

Session 4

Fiscal Incidence Analysis in Practice

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Learning Event on the Commitment to Equity Methodology
Tulane University and the World Bank
Washington, DC
February 18 -20, 2015

This presentation is based on:

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, Center for Inter-American Policy and Research and Department of Economics, Tulane University and Inter-American Dialogue, September.

If you use materials from this presentation, please cite as shown.

CEQ Assessment: Objectives

- What is the impact of taxes and transfers on inequality and poverty?
- How equalizing are taxes and public spending?
- How effective is the fiscal system in reducing inequality and poverty?
- Who bears the burden of taxes and receives the benefits?
- How equitable is the use of education and health services?
- Fiscal policy and rural/urban, gender and ethnic inequalities
- Identify areas of potential policy reform to enhance the capacity of the state to reduce inequality and poverty through taxes and transfers

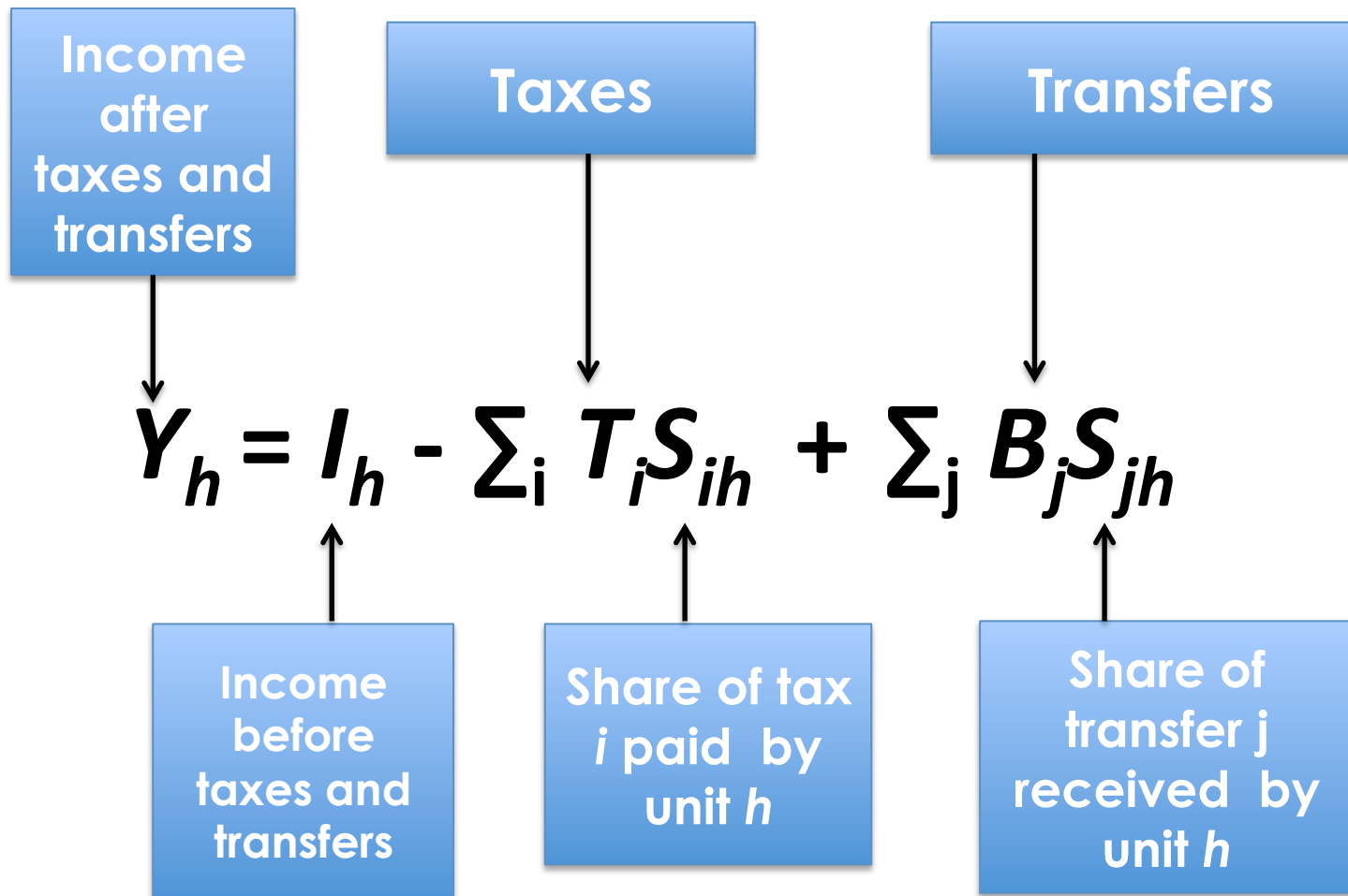
CEQ Assessments and Fiscal Incidence Analysis

- In order to answer the key questions regarding fiscal policy and redistribution, we need the income of individuals before and after fiscal interventions
- Method: fiscal incidence analysis
- Fiscal incidence analysis consists of methods to allocate taxes and public spending to individuals so that one can compare pre-fiscal incomes with incomes after taxes and transfers

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 B_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
- To generate the after or post taxes and transfers income...

Fiscal Incidence Equation



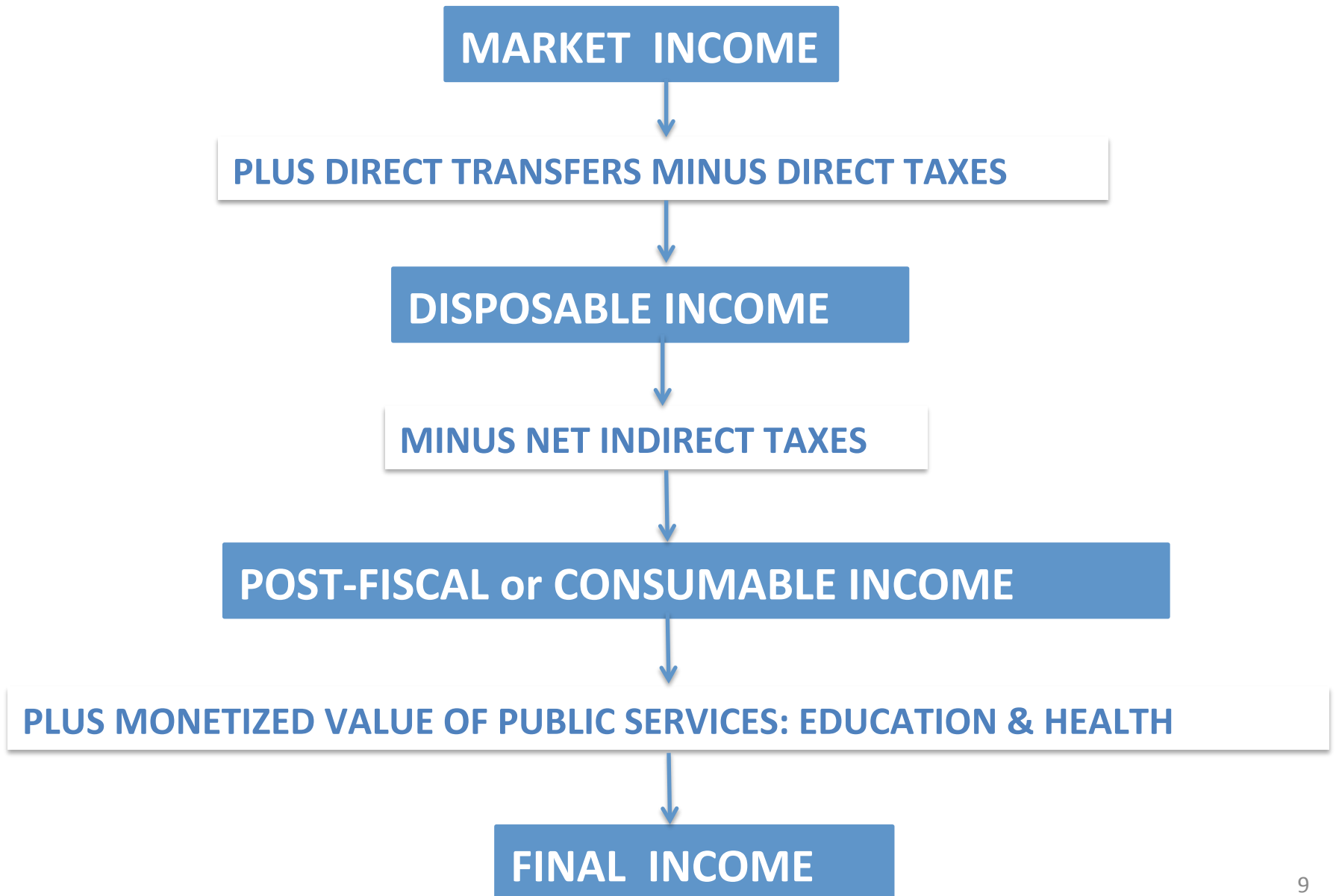
Fiscal Interventions

- Taxes
 - Direct taxes: mainly PIT (miss top incomes except in tax-based analysis)
 - Contributions to pensions and social insurance systems
 - Indirect taxes on consumption: VAT, excise taxes, tariffs

Fiscal Interventions

- Transfers
 - Direct cash transfers
 - Non-cash direct transfers such as school uniforms and breakfast
 - Indirect subsidies
 - In-kind transfers such as spending on education and health

Construction of Income Concepts



Fiscal Incidence in CEQ Assessments

- Accounting approach
 - no behavioral
 - no general equilibrium effects and
 - no intertemporal effects
 - but it incorporates assumptions to obtain economic incidence (not statutory)
- Point-in-time
- Mainly average incidence; a few cases with marginal incidence

Fiscal Incidence in CEQ Assessments

- Comprehensive standard fiscal incidence analysis of current systems: direct personal and indirect taxes (no corporate 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:
 - Simulation
 - Imputation
 - Inference
 - Prediction
 - Alternate Survey
 - Secondary Sources

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: 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?

Indicators

- Inequality and poverty:
 - Gini, Theil, Kuznetz ratios, ineq of opportunity
 - Headcount, poverty gap, squared poverty gap (international and national poverty lines)
 - Impoverishment and fiscal mobility
 - Inequality of Opportunity
- Effectiveness and Efficiency
 - Change in inequality or poverty divided by corresponding budget share or total spent
 - Poverty-reduction efficiency indicators
 - Tax productivity indicators

Indicators

- Progressivity
 - Incidence by quantile or income group
 - Concentration Shares
 - Concentration Curves
 - Concentration Coefficients, Kakwani, and Reynolds-Smolensky Index
- Vertical Equity and Reranking Effects

Indicators

- Measuring Contribution to Redistribution and Poverty-reduction
 - Classifying interventions by whether they are equalizing or unequalizing
 - Classifying interventions by whether they are equalizing or unequalizing
 - Ranking interventions by their marginal contribution to changes in inequality
 - Ranking interventions by their marginal contribution to changes in poverty

Indicators

- Coverage of social programs by quantile and income group
- Average per capita transfer received by the poor
- Share of benefits going to the nonpoor
- Average per capita transfer received by the nonpoor
- Gross and net enrollment indicators by income group

Scenarios and Robustness Checks

- Benchmark scenario
- Sensitivity to:
 - Changing the original income by which hh are ranked: e.g., market income plus contributory pensions and disposable income
 - Using consumption vs. income
 - Per capita vs. equivalized income or consumption
 - Different assumptions on scaling-down or up
 - Different assumptions on take-up of transfers and tax shifting and evasion
 - Alternative valuations of in-kind services
 - Other sensitivity scenarios: country-specific

Robustness Check

Example from South Africa: Income vs. Consumption-based Analysis

South Africa Gini estimates

	Income based scenario	Consumption based scenario
Market income	0.771	0.723
Disposable income	0.704	0.634
Post-fiscal income	0.700	0.628
Final income	0.601	0.514

Fiscal Incidence Analysis

Data Requirements

- Ideally a nationwide Income-Expenditure household survey as recent as possible; however, methodological adaptations exist for consumption-only and income-only surveys (for the latter, CEQ uses matching techniques to a survey with consumption data)
- Fiscal budget data for same year as survey by spending and revenue lines
- Macroeconomic and poverty data for context and checking
- Detailed information on individual direct and indirect taxes, cash transfers, pension system/s, public education and healthcare systems, and indirect subsidies

Fiscal Incidence Analysis

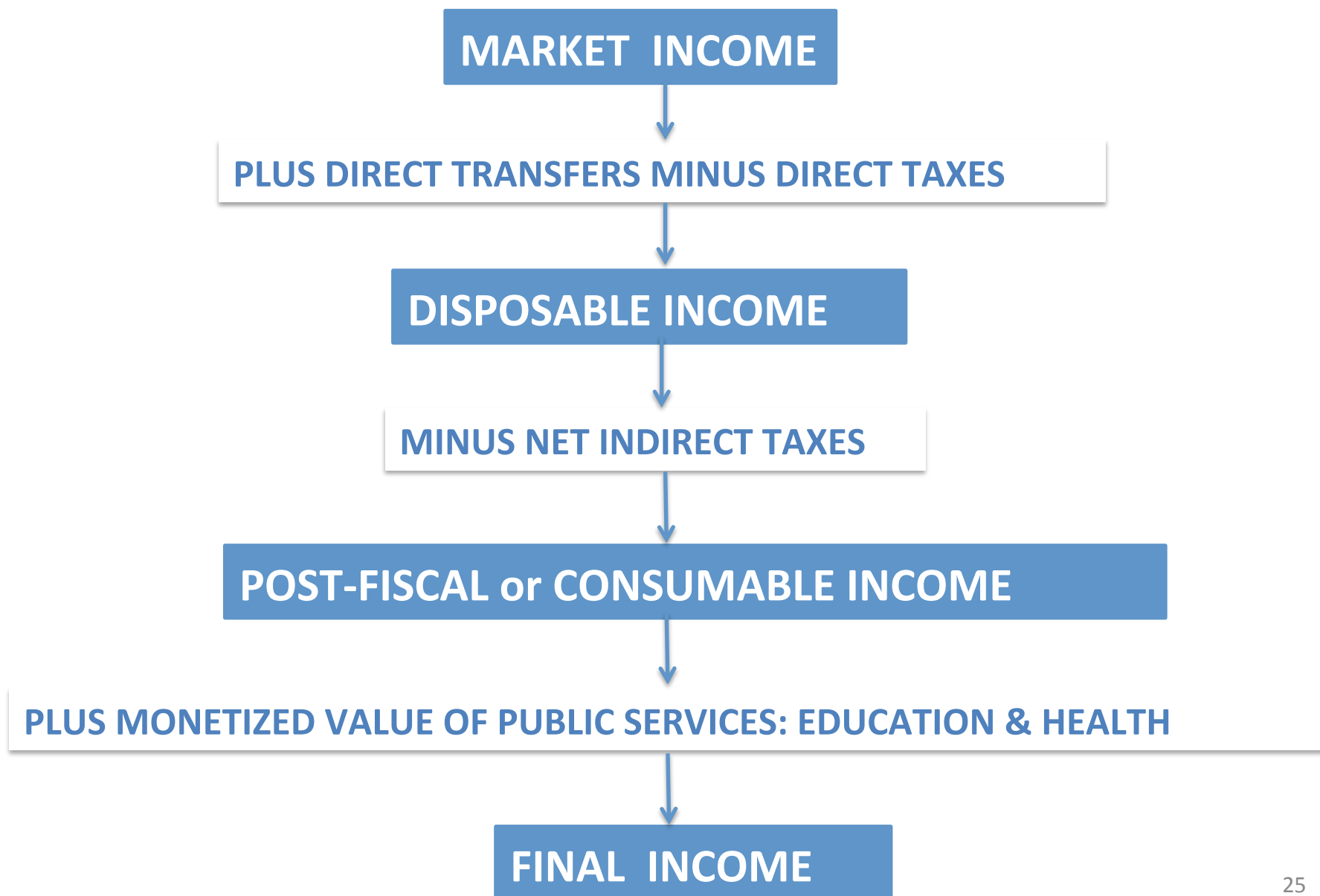
Recommended Team Structure

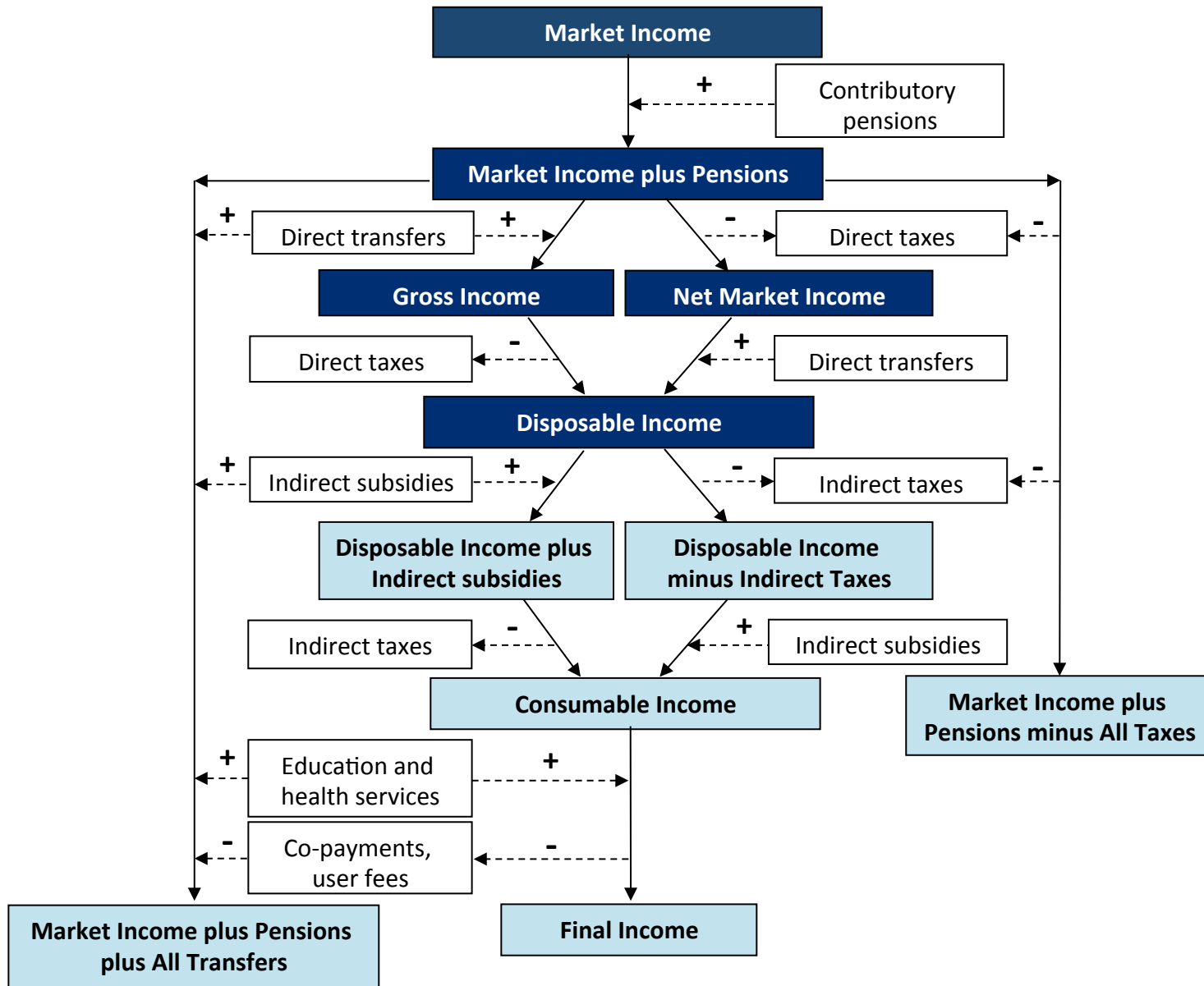
- Econometrician/poverty analyst: works with HH survey and macro data to generate CEQ Assessment
- Institutional expert (in country): provides detailed information on tax and transfer system as well as macro and fiscal data
- RA to support preparation of MWB
- Team size: from 2 (1 senior and 1 RA) to 10 (World Bank projects)

Fiscal Incidence Analysis Software

- Stata: ideally, Stata 13 (includes command to send results directly to MWB); previous Stata versions will need to do it manually
- Compilation of information: Excel for Master Workbook

Construction of Income Concepts





Thank you!