Construction of Income Concepts and Components

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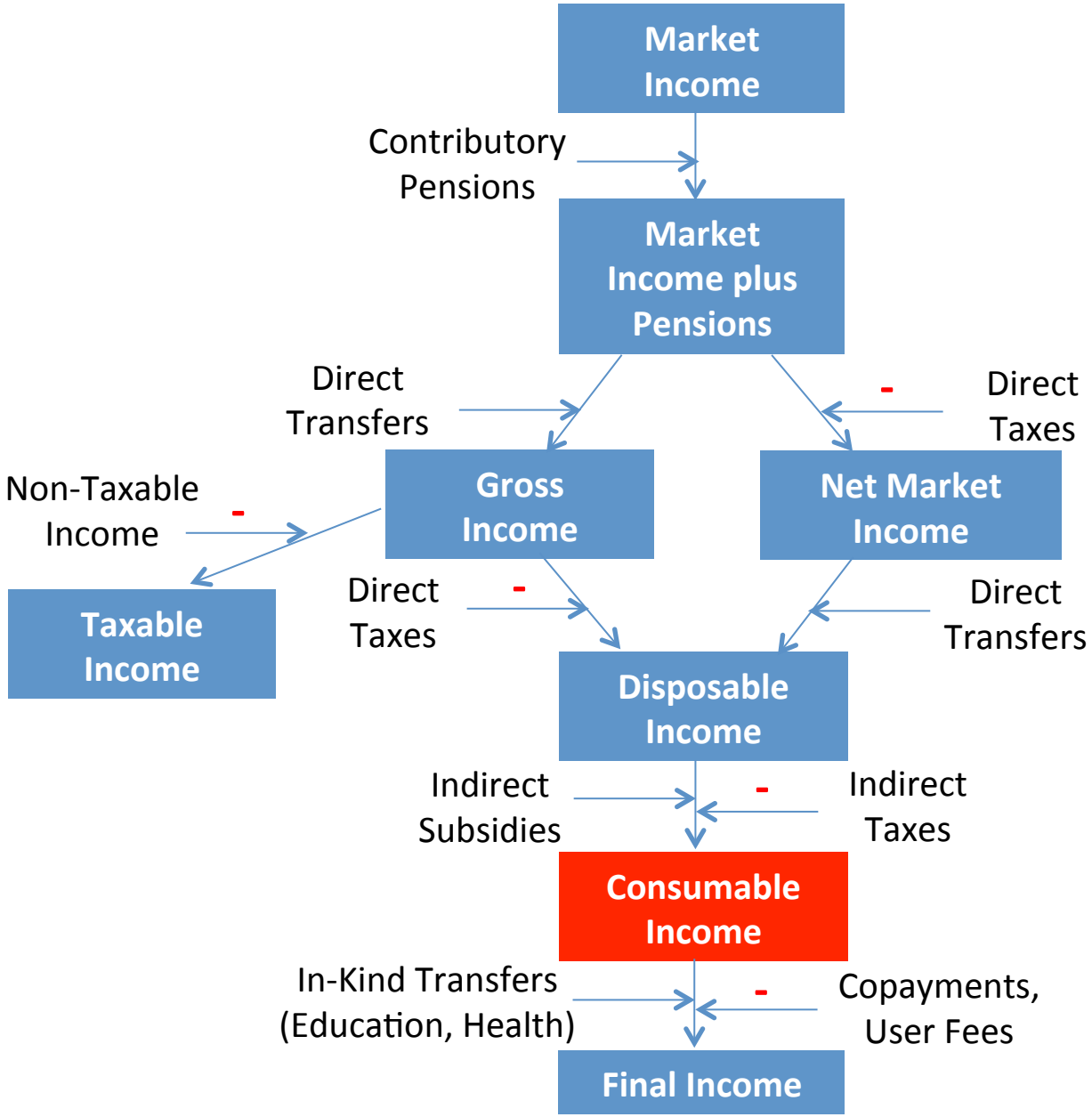
Learning Event on the Commitment to Equity Methodology

Commitment to Equity Institute, Tulane University,
and the World Bank
Washington, D.C. – February 1-3, 2016

Income Concepts

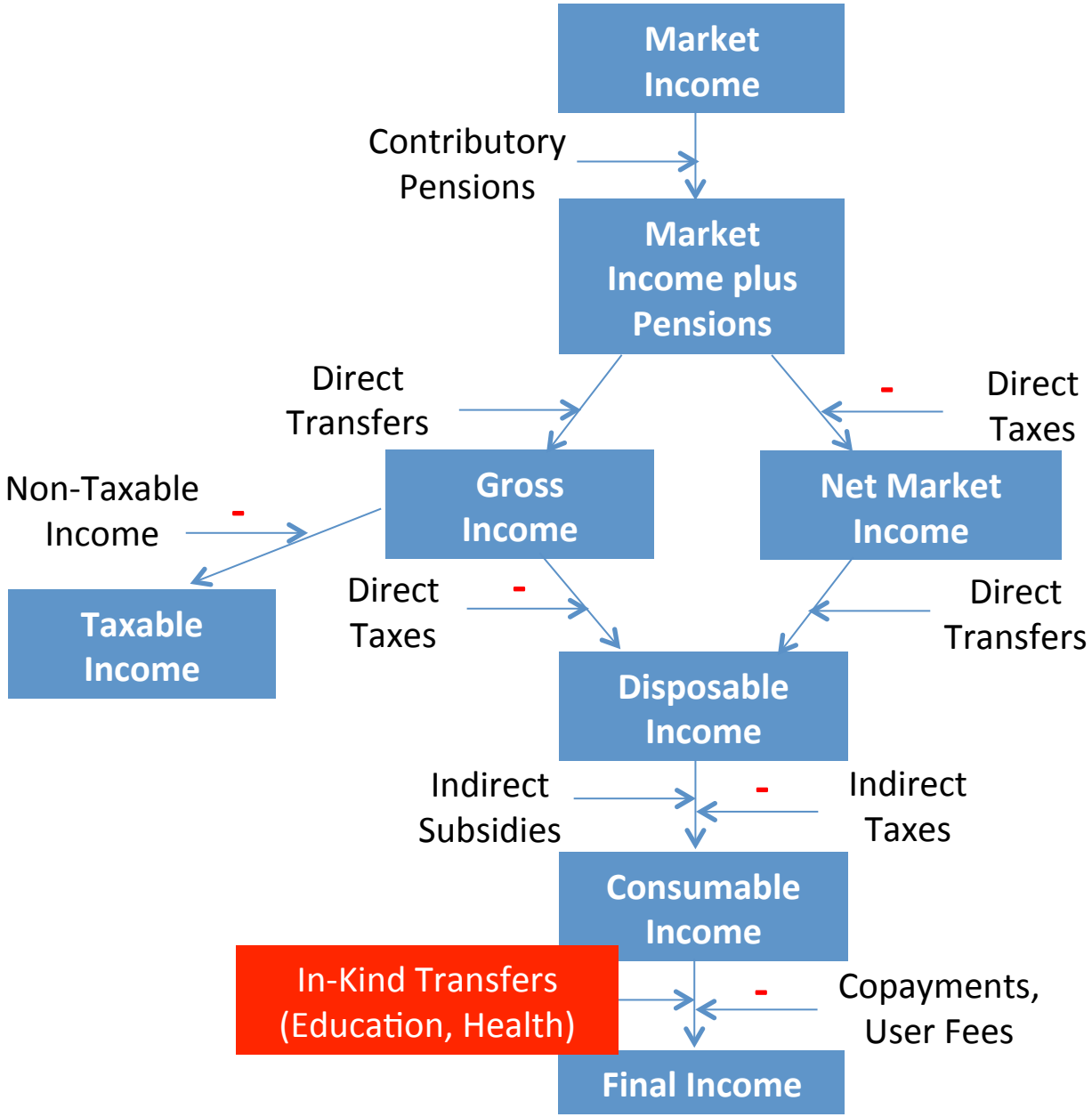


Consumable Income

- Consumable Income
  = Disposable Income
    + Indirect subsidies
    – Indirect taxes

$$c = d + B{\downarrow}i - T{\downarrow}i$$

Income Concepts



Education

- Valued at government cost for each level
  - Include recurring and investment spending
  - Include administrative costs
  - Possible levels:
    - Day care
    - Preschool
    - Primary
    - Secondary
    - Tertiary
- Disaggregate by geographic area if possible

Education

- Imputation method
  - Combine data in survey on who attends public school at each level with national accounts data on spending

If the survey doesn't specifically have a question about whether the child attends public vs. private school:

- Inference + Imputation
  - e.g., Sri Lanka
  - Use question from consumption module on whether household paid facility fees to government schools or school fees to private schools to infer whether child attends public
- Alternate Survey + Prediction + Imputation
  - See next slide

Education

- Alternate Survey + Prediction + Imputation
  - e.g., United States
  - Main survey asks whether the child attends school, but not public vs. private
  - Find alternate survey that has income data and public vs. private school attendance
  - For sample of children attending school, predict probability of attending public school using covariates common to both surveys as independent variables (probit in alternate survey)
  - Use coefficients to predict probability in main survey
  - Multiply probability by average spending per student by level
    - Expected value of benefit received

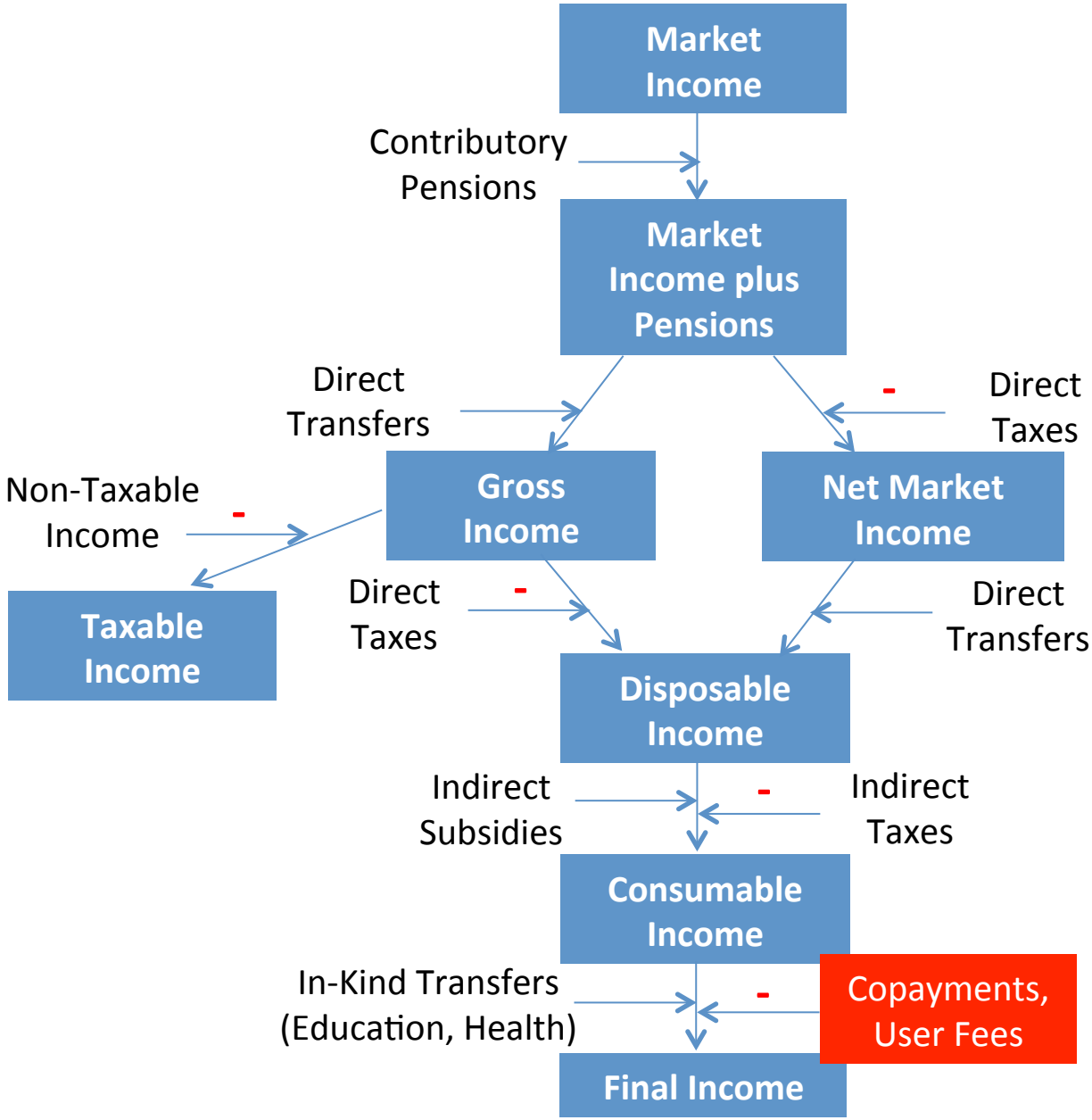
Health

- Two main systems: public facilities or public insurance
- Public facilities
  - Divide total spending in national accounts by number of visits in survey data to obtain spending per visit
  - Disaggregate by type of care as much as possible
    - Primary and in-patient care in Armenia, Indonesia
    - Basic health facility vs. hospital in Peru
    - Three levels of childbirth care in Bolivia
- Public insurance
  - Divide total spending in national accounts by number of covered individuals to obtain spending per insured
  - Disaggregate by age if possible
    - Spending on public health insurance varies greatly by age
  - Disaggregate by type of public health insurance if applicable
- Some countries: combination of both systems
- Disaggregate by geographic area if possible
  - e.g. Brazil: average spending for each care type-state cell

Health

- Imputation method
  - Combines data from national accounts on amount spent on public health facilities; public health insurance with survey data on who benefits
- Alternate Survey + Imputation
  - Find survey with income data and use of public health facilities or public insurance coverage
  - e.g., Guatemala, South Africa
- Prediction (shouldn't be necessary)
  - If national accounts spending on public health facilities or public health services is not available (very rare)
  - Predict cost of different services using spending on similar services at private facilities in consumption module
- Secondary Source (shouldn't be necessary)
  - Only if no information on use of health services or insurance coverage in main or alternate survey
  - e.g., Chile, Mexico

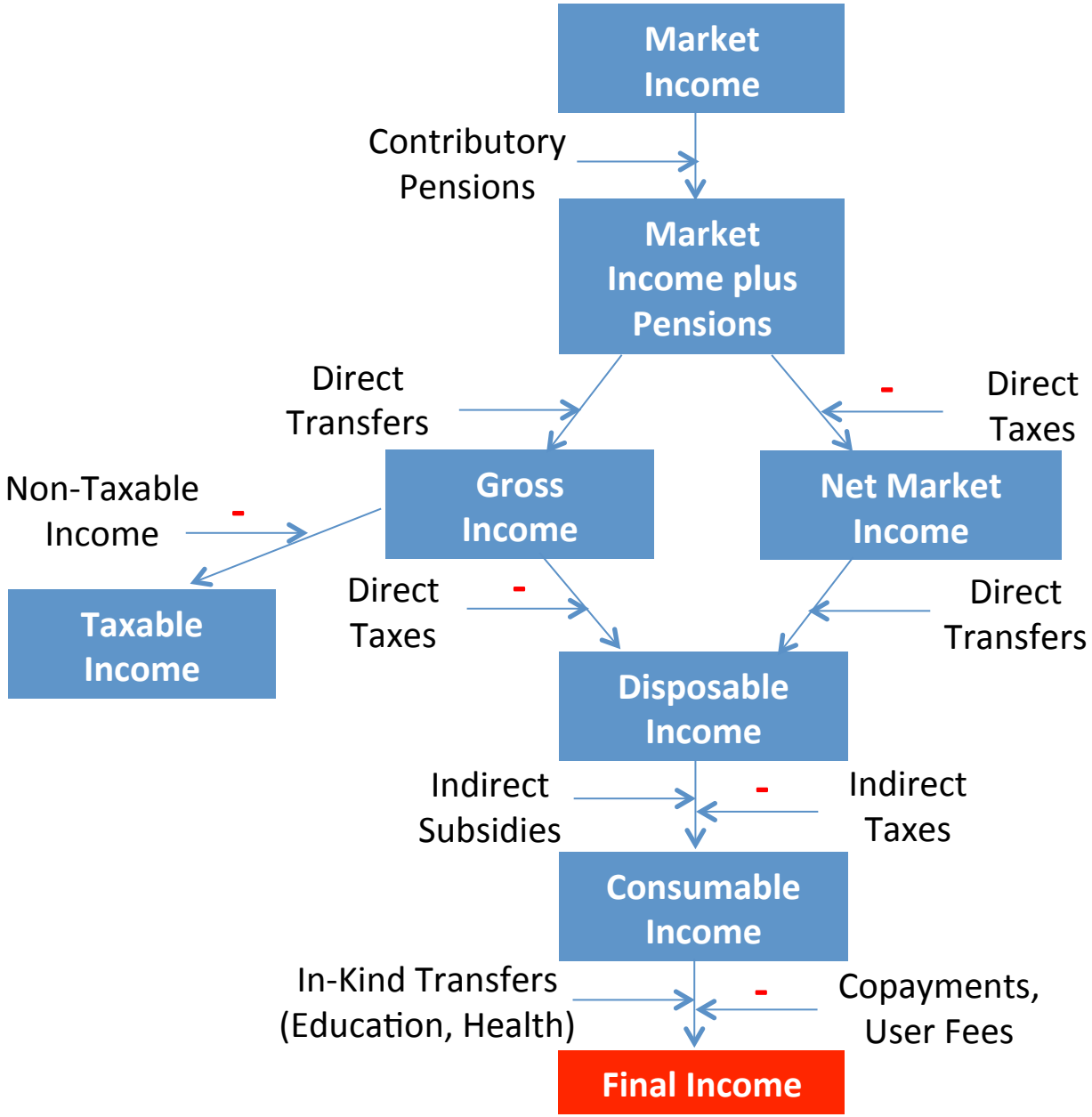
Income Concepts



User Fees

- Usually directly identified in survey if common in country
- These user fees can also be used to more accurately approximate education or health benefits
- Use local knowledge to determine most plausible scenario (see Wagstaff, 2012):
  - User fee is independent of benefit (use imputation method described before to calculate benefits)
    - e.g., health in Indonesia
  - Subsidized portion of health care is constant; user fee is total cost minus fixed subsidy
  - User fee is proportion of total cost of care
    - e.g., health in Jordan

Income Concepts



Final Income

- Final Income
  = Consumable Income
    + Education and Health Benefits
    – Co-payments and User Fees

$$f = c + B \downarrow k - F$$

Scaling Down

- For all income components imputed using amounts from national accounts
- Scale down benefits to avoid overestimating effect of that component
- Example: primary education benefits
  - Divide primary spending in national accounts by disposable income in national accounts to obtain the ratio *R*
  - Scale down primary education benefits in the survey until the ratio of primary education benefits in the survey to disposable income in survey also equals *R*

Comparing Brazil and US

Higgins, Lustig, Ruble, and Smeeding (2015)

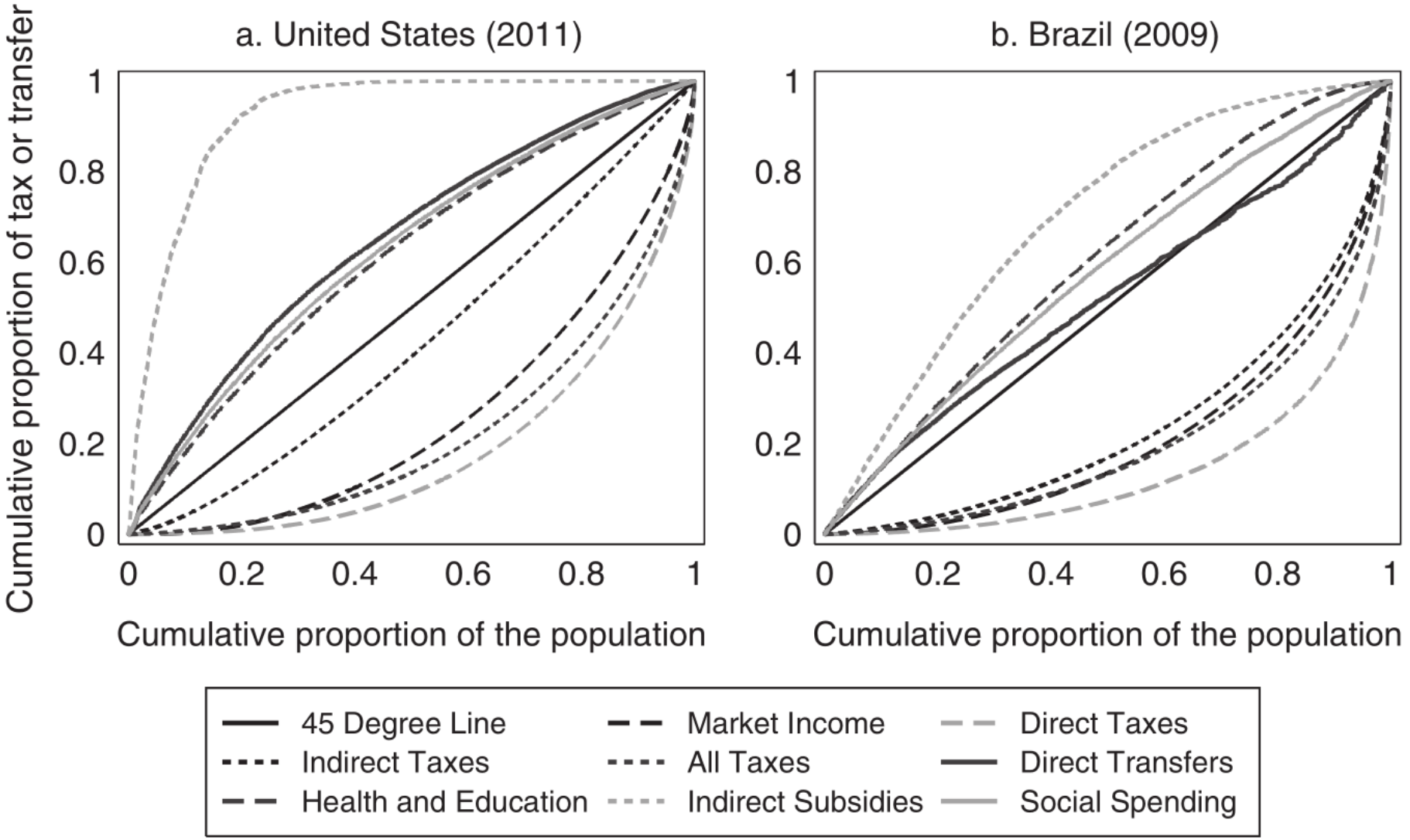
TABLE 1

INEQUALITY BY INCOME CONCEPT IN THE UNITED STATES (2011) AND BRAZIL (2009)

	Market Income	Gross Income	Disposable Income	Post-Fiscal Income	Final Income
Benchmark case (pensions as market income)					
United States					
Gini	0.446	0.415	0.376	0.380	0.319
Reduction (pp)[a]		–0.031	–0.070	–0.065	–0.127
Reduction (%)[b]		–0.069	–0.157	–0.147	–0.285
Brazil					
Gini[a]	0.548	0.528	0.513	0.510	0.431
Reduction (pp)[a]		–0.020	–0.036	–0.038	–0.117
Reduction (%)[b]		–0.037	–0.065	–0.069	–0.214
Sensitivity analysis (pensions as transfers)					
United States					
Gini[a]	0.481	0.415	0.372	0.376	0.314
Reduction (pp)[a]		–0.067	–0.109	–0.105	–0.168
Reduction (%)[b]		–0.139	–0.227	–0.218	–0.348
Brazil					
Gini[a]	0.570	0.530	0.512	0.509	0.428
Reduction (pp)[a]		–0.040	–0.058	–0.061	–0.142
Reduction (%)[b]		–0.069	–0.102	–0.107	–0.250

Comparing Brazil and US

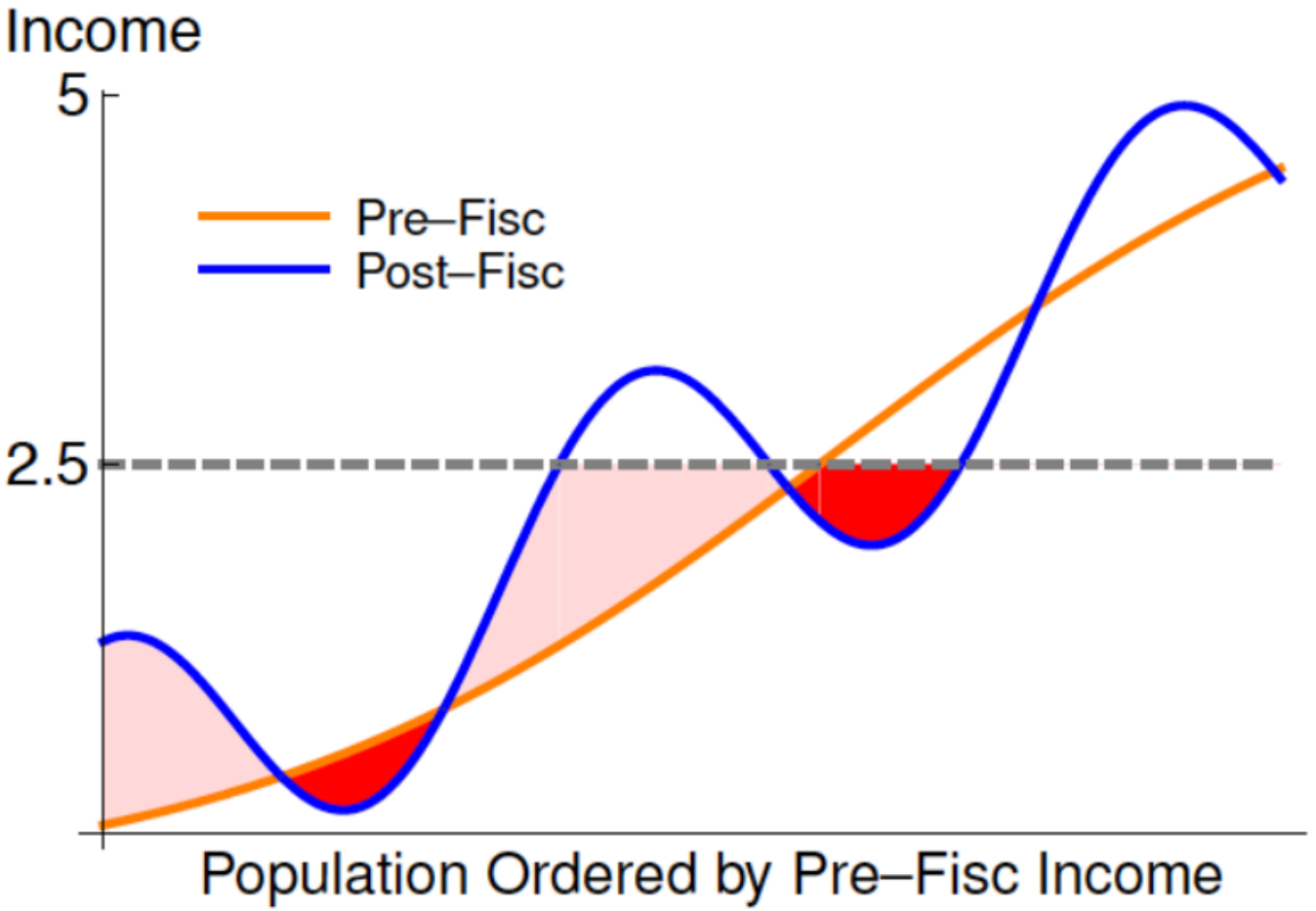
Higgins, Lustig, Ruble, and Smeeding (2015)



Fiscal Impoverishment

Higgins and Lustig (2015)

- Even if poverty decreases
  - Poor can be made poorer
  - Or non-poor made poor



Fiscal Impoverishment

Higgins and Lustig (2015)

- In Brazil ($2.50 PPP per day poverty line)
  - Inequality is reduced
  - Poverty is reduced
  - But one-third of the (consumable income) poor are made poorer (or non-poor made poor) by taxes and transfers
- There is **fiscal impoverishment** if

Income after taxes and transfers

Poverty line

$$y_i^1 < y_i^0 \text{ and } y_i^1 < z \text{ for some } i$$

Income before taxes and transfers

- There are **fiscal gains to the poor** if

$$y_i^1 > y_i^0 \text{ and } y_i^0 < z \text{ for some } i$$

Problems with Conventional Measures

Higgins and Lustig (2015)

Table 1: Summary of the Problems with Conventional Measures

Measure	Issue	Example with $\mathcal{Z} = (6, 10]$
Poverty (and stochastic dominance)	$\downarrow$ poverty $\not\Rightarrow$ no FI (anonymity)	$y^0 = (5, 8, 20)$, $y^1 = (9, 6, 18)$
Horizontal equity	Horizontally equitable $\not\Rightarrow$ no FI	$y^0 = (1, 1, 7, 7, 13)$, $y^1 = (3, 3, 6, 6, 11)$
	No FI $\not\Rightarrow$ horizontally equitable	$y^0 = (5, 5, 6, 20)$, $y^1 = (5, 7, 6, 18)$
Progressivity	Progressive $\not\Rightarrow$ no FI	$y^0 = (1, 3, 7, 13)$, $y^1 = (3, 4, 6, 11)$
	No FI $\not\Rightarrow$ progressive	$y^0 = (1, 3, 7, 14)$, $y^1 = (1, 5, 8, 11)$

Axiomatic Measure

Higgins and Lustig (2015)

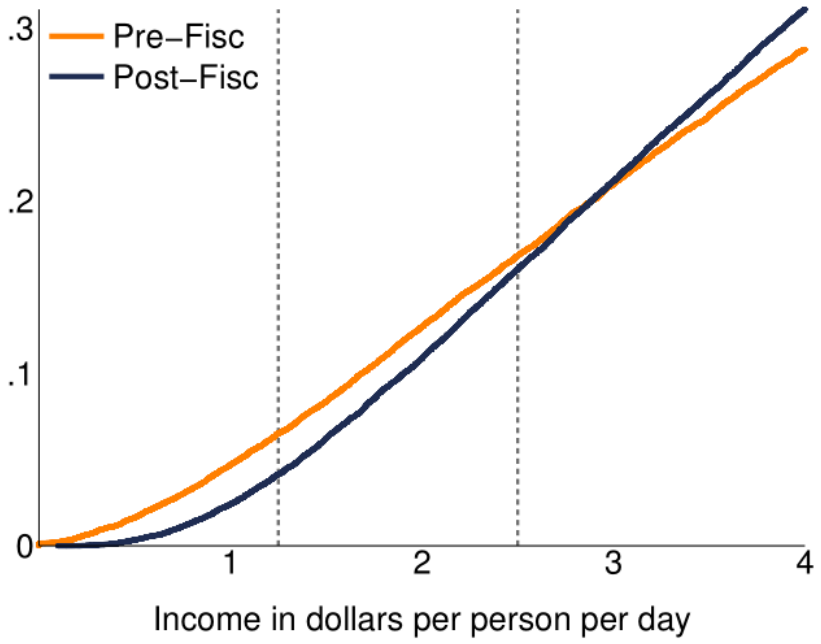
$$f(y^0, y^1; z) = k \sum_{i=1}^{n} \left(\min\{y_i^0, z\} - \min\{y_i^0, y_i^1, z\} \right)$$

- Pre-fisc poor and impoverished ($y_i^1 < y_i^0 < z$) contributes fall in income, $y_i^0 - y_i^1$
- Pre-fisc non-poor and impoverished ($y_i^1 < z \leq y_i^0$) contributes amount to transfer her back to poverty line, $z - y_i^1$
- Non-impoverished pre-fisc non-poor ($y_i^0 \geq z$ and $y_i^1 \geq z$) contributes $z - z = 0$
- Non-impoverished pre-fisc poor ($y_i^0 < z$ and $y_i^1 \geq y_i^0$) contributes $y_i^0 - y_i^0 = 0$

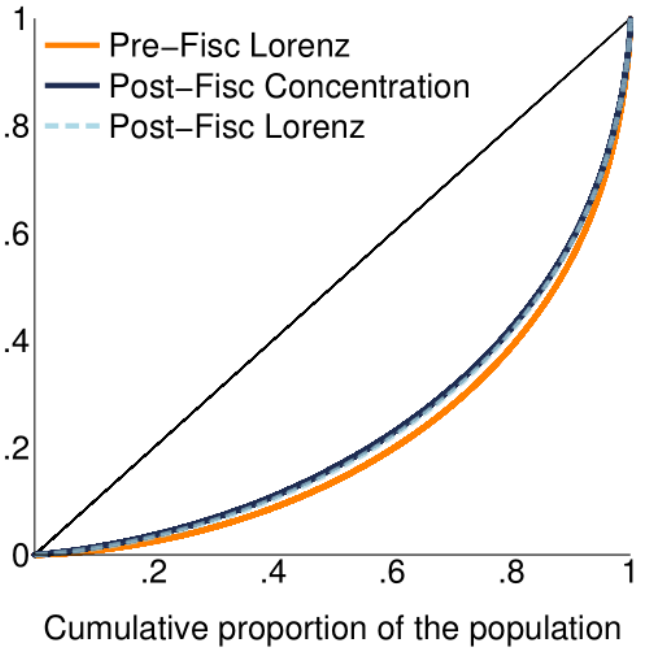
Conventional Measures in Brazil

Higgins and Lustig (2015)

(a) First Order Stochastic Dominance
(Cumulative Distribution Functions)



(b) Global Progressivity
(Lorenz and Concentration Curves)



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Fiscal Impoverishment in Brazil

Higgins and Lustig (2015)

- At the $2.50 per person per day poverty line:
  - 34.9% of the consumable income poor are fiscally impoverished
  - Total fiscal impoverishment of over $676 million, or 10% of budget of Bolsa Família
  - Fiscal impoverishment per impoverished person is about 8% of their income
  - Not all fiscally impoverished are excluded from safety net: for example, 65% receive Bolsa Familia

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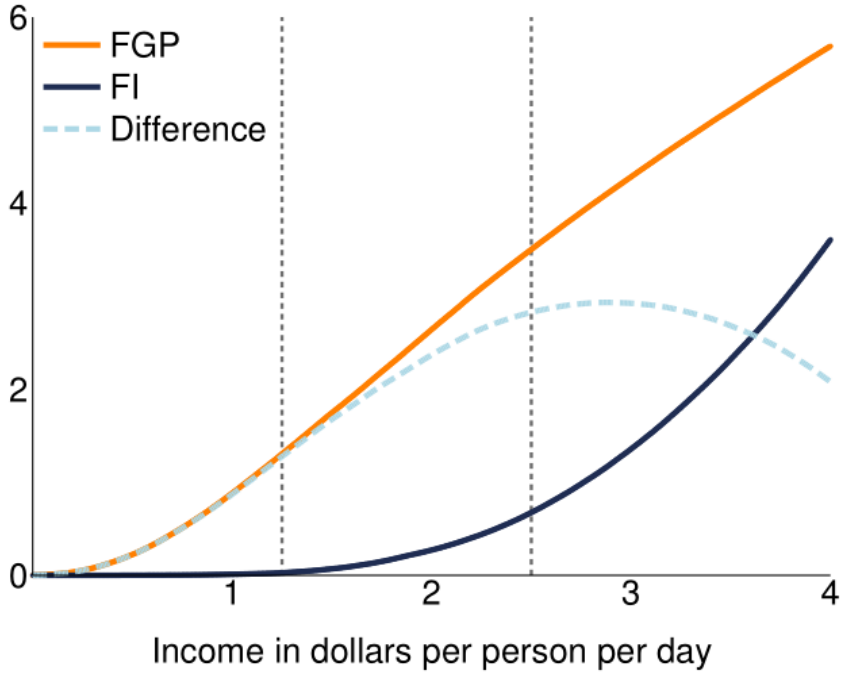
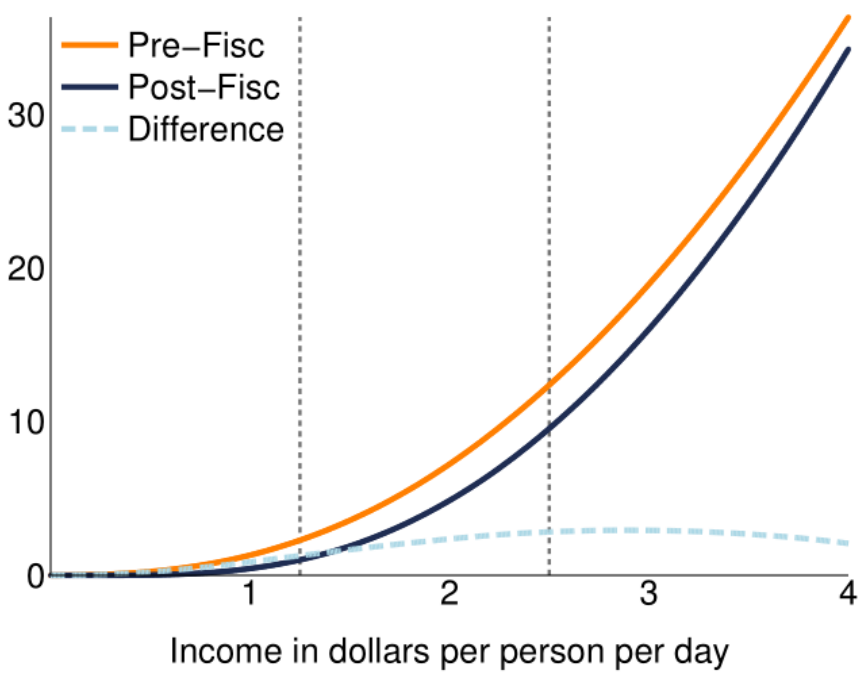
Decomposing the Poverty Gap

Higgins and Lustig (2015)

(a) Total FI and FGP
(Billions of Dollars per Year)



(b) Total Poverty Gaps
(Billions of Dollars per Year)



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