

# **Fiscal Policy, Inequality and Poverty in Low and Middle Income Countries**

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**AGENCE FRANÇAISE DE DÉVELOPPEMENT**

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# Outline

- Commitment to Equity (CEQ) Institute: Brief Description
- Methodological Highlights of the CEQ Approach
- CEQ Assessments: A Glance at Results

# CEQ Institute

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

# The CEQ Institute: a brief description

**Mission:** The CEQ Institute works to reduce inequality and poverty through comprehensive and rigorous tax and benefit incidence analysis, and active engagement with the policy community

## **Workstreams:**

- Research-based policy tools ([CEQ Handbook](#)) and [country studies](#)
- [Data Center](#)
- Advisory and [training](#) services
- [Bridges to policy](#)

## **Funding:**

- Bill & Melinda Gates Foundation U\$4.9 million for 5 years (2016 – 2020)
- National Science Foundation for U\$240,000 for 2 years (2018-2020)



# Why the CEQ Institute?

- An unequal world where 800 million live on less than US\$2 per day
- A world full of risks: illness, unemployment, droughts, epidemics, conflict
- Through safety nets, pensions, education, health and infrastructure, governments can make a difference

# Why the CEQ Institute?

- We ask how much of a difference are governments making through taxes and social spending?
- Can governments do more/do better?
- How do we do it? With a method called tax and benefit incidence analysis

# Meet the team



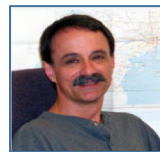
[Nora Lustig](#)  
Director  
New Orleans



Ludovico Feoli  
Director  
Policy Area  
New Orleans



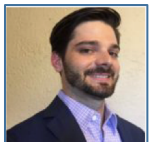
Jon Jellema  
Director of Projects,  
Advisory Services  
and Training  
Frankfurt



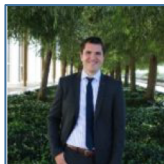
Stephen Younger  
Associate Director  
for Africa, Asia  
and Europe  
Ithaca



Maynor Cabrera  
Associate Director  
for Latin America &  
the Caribbean  
Guatemala City

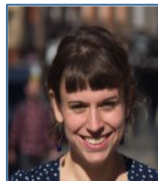


Sean Higgins (Berkeley) and  
Sandra Martinez-Aguilar  
(London)  
Co-Directors of CEQ Data Center  
and Software Development

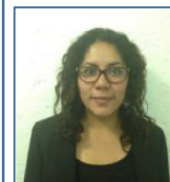


Carlos Martin del Campo  
Director of  
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Samantha Greenspun  
Director of Grants and  
Project Management  
New Orleans



Maya Goldman  
Coordinator of Projects,  
Advisory Services and  
Training  
Capetown



Itzel Martinez  
Administrative  
Coordinator  
Mexico City

# Meet resident Research Associates

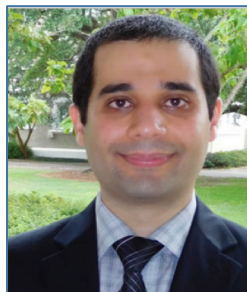


James Alm  
Professor and  
Chair of  
Economics



Stefano Barbieri  
Associate Professor  
of Economics

PhD students, Economics (from left to right): Rodrigo Aranda (Mexico), Sanjukta Basu (India), Koray Caglayan (Turkey), Ali Enami, (Iran), Siyu Quan (China)



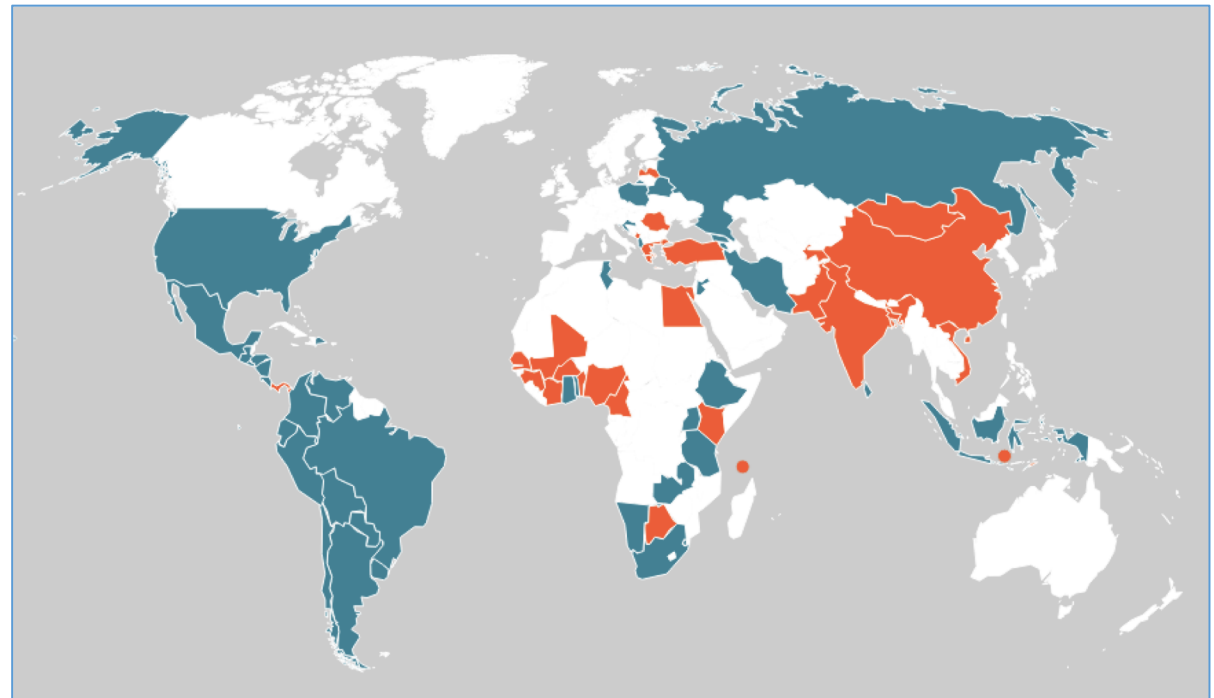
Mashfiqur Khan  
(Bangladesh)  
Postdoctoral  
Fellow  
Murphy Institute



## CEQ in numbers: country coverage

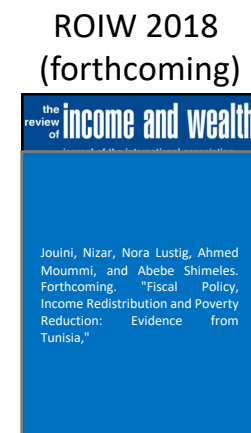
- 42 finished
- 23 in progress

➤ Nearly 80%  
of world's  
extreme poor



# CEQ in numbers: collaborators and partners

- Over 60 consultants from 40 countries around the world
- Over 50 [Research Associates](#)
- 25 [partners](#) including:
  - World Bank
  - IMF
  - Inter-American Development Bank
  - OECD
  - AfDB
  - ADB
  - Global Development Network
  - Oxfam
  - Universities, institutes and nonprofits



CEQ Publications in peer-reviewed journals

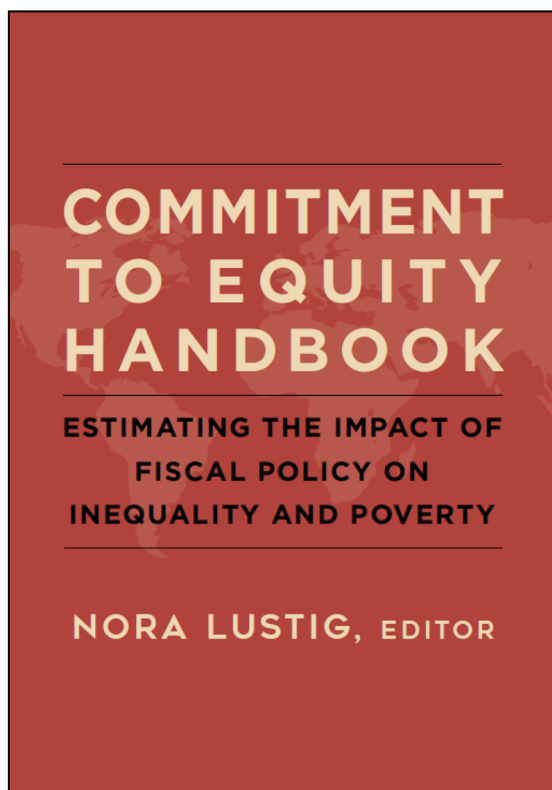
## Book

- Gabriela Inchauste and Nora Lustig, eds. 2017. [The Distributional Impact of Taxes and Transfers. Evidence from Eight Low- and Middle-Income Countries](#), Washington DC: World Bank





# CEQ in numbers: publications



[CEQ Handbook](#) Forthcoming, Brookings Institution Press

Unique step-by-step guide for determining the impact of taxation and public spending on inequality and poverty

Contains methods, applications, and a software package for conducting the CEQ Assessments, along with examples of these assessments from several countries

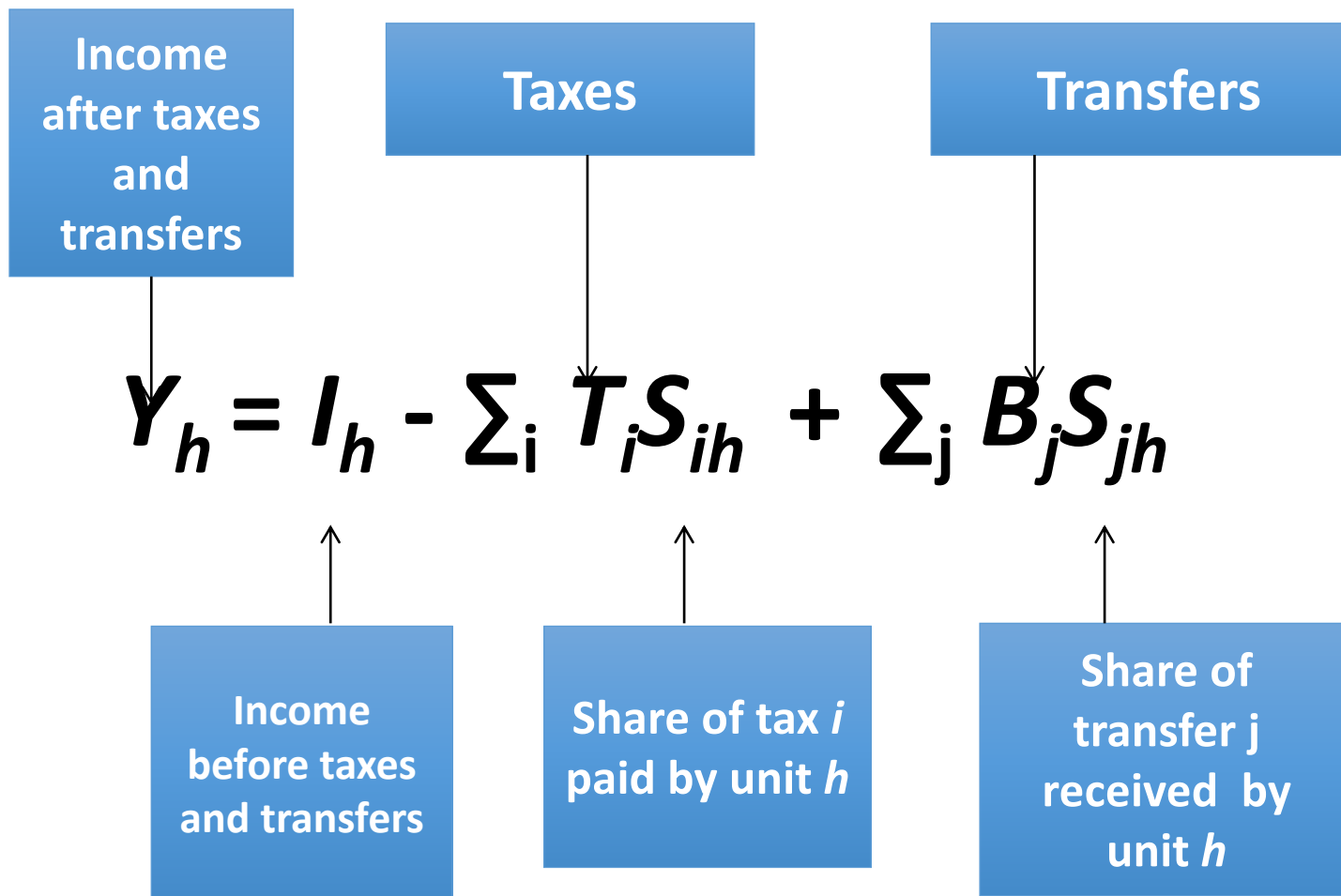
Open source: digital version will be **FREE**

# Methodological Highlights

# CEQ Assessment

- How much income redistribution and poverty reduction is being accomplished through fiscal policy?
- How equalizing and pro-poor are specific taxes and government spending?
- How effective are taxes and government spending in reducing inequality and poverty?
- What is the impact of fiscal reforms that change the size and/or progressivity of a particular tax or benefit?

# CEQ Assessment: Fiscal Incidence Analysis



# CEQ Assessment: Income Concepts

**MARKET INCOME**



PLUS DIRECT TRANSFERS MINUS DIRECT TAXES



**DISPOSABLE INCOME**



PLUS INDIRECT SUBSIDIES MINUS INDIRECT TAXES



**CONSUMABLE INCOME**



PLUS MONETIZED VALUE OF PUBLIC SERVICES: EDUCATION & HEALTH



**FINAL INCOME**

# CEQ Assessment: Data Requirements

- A recent Household Survey (possible options: expenditure-income, expenditure, employment, LSMS, etc.) representative at the national level
- Detailed description of the characteristics of each tax and spending item to be included in the analysis
- Audited or confirmed budget and administrative data for year of the survey
- Input-output table, SAM (Social Accounting Matrix), or SUT (Supply and Use table)

➤ Stata 13 or higher

# Data, Information, and Software Requirements

- Household survey must include
  - The household roster and the expenditures module - hopefully in raw or semi-cleaned, item-by-item form - are necessities
  - The health and education modules are somewhere in between necessary and very desirable
  - The remaining modules are often useful - we can determine taxpayer status from other questions in the labor module, for example - and if they are available we'd definitely like to have them
  - If there are any \*official\* or even just \*generally accepted\* practices/methods for calculating household expenditures, household size, per-adult equivalent scales, and the national poverty line, these are highly desirable also
  - When health and/or education are not covered in the HIES, we would appreciate having a reference to a secondary survey that does capture utilization of those services (the Demographic and Health Surveys, for example)

# CEQ Assessment: Fiscal Interventions

- Currently included:
  - Direct taxes
  - Direct cash transfers
  - Non-cash direct transfers such as school uniforms and breakfast
  - Contributions to pensions and social insurance systems
  - Indirect taxes on consumption
  - Indirect subsidies
  - In-kind transfers such as spending on education and health at average government costs



# Fiscal Incidence in CEQ Assessments

- Comprehensive standard fiscal incidence analysis of current systems: direct personal taxes (no corporate taxes) and indirect taxes; cash and in-kind transfers (public services); indirect subsidies
- Harmonized definitions and methodological approaches to facilitate cross-country comparisons
- Uses income/consumption per capita as the welfare indicator
- Allocators vary => full transparency in the method used for each category, tax shifting assumptions, tax evasion
- Secondary sources are used to a minimum

# Allocation Methods

- Direct Identification in microdata
  - However, results must be checked: how realistic are they?
- If information not directly available in microdata, then:
  - Imputation
  - Simulation
  - Inference
  - Prediction
  - Alternate Survey
  - Secondary Sources

# Fiscal Incidence in CEQ Assessments

- Accounting approach
  - no behavioral responses
  - no general equilibrium effects
  - no intertemporal effects
  - However, economic rather than statutory incidence
- Point-in-time
- Mainly average incidence; a few cases with marginal incidence

# 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 for short-run effects, and they are commonly used

# Tax Evasion Assumptions: Case Specific

- Income taxes and contributions to SS
  - Individuals who do not participate in the contributory social security system are assumed not to pay them
  
- Consumption taxes
  - Place of purchase: informal markets are assumed not to charge them
  - Some country teams assumed small towns in rural areas do not to pay them

# 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?*

- New methods under development

# Treatment of Contributory Social Insurance Pensions

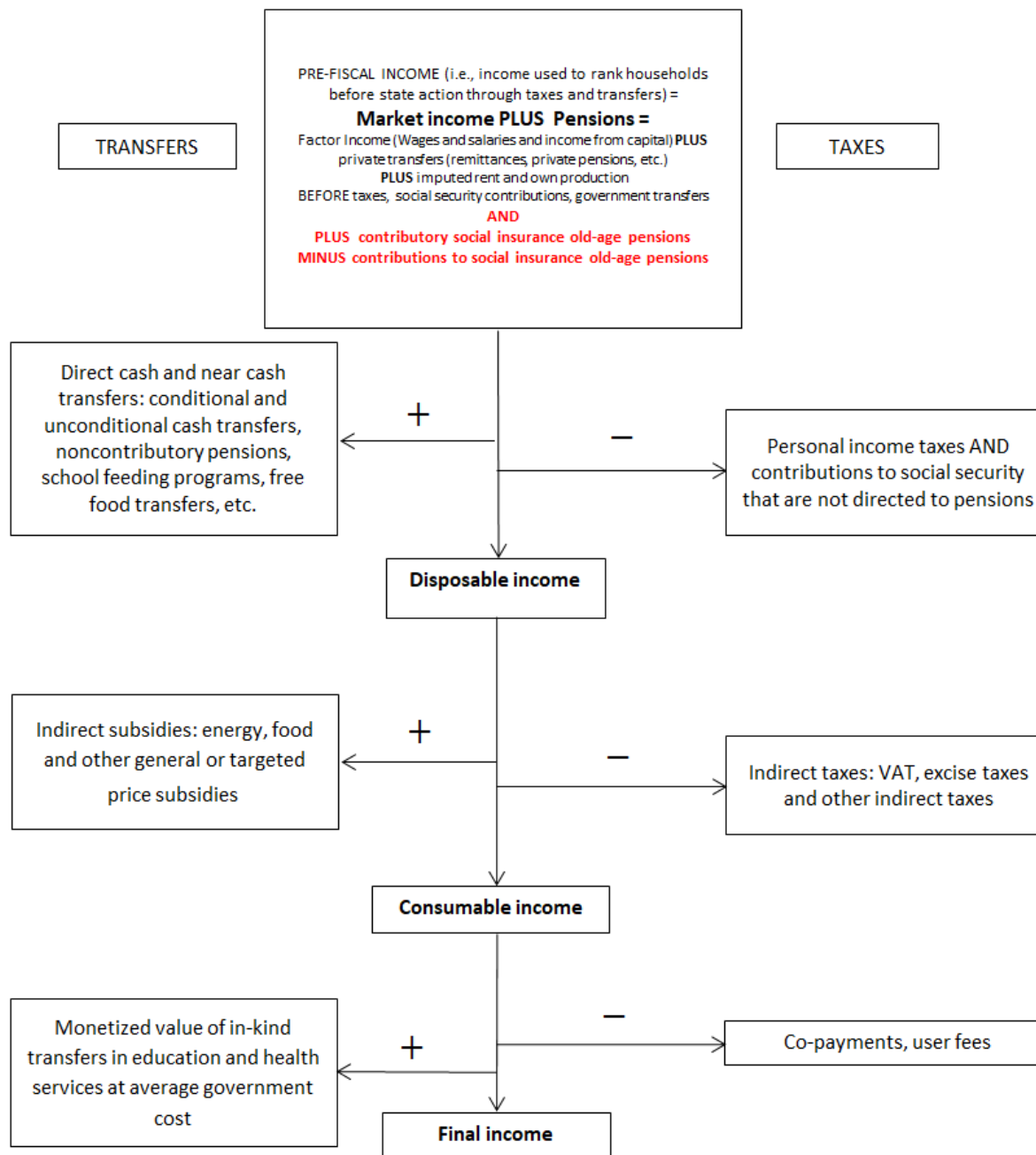
- Deferred Income?
- Government Transfer?

# Treatment of Contributory Social Insurance Pensions in CEQ

Two extreme scenarios:

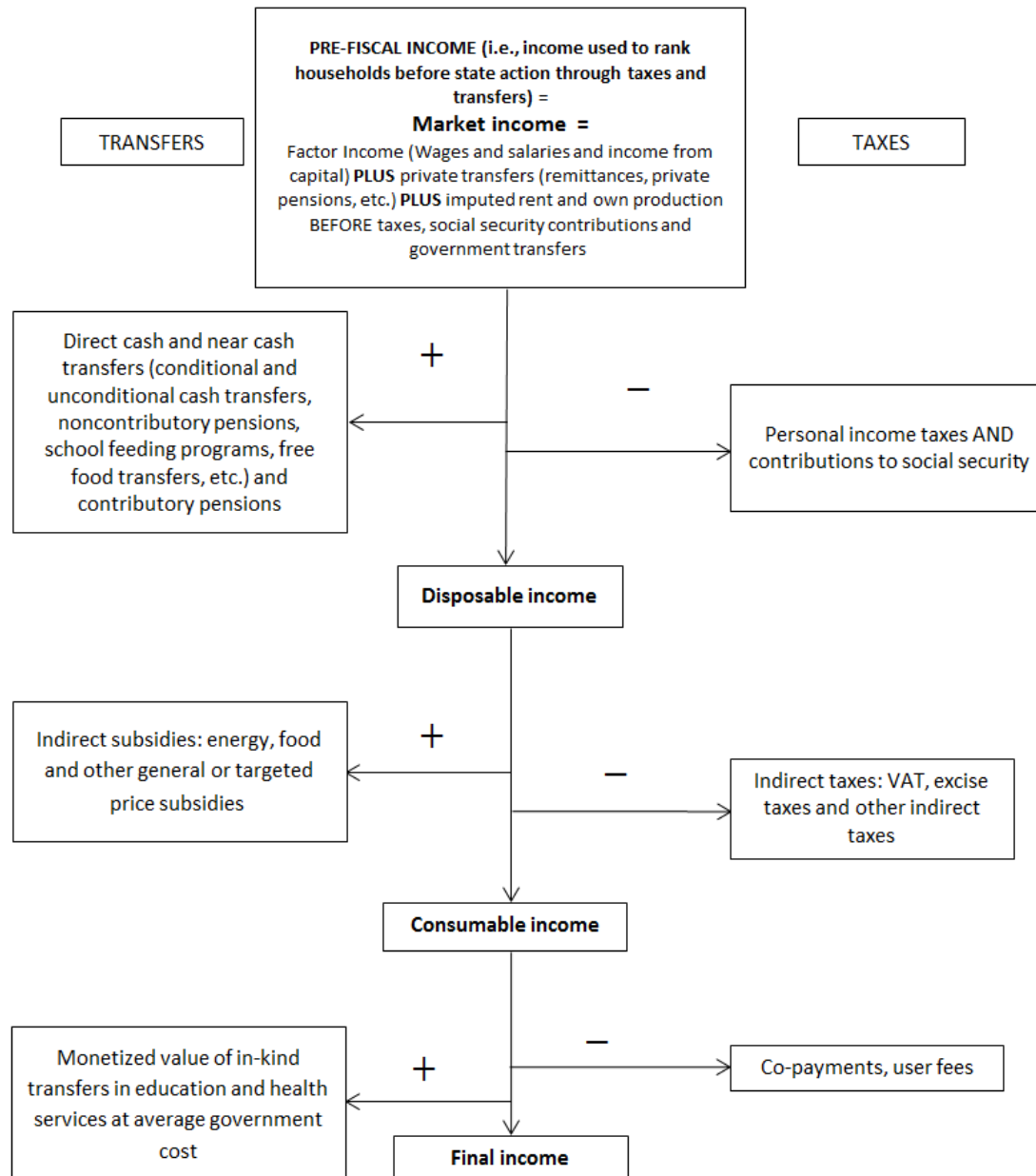
- Deferred income in actuarially fair systems: pensions included in *pre-fiscal income* and contributions treated as mandatory savings
- Government transfer: pensions included among direct transfers and contributions treated as a direct tax





## CORE INCOME CONCEPTS

SCENARIO:  
 CONTRIBUTORY  
 PENSIONS AS  
 DEFERRED  
 INCOME (PDI)



## CORE INCOME CONCEPTS

SCENARIO:  
CONTRIBUTORY  
PENSIONS AS  
PURE  
GOVERNMENT  
TRANSFER (PGT)

# Scenarios and Robustness Checks

- Benchmark scenario
- Sensitivity to:
  - Using consumption vs. income
  - Alternative methods of adjusting for missing top incomes
  - Per capita vs. equivalized income or consumption
  - Using administrative totals
  - Different assumptions on take-up of transfers and tax shifting and evasion
  - Alternative valuations of in-kind services
  - Other sensitivity scenarios: country-specific

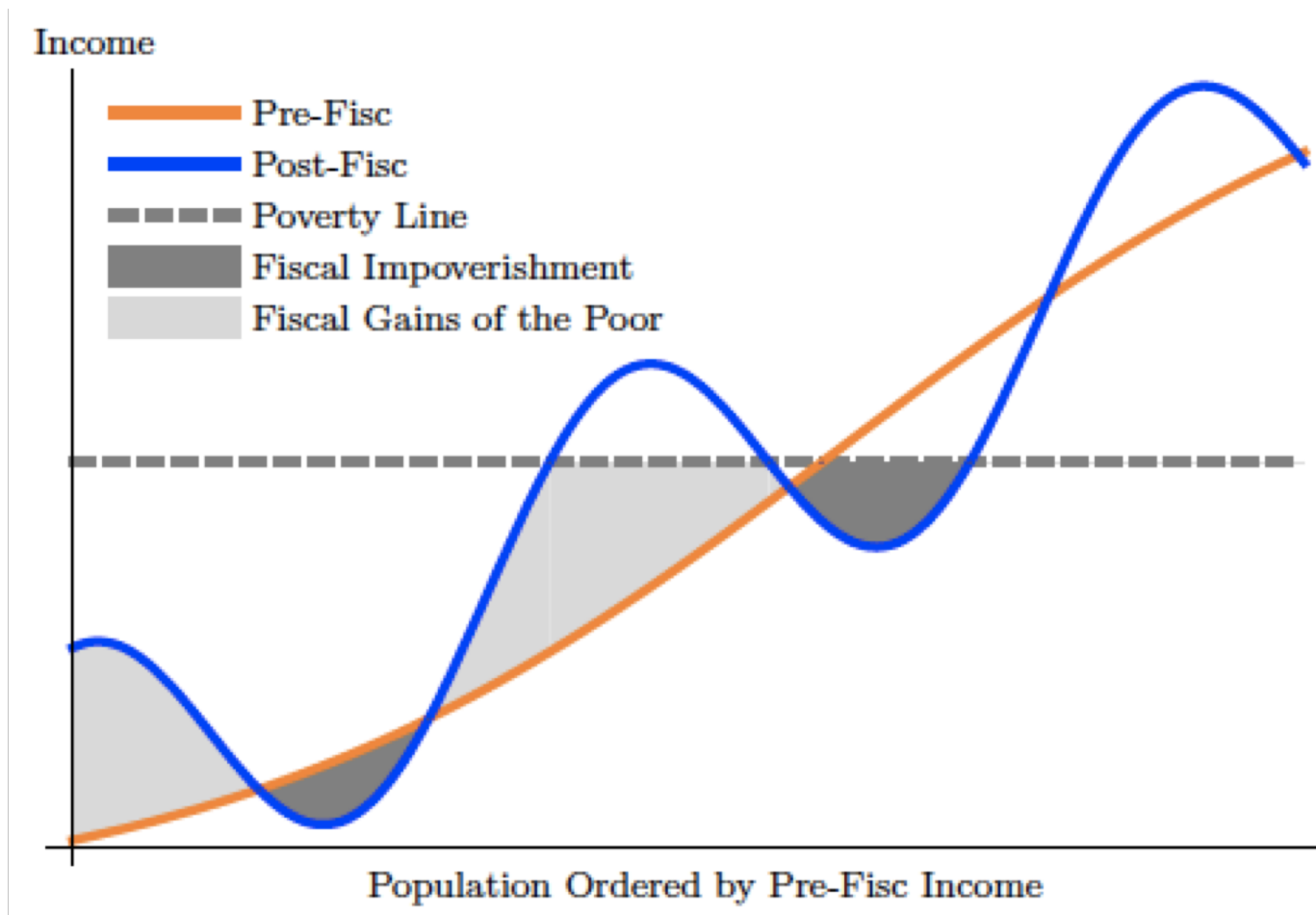
# CEQ Methodology: Work in-progress

- Corporate taxes
- Gender-sensitive fiscal incidence analysis
- Alternative methods to value education and health spending
- Implicit taxes and subsidies in contributory pensions
- Incorporating some pre-selected behavioral responses
- Incorporating implicit subsidies and taxes in social security systems (due to within system redistributive rules and differences in life expectancy across income groups)
- Adjusting for under-reporting and under-coverage of top incomes
- Complementary sustainability indicators:
  - Macro
  - Demographic
  - Natural resources

# CEQ and methodological innovations

- Redefining how to measure the equalizing effect of a tax or a transfer
    - Marginal contribution (“Without-MINUS-with” measure)
  - An indicator of Fiscal Impoverishment
  - Indicators of spending and impact effectiveness
- **ALL used by IMF and the World Bank in policy advice**

# Fiscal Impoverishment and Fiscal Gains to the Poor



# Main Messages

1. Analyzing the tax side without the spending side, or vice versa, is not very useful
  - Taxes can be unequalizing but spending so equalizing that the unequalizing effect of taxes is more than compensated [we knew this]
  - Taxes can be regressive but when combined with transfers make the system more equalizing than without the regressive taxes [surprised?]
    - VAT in Chile, for example

# Main Messages

2. Analyzing the impact on inequality only can be misleading

➤ Fiscal systems can be equalizing but poverty increasing [surprised?]



# **Fiscal Redistribution: A Glance at Results**

Based on Nora Lustig. 2018. “Fiscal Policy, Income Redistribution and Poverty Reduction in Low and Middle Income Countries.” In Lustig, Nora, editor. 2018. *Commitment to Equity Handbook. Estimating the Impact of Fiscal Policy on Inequality and Poverty*. Brookings Institution Press and CEQ Institute, Tulane University

(Advance online version available at:  
<http://www.commitmentoequity.org/publications/handbook.php> )

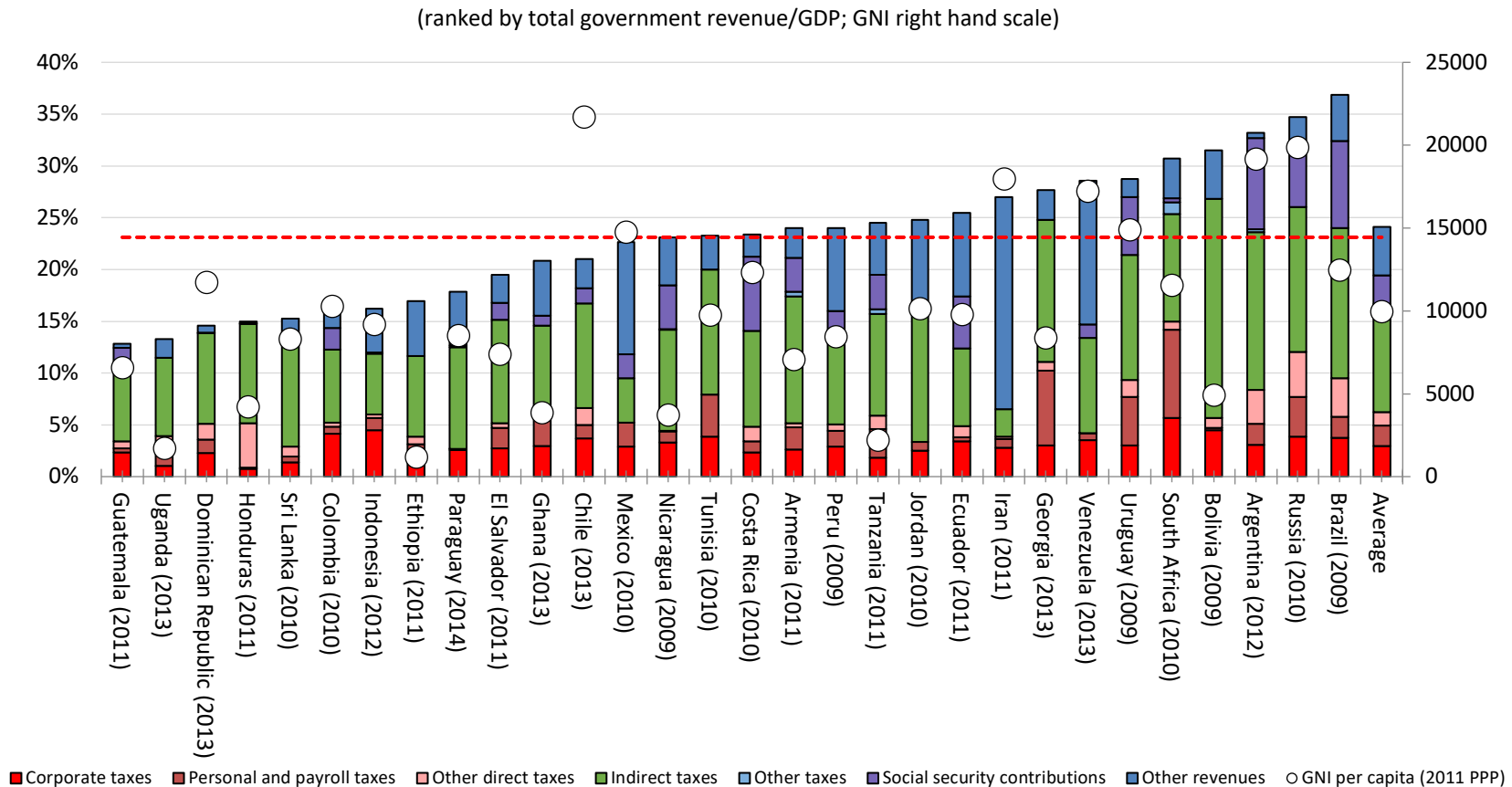
- Empirical results for 31 countries based on fiscal incidence studies from the Commitment to Equity Institute for around 2010
  - *Advanced countries*: United States
  - *East & South Asia*: Indonesia and Sri Lanka
  - *Europe and Central Asia*: Armenia, Georgia and Russia
  - *Latin America & the Caribbean*: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Peru, Uruguay and Venezuela
  - *Middle East and North Africa*: Iran, Jordan, and Tunisia
  - *Sub-Saharan Africa*: Ethiopia, Ghana, South Africa, Tanzania, and Uganda

# Key Questions

- How much income redistribution and poverty reduction is being accomplished through fiscal policy?
- How equalizing and pro-poor are specific taxes and government spending?
- How significant is the assumption made about contributory pensions?
- What is the relationship between pre-fisc inequality and “effort” measured by social spending as a share of GDP?

# **Size and Composition of Government Revenues and spending**

# Composition of Total Government Revenues as a Share of GDP (circa 2010)



Source: Lustig (2018)

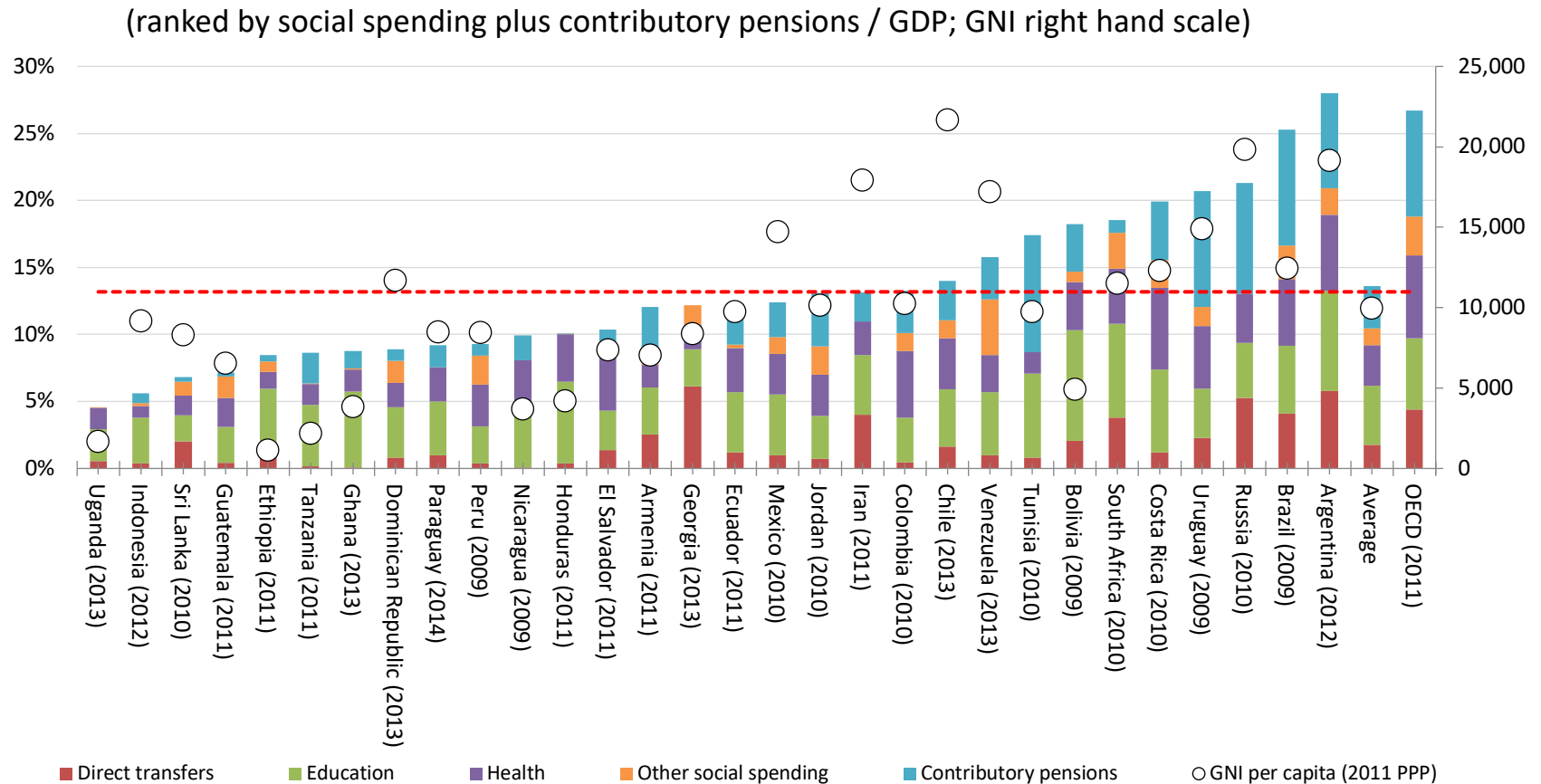
# Primary and Social Spending as a Share of GDP (circa 2010)

(ranked by primary spending / GDP; GNI right hand scale)



Source: Lustig (2018)

# Composition of Social Spending as a Share of GDP (circa 2010)





# Inequality

# CEQ Assessment: Income Concepts

**MARKET INCOME**



PLUS DIRECT TRANSFERS MINUS DIRECT TAXES



**DISPOSABLE INCOME**



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**CONSUMABLE INCOME**



PLUS MONETIZED VALUE OF PUBLIC SERVICES: EDUCATION & HEALTH

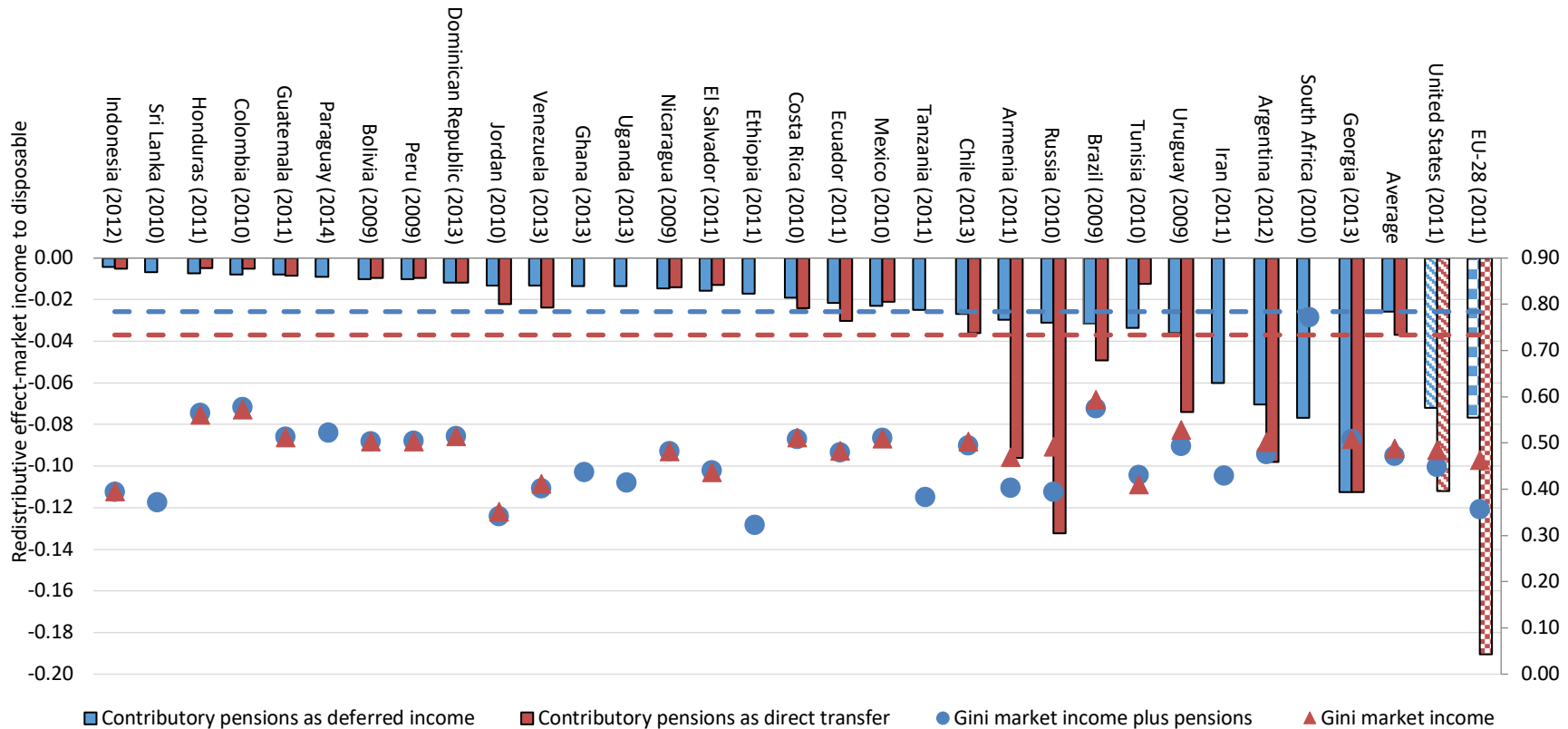


**FINAL INCOME**

# Redistributive Effect

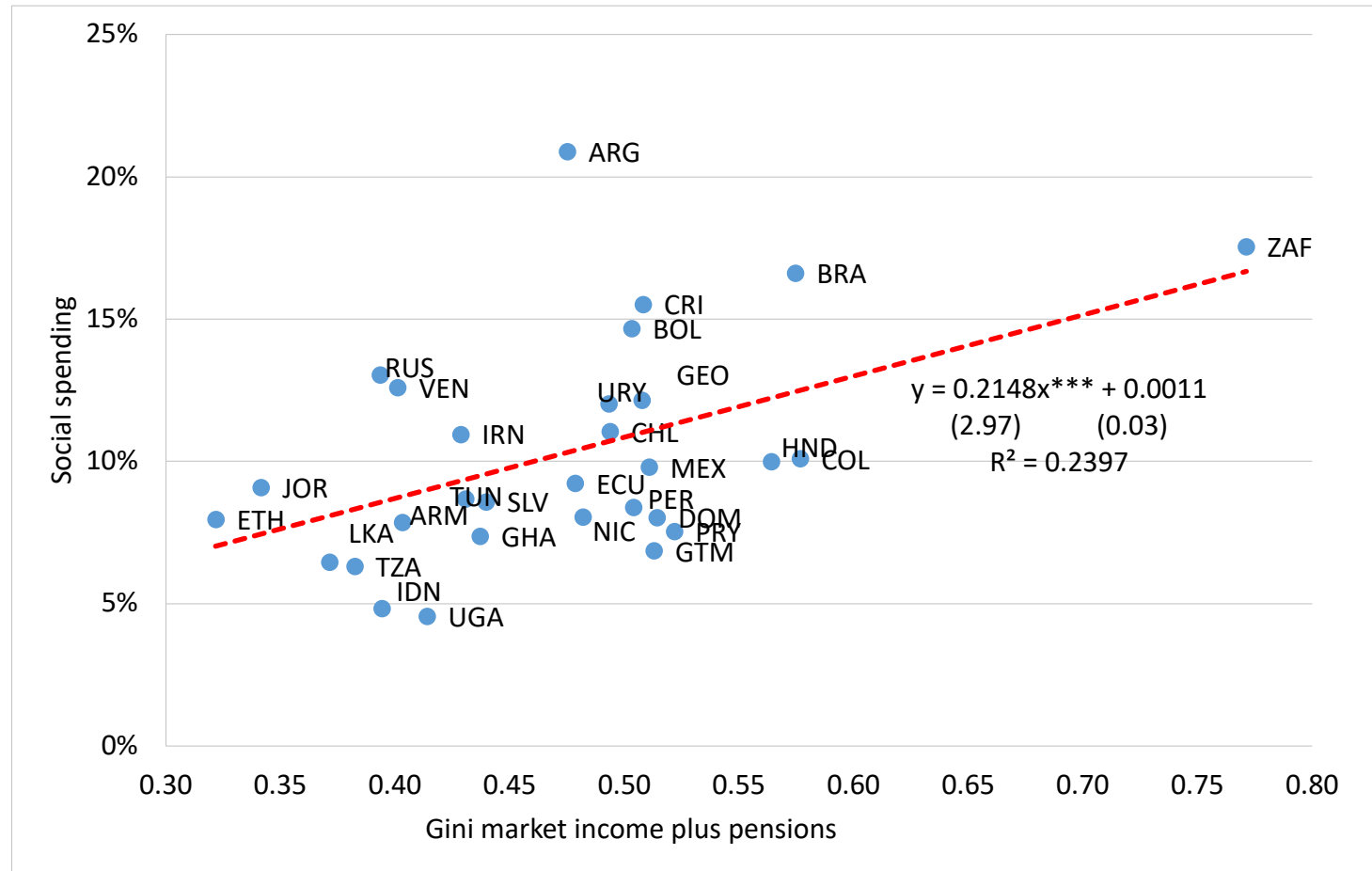
(Change in Gini: market income plus pensions and market income to disposable income, circa 2010)

(ranked by redistributive effect (left hand scale); Gini coefficients right hand scale)



# More Unequal, More Social Spending/GDP

Contributory pensions as deferred income



Source: Lustig (2018)

## In sum...

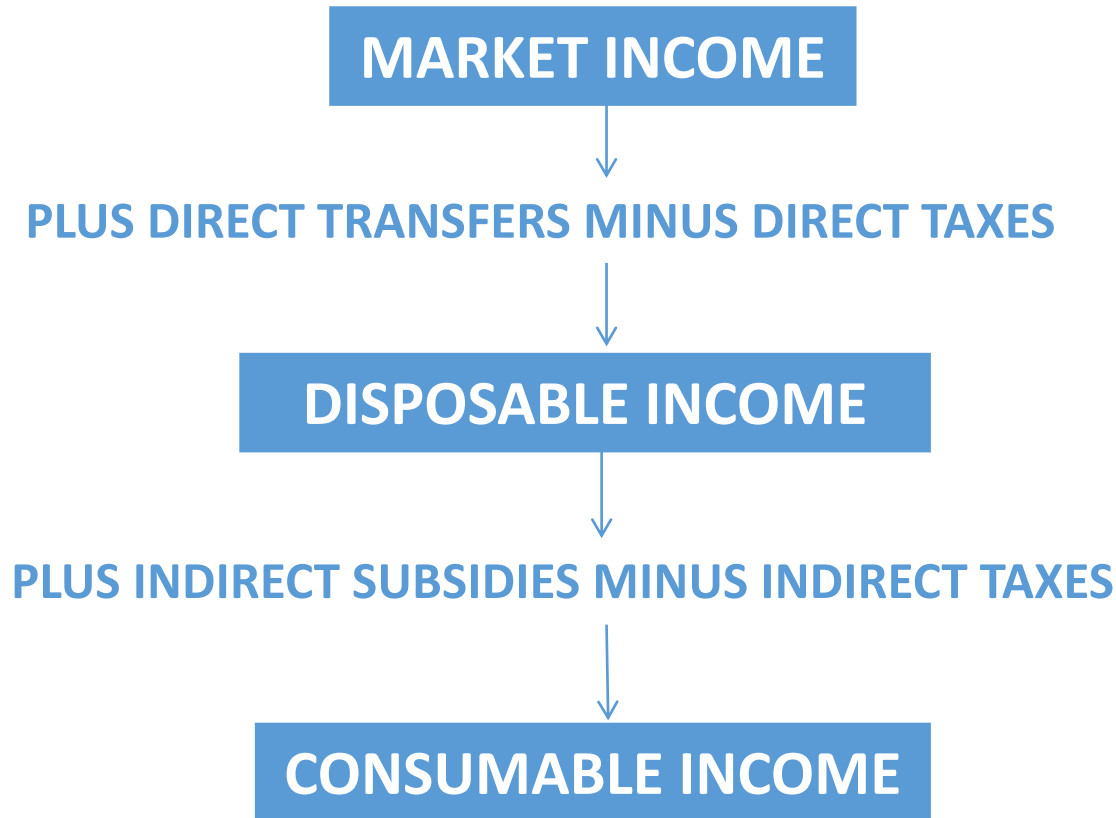
- In **NO** country, inequality increases as a result of taxes, subsidies and social spending
  - Fiscal policy is always equalizing
- Assumptions about contributory pensions can make a big difference in countries with large social security systems and a high proportion of retirees
  - Pensions, however, can be equalizing or unequalizing
- More unequal, higher share of social spending to GDP (different from Lindert's results from history; Lindert, 2004)

## In sum...

- Direct taxes are equalizing
- Direct transfers are always equalizing
- Indirect taxes can be equalizing (surprised?),
- Indirect subsidies are often equalizing (surprised?)
- Education spending is always equalizing
- Health spending is always equalizing

# Poverty

# CEQ Assessment: Income Concepts

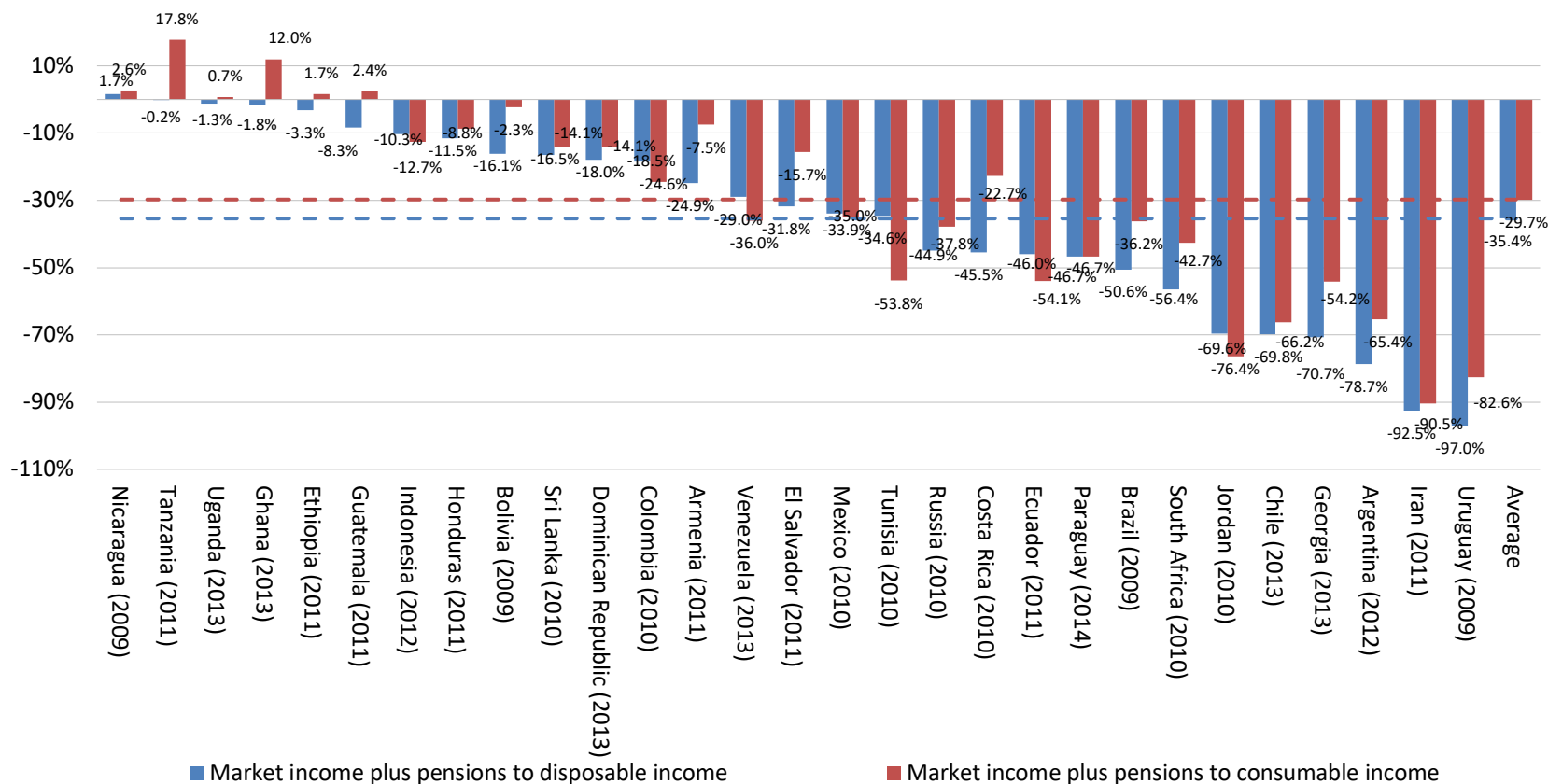




# Fiscal Policy and Poverty Reduction

Poverty line 1.25 dollars 2005 PPP/day; in % and for the scenario of contributory pensions as deferred income

(ranked by poverty reduction in %; poverty line 1.25 dollars 2005PPP/day)

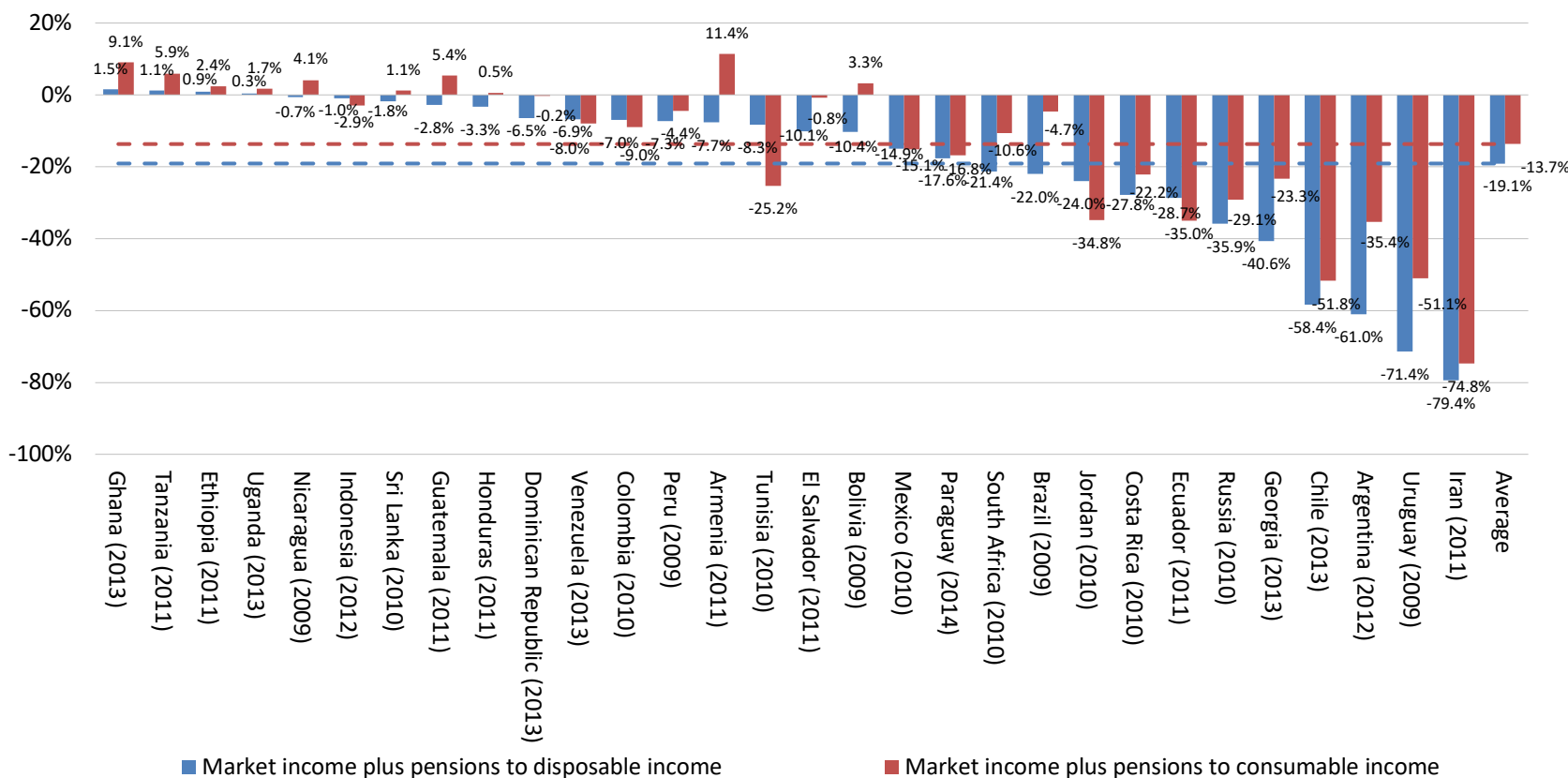


Source: Lustig (2018)

# Fiscal Policy and Poverty Reduction

Poverty line 2.5 dollars 2005 PPP/day; in % and for the scenario of contributory pensions as deferred income

(ranked by poverty reduction in %; poverty line 2.5 dollars 2005PPP/day)

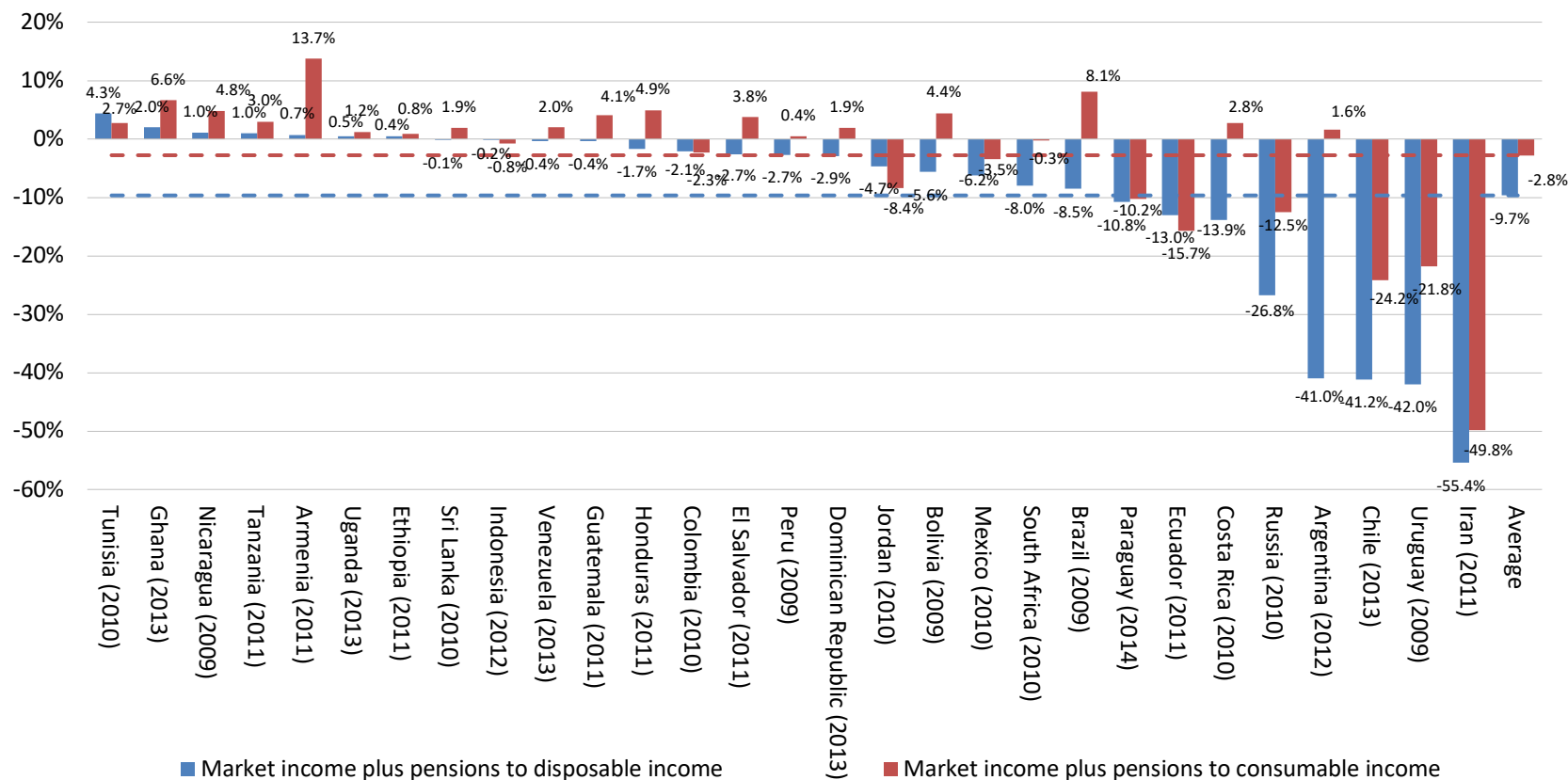


Source: Lustig (2018)

# Fiscal Policy and Poverty Reduction

Poverty line 4 dollars 2005 PPP/day; in % and for the scenario of contributory pensions as deferred income

(ranked by poverty reduction in %; poverty line 4 dollars 2005PPP/day)

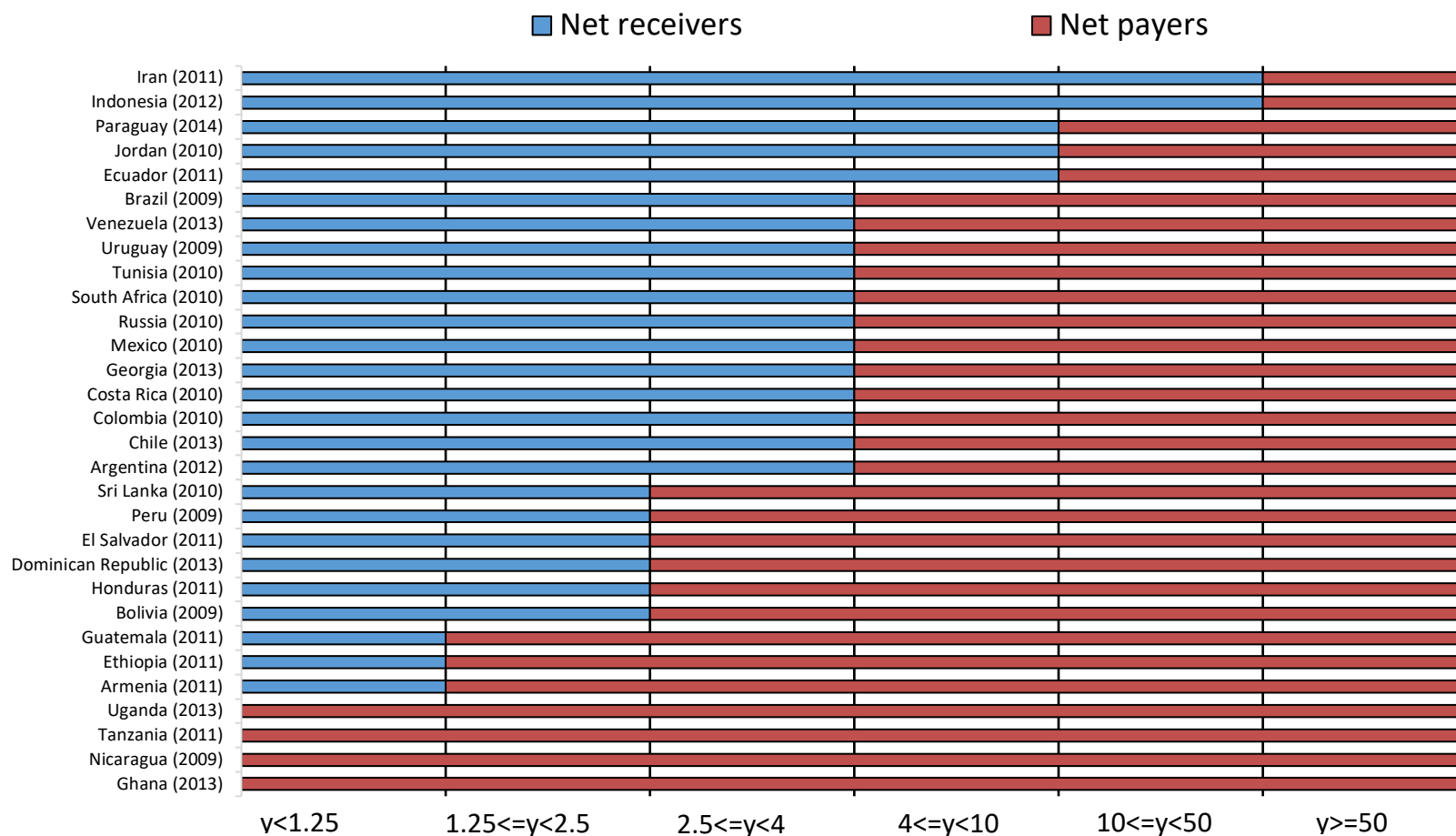


Source: Lustig (2018)

# Net Payers and Net Receivers

(by Income Groups; in dollars 2005 PPP/ day)


Contributory pensions as deferred income




Source: Lustig (2018)


# **How pro-poor is spending on education and health**

# Classification

 **A** = Pro-poor and equalizing, per capita spending declines with income

 **B** = Neutral in absolute terms and equalizing, same per capita for all

 **C** = Equalizing but not pro-poor, per capita spending as a share of market income declines with income

 **D** = Unequalizing, per capita spending as a share of market income increases with income

	Total Education	Pre-school	Primary	Secondary	Tertiary	Health
Argentina (2012)	A	A	--	--	C	A
Armenia (2011)	A	A	A	--	C	B
Bolivia (2009)	B	A	A	A	C	B
Brazil (2009)	A	A	A	A	C	A
Chile (2013)	A	A	A	A	C	A
Colombia (2010)	--	A	A	A	C	--
Costa Rica (2010)	--	A	A	A	C	--
Dominican Republic (2013)	A	A	A	--	C	A
Ecuador (2011)	A	--	A	A	--	A
El Salvador (2011)	A	A	A	B	C	C
Ethiopia (2011)	C	--	B	C	D	C
Georgia (2013)	B	B	A	--	C	A
Ghana (2013)	C	A	A	C	D	B
Guatemala (2011)	B	A	A	B	D	C
Honduras (2011)	B	A	A	B	C	B
Indonesia (2012)	B	--	A	B	D	C
Iran (2011)	B	--	A	A	C	B
Jordan (2010)	A	A	A	A	C	C
Mexico (2010)	A	A	A	C	C	B
Nicaragua (2009)	B	A	A	B	C	B
Paraguay (2014)	A	A	A	A	C	B
Peru (2009)	A	A	A	A	C	C
Russia (2010)	A	--	--	--	--	B
South Africa (2010)	B	A	A	A	C	A
Sri Lanka (2010)	B	A	--	--	C	B
Tanzania (2011)	C	A	A	C	D	C
Tunisia (2010)	B	--	--	--	C	B
Uganda (2013)	C	--	A	C	D	B
Uruguay (2009)	A	A	A	A	C	A
Venezuela (2013)	A	A	A	A	B	A

# In Conclusion...

- Fiscal systems are always equalizing but can often reduce the purchasing power of the poor
  - Warning: unintended consequence of the domestic resource mobilization agenda can be making the poor worse off
- Spending on education and health is often pro-poor and almost universally equalizing
  - Warning: is this favorable result because middle-classes and the rich are opting out?



## Teams and References by Country (the year for which the analysis was conducted in parentheses); C=consumption & I=income)

1. **Argentina (2012-13; I):** Rossignolo, Dario. 2018. [“Taxes, Expenditures, Poverty, and Income Distribution in Argentina.”](#) In *Commitment to Equity Handbook. Estimating the Impact of Fiscal Policy on Inequality and Poverty*, edited by Nora Lustig (Brookings Institution Press and CEQ Institute, Tulane University)

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2. **Armenia (2011; I):** Younger, Stephen D. and Artsvi Khachatryan. 2017. [“Fiscal Incidence in Armenia.”](#) In *The Distributional Impact of Taxes and Transfers. Evidence from Eight Low- and Middle-Income Countries*, edited by Gabriela Inchauste and Nora Lustig (Washington: World Bank)

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3. **Bolivia (2009; I):** Paz Arauco, Veronica, George Gray-Molina, Wilson Jimenez and Ernesto Yañez. 2014a. [“Explaining Low Redistributive Impact in Bolivia.”](#) In *The Redistributive Impact of Taxes and Social Spending in Latin America*, edited by Nora Lustig, Carola Pessino and John Scott, Special Issue, *Public Finance Review* 42, no 3, pp. 326-345. DOI: [10.1177/1091142113496133](#)

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4. **Brazil (2008-09; I):** Higgins, Sean and Claudiney Pereira. 2014. [“The Effects of Brazil’s Taxation and Social Spending on the Distribution of Household Income.”](#) In *The Redistributive Impact of Taxes and Social Spending in Latin America*, edited by Nora Lustig, Carola Pessino and John Scott, Special Issue, *Public Finance Review* 42, 3, pp. 346–67. DOI: [10.1177/1091142113501714](#)

Higgins, Sean and Claudiney Pereira. 2017. *“CEQ Master Workbook: Brazil (2008-2009),”* CEQ Data Center on Fiscal Redistribution (CEQ Institute, Tulane University). April 19, 2017

5. **Chile (2013, I):** Martinez- Aguilar, Sandra, Alan Fuchs, Eduardo Ortiz-Juarez and Giselle del Carmen. 2018. [“The Impact of Fiscal Policy on Inequality and Poverty in Chile.”](#) In *Commitment to Equity Handbook. Estimating the Impact of Fiscal Policy on Inequality and Poverty*, edited by Nora Lustig (Brookings Institution Press and CEQ Institute, Tulane University)

Martinez-Aguilar, Sandra and Eduardo Ortiz-Juarez. 2016. *“CEQ Master Workbook: Chile (2013),”* CEQ Data Center on Fiscal Redistribution (CEQ Institute, Tulane University and the World Bank). October 7, 2016

6. **Colombia (2010, I):** Melendez, Marcela and Valentina Martinez. 2015. *“CEQ Master Workbook: Colombia (2010),”* CEQ Data Center on Fiscal Redistribution (CEQ Institute, Tulane University and Inter-American Development Bank). December 17, 2015

## Teams and References by Country (the year for which the analysis was conducted in parentheses); C=consumption & I=income)

**7. Costa Rica (2010; I):** Sauma, Pablo and Juan Diego Trejos. 2014a. [“Gasto publico social, impuestos, redistribucion del ingreso y pobreza en Costa Rica.”](#) CEQ Working Paper 18 (Center for Inter-American Policy and Research and Department of Economics, Tulane University and Inter-American Dialogue), January

Sauma, Pablo and Juan D. Trejos. 2014. *“CEQ Master Workbook: Costa Rica (2010),”* CEQ Data Center on Fiscal Redistribution (CEQ Institute, Tulane University). February 14, 2014

**8. Dominican Republic (2006-07, I):** Aristy-Escuder, Jaime, Maynor Cabrera, Blanca Moreno-Dodson and Miguel E. Sanchez-Martin. 2018. [“Fiscal Policy and Redistribution in the Dominican Republic.”](#) In *Commitment to Equity Handbook. Estimating the Impact of Fiscal Policy on Inequality and Poverty*, edited by Nora Lustig (Brookings Institution Press and CEQ Institute, Tulane University)

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# Merci!