Declining Inequality in Latin America

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and

Nonresident Fellow CGD and IAD

IMF

Washington, DC, October, 2014

- Lustig, N., L. F. Lopez-Calva, E. Ortiz-Juarez. 2014. "Deconstructing the Decline in Inequality in Latin America," in Basu, Kaushik and Joseph Stiglitz, eds. *Proceedings of IEA roundtable on Shared Prosperity and Growth,* 2015, Palgrave-Macmillan

  Lustig, Nora, Carola Pessino and John Scott. 2014. Editors. *The Redistributive Impact of Taxes and Social Spending in Latin America. Special Issue. Public Finance Review*, May, Volume 42, Issue 3

  Commitment to Equity Project (Tulane Univ, Inter-American Dialogue and CGD)
  www.commitmentoequity.org

OUTLINE

- The facts
- Inequality, poverty reduction and the middle class
- Why has inequality declined?
- Zooming in: Brazil
- Zooming in: Mexico
- Fiscal Redistribution

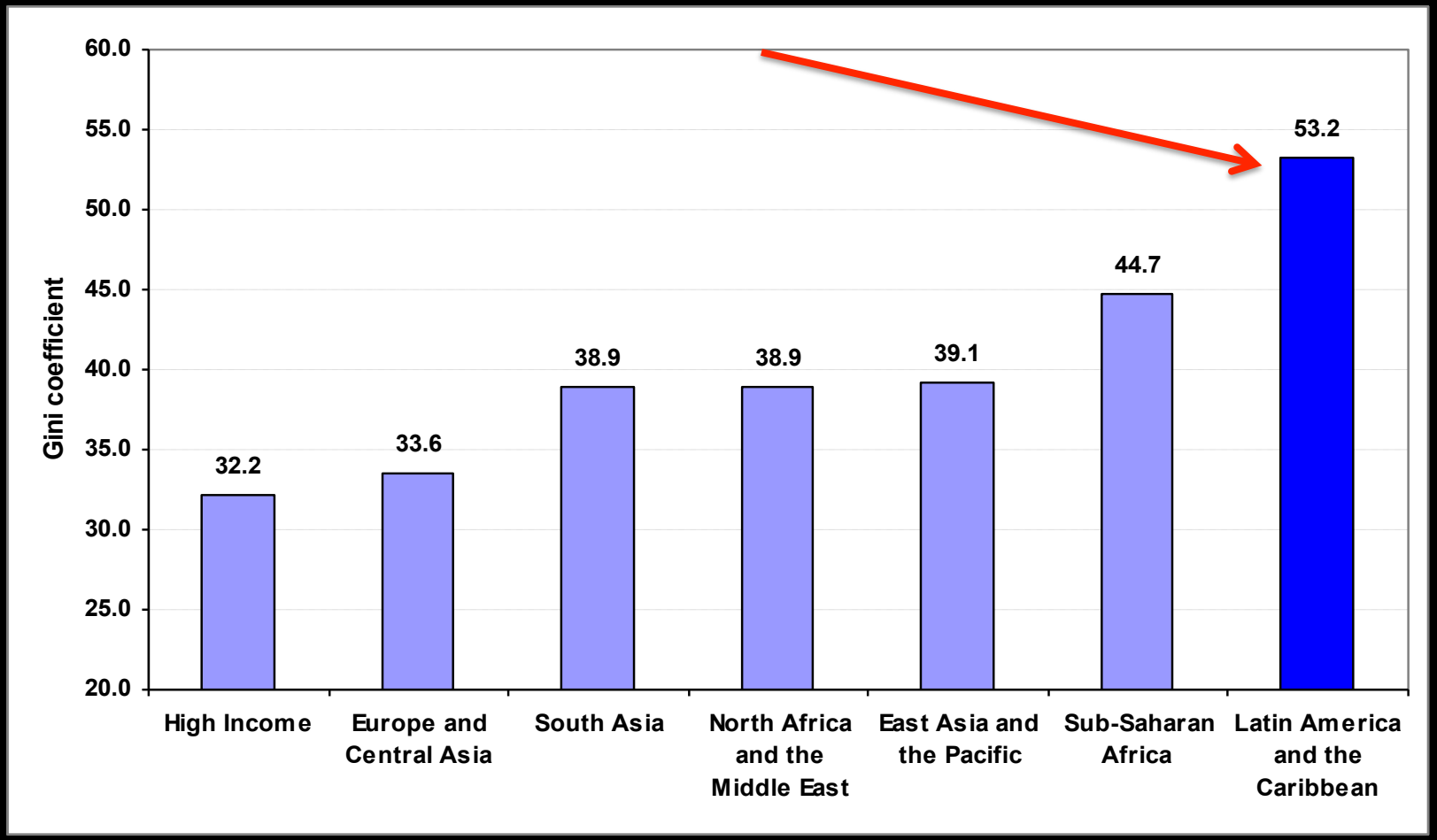
THE FACTS

Inequality in Latin America is high…
…but has been declining since around 2000

- Decline is pervasive and significant
- Larger than the rise in inequality in 1990s
- Important contribution to the decline in poverty
- Contributed to the rise of the middle-class

LATAM IS THE MOST UNEQUAL REGION IN THE WORLD

Gini Coefficient by Region (in %), 2004

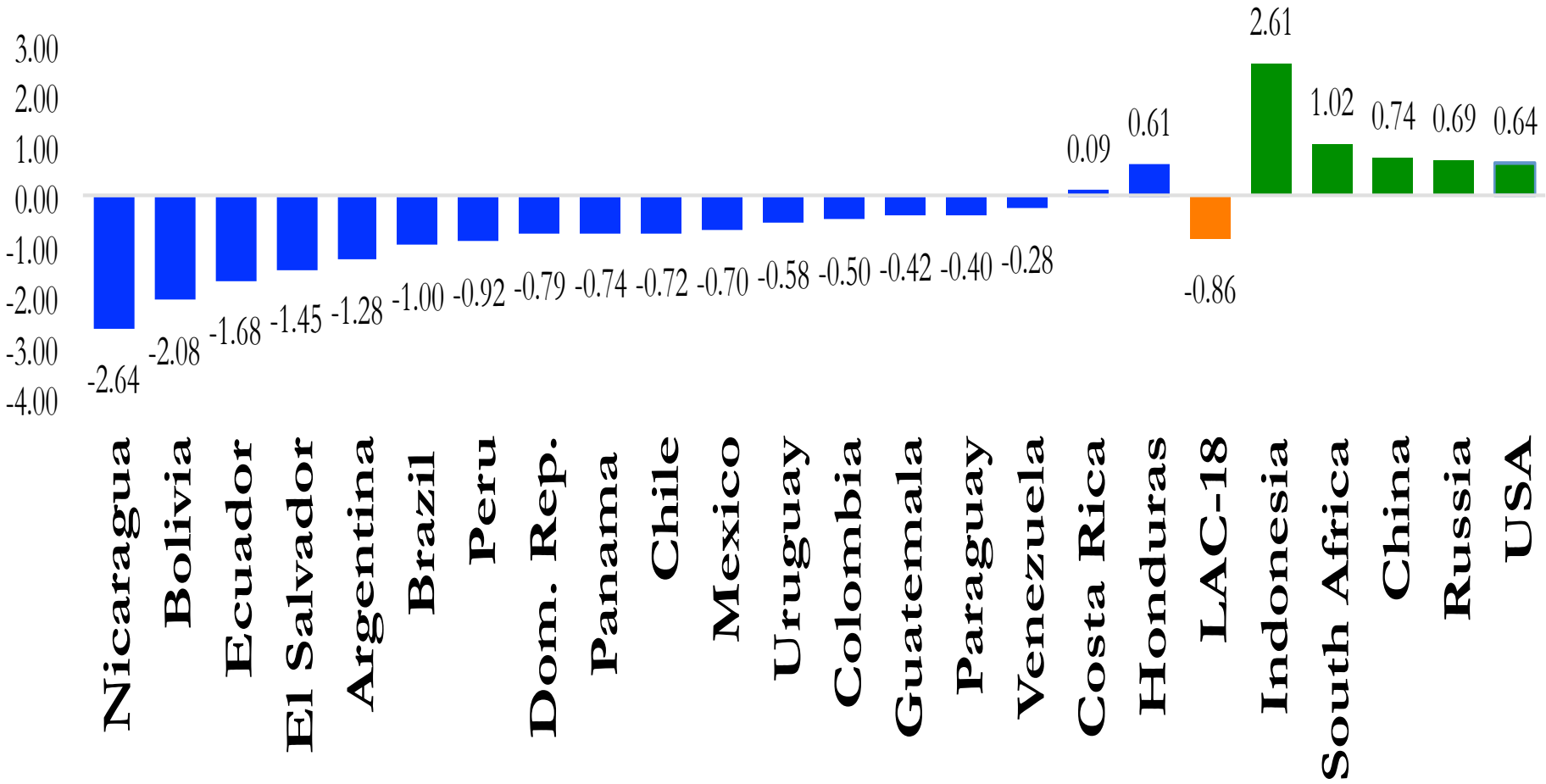


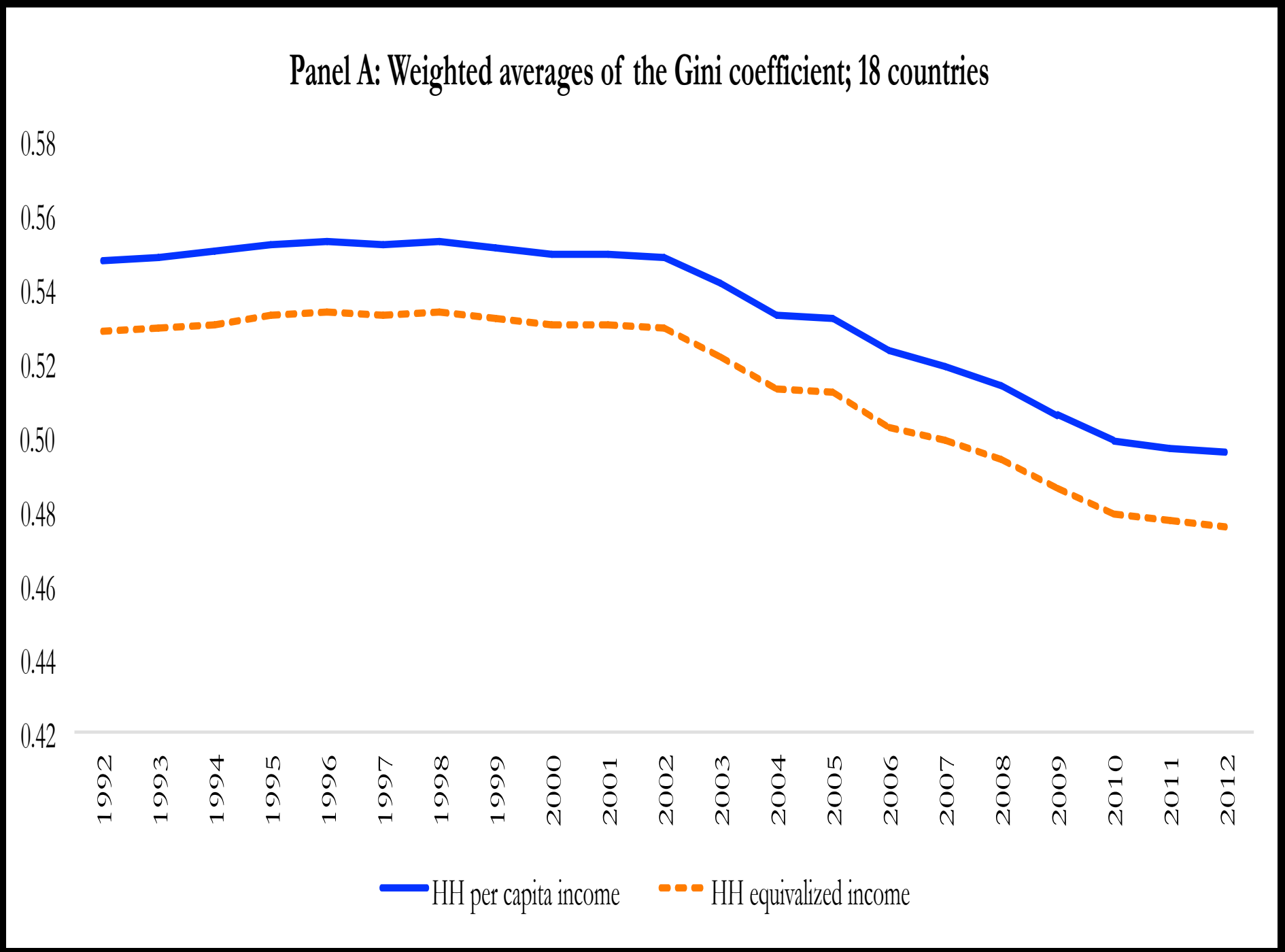
Ferreira and Ravallion, 2008.

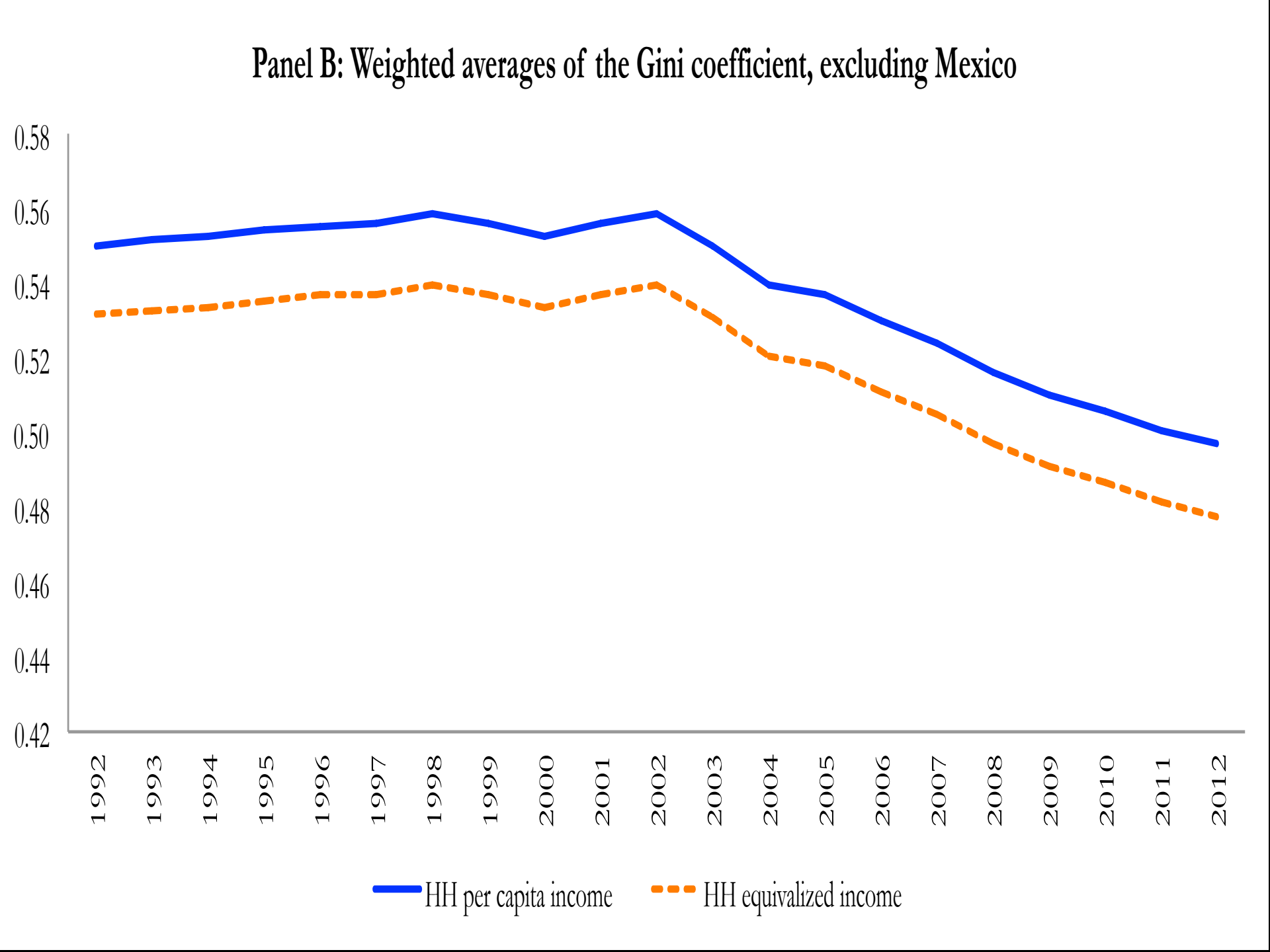
Declining Inequality in 2000's

- The Gini coefficient for *household per capita income* fell from a weighted (unweighted) average of 0.550 (0.532) in the early 2000s to 0.496 (0.483) circa 2012.
- On average, the decline equaled .86%/year
- The decline occurred in 16 of the 18 countries.
- The rate of decline ranged from an annual average of -2.64 percent in Nicaragua to -0.28 percent in Venezuela.

Average Yearly Change in Gini: 2000 (circa) - 2012 (circa)

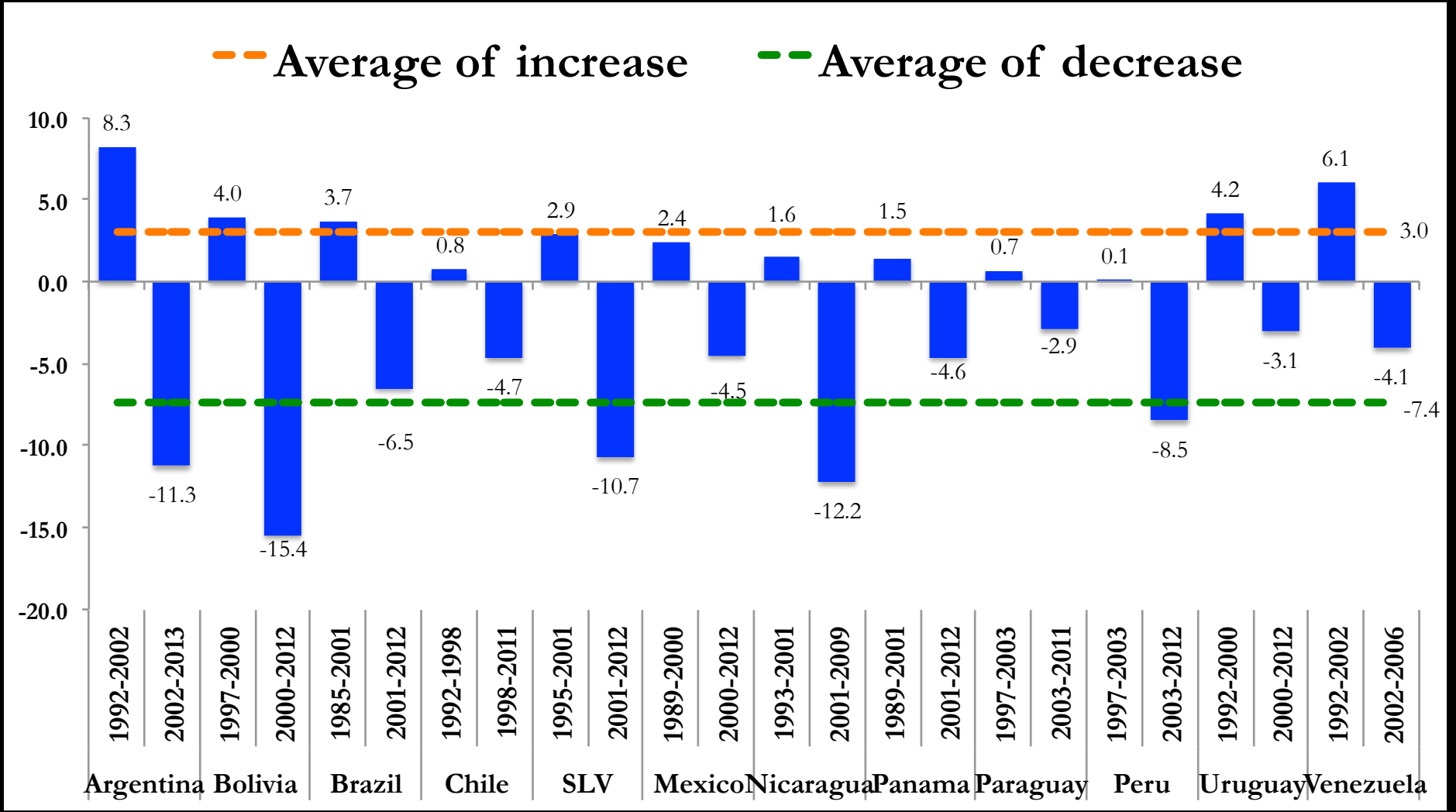



Panel A: Weighted averages of the Gini coefficient; 18 countries
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.42
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
HH per capita income
HH equivalized income


Panel B: Weighted averages of the Gini coefficient, excluding Mexico
0.58
0.56
0.54
0.52
0.50
0.48
0.46
0.44
0.42
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
HH per capita income
HH equivalized income

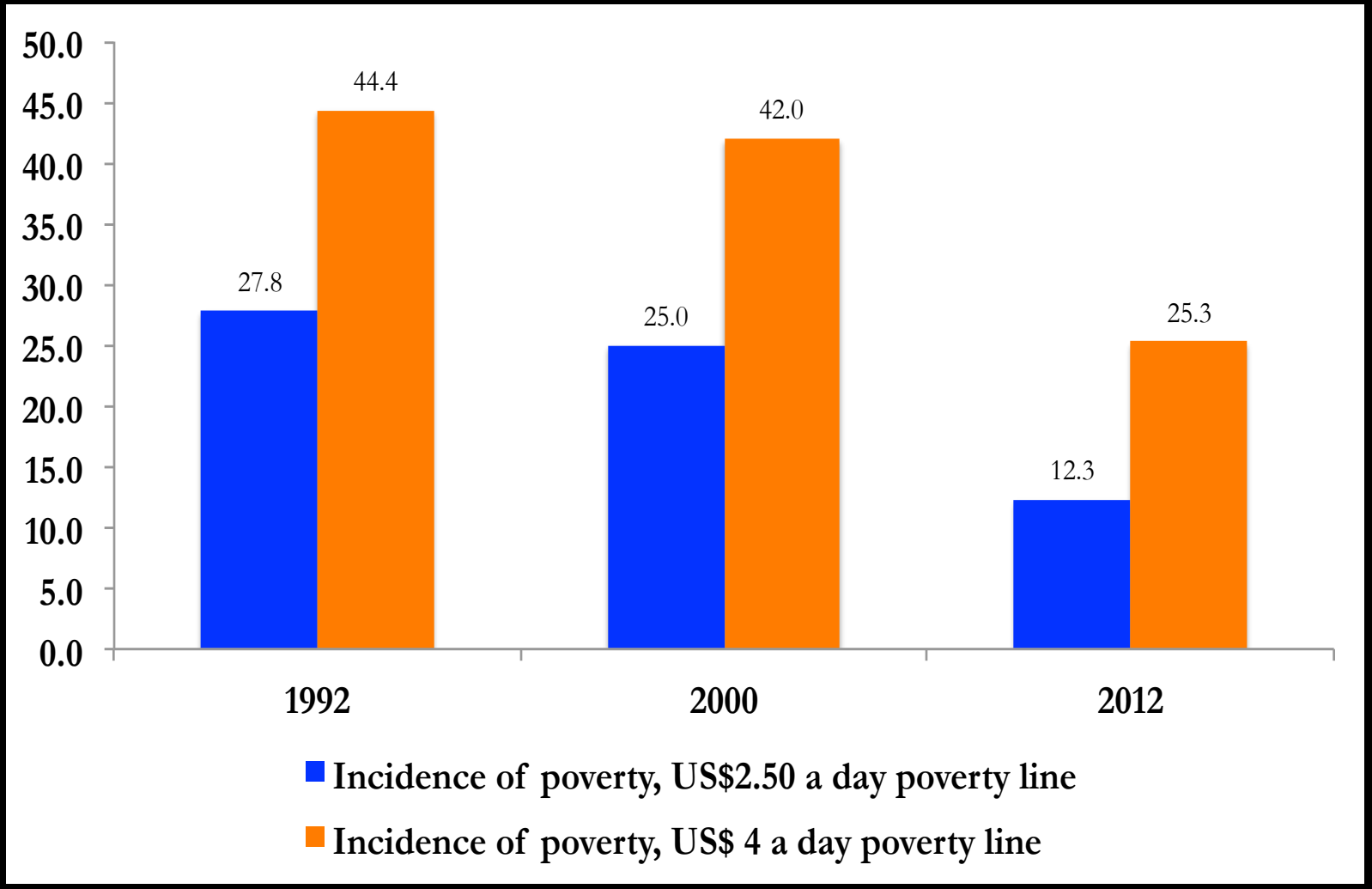
The decline of income inequality in the 2000s has been higher that the rise in the 1990s

(Change in Gini points in %)

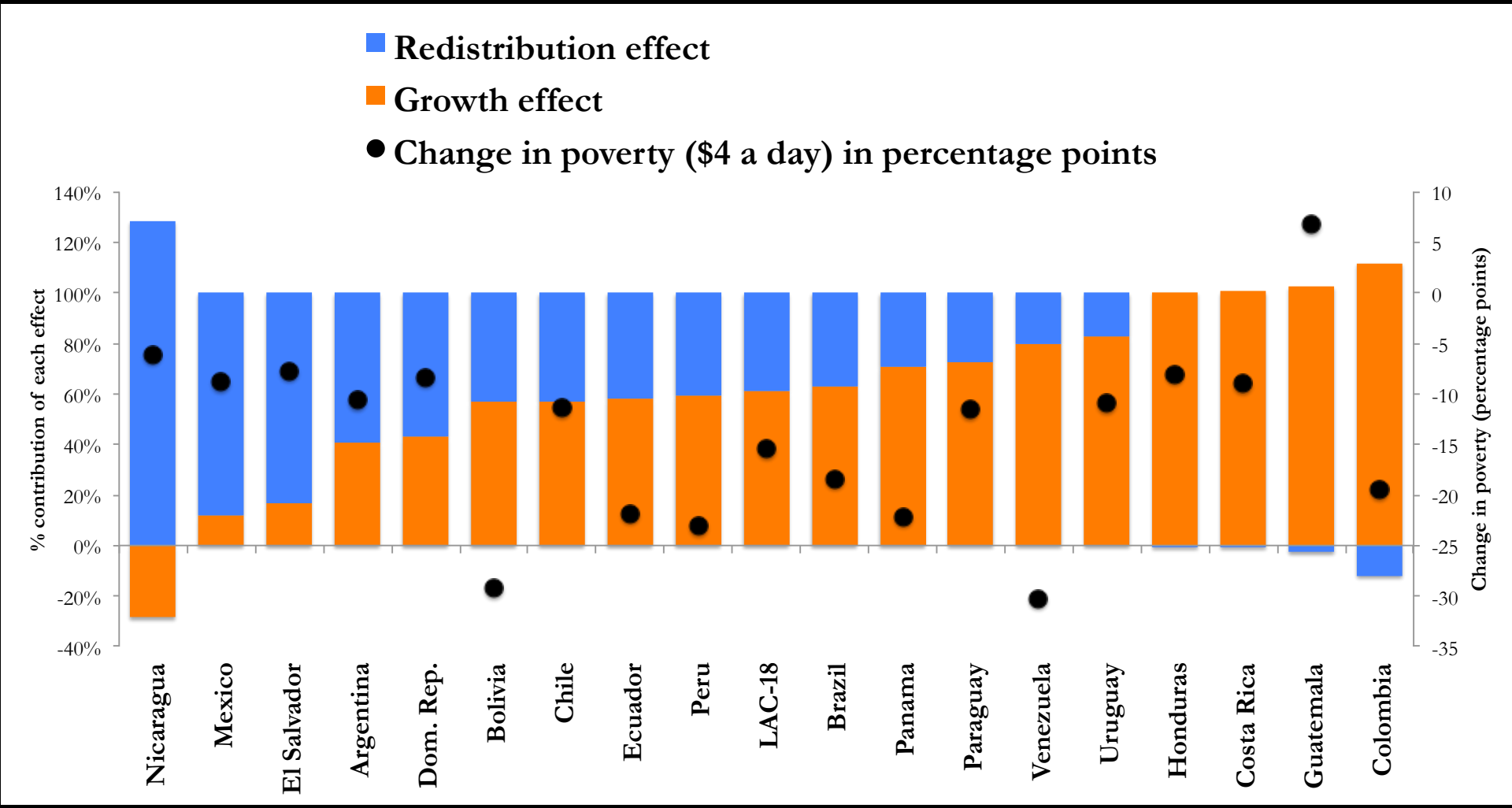


Inequality, Poverty and the Middle-Class

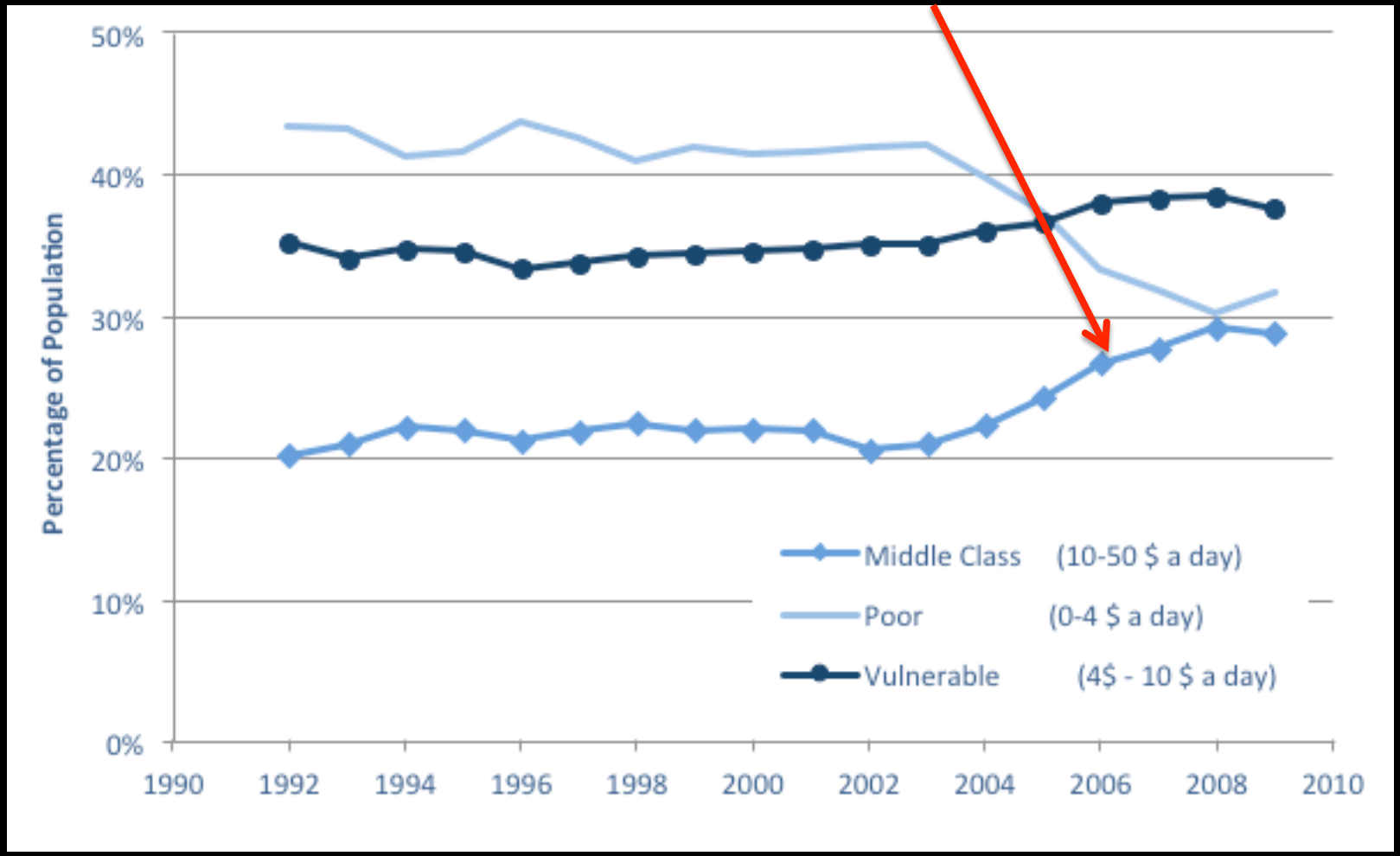
Decline in Poverty 1992-2012 (Ave. Headcount Ratio in %)



On average, 39 percent of the reduction in poverty was due to the decline in inequality c. 2001-2010

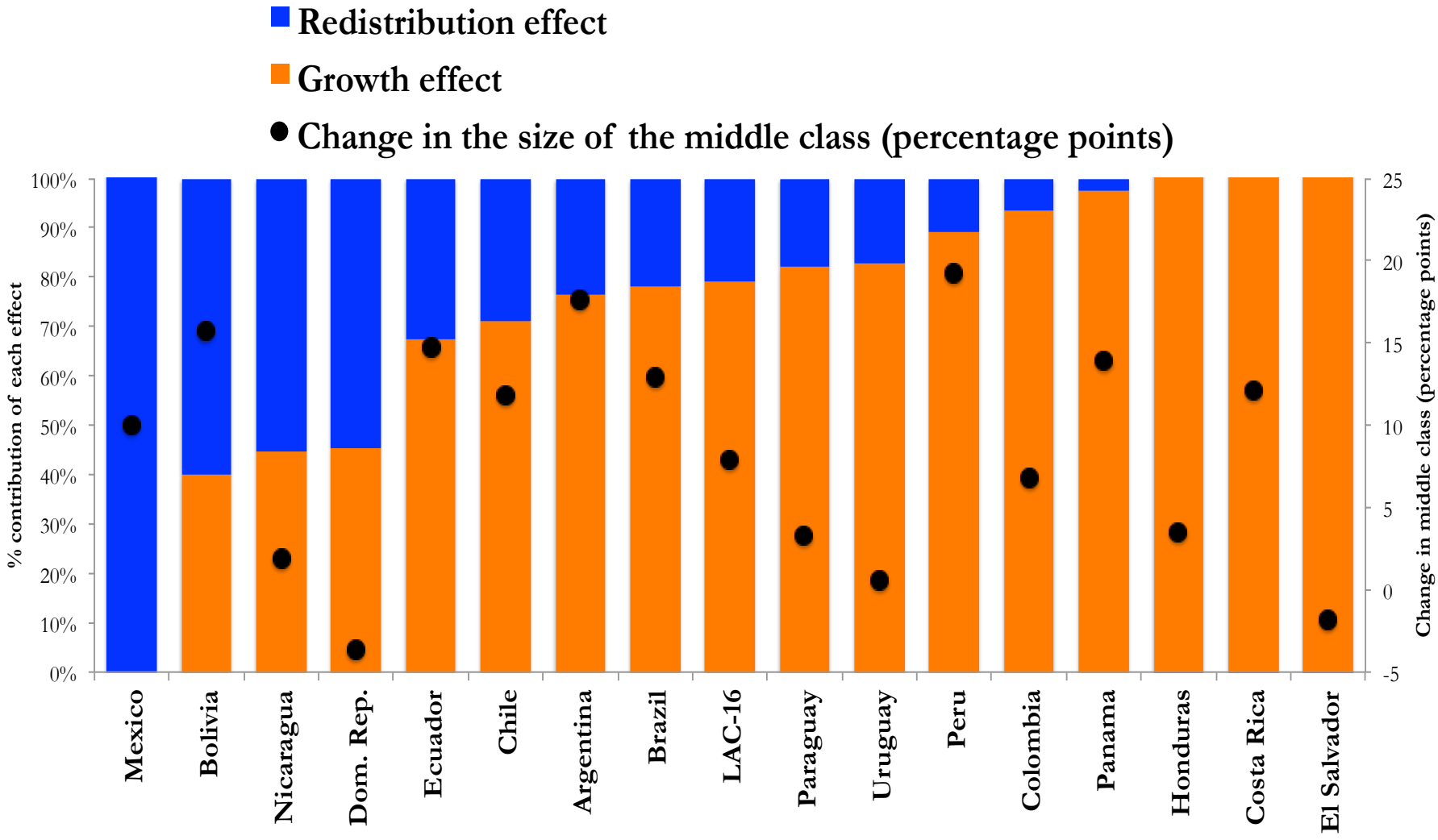


Declining inequality has contributed to the expansion of the “middle-class”



Ferreira et al., 2012.

On average, 21 percent of the reduction in poverty was due to the decline in inequality c. 2001-2010



WHY?

Inequality in Latin America is high…
…but has been declining since around 2000

- In countries with high growth & low growth
- In countries with left and nonleft governments
- In commodity exporters and commodity importers
- In high and low (for Latam standards) inequality countries

Determinants of the decline in inequality: candidates

- Declining inequality of hourly labor income
- Larger and more progressive transfers
- Lower dependency ratios
- Higher participation rates of adults

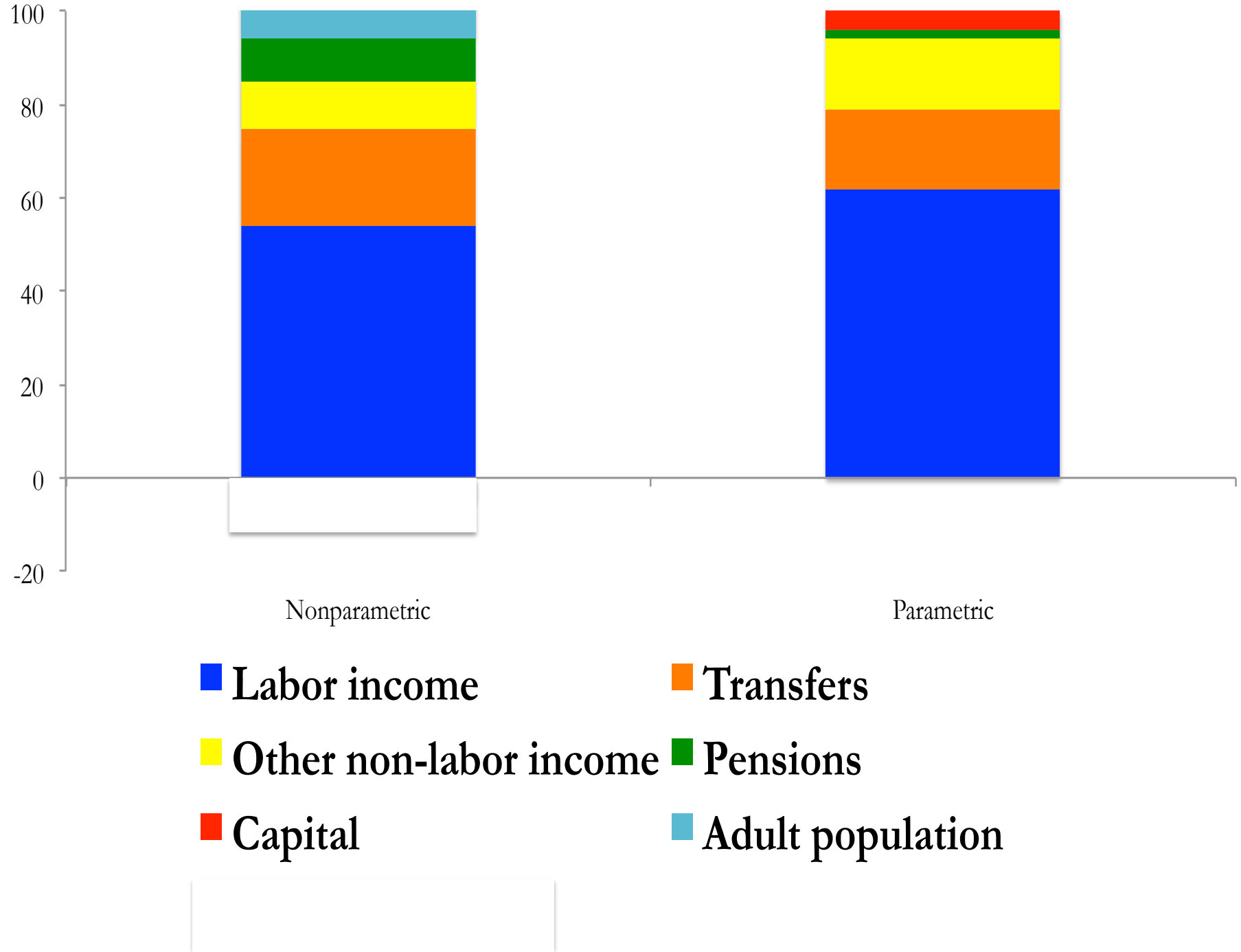
Proximate Determinants

Depending on the method (Yitzaki and Barros et al., respectively

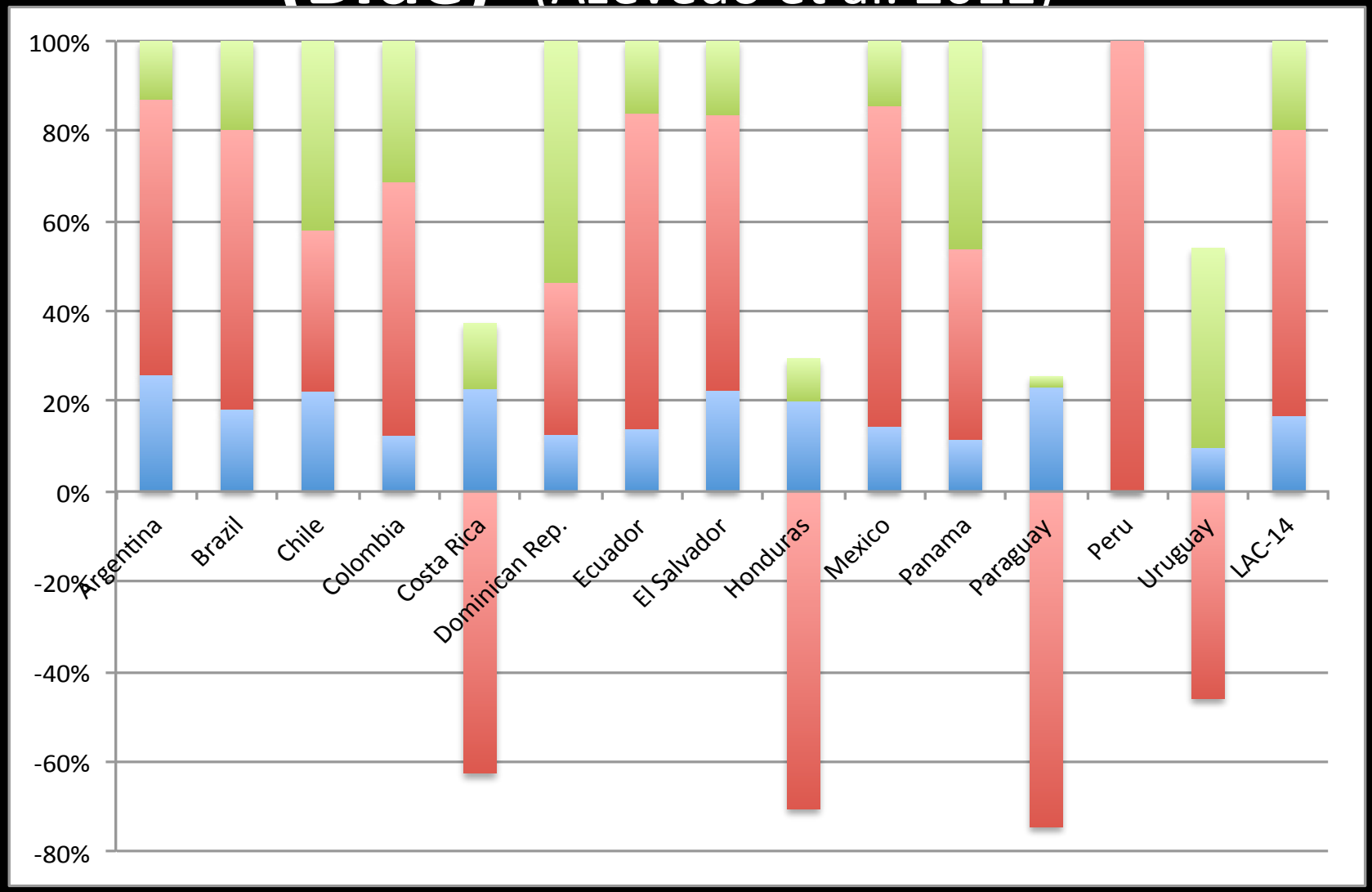
- On average 62 or 54 percent of the reduction in the Gini coefficient can be attributed to changes in hourly labor income,)
- Changes in government transfers contributed, 17 or 21 percent on average
- Changes in pensions contributed 2 or 9 percent (includes noncontributory pensions)

Proximate Determinants

- Changes in demographic indicators, the equalizing effect of the share of adults accounted, on average, for 11 percent of the decline in inequality.
- Remarkably, the increase in the share of occupied adults in the household was unequalizing: its contribution in the inequality-increasing direction was 4 percent
  - => Increase in labor force participation of women (the "yuppie couple" effect?)


100
80
60
40
20
0
-20
Nonparametric
Parametric
Labor income
Transfers
Other non-labor income
Pensions
Capital
Adult population

Decomposing Decline in Inequality Labor (red); Transfers (Green); Demog (Blue) (Azevedo et al. 2012)



What explains the reduction in (hourly) labor income inequality? There are several not mutually exclusive candidates:

- human capital (years of schooling and experience)
- labor market institutions (minimum wages, unionization, informality)
- demographic composition of the labor force (age, gender, race)
- spatial segmentation (rural-urban, regional)

Standard labor economics separate out what can be attributed to:

- composition or endowment effect
  - changes in the distribution of the observable characteristics of workers (e.g., age, years of schooling, race, gender, working in formal or informal markets, earnings above/below minimum wages, and geographic location)
- pay structure or returns effect
  - changes in returns to those characteristics

- Estimates of the size of the endowment and pay structure effects for each factor help identify the orders of magnitude of the 'proximate' determinants of observed changes in labor income inequality
- The search for the 'fundamental' causes requires to assess the role of demand, supply and other factors (e.g., changes in the quality of education) in explaining the changes in returns to human capital
- One may want to push the causal inference process further by, for example, linking the changes to structural changes in the composition of output (led by, for example, a boom in international commodity prices) and changes in education policy

- Existing studies do not cover the entire range of potential candidates in each case
- However, available evidence suggests that a fall in the returns to human capital –in particular, in the returns to education– is a common factor to explain the decline in hourly labor income inequality
- In the majority of the sixteen countries where overall inequality declined, the return to primary, secondary and tertiary education versus no schooling or incomplete primary schooling declined.

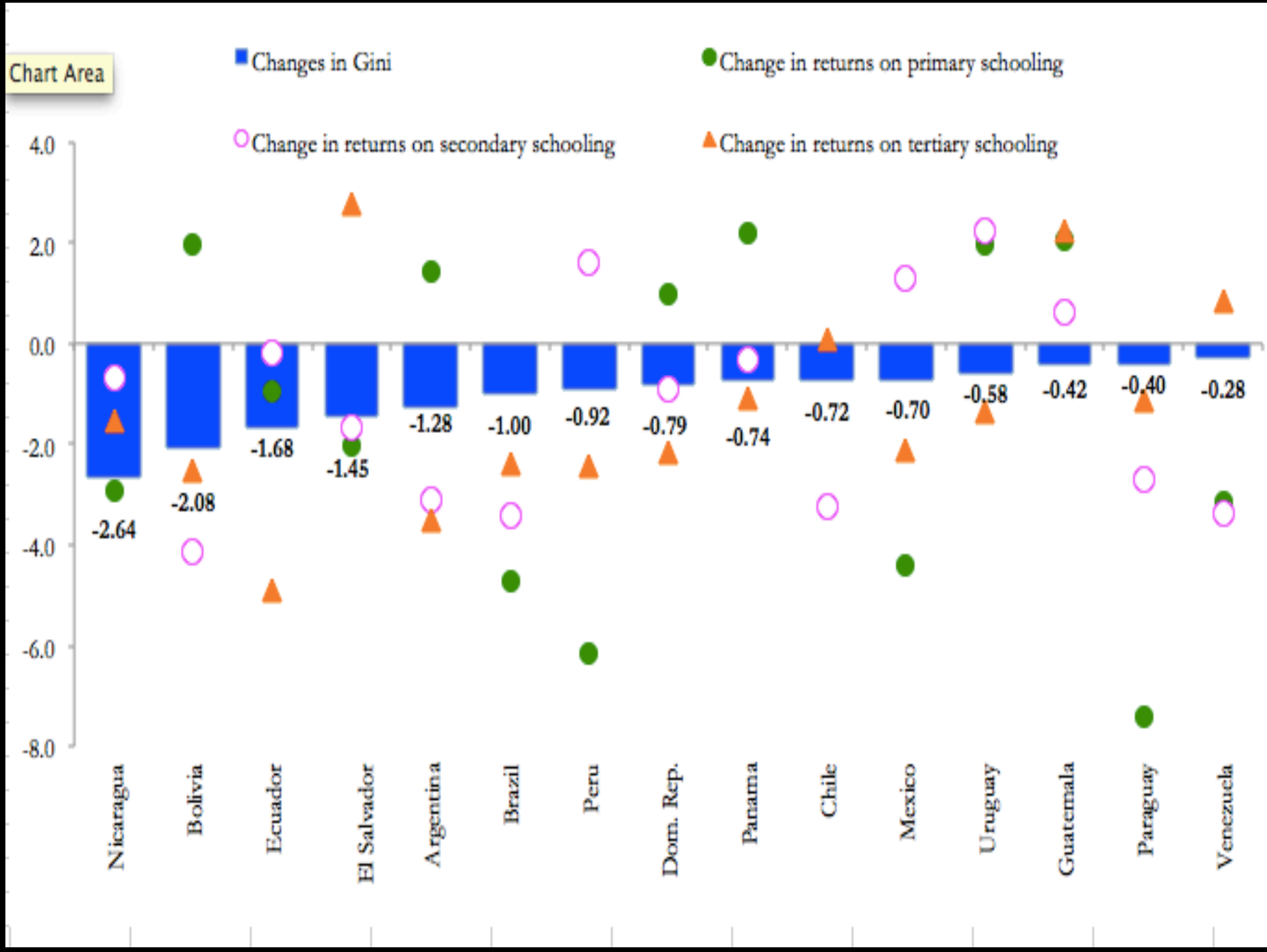


Chart Area
Changes in Gini
Change in returns on primary schooling
Change in returns on secondary schooling
Change in returns on tertiary schooling
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-2.64
-2.08
-1.68
-1.45
-1.28
-1.00
-0.92
-0.79
-0.74
-0.72
-0.70
-0.58
-0.42
-0.40
-0.28
Nicaragua
Bolivia
Ecuador
El Salvador
Argentina
Brazil
Peru
Dom. Rep.
Panama
Chile
Mexico
Uruguay
Guatemala
Paraguay
Venezuela

- It should be noted that the endowment effect associated with changes in the distribution in education have tended to be unequalizing in spite of the fact that the distribution of educational attainment has become more equal
- This means that, had the pay structure by education level remained unchanged, the more equal distribution of the education endowment would have resulted in an *increase* in labor income inequality.
- Because this sounds counter-intuitive, this finding is known as the "paradox of progress."(Bourguignon et al. (2005))

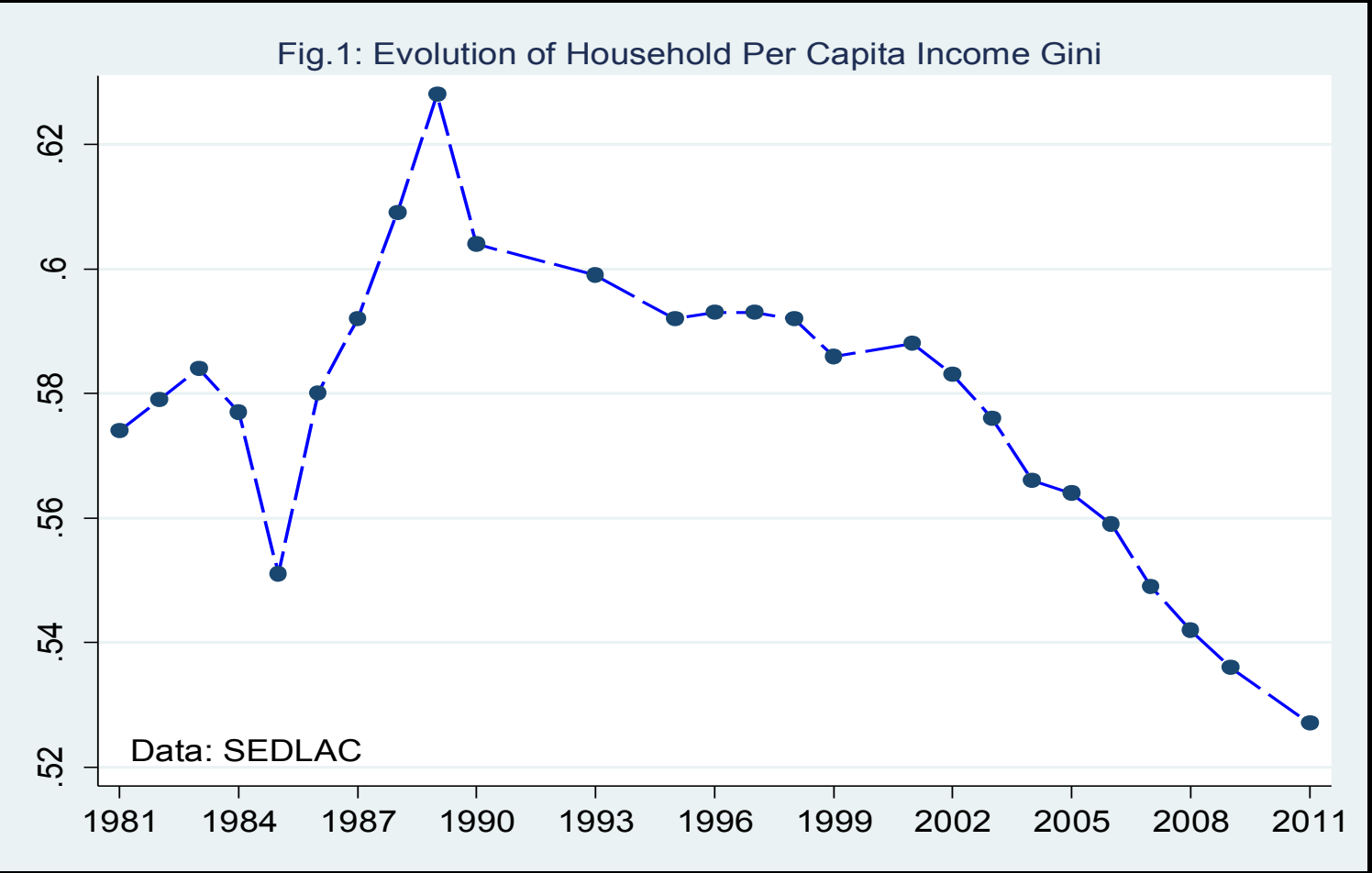
Decline in returns to post-secondary education (aka. skill premium)

- Supply
- Demand
- Labor Market Institutions
- Declining “quality” in workers with tertiary degree

Zooming in

Brazil

Zooming in
Brazil: Decline in Inequality (Gini)



Wang, Yang. 2013. "Decomposing the Changes in Male Wage Distribution in Brazil." Tulane University, Ph.D. field paper

Brazil: Decline in Wage Inequality

Table 1: Dispersion of Real Wages: 2002-2011, Male aged 16-65

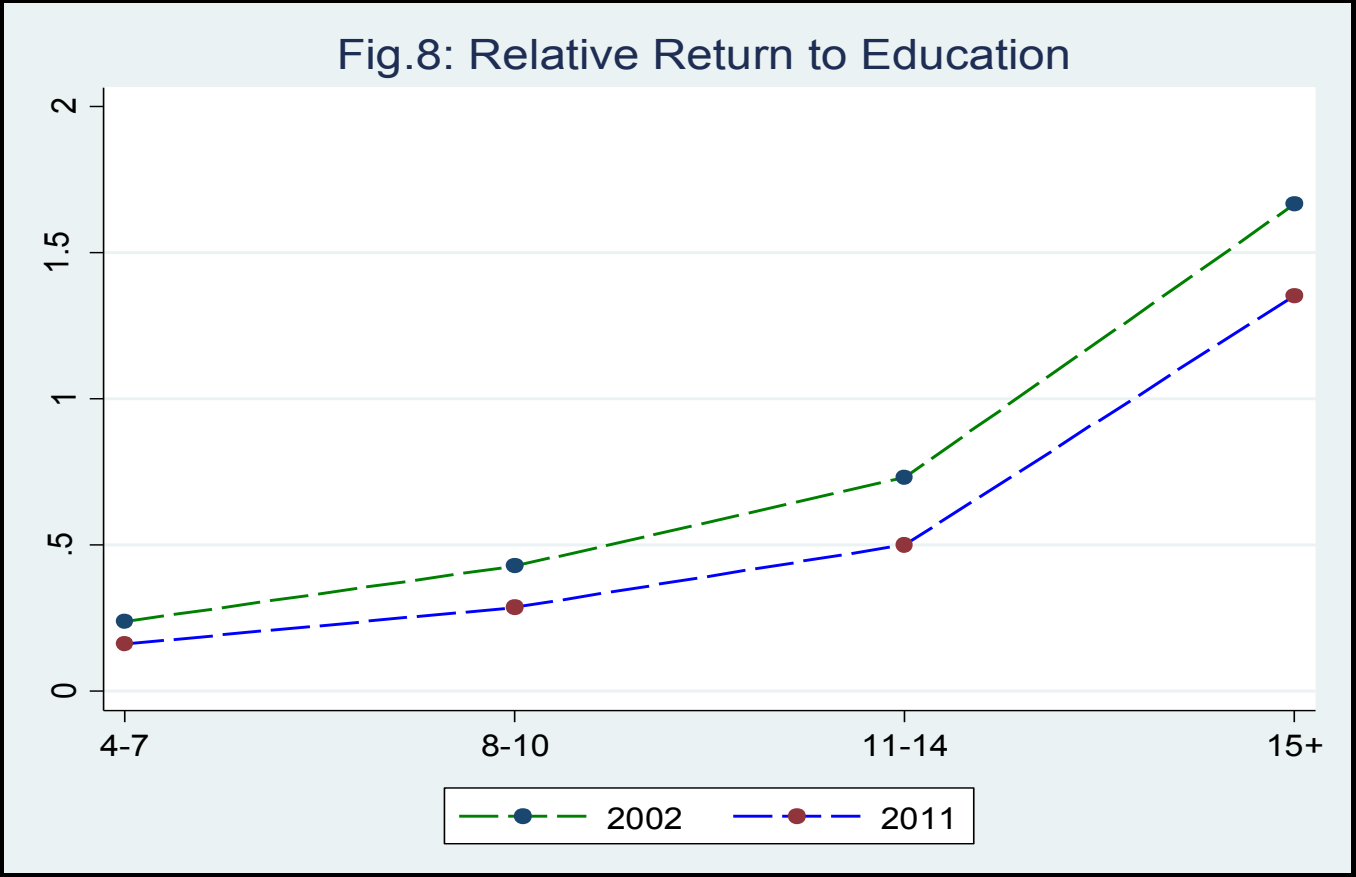
	2002	2003	2004	2005	2006	2007	2008	2009	2011
	Hourly Wage								
Male Sample									
Mean	4.63	4.38	4.25	4.35	4.57	4.65	4.80	4.98	5.15
Median	2.50	2.41	2.42	2.39	2.55	2.66	2.79	2.91	3.11
Gini	0.52	0.51	0.50	0.50	0.50	0.49	0.48	0.48	0.47
Theil	0.57	0.54	0.52	0.53	0.54	0.52	0.51	0.53	0.48
90-10	7.79	7.27	7.05	6.60	6.75	6.12	6.11	6.00	5.60
50-10	2.08	2.01	2.00	1.83	1.87	1.84	1.85	1.82	1.79
90-50	3.75	3.62	3.53	3.60	3.60	3.33	3.30	3.30	3.13
Obs	44097	43480	47187	49734	51479	51519	53825	55138	49419

Wang, Yang. 2013. "Decomposing the Changes in Male Wage Distribution in Brazil." Tulane University, Ph.D. field paper

Zooming in: Brazil

- Decomposition of change in wage inequality:
  - Pay Structure Effect: Change in Relative Wages => Equalizing
  - Endowment Effect: Change in Composition for Education and Experience =>Slightly Unequalizing (“paradox of progress)

Brazil: Decline in relative returns to education



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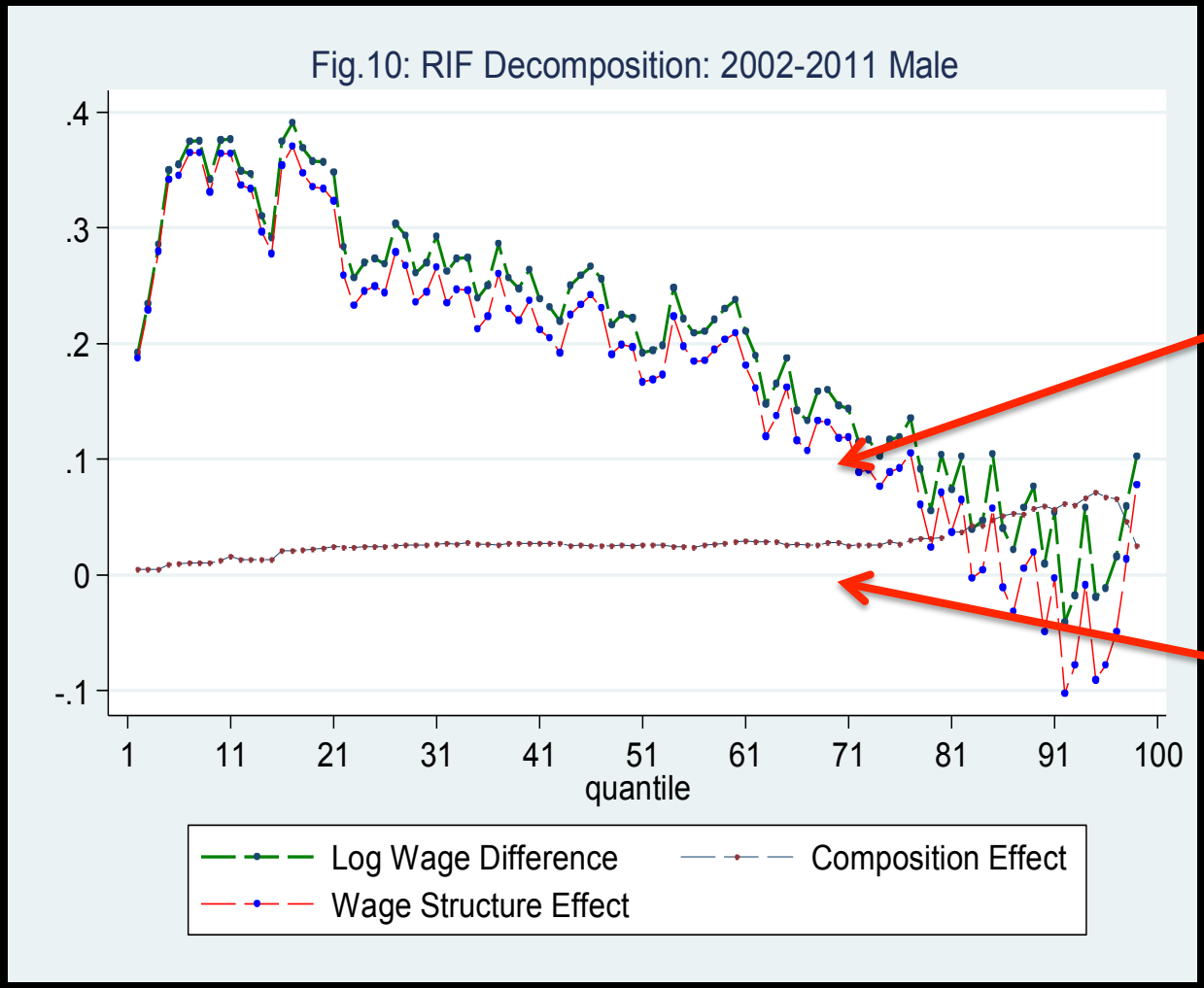


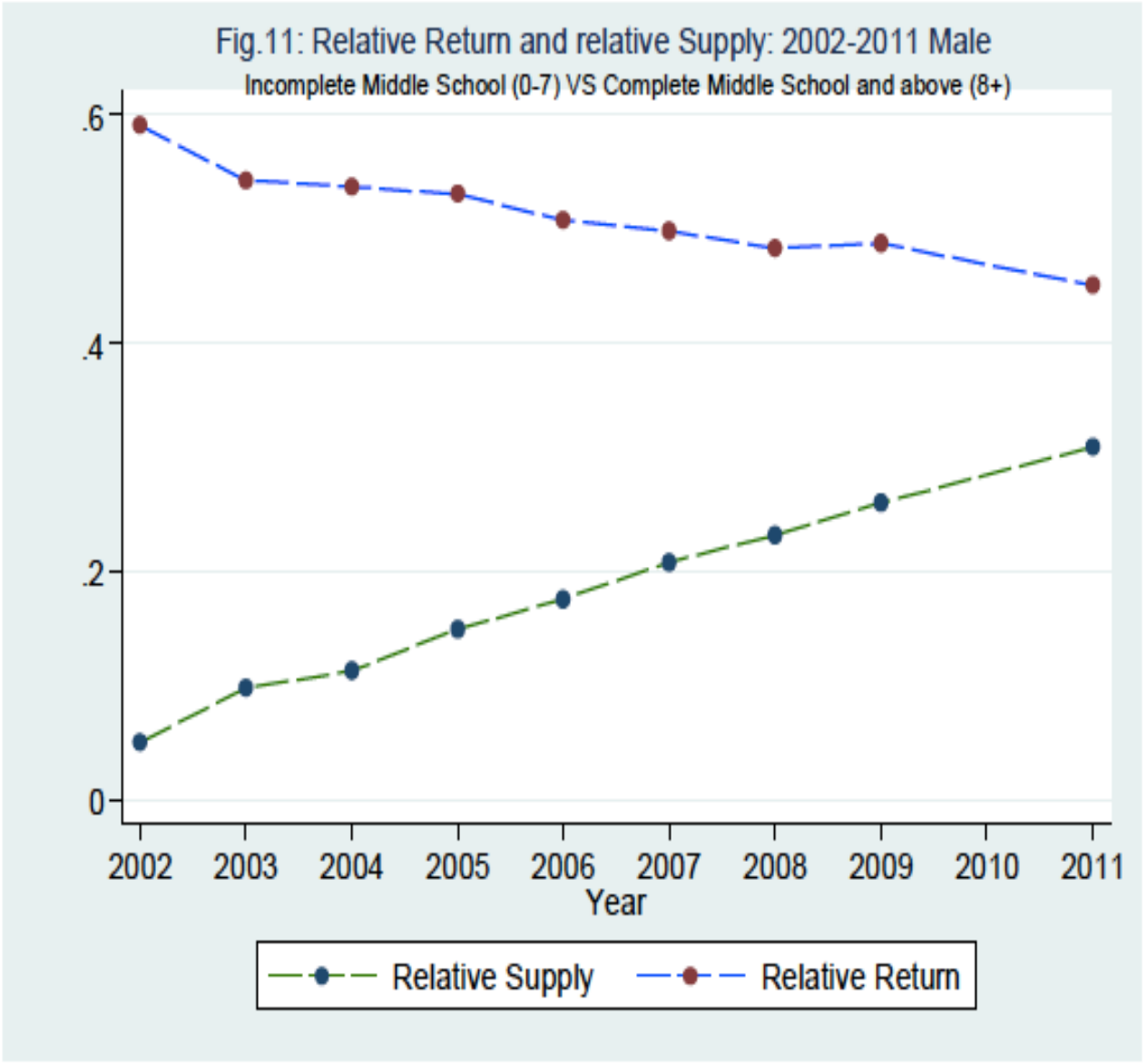
Brazil (2002-2011):

- Relative Wages => Equalizing
- Composition Education & Experience =>Slightly Unequalizing

Wang, Yang. 2013. "Decomposing the Changes in Male Wage Distribution in Brazil." Tulane University, Ph.D. field paper

Zooming in: Brazil

- Relative Wages effect:
  - Increase in relative supply of skilled workers
  - Increase in relative demand of low-skilled workers
  - Rising minimum wages
  - Declining absolute real wages for workers with tertiary => degraded tertiary?



Brazil: Decline in skill premium coincides with the expansion of the relative supply of workers with post secondary education

Wang, Yang. 2013. "Decomposing the Changes in Male Wage Distribution in Brazil." Tulane University, Ph.D. field paper

Brazil: Rising minimum wage

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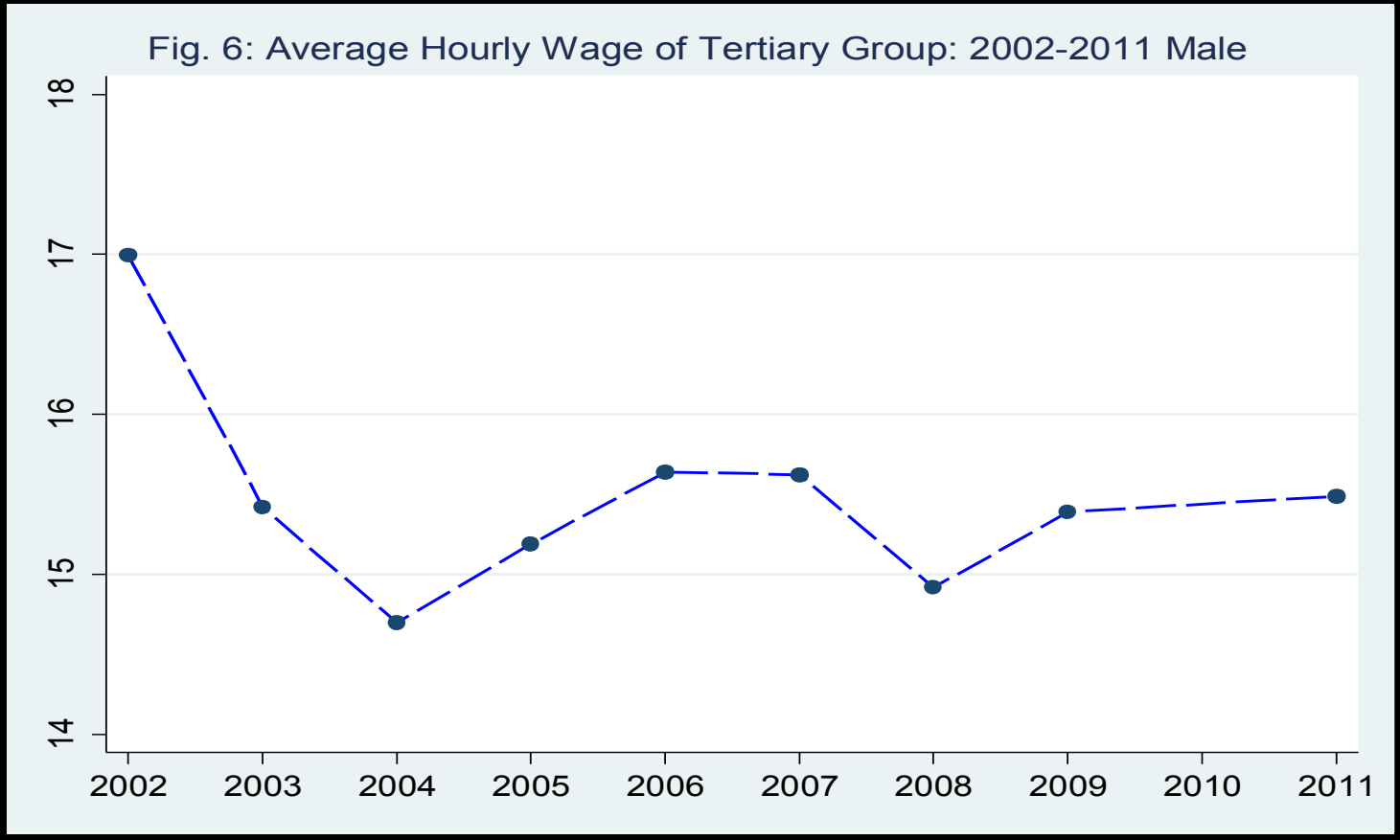
Brazil: Decline in real wages for workers with tertiary

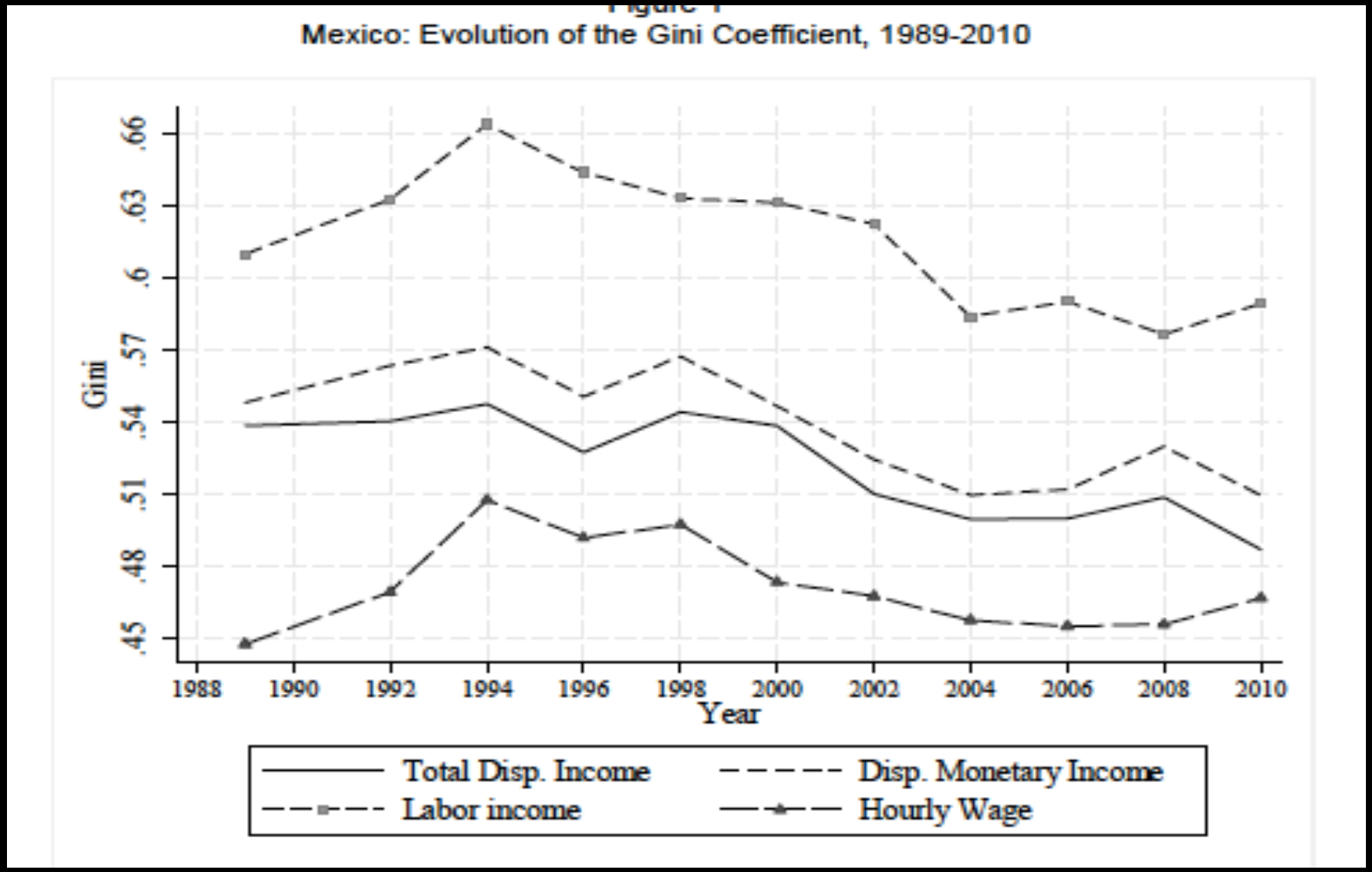


Wang, Yang. 2013. "Decomposing the Changes in Male Wage Distribution in Brazil." Tulane University, Ph.D. field paper

Zooming in

Mexico

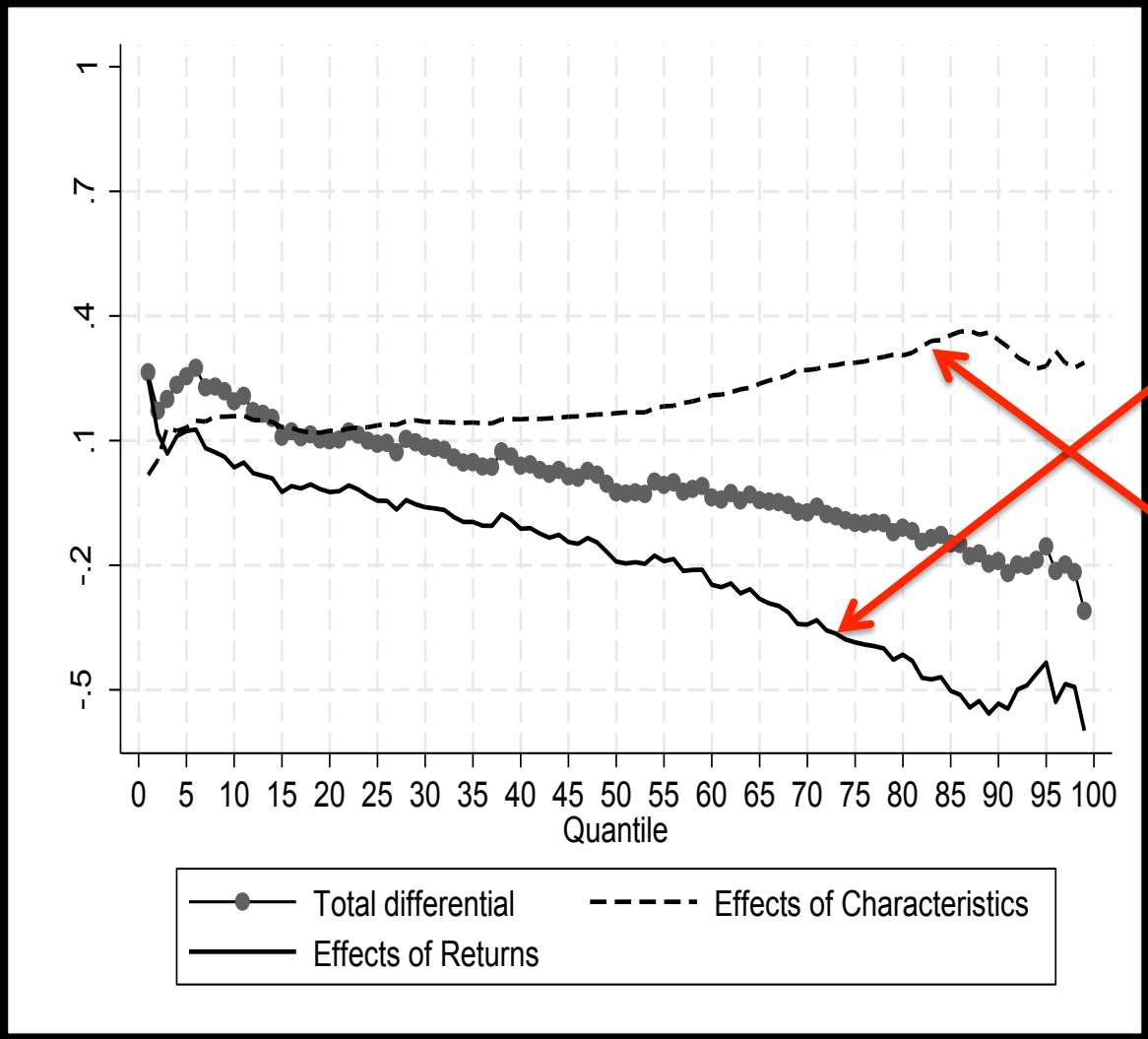
Zooming in Mexico
Decline in Inequality (Gini)



Campos, R., G. Esquivel and N. Lustig. 2014. "The Rise and Fall of Income Inequality in Mexico, 1989–2010," Chapter 7 in Giovanni Andrea Cornia, ed., *Falling Inequality in Latin America: Policy Changes and Lesssons*, WIDER Studies in Development Economics, Oxford University Press,

Zooming in: Mexico

- Decomposition of change in wage inequality:
  - Pay Structure Effect: Change in Relative Wages => Equalizing
  - Endowment Effect: Change in Composition for Education and Experience =>Slightly Unequalizing (“paradox of progress)



Mexico (1996-2010):

- Relative Wages => Equalizing
- Composition Education & Experience =>Slightly Unequalizing

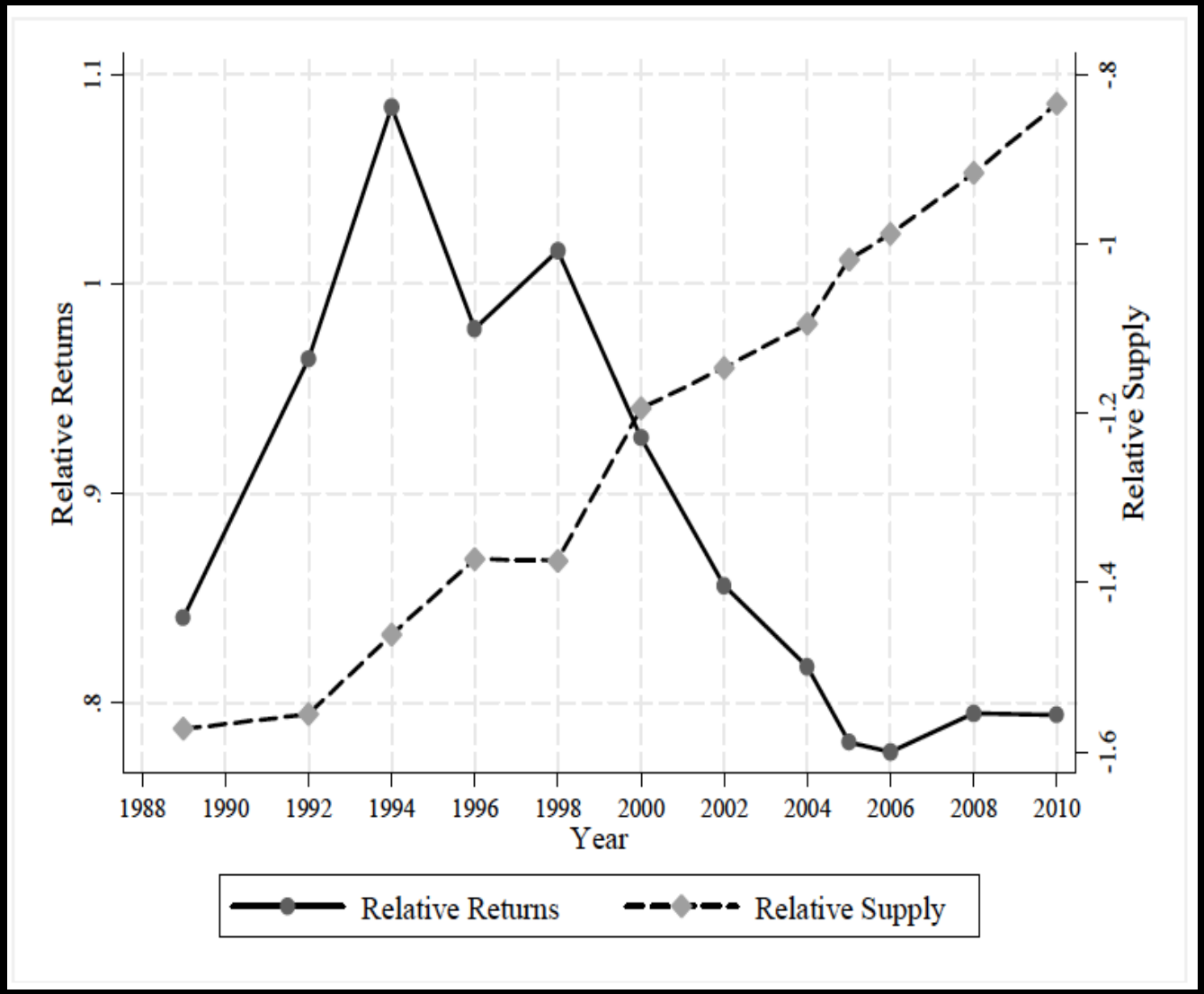
Campos, R., G. Esquivel and N. Lustig. 2014. "The Rise and Fall of Income Inequality in Mexico, 1989–2010," Chapter 7 in Giovanni Andrea Cornia, ed., *Falling Inequality in Latin America: Policy Changes and Lesssons*, WIDER Studies in Development Economics, Oxford University Press,

Zooming in: Mexico

Change in Returns

- Increase in relative supply of skilled workers
- Minimum wages and unionization no effect
- Degraded tertiary?
- Skills obsolescence?

Campos, Lopez-Calva and Lustig (in progress)



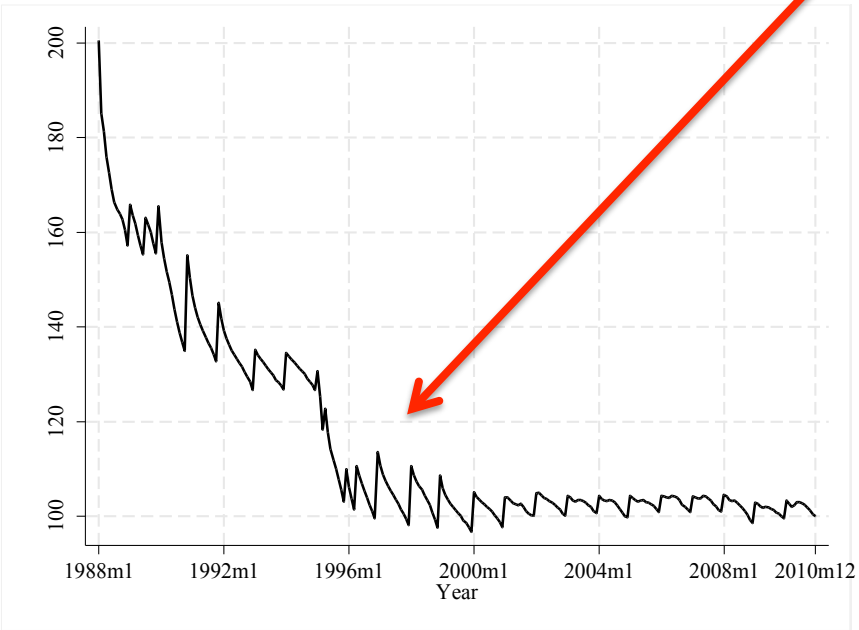
Mexico: Decline in skill premium coincides with the expansion of the relative supply of workers with post secondary education

Campos, R., G. Esquivel and N. Lustig. 2014. "The Rise and Fall of Income Inequality in Mexico, 1989–2010," Chapter 7 in Giovanni Andrea Cornia, ed., *Falling Inequality in Latin America: Policy Changes and Lesssons*, WIDER Studies in Development Economics, Oxford University Press,

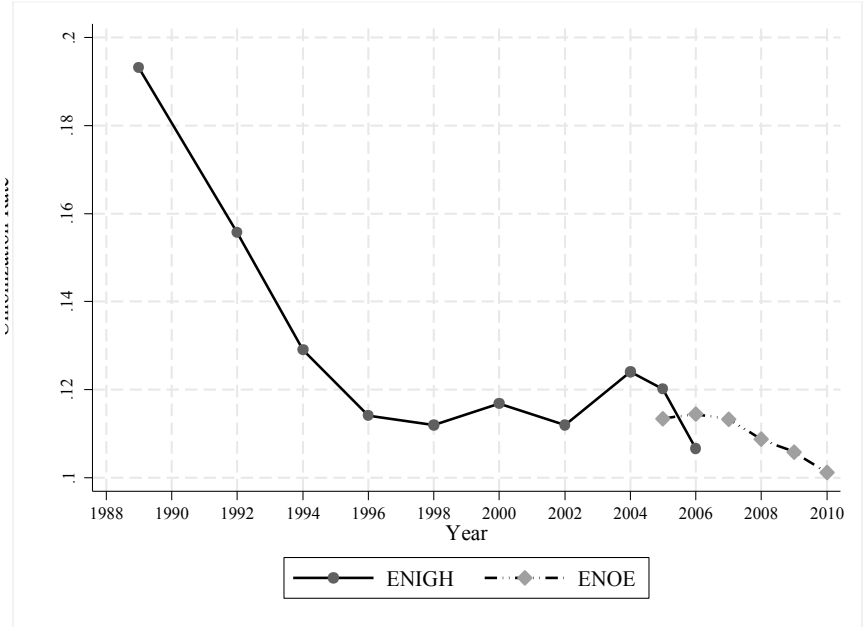
In contrast to Brazil, in Mexico minimum wages did not increase at all…

Real Minimum Wage and Unionization: 1988-2010

A. Real Minimum Wage Index (December 2010=100)



B. Unionization Rate



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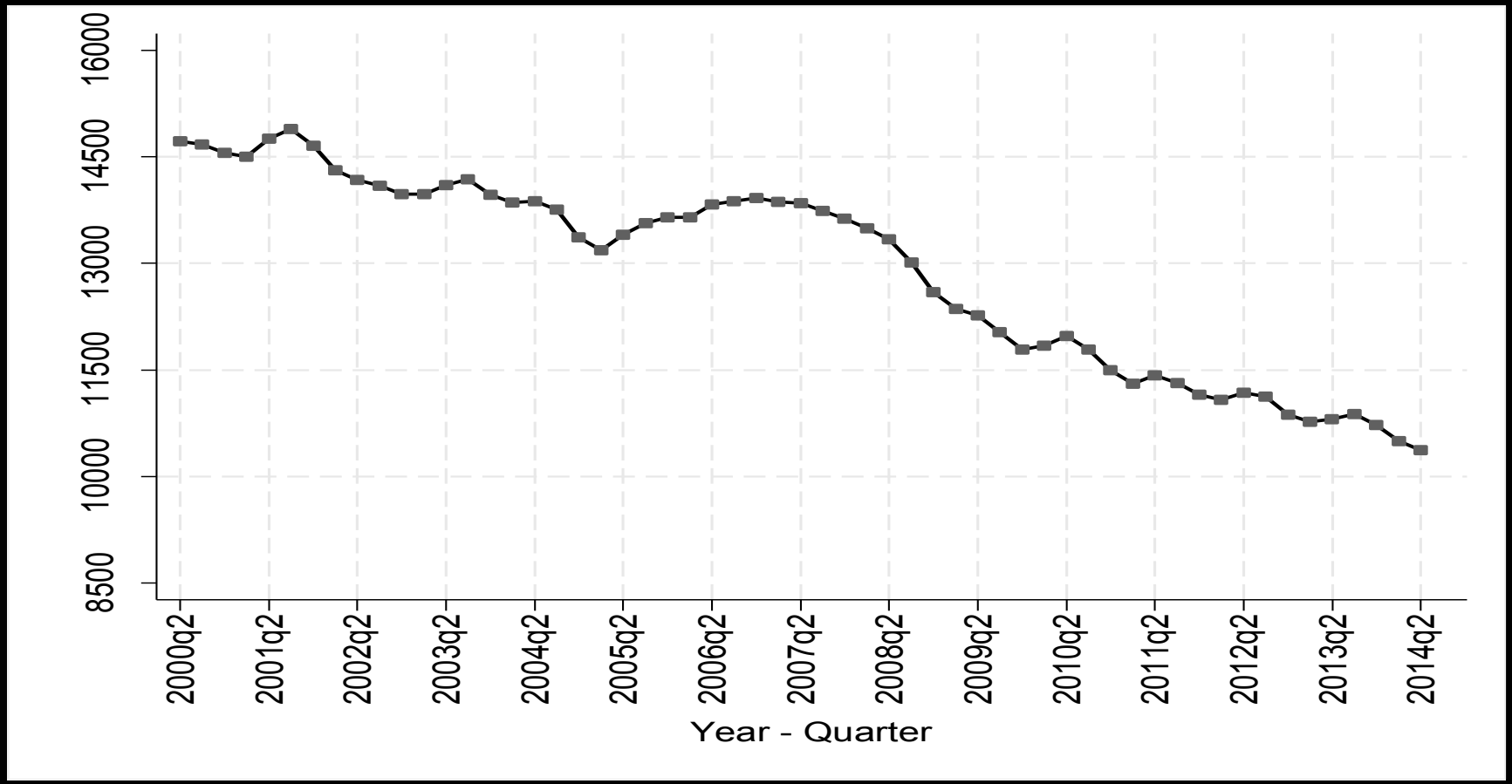
Mexico: Average Monthly Earnings for College-Educated Workers

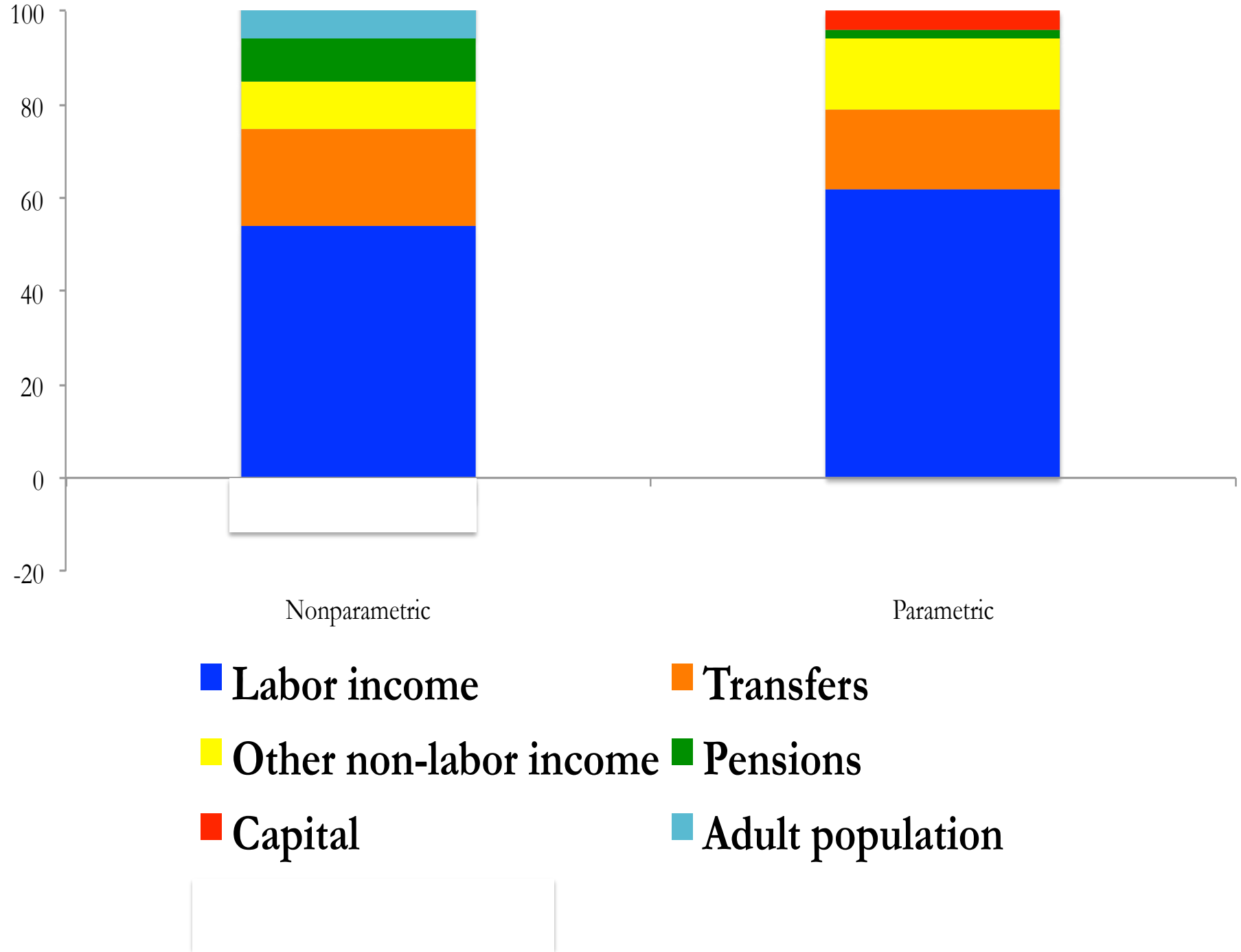


Campos, Lopez-Calva and Lustig "Declining wages for college-educated workers in Mexico: disentangling the age, cohort and education effects," to be presented at *Latin American Inequality in the Long-run*, Buenos Aires, December 5, 2014

Fiscal Redistribution

How redistributive are Latin American governments?

- Decomposition of changes in inequality by income source show that transfers is, on average, the second most important proximate determinant of decline in overall inequality
  - 17 or 21 percent on average


100
80
60
40
20
0
-20
Nonparametric
Parametric
Labor income
Transfers
Other non-labor income
Pensions
Capital
Adult population

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What is CEQ

The Commitment to Equity (CEQ) was designed to analyze 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. Directed by Nora Lustig, the CEQ is a joint project of CIPR and the Department of Economics at Tulane University and the Inter-American Dialogue.

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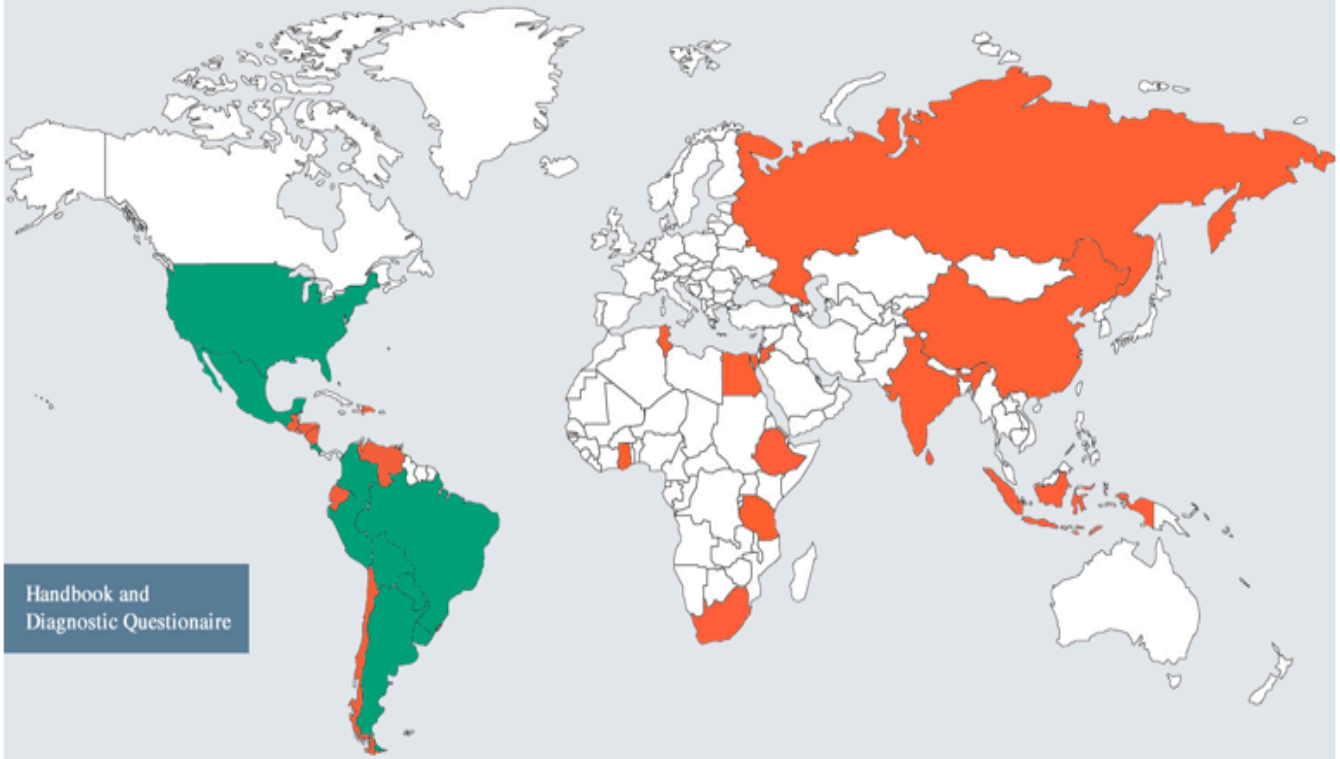
Browse map for Publications by Country



Handbook and
Diagnostic Questionaire

Basic elements of standard fiscal incidence

- Before taxes and transfers income of unit *h, or* I_h
- Taxes T_i
  - personal income taxes; contributions to social security
  - consumption and production taxes and subsidies
- Transfers R_i
  - social spending: cash & near-cash transfers; in-kind transfers (education and health)
  - consumption and production (agriculture) subsidies
- "Allocators" of tax *i* and transfer *j* to unit *h*, or S_{ih} , S_{jh} (the share of tax *i* borne or transfer *j* *received* by unit *h*) => Incidence
- Post-taxes and transfers income of unit h (Y_h)

- Post-taxes and transfers income of unit h (Y_h) is:

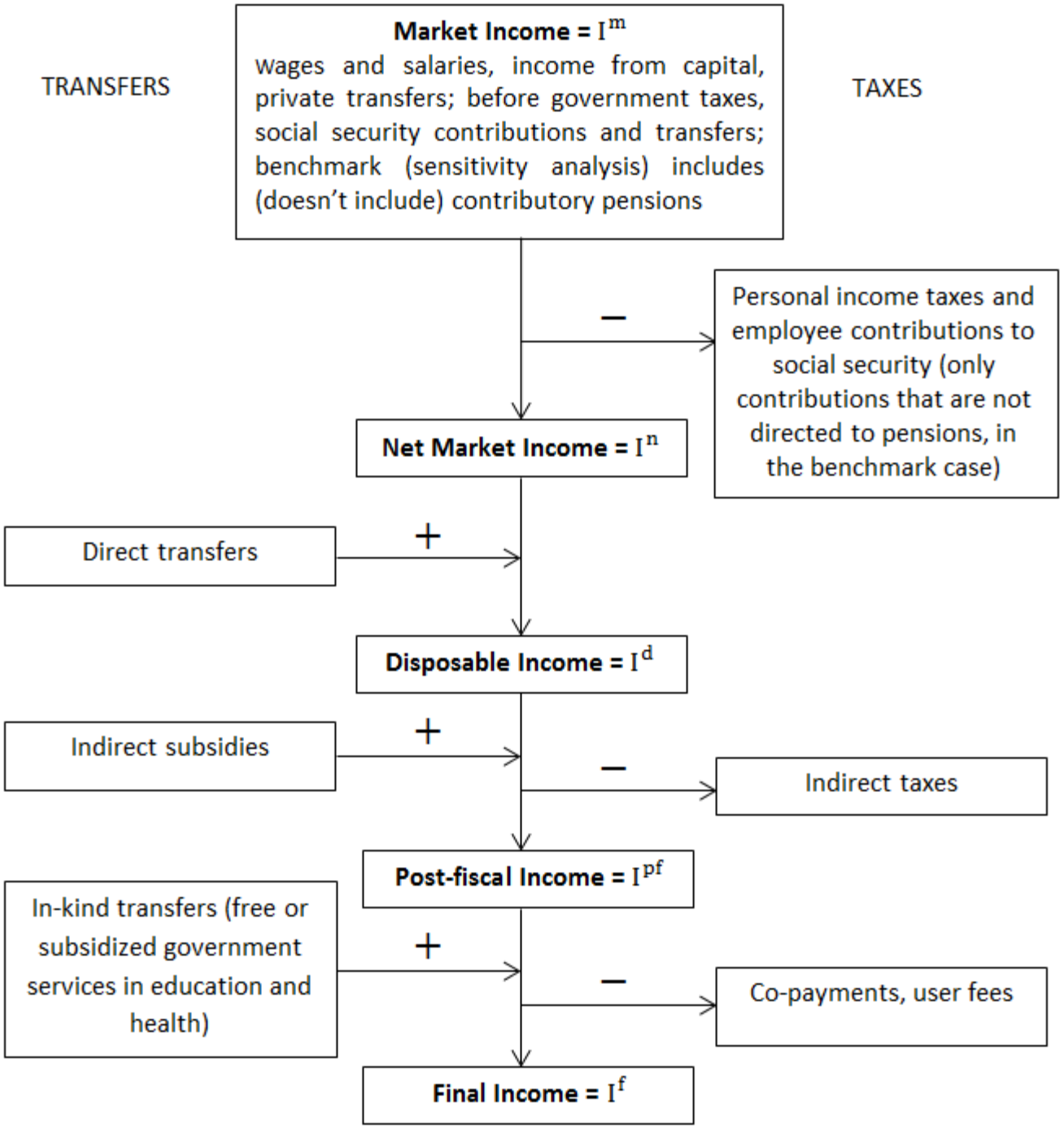
Taxes & Transfers

Post-fisc Income

$$Y_h = I_h - \sum_i T_i S_{ih} + \sum_j R_j S_{jh}$$

Pre-fisc Income

Incidence of Taxes & Transfers

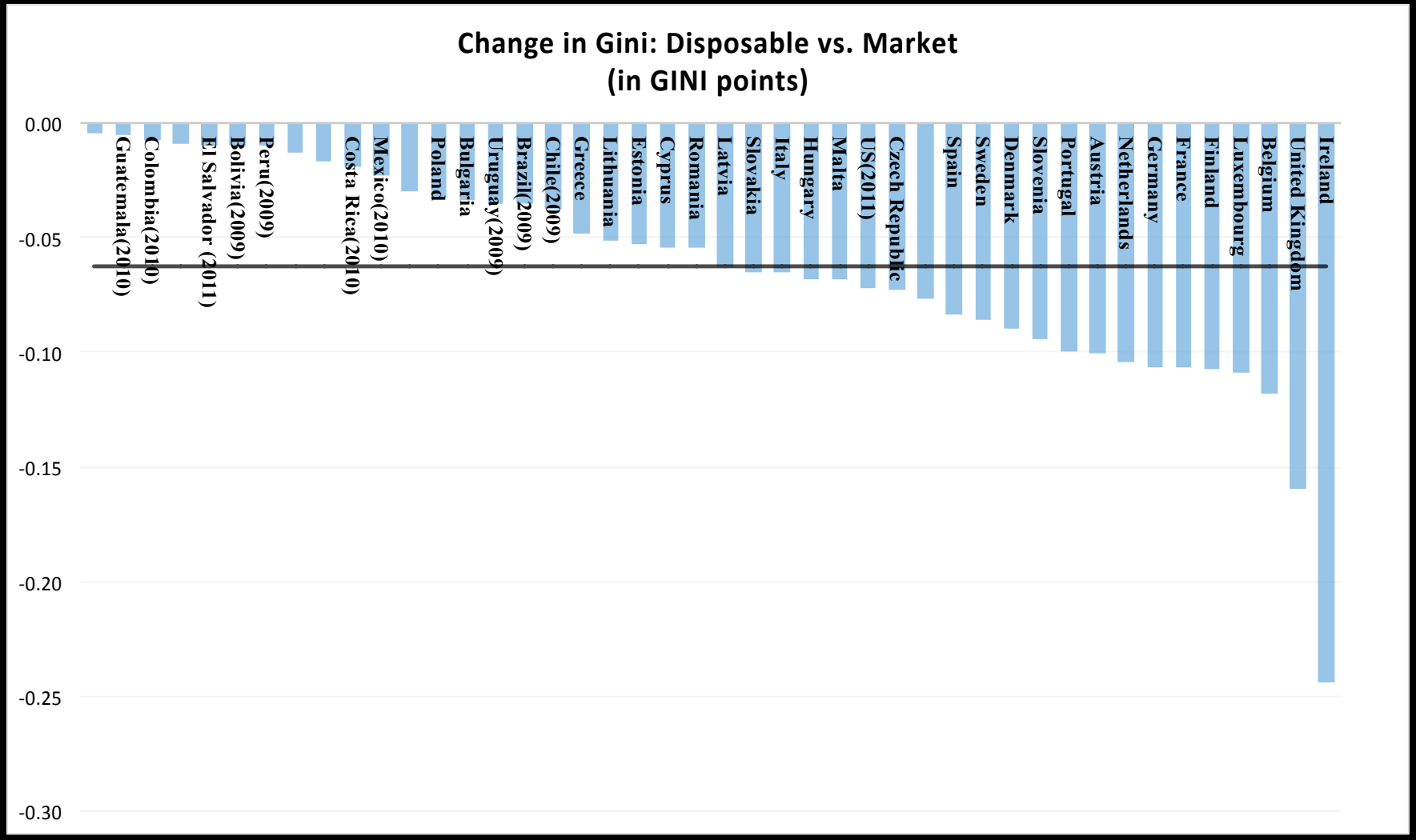

TRANSFERS
Market Income = I^m
wages and salaries, income from capital, private transfers; before government taxes, social security contributions and transfers; benchmark (sensitivity analysis) includes (doesn't include) contributory pensions
TAXES
−
Personal income taxes and employee contributions to social security (only contributions that are not directed to pensions, in the benchmark case)
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

Commitment to Equity Assessments (CEQ)

- Accounting Approach: no behavioral, no general equilibrium effects and no intertemporal effects
- Point-in-time
- Mainly average incidence; a few cases with marginal incidence
- Comprehensive standard fiscal incidence analysis of current systems
- Harmonized definitions and methodological approaches to facilitate cross-country comparisons
- Uses income/consumption per capita as the welfare indicator
- Tax shifting assumptions are the standard ones
- Allocators vary => full transparency in the method used for each category, tax shifting assumptions, tax evasion
- Secondary sources are used to a minimum
- Handbook (Lustig and Higgins, 2013)

Redistribution in the rich and developing countries

COMMITMENT TO EQUITY

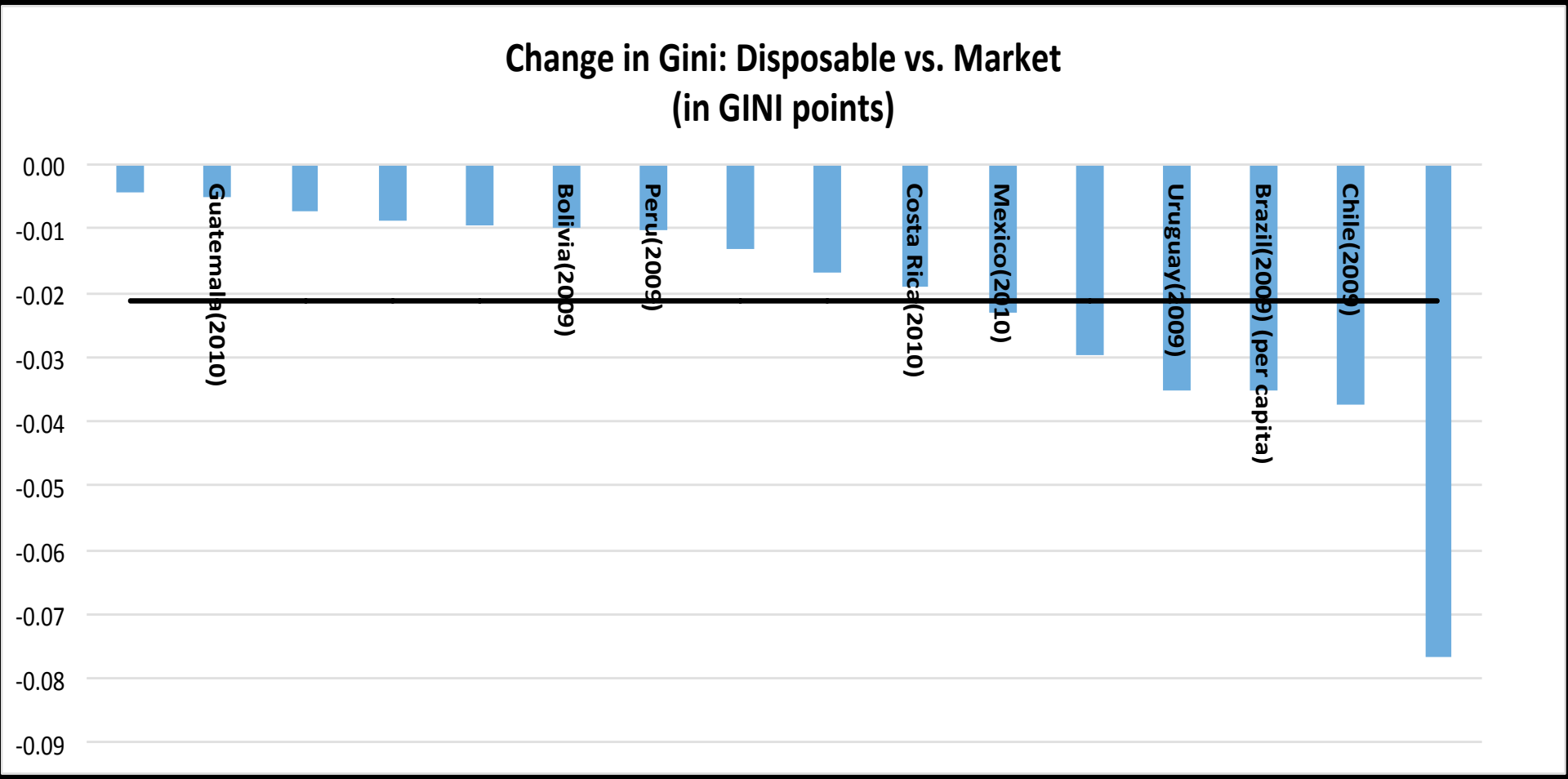


Sources: EUROMOD for EU,Higgins et al. (2014) for US and for CEQ countries see Lustig (2014) and references at the end.
Note: in these calculations contributory pensions are part of market income and NOT treated as a government transfer.

Fiscal Redistribution

- Reduction in disposable income Gini, between 4 percentage points (Chile and Brazil) and almost negligible (Guatemala)
- Adding effect of net indirect taxes shows similar results although in some countries Gini higher than disposable income Gini

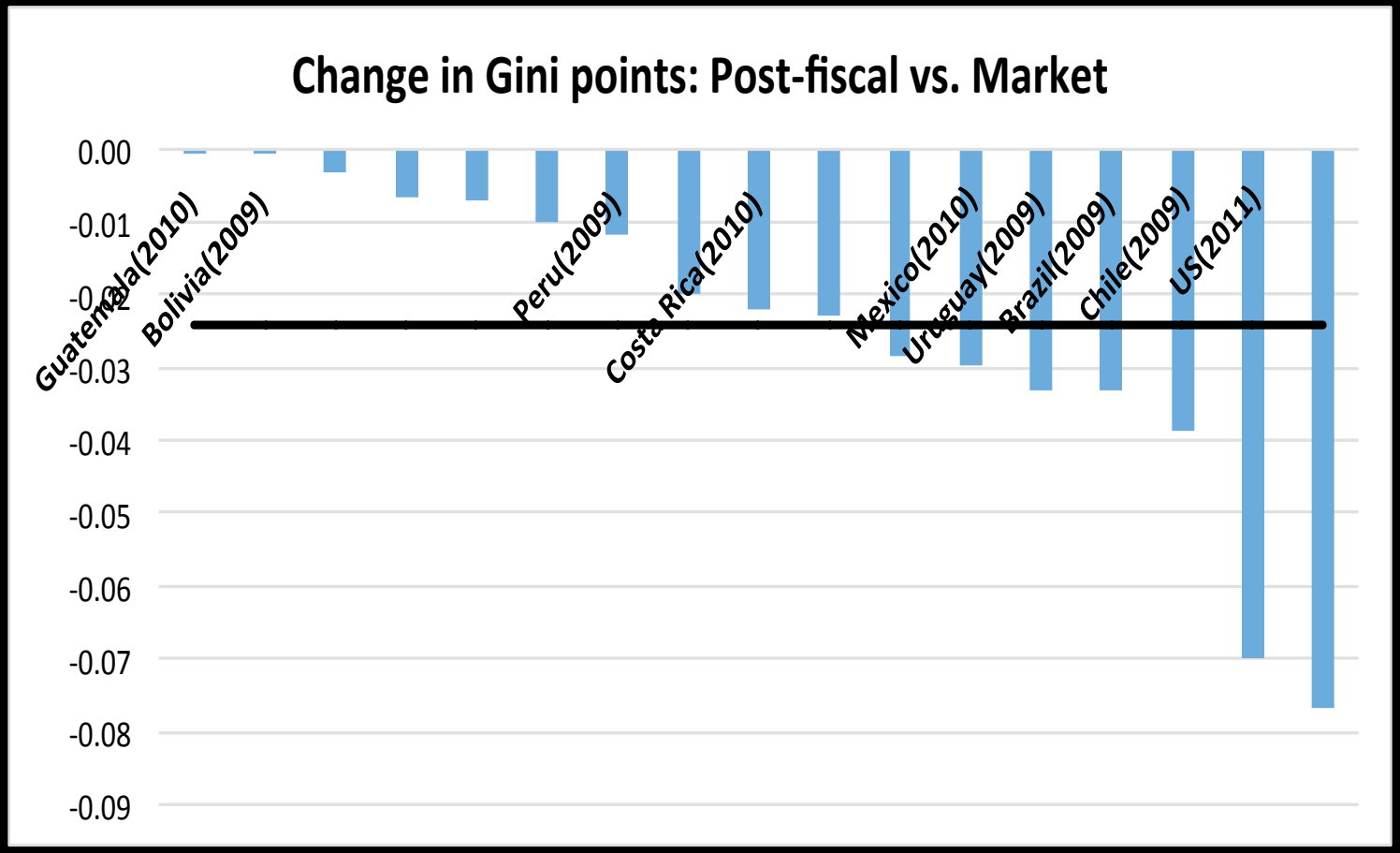
Zooming in (CEQ 16 countries)



Sources: Lustig (2014) and slides at the end.

Note: in these calculations contributory pensions are part of market income and NOT treated as a government transfer.

Zooming in (CEQ 16 countries)

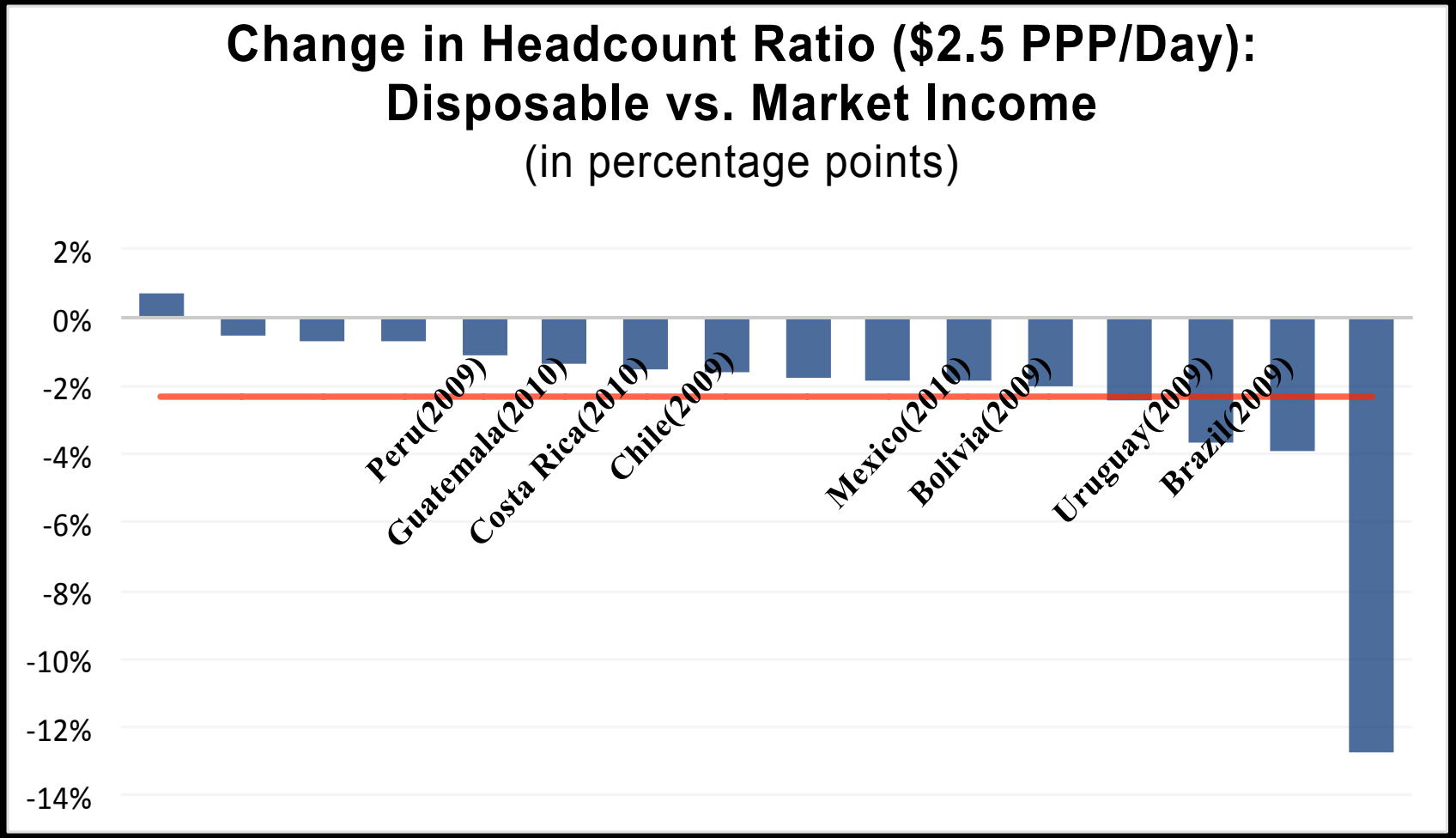


Sources: Lustig (2014) and slides at the end.

Fiscal Redistribution

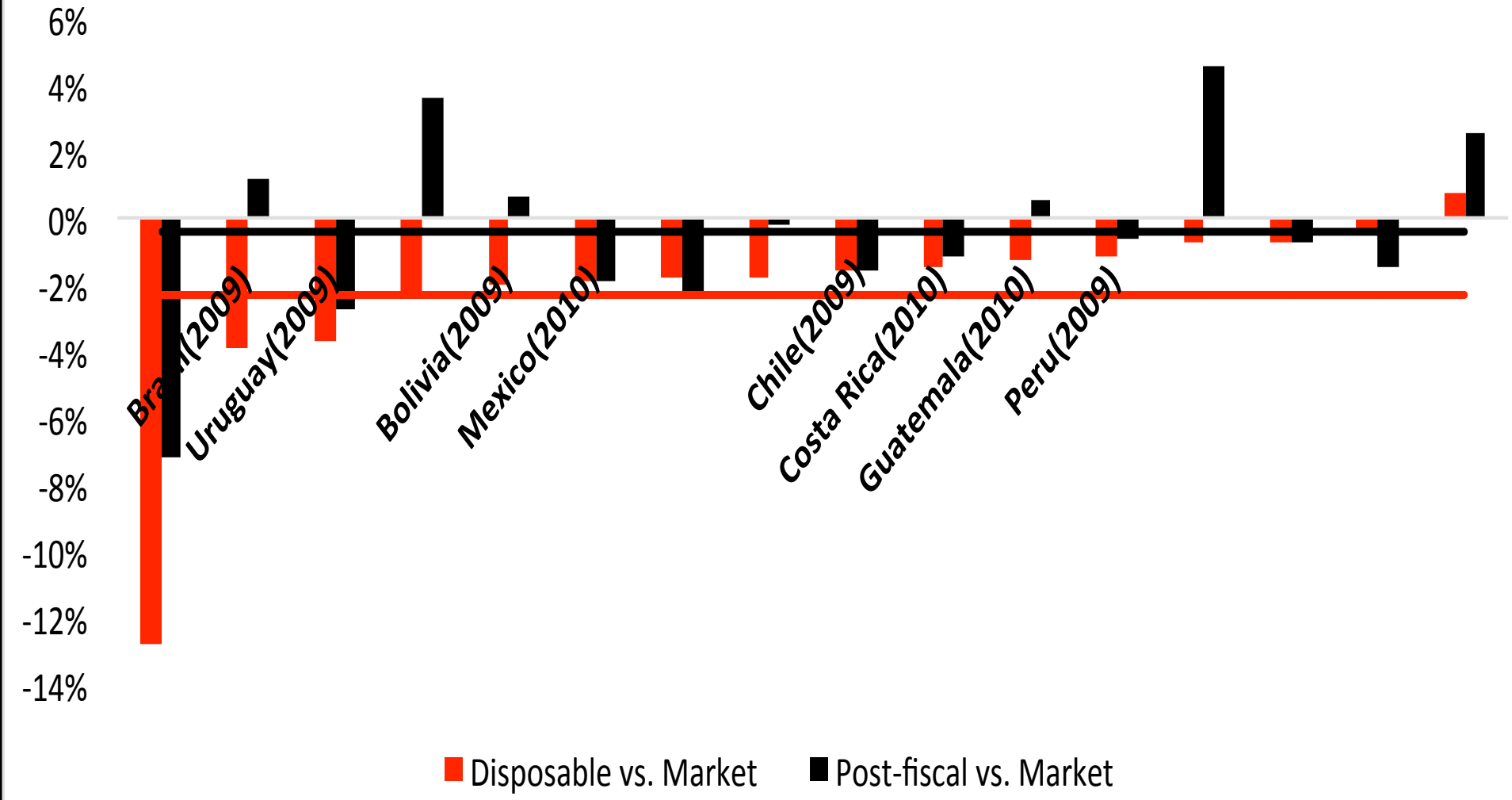
- Disposable income headcount ratio declines by the most in Brazil and by the least in Peru (data for 2009)

- However, NOTE that net indirect taxes INCREASE the headcount ratio over and above the market income headcount ratio in Bolivia, Brazil and Guatemala


Change in Headcount Ratio ($2.5 PPP/Day):
Disposable vs. Market Income
(in percentage points)
2%
0%
-2%
-4%
-6%
-8%
-10%
-12%
-14%
Peru(2009)
Guatemala(2010)
Costa Rica(2010)
Chile(2009)
Mexico(2010)
Bolivia(2009)
Uruguay(2009)
Brazil(2009)

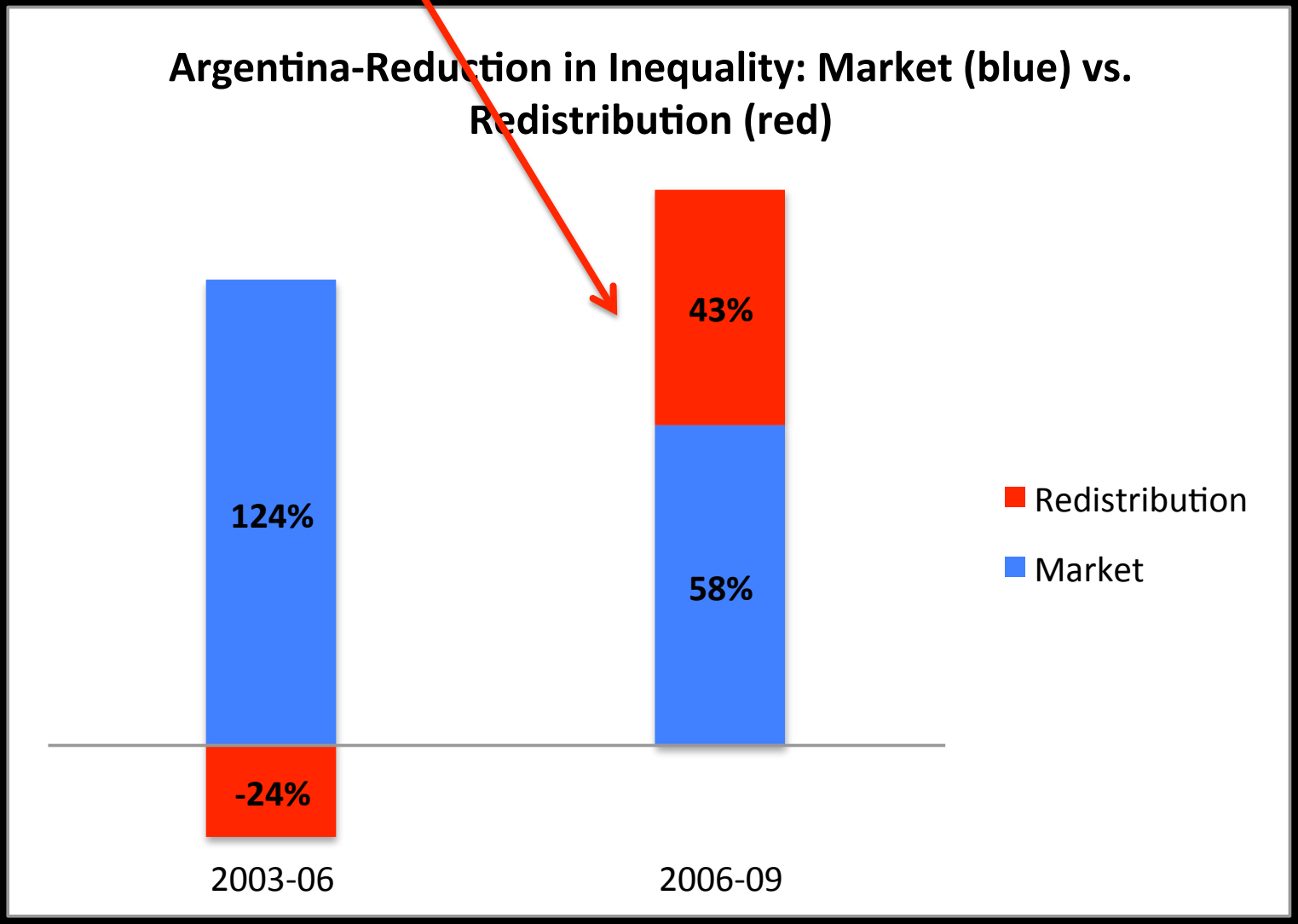
Change in Headcount Ratio ($2.5 PPP/Day)

(in percentage points)

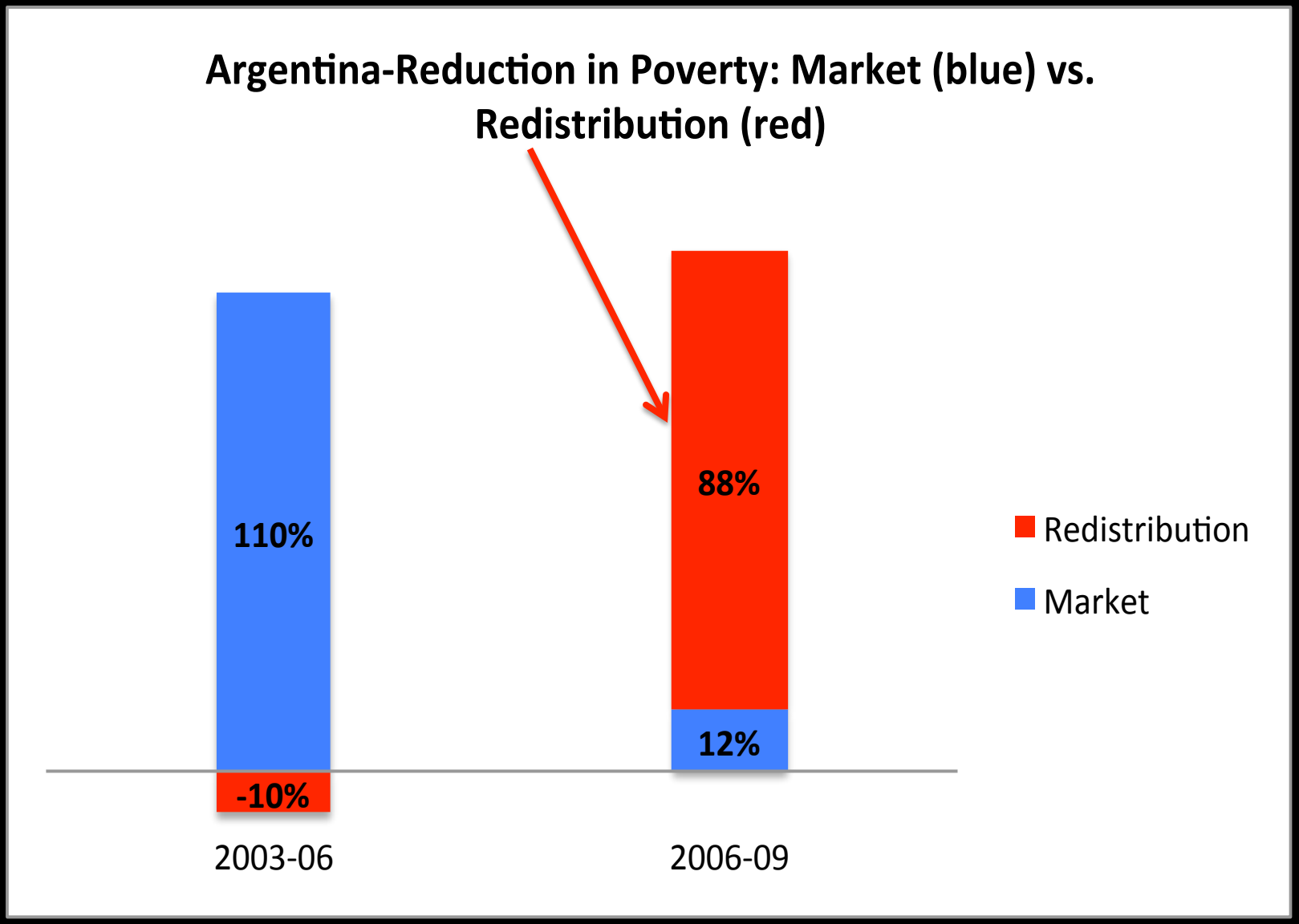


Transfers and Declining Inequality

Argentina: Rising role of transfers



Lustig, N. and C. Pessino. 2014.



Lustig, N. and C. Pessino. 2014.

Mexico: Rising role of transfers

Mexico: The impact of cash transfers on inequality and poverty, 1996, 2000 and 2010

		Net market income	Disposable income
1996	Gini	0.522	0.520
	% change with respect to net market income	—	-0.4%
	Headcount index ($2.5 PPP)	30.2%	29.9%
	% change wrt net market income	—	-1.0%
2000	Gini	0.544	0.539
	% change wrt net market income	—	-0.9%
	Headcount index ($2.5 PPP)	22.1%	21.6%
	% change with respect to net market income	—	-2.3%
2010	Gini	0.503	0.495
	% change wrt net market income	—	-1.7%
	Headcount index ($2.5 PPP)	13.8%	11%
	% change with respect to net market income	—	20.1%

Campos, R., G. Esquivel and N. Lustig. 2014. "The Rise and Fall of Income Inequality in Mexico, 1989–2010," Chapter 7 in Giovanni Andrea Cornia, ed., *Falling Inequality in Latin America: Policy Changes and Lesssons*, WIDER Studies in Development Economics, Oxford University Press,

Thank you!

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CEQ Teams
(Year of Survey; C=consumption & I=income)(MWB Version)

1. **Argentina (2009, I):** Nora Lustig and Carola Pessino (CEQ Web Dec 2013) *Public Finance Review,* May 2014, Volume 42, Issue 3
2. **Armenia (2011; I):** Stephen Younger and Artsvi Khachatryan (March 12, 2014; paper)
3. **Bolivia (2009; I)**: Veronica Paz Arauco, George Gray-Molina, Wilson Jimenez and Ernesto Yañez (CEQ Web Dec 2013) *Public Finance Review,* May 2014, Volume 42, Issue 3
4. **Brazil (2009; I)**: Sean Higgins and Claudiney Pereira (CEQ Web Dec 2013) *Public Finance Review,* May 2014, Volume 42, Issue 3
5. **Costa Rica (2010; I)**: Pablo Sauma and Juan Diego Trejos (February 2014; paper)
6. **El Salvador (2011; I)**: Margarita Beneke, Nora Lustig and Jose Andres Oliva (March 11, 2014)
7. **Ethiopia (2010/11; C):** Ruth Hill, EyasuTsehaye, Tassew Woldehanna (April 30, 2014)
8. **Guatemala (2011; I)**: Maynor Cabrera, Nora Lustig and Hilcias E. Moran (April 13, 2014)
9. **Indonesia (2012; C) :** Jon Jellema and Matthew Wai-Poi (February 18, 2014)

CEQ Teams
(Year of Survey; C=consumption & I=income)(MWB Version)

10 **Jordan (2010; C) :** Morad Abdel-Halim, Shamma Adeeb Alam, Yusuf Mansur, Umar Serajuddin, Paolo Verme (April 18, 2014)

11 **Mexico (2010; I):** John Scott (CEQ Web Dec 2013) *Public Finance Review,* May 2014, Volume 42, Issue 3

12 **Peru (2009; I):** Miguel Jaramillo (CEQ Web Dec 2013) *Public Finance Review,* May 2014, Volume 42, Issue 3

13 **South Africa (2010; I)**: Ingrid Woolard, Precious Zikhali, Mashekwa Maboshe, Jon Jellema (May 5, 2014)

14 **Sri Lanka (2009/10; C):** Nisha Arunatilake, Gabriela Inchauste and Nora Lustig (April 8, 2014; paper)

15 **United States (2011; I):** Sean Higgins, Nora Lustig, Whitney Ruble and Timothy Smeeding

16 **Uruguay (2009; I):** Marisa Bucheli, Nora Lustig, Maximo Rossi and Florencia Amabile (CEQ Web Dec 2013) *Public Finance Review,* May 2014, Volume 42, Issue 3

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