Fiscal Incidence Analysis in Theory and Practice

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Workshop
The Distributional Impact of Fiscal Policy
The World Bank and Tulane University

Washington, DC – June 10, 2013
Suppose you want to know…

Assessment of current fiscal system or parts of it:

• What is the impact of taxes and government transfers on inequality and poverty?

• Who are the net tax payers to the “fisc” (with and without imputing benefits from in-kind transfers)?

• How equitable is access to government education and/or health services? By income, gender, ethnic origin, for example.

• How progressive is taxation and spending (as a whole and by categories)?
Suppose you want to know…

Impact of hypothetical or actual reforms:

• How do inequality and poverty change when you eliminate VAT exemptions?
• Who benefits from the elimination of user fees in primary education or the expansion of noncontributory pensions?
• Who loses from the elimination of energy subsidies?
Types of Incidence Analysis

- Standard vs. Behavioral, CGEs, Intertemporal
- Partial vs. Comprehensive
- Average vs. Marginal
Welfare Indicator

• Income vs. Consumption
• Current vs. Lifetime
• Per capita vs. equivalized
Basic elements of “applied” standard incidence

Start with:
• Pre-tax/pre-transfer income/consumption of unit $h$, or $I_h$
• Taxes/transfers programs $T_i$
• “Allocators” of program $i$ to unit $h$, or $S_{ih}$
  (or the share of program $i$ borne by unit $h$)

Then, post-tax/post-transfer income of unit $h$ ($Y_h$) is:

$$Y_h = I_h - \sum_i T_i S_{ih}$$
Allocation Methods

Direct Identification in microdata

If not in microdata, then:
  – (micro) Simulation: statutory vs. tax shifting or take-up assumptions
  – Imputation
  – Inference
  – Alternate Survey
  – Secondary Sources
Allocation Methods

- Tax shifting assumptions
- Tax evasion assumptions
- Take-up of cash transfers programs
- Monetizing in-kind transfers
Commitment to Equity Assessments (CEQ) for Latin America

- Comprehensive standard fiscal incidence analysis of current systems
- No behavior and no general equilibrium effects
- Harmonizes definitions and methodological approaches to facilitate cross-country comparisons
- Uses income per capita as the welfare indicator
- Allocators vary => full transparency in the method used for each category, tax shifting assumptions, etc.
- Mainly average incidence; a few cases with marginal incidence

- Argentina: Nora Lustig and Carola Pessino
- Bolivia: George Gray Molina, Wilson Jimenez, Veronica Paz and Ernesto Yañez
- Brazil: Sean Higgins and Claudiney Pereira
- Mexico: John Scott
- Peru: Miguel Jaramillo
- Uruguay: Marisa Bucheli, Nora Lustig, Maximo Rossi and Florencia Amabile
BENEFITS

Market Income
Wages and salaries, income from capital, private transfers; contributory pensions

Net Market Income

Direct transfers

Disposable Income

Indirect subsidies

Post-fiscal Income

In-kind transfers (free government services in education and health)

Final Income

TAXES

Personal income and payroll taxes

Indirect taxes

Co-payments, user fees
What is the impact of taxes and government transfers on inequality and poverty?
Gini Before and After Taxes, Transfers, Subsidies and Free Government Services
Headcount: Before and After Cash Transfers

<table>
<thead>
<tr>
<th>Country</th>
<th>Net Market Income</th>
<th>Disposable Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolivia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uruguay</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Argentina: 0.00%
- Bolivia: 5.00%
- Brazil: 10.00%
- Mexico: 15.00%
- Peru: 20.00%
- Uruguay: 25.00%
Headcount Ratio Before and After Indirect Taxes
Who are net payers to the “fisc”

Without including in-kind transfers
Incidence of Taxes and Cash Transfers
Net Change in Income after Direct and Indirect Taxes and Transfers by Decile

Graph showing the net change in income after direct and indirect taxes and transfers for different income deciles in various countries: Bolivia, Brazil, Mexico, Peru, and Uruguay.
Fiscal Incidence of Income, Taxes and Transfers, by Socioeconomic Groups

<table>
<thead>
<tr>
<th></th>
<th>Market Income Shares</th>
<th>Post-Fiscal Income</th>
<th>Market Income Shares</th>
<th>Post-Fiscal Income</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BOLIVIA (2009)</strong></td>
<td></td>
<td></td>
<td><strong>MEXICO (2008)</strong></td>
<td></td>
</tr>
<tr>
<td>Poor (&lt;$4)</td>
<td>29.1%</td>
<td>4.0%</td>
<td>Poor (&lt;$4)</td>
<td>23.8%</td>
</tr>
<tr>
<td>Vulnerable ($4-$10)</td>
<td>38.8%</td>
<td>-1.5%</td>
<td>Vulnerable ($4-$10)</td>
<td>38.0%</td>
</tr>
<tr>
<td>Middle Class ($10-$50)</td>
<td>30.8%</td>
<td>-1.9%</td>
<td>Middle Class ($10-$50)</td>
<td>35.3%</td>
</tr>
<tr>
<td>Rich (&gt;50)</td>
<td>1.3%</td>
<td>-1.2%</td>
<td>Rich (&gt;50)</td>
<td>2.9%</td>
</tr>
<tr>
<td>Total population</td>
<td>100.0%</td>
<td>-1.4%</td>
<td>Total population</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

| **BRAZIL (2009)**   |                      |                    | **PERU (2009)**      |                    |
| Poor (<$4)          | 26.7%                | 15.1%              | Poor (<$4)           | 28.6%              | 3.4%              |
| Vulnerable ($4-$10) | 33.5%                | -7.1%              | Vulnerable ($4-$10)  | 37.5%              | -2.5%             |
| Middle Class ($10-$50) | 35.3%            | -14.0%             | Middle Class ($10-$50) | 32.0%        | -9.9%             |
| Rich (>50)          | 4.5%                 | -20.7%             | Rich (>50)           | 2.0%               | -17.8%            |
| Total population    | 100.0%               | -13.7%             | Total population     | 100.0%             | -8.5%             |
How equitable is access to in-kind transfers in education?
Example of Assessing Equity in Access Concentration Coefficients Public Education in Mexico 1992-2010

Concentration Coefficients: Mexican Education Spending
How progressive is taxation and spending (as a whole and by categories)?
## Progressivity

Kakwani Index for Taxes: Red= regressive

<table>
<thead>
<tr>
<th></th>
<th>Direct Taxes</th>
<th>Indirect Taxes</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>na</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Bolivia</td>
<td>ne</td>
<td>-0.20</td>
<td>-0.20</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.27</td>
<td>-0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.25</td>
<td>0.02</td>
<td>0.12</td>
</tr>
<tr>
<td>Peru</td>
<td>0.43</td>
<td>0.05</td>
<td>0.11</td>
</tr>
<tr>
<td>Uruguay</td>
<td>0.25</td>
<td>-0.05</td>
<td>0.07</td>
</tr>
</tbody>
</table>
# Progressivity

Concentration Coefficients for Transfers

Green = progressive in abs terms

<table>
<thead>
<tr>
<th>Country</th>
<th>Direct Transfers</th>
<th>Education</th>
<th>Health</th>
<th>Social Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>-0.31</td>
<td>-0.20</td>
<td>-0.23</td>
<td>-0.15</td>
</tr>
<tr>
<td>Bolivia</td>
<td>-0.08</td>
<td>-0.02</td>
<td>-0.04</td>
<td>-0.04</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.03</td>
<td>-0.16</td>
<td>-0.12</td>
<td>-0.08</td>
</tr>
<tr>
<td>Mexico</td>
<td>-0.30</td>
<td>-0.09</td>
<td>0.04</td>
<td>-0.06</td>
</tr>
<tr>
<td>Peru</td>
<td>-0.48</td>
<td>-0.17</td>
<td>0.18</td>
<td>-0.02</td>
</tr>
<tr>
<td>Uruguay</td>
<td>-0.47</td>
<td>-0.11</td>
<td>-0.10</td>
<td>-0.16</td>
</tr>
</tbody>
</table>
THANK YOU