Introduction to CEQ:
The Commitment to Equity

Training Workshop on the
Commitment to Equity Methodology

CEQ Institute and The Ministry of Finance

Accra

February 7-10, 2017

Outline of the Workshop

- Day 1:
  - Introduction to CEQ Assessments
  - Illustration with country results, including Ghana
  - Introduction to Stata

- Day 2:
  - Introduction to the Living Standards Survey data
  - Constructing CEQ income concepts and their components

- Day 3:
  - Constructing CEQ income concepts and their components
  - The master workbook
  - Generating and interpreting results

- Day 4:
  - Cross-checking results
  - Policy simulations

- Agenda available at
  c:\CEQ_Ghana_training\presentations\CEQ-MOF_Training_Agenda_Feb_2017.docx

Workshop Materials

- ## The CEQ Handbook

- Lustig, Nora, editor, *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty,* CEQ Institute, Tulane University, forthcoming.
  - http://www.commitmentoequity.org/publications/handbook.php

- ## Preliminary Stata skills

  - Carolina Population Center Stata Introduction:
  http://www.cpc.unc.edu/research/tools/data_analysis/statatutorial/index.html

  - Germán Rodriguez' Stata Introduction:
  http://data.princeton.edu/stata/

  - Christopher Baum's Stata Introduction:
  http://fmwww.bc.edu/GStat/docs/StataIntro.pdf

  - Stata's documentation (also available on your pc as pdf's when you install Stata):
  http://www.stata.com/features/documentation/

- ## Introduction to the Ghana Living Standards Survey, round 5

  - c:\CEQ_Ghana_training\GLSS_5_docs*.pdf

Commitment to Equity Institute (CEQ Institute)

Objective: To measure the impact of fiscal policy on inequality and poverty in countries across the world

- Research-based policy tools
- CEQ Data Center on Fiscal Redistribution
- CEQ Advisory and Training Services
- Bridges to Policy

  ➢ Two grants from Bill & Melinda Gates Foundation for 2014-2020

  ➢ **www.commitmentoequity.org**

CEQ Institute: Core Staff

- **Director:** Nora Lustig
- **Director of Policy Area:** Ludovico Feoli
- **Associate Directors:** Maynor Cabrera, Jon Jellema, Estuardo Moran and Stephen Younger
- **Data Center Directors:** Sean Higgins and Sandra Martinez
- **Communications Director:** Carlos Martin del Campo
- **Masterdata Coordinator:** Israel Martinez

In addition:

- **Advisory Board**
- **Nonresident Research Associates** (more than 40 worldwide)

Handbook and Diagnostic Questionaire

Completed   In progress

www.commitmentoequity.org

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Commitment to Equity Institute

- Working on close to 40 countries; covers around two thirds of the world population

- Collaborative efforts and partnerships with multiple organizations: ADB, AfDB, CAF, ERF, IDB, IMF, ICEFI, OECD, Oxfam, UNDP, World Bank

- Utilized by governments

- Publications: Handbook, Working Paper series, scholarly publications in peer-reviewed journals, book chapters, edited volume (in progress), blogs and policy briefs

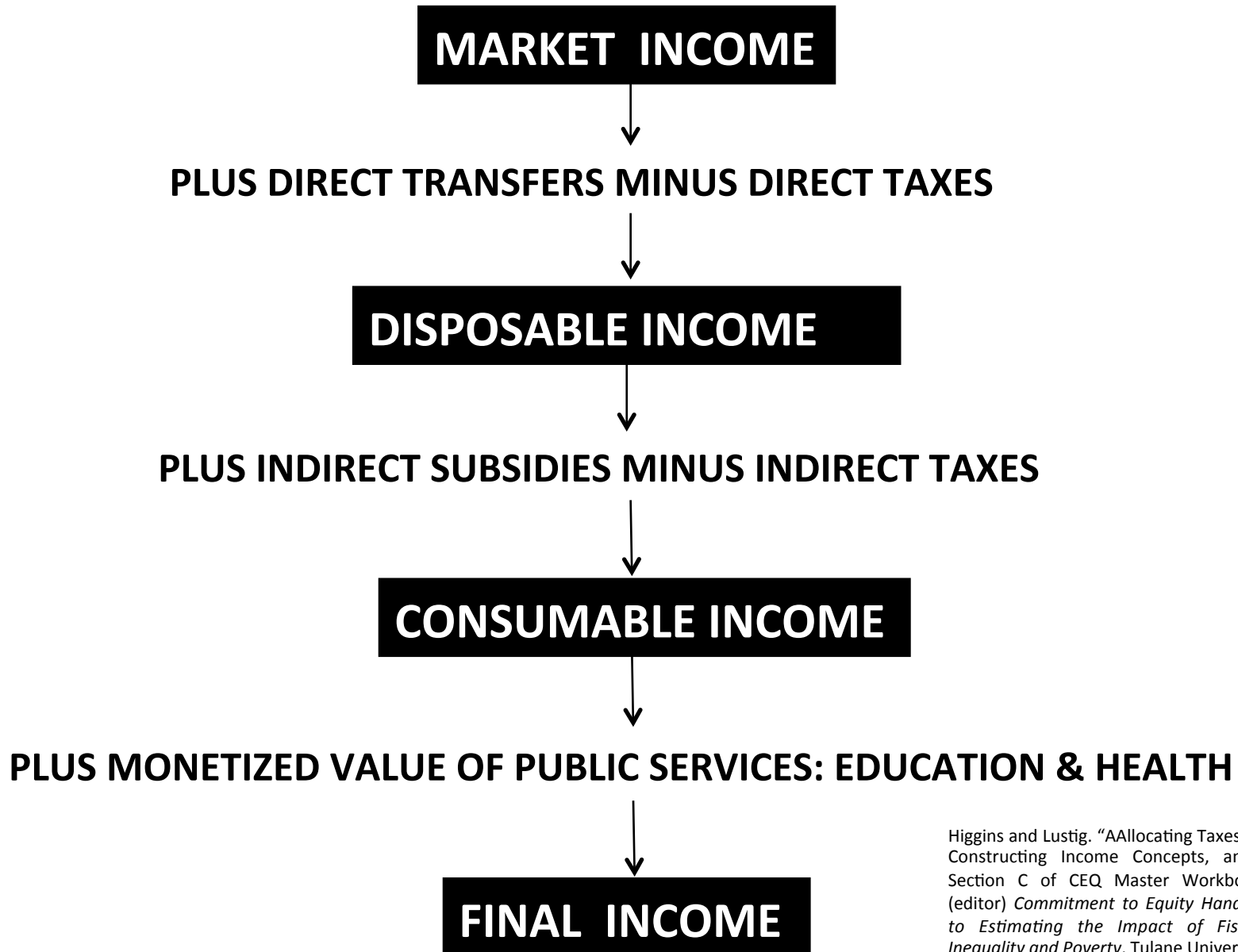- Website **www.commitmentoequity.org**

CEQ Assessment

- Purpose:
  - Provide a standardized analysis of the extent to which taxes and social expenditures alter the distribution of income
  - Includes effects on poverty and inequality
  - Allows for policy simulations of proposed reforms
  - Standardization allows for cross-country comparisons

- Tools
  - CEQ handbook
  - The master workbook of results (MWB)
  - CEQ Stata commands
  - CEQ cross-checking protocols for quality control

CEQ Assessment – Conceptual Framework

- Government taxation and social spending influence the distribution of income in many ways
    - Direct effects on disposable incomes (e.g. PAYE, LEAP)
    - Indirect effects on purchasing power – price changes (e.g. VAT, excises, petrol and electricity subsidies)
    - Provision of free or subsidized services (e.g. education and health)

- The general approach of CEQ is to describe how each of these policies changes the distribution of income, in a systematic way

- See next slide for CEQ "income concepts"

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

Higgins and Lustig. "AAllocating Taxes and Transfers, Constructing Income Concepts, and Completing Section C of CEQ Master Workbook" in Lustig (editor) *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty*, Tulane University, Fall 2016.

CEQ Assessment – Results for Ghana

- Based on a CEQ study using GLSS-6 data (Younger, Osei-Assibey, and Oppong, 2016)

- For each CEQ income concept, we calculate Gini coefficients and FGT poverty measures

- For each social expenditure and tax, we calculate concentration coefficients

What's Included in the Study?

Taxes	Expenditures
Direct Taxes	Direct Transfers
PAYE	LEAP (simulated)
Presumptive taxes (informal)	School feeding program
Presumptive taxes (formal)	Pensions*
Indirect Taxes	Indirect Transfers
VAT	Electricity subsidies
Import duties	Fertilizer subsidies
Cocoa duties	Kerosene cross-subsidy
Excises	
Petroleum products	In-Kind Benefits
Beverages	Public schooling (various levels)
Tobacco products	Public health services, inpatient
Communications services	Public health services, outpatient

CEQ INSTITUTE
COMMITMENT TO EQUITY
Tulane University

Basic Results

	poverty line:	GH₵1314 per year		GH₵792 per year
	Gini	Headcount index	Poverty Gap	Headcount index
Market Income + Pensions	0.437	0.240	0.078	0.083
Gross Income	0.436	0.238	0.076	0.081
Disposable Income	0.424	0.242	0.078	0.084
Disp. Income + Indirect Subsidies	0.424	0.235	0.075	0.080
Disp. Income - Indirect Taxes	0.423	0.271	0.089	0.099
Consumable Income	0.423	0.261	0.085	0.094
Cons. Income + In-Kind Education	0.409	0.201	0.057	0.053
Final Income	0.402	0.186	0.051	0.046

An Example Simulation

Change in:		Simulation			
		(1)	(2)	(3)	(4)
Extreme Poverty Headcount	Disposable Income			-0.013	-0.007
	Consumable Income	0.004	0.004	-0.011	-0.003
	Final Income	0.001	0.001	-0.007	-0.003
Poverty Headcount	Disposable Income			-0.022	-0.009
	Consumable Income	0.009	0.005	-0.013	0.000
	Final Income	0.008	0.005	-0.015	-0.002
Poverty Gap	Disposable Income			-0.010	-0.005
	Consumable Income	0.003	0.002	-0.008	-0.002
	Final Income	0.002	0.001	-0.006	-0.002
Gini	Disposable Income			-0.009	-0.004
	Consumable Income	-0.001	0.000	-0.010	-0.005
	Final Income	-0.001	0.000	-0.009	-0.005
Budgetary savings (share of GDP):		0.014	0.007	0.000	0.008

CEQ Assessment – Results for 25 Countries

- Two low-income countries: **Ethiopia** (Hill et al., 2016) and **Tanzania** (Younger et al., 2016)

- Nine lower middle-income countries: **Armenia** (Younger and Khachatryan, 2016), **Bolivia** (Paz-Arauco et al., 2014), **El Salvador** (Beneke, Lustig and Oliva, 2014), **Georgia** (Cancho and Bondarenko, 2016), **Ghana** (Younger et al., 2015), **Guatemala** (Cabrera, Lustig and Moran, 2015), **Honduras** (Castañeda and Espino, 2015), **Indonesia** (Afkar et al., 2016), and **Sri Lanka** (Arunatilake et al., 2016)

- Eleven upper middle-income countries: **Brazil** (Higgins and Pereira, 2014), **Colombia** (Lustig and Melendez, 2016), **Costa Rica** (Sauma and Trejos, 2014), **Dominican Republic** (Aristy-Escuder et al., 2016), **Ecuador** (Llerena et al., 2015), **Jordan** (Alam et al., 2016), **Mexico** (Scott, 2014), **Peru** (Jaramillo, 2014), **Russia** (Lopez-Calva et al., 2016), **South Africa** (Inchauste et al., 2016), and **Tunisia** (Shimeles et al., 2016)

- Two high-income countries: **Chile** (Martinez-Aguilar et al., 2016), and **Uruguay** (Bucheli et al., 2014).

- One unclassified: **Argentina** (Rossignolo, 2016)

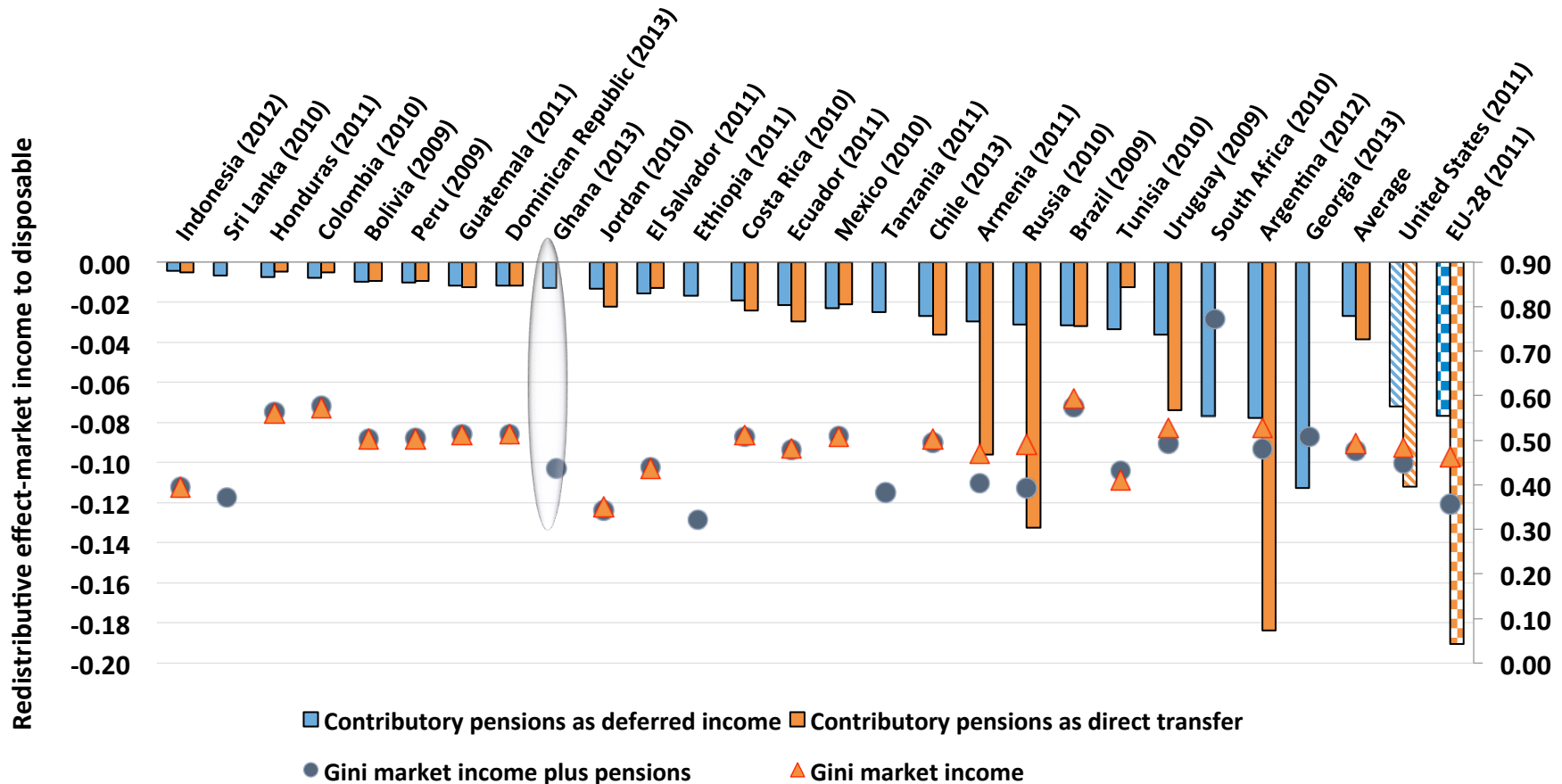# Fiscal Policy and Inequality – Contributory pensions as deferred income
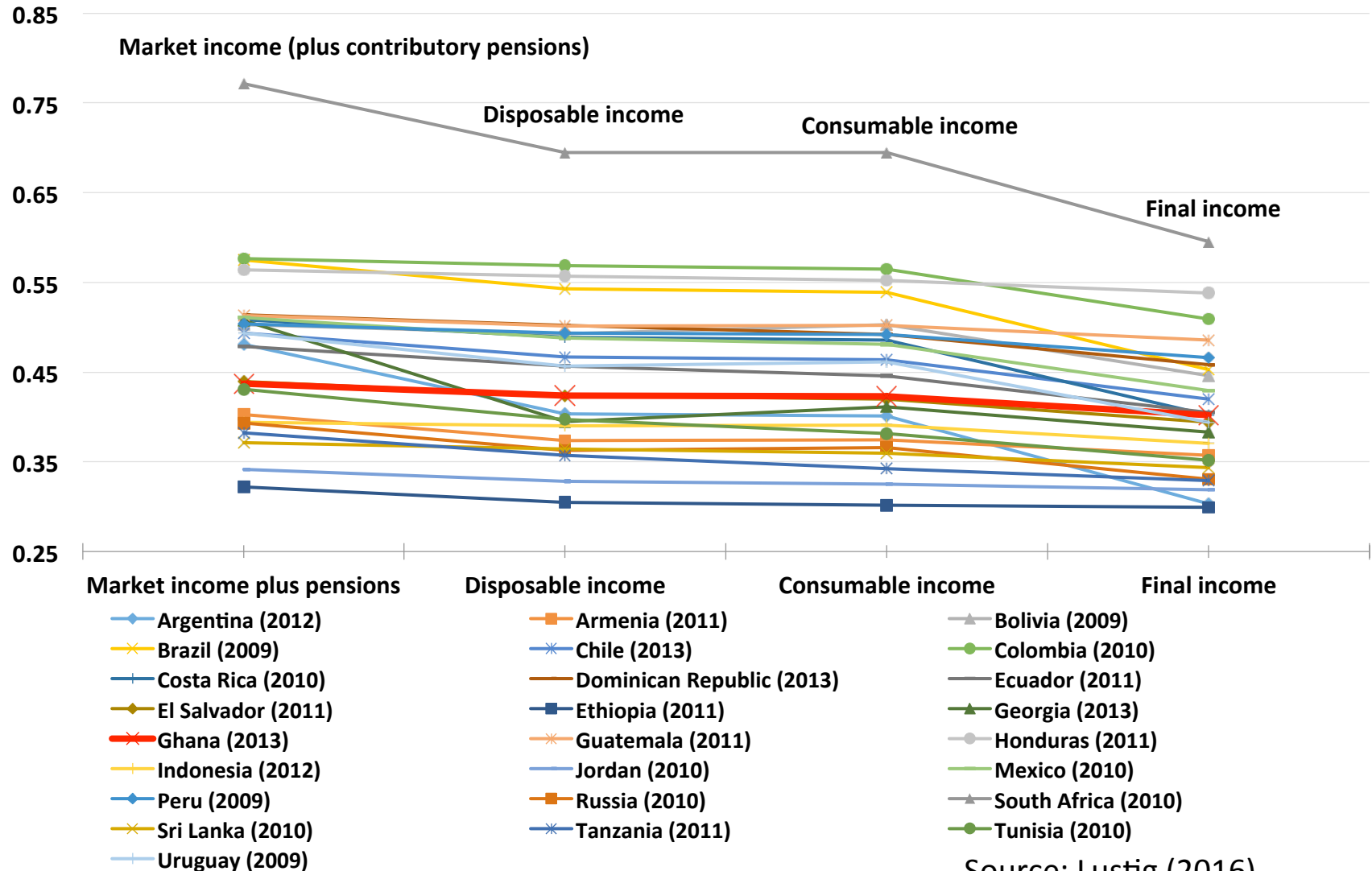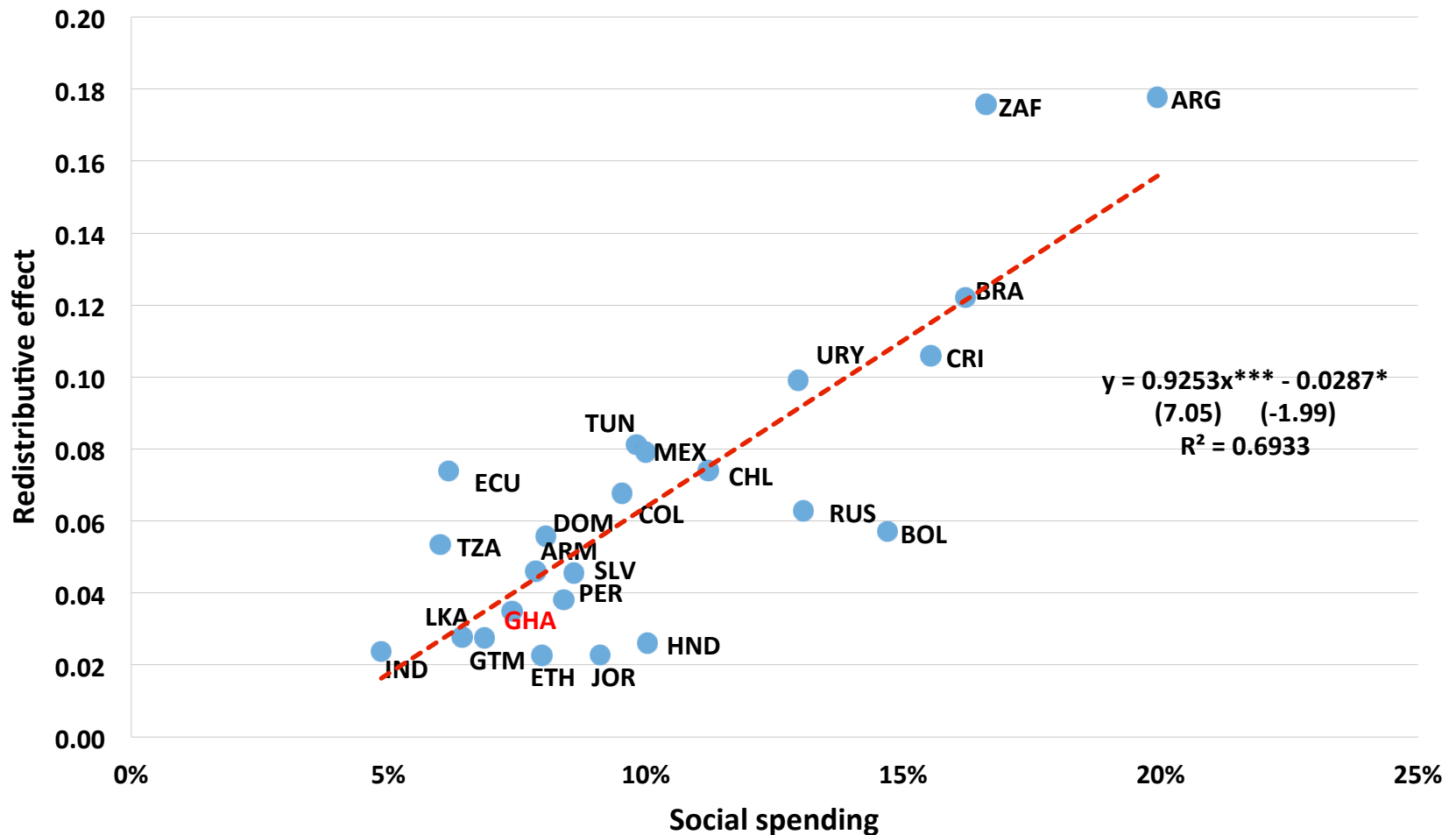
Source: Lustig (2016)

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

(ranked by redistributive effect (left hand scale); Gini coefficients right hand scale)
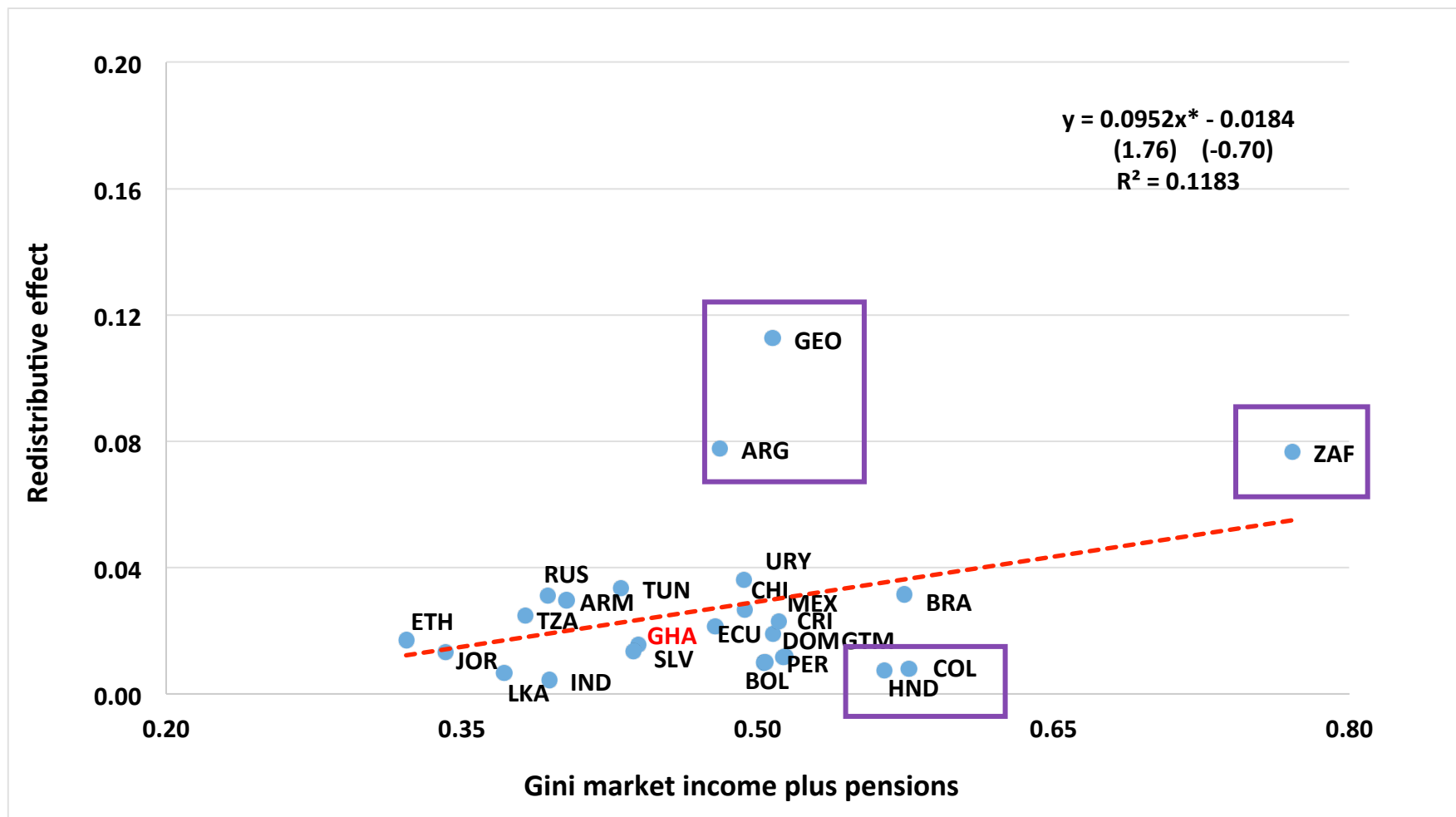
Source: Lustig (2016)

More social spending, more redistribution

Source: Lustig (2016)

More unequal, more redistribution
Consistent with Meltzer-Richard Median Voter Theorem - No "Robin Hood Paradox"

$y = 0.0952x* - 0.0184$
$(1.76) \quad (-0.70)$
$R^2 = 0.1183$

X-axis: **Gini market income plus pensions**

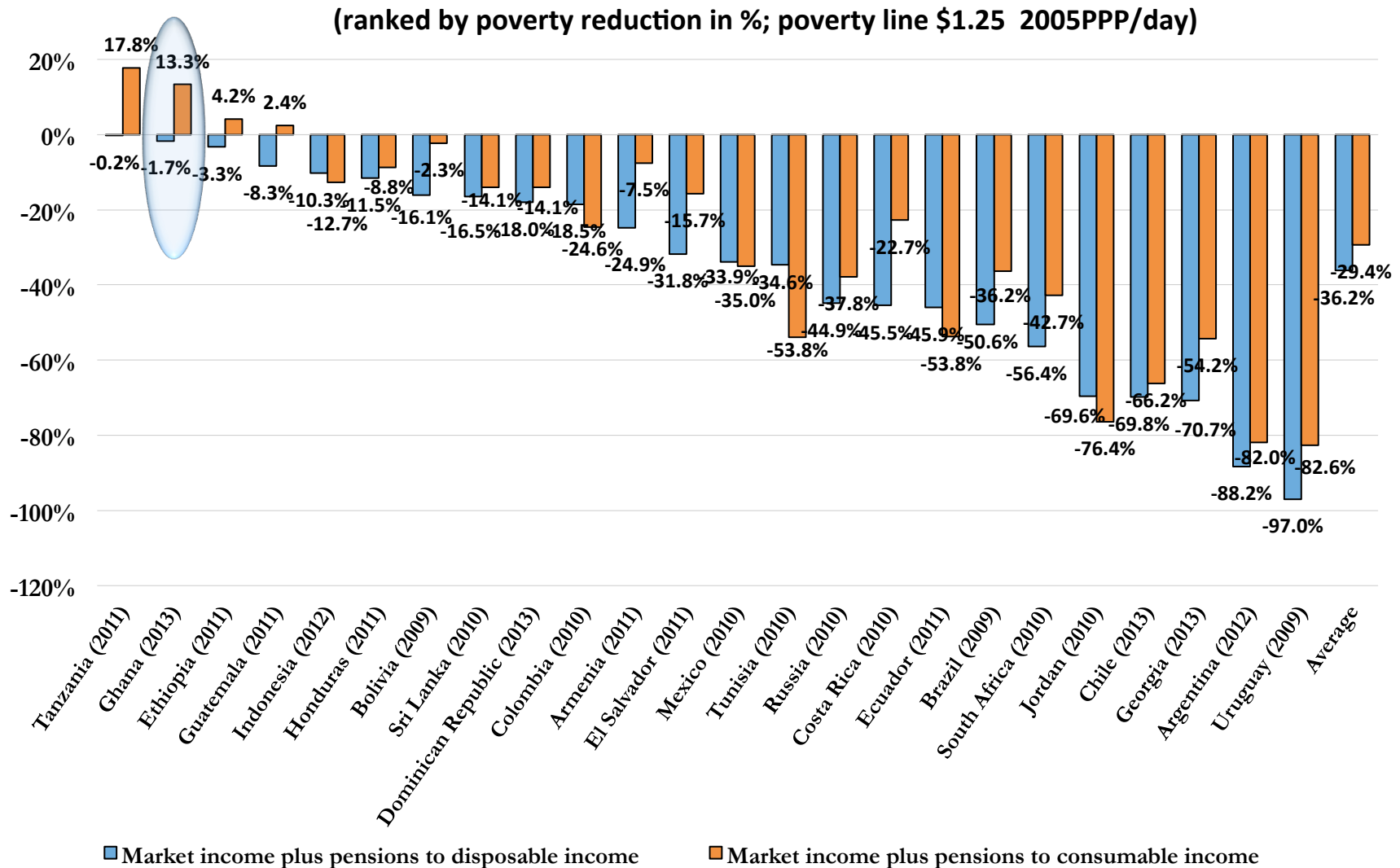Y-axis: **Redistributive effect**

Source: Lustig (2016)

In sum…

- In NO country, inequality increases as a result of taxes, subsidies and social spending

➢ Fiscal policy is always equalizing

➢ The more unequal, the more fiscal redistribution

Poverty Impact

- Fiscal policy can be equalizing but poverty increasing (in terms of the poor's ability to consume private goods and services):
  - ➢1.25/day line: Ethiopia, Ghana, Guatemala, Tanzania
  - ➢2.50/day line: Armenia, Bolivia, Ethiopia, Ghana, Guatemala, Honduras, Sri Lanka, Tanzania
  - ➢4/day line: all of the above plus Argentina, Brazil, Costa Rica and Tunisia

- This worrisome result stems mainly from consumption taxes

Fiscal Policy and Poverty Reduction

(Change in Headcount Ratio from Market to Consumable Income (Poverty line $1.25 / day 2005 ppp; Contributory Pensions as Deferred Income; in %)

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

■ Market income plus pensions to disposable income   ■ Market income plus pensions to consumable income

Source: Lustig (2016)

Fiscal Impoverishment

Analyzing the impact on traditional poverty indicators can be misleading

➢ Fiscal systems can show a reduction in poverty and yet a substantial share of the poor could have been impoverished by the combined effect of taxes and transfers

Higgins and Lustig (2016)
Can a poverty-reducing and progressive tax and transfer system hurt the poor?
Journal of Development Economics 122, 63-75, 2016

Fiscal Impoverishment
(Market to Consumable Income)

Country (survey year)	Market income plus pensions Poverty headcount (%)	Change in poverty headcount (p.p.)	Market income plus pensions inequality (Gini)	Reynolds-Smolensky	Change in inequality (▲Gini)	Fiscally impoverished as % of population	Fiscally Impoverished as % of consumable income poor
Panel A: Upper-middle income countries, using a poverty line of $2.5 2005 PPP per day							
Brazil (2009)	16.8	-0.8	57.5	4.6	-3.5	5.6	34.9
Chile (2013)	2.8	-1.4	49.4	3.2	-3.0	0.3	19.2
Ecuador (2011)	10.8	-3.8	47.8	3.5	-3.3	0.2	3.2
Mexico (2012)	13.3	-1.2	54.4	3.8	-2.5	4.0	32.7
Peru (2011)	13.8	-0.2	45.9	0.9	-0.8	3.2	23.8
Russia (2010)	4.3	-1.3	39.7	3.9	-2.6	1.1	34.4
South Africa (2010)	49.3	-5.2	77.1	8.3	-7.7	5.9	13.3
Tunisia (2010)	7.8	-0.1	44.7	8.0	-6.9	3.0	38.5
Brazil (2009)	16.8	-0.8	57.5	4.6	-3.5	5.6	34.9
Chile (2013)	2.8	-1.4	49.4	3.2	-3.0	0.3	19.2

Higgins and Lustig (2016)

Fiscal Impoverishment
(Market to Consumable Income)

Country (survey year)	Market income plus pensions Poverty headcount (%)	Change in poverty headcount (p.p.)	Market income plus pensions inequality (Gini)	Reynolds-Smolensky	Change in inequality (▲Gini)	Fiscally impoverished as % of population	Fiscally Impoverished as % of consumable income poor
Panel B: Lower-middle income countries, using a poverty line of $1.25 2005 PPP per day							
Armenia (2011)	21.4	-9.6	47.4	12.9	-9.3	6.2	52.3
Bolivia (2009)	10.9	-0.5	50.3	0.6	-0.3	6.6	63.2
Dominican Republic (2013)	6.8	-0.9	50.2	2.2	-2.2	1.0	16.3
El Salvador (2011)	4.3	-0.7	44.0	2.2	-2.1	1.0	27.0
Ethiopia (2011)	31.9	2.3	32.2	2.3	-2.0	28.5	83.2
Ghana (2013)	6.0	0.7	43.7	1.6	-1.4	5.1	76.6
Guatemala (2010)	12.0	-0.8	49.0	1.4	-1.2	7.0	62.2
Indonesia (2012)	12.0	-1.5	39.8	1.1	-0.8	4.1	39.2
Sri Lanka (2010)	5.0	-0.7	37.1	1.3	-1.1	1.6	36.4
Tanzania (2011)	43.7	7.9	38.2	4.1	-3.8	50.9	98.6

Higgins and Lustig (2016)

Main Messages of CEQ Work to Date

1. The popular view of many policies is often wrong
2. Analyzing the tax side without the spending side, or vice versa, can be misleading
3. Analyzing the impact on inequality only can be misleading
4. Analyzing the impact on traditional poverty indicators can be misleading
5. Richer countries redistribute more
6. Poorer countries rely mostly on subsidized services
7. More unequal countries redistribute more

Partnerships and Collaboration

- Preparation of CEQ Assessments in full or components

- Quality control of CEQ Assessments

- Training workshops

- Advisory services for staff and governments

- Cost-sharing arrangements vary depending on the contributions of partnering organization