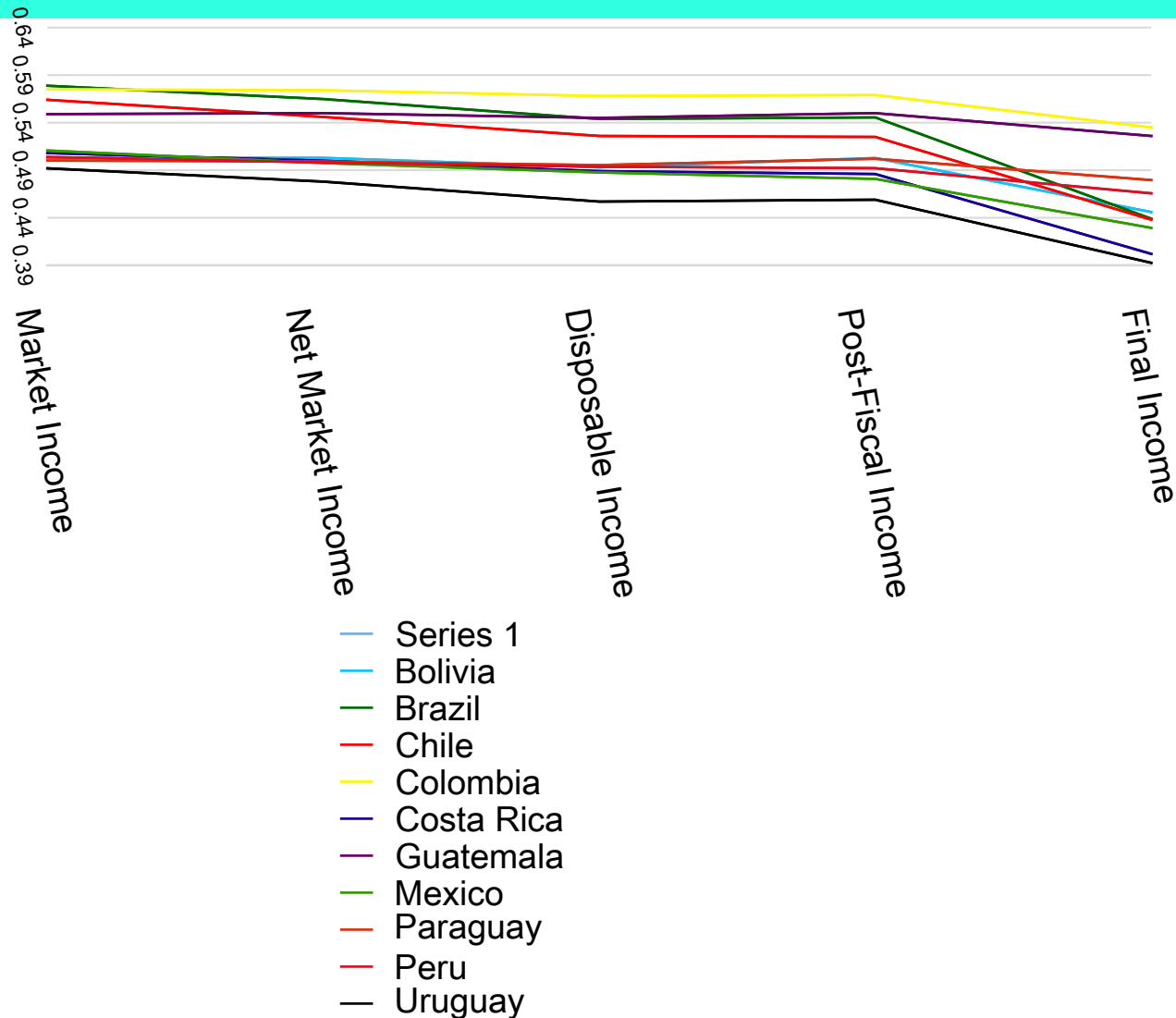


# “Poster-child:” Uruguay

- Primary Spending/GDP is within reasonable levels
- Reduces inequality and poverty among the highest
- Has among the highest effectiveness indicators
- Taxes are neutral
- All social spending categories are progressive in absolute terms
- Coverage of the poor is close to 100 percent
- Only evident problem: access to tertiary is concentrated in the nonpoor

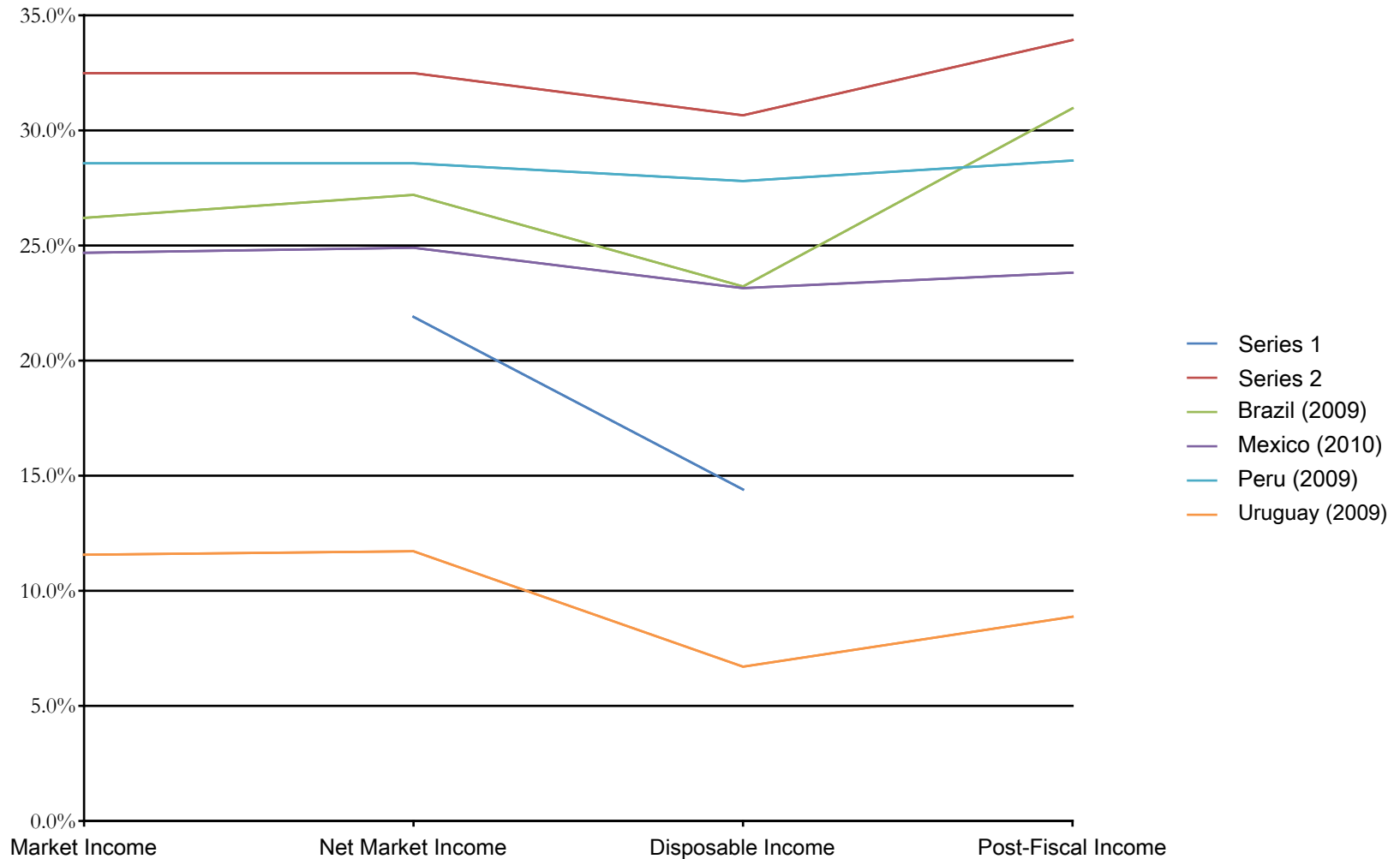
# Fiscal Policy and Inequality

## Gini Coefficient by Income Concept



# Fiscal Policy and Poverty

## Headcount Ratio





## Acknowledgements

This paper was produced under the [Commitment to Equity](#) (CEQ) project.

Launched in 2008, the CEQ framework was designed to analyze the impact of taxation and social spending on inequality and poverty in individual countries and to provide a roadmap for governments, multilateral institutions, and nongovernmental organizations in their efforts to build more equitable societies.

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Thank you!