The Impact of Taxes and Social Spending on Inequality and Poverty in Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay: An Overview

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• Papers form part of Tulane Univ and Inter-American Dialogue’s Commitment to Equity project (CEQ)
• Special issue: Lustig, Pessino and Scott. Editors. Public Finance Review (forthcoming)
  – 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
What is CEQ

The Commitment to Equity (CEQ) is a joint project of CIPR and the Department of Economics at Tulane University and the Inter-American Dialogue. Directed by Nura Lustig and Peter Hakim, the CEQ was designed to analyze the impact of taxation and social spending on inequality and poverty in individual countries, and provide a roadmap for governments, multilateral institutions, and non-governmental organizations in their efforts to build more equitable societies.
Methodology: Standard Incidence Analysis

- Pre-tax/pre-transfer income 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 tax/program $i$ borne/received by unit $h$)
- Then, post-tax/post-transfer income of unit $h$ ($Y_h$) is:

\[ Y_h = I_h - \sum_i T_i S_{ih} \]
Standard Fiscal Incidence Analysis

• Pre-tax and benefits incomes

• Allocators of taxes and benefits
  – personal income and consumption taxes
  – social spending: cash transfers and in-kind transfers (education and health)
  – Consumption subsidies

• Post-tax and benefits incomes

• Countries (yr of Survey): Argentina (2009), Bolivia (2007), Brazil (2009), Guatemala (2009), Mexico (2008), Peru (2009), Uruguay (2009), Paraguay (2010)
**BENEFITS**

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

→

**TAXES**
Personal income and payroll taxes

**Net Market Income**

+ →

**Direct transfers**

- →

**Disposable Income**

+ →

**Indirect subsidies**

- →

**Post-fiscal Income**

+ →

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

- →

**Final Income**

+ →

**Co-payments, user fees**
Results

• Wide variation among countries in:
  – policy choices (or outcomes of political processes?)
  – impact of those choices on income redistribution and poverty reduction
Government size varies greatly in Latin America

- Government spending is around 40 percent of GDP in Argentina and Brazil—similar to that of some European nations with larger welfare states
- ...while it is only around 20 percent in Mexico and Peru
Redistributive Impact Heterogeneous

- Taxes and transfers reduce inequality by nontrivial amounts in Argentina, Brazil, and Uruguay, less so in Mexico, and relatively little in Bolivia and Peru.
- Argentina, Bolivia, Mexico, Peru and Uruguay start from similar Market Income Gini’s but end in very different places with Final Income.
- Brazil has the highest Market Income Gini by several orders of magnitude but ends up with a lower Final Income Gini than Bolivia and Peru.
- Although Bolivia has a larger state, it redistributes very little while Uruguay redistributes a great deal.
REDISTRIBUTION

Tracking the Gini coefficient from Market to Final Income

![Graph showing the Gini coefficient from Market to Final Income for different countries.

- Argentina
- Bolivia
- Brazil
- Mexico
- Peru
- Uruguay

Graph indicates a decrease in Gini coefficient from Market to Final Income, with each country showing a unique pattern.]
Direct Taxes Progressive but Underutilized

- Personal income tax varies from around five percent of GDP in Uruguay to nearly zero in Bolivia
- In all countries in which they exist, direct taxes are progressive, but because direct taxes are a small percentage of GDP almost everywhere, their redistributive impact is small
Cash Transfers Powerful Redistributive Mechanism only when Targeted and of Significant Magnitude

• Cash transfers reduce extreme poverty by more than 60 percent in Uruguay and Argentina...

....but only by 7 percent in Peru, which spends too little on cash transfers to achieve much poverty reduction
Poverty Reduction: Brazil and Mexico

• **Brazil** and **Mexico** have similar GDP/capita and although Brazil starts with a significantly higher poverty rate, they have a similar post cash transfers rate

• **Brazil** has a larger state and spends more than **Mexico** on cash transfers: coverage among extreme poor in Brazil is over 90% while it is less than 70% in Mx

• Poverty reduction in **Brazil** could be enhanced with better targeting of cash transfers or by expanding cash transfers that are targeted to the poor

• Poverty reduction in **Mexico** could be enhanced by expanding cash transfers that are targeted to the poor
• Bolivia spends five times more in cash transfers than Peru (as a share of GDP) but...

...because funds are not targeted to the poor, the amount of redistribution and poverty reduction has been limited: it is only slightly higher than in Peru
• Peru’s Juntos, although quite effective because of its fine targeting, achieves very limited poverty and inequality reduction because the scale of the program is small:

—coverage of extreme poor is below 60 percent and per capita transfer is low (compared to poverty gap)
## Coverage of Direct Cash Transfers

<table>
<thead>
<tr>
<th>Country</th>
<th>Poor&lt;2.5</th>
<th>2.5&lt;=Poor&lt;4</th>
<th>Non poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolivia</td>
<td>0.877</td>
<td>0.832</td>
<td>0.678</td>
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<tr>
<td>Brazil</td>
<td>0.933</td>
<td>0.731</td>
<td>0.292</td>
</tr>
<tr>
<td>Peru</td>
<td>0.577</td>
<td>0.419</td>
<td>0.155</td>
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</tbody>
</table>
“Leakages” of Direct Cash Transfers (Percent going to poor and nonpoor)
Indirect Taxes and Poverty

- In Brazil and Bolivia, indirect taxes wipe out most of the effect of direct transfers, and poverty is almost the same after as before taxes and cash transfers.
- In contrast, in Mexico, indirect taxes and subsidies reduce poverty further, because exemptions and informality allow the poor to pay little in the form of indirect taxes.
Headcount Ratio Before and After Indirect Taxes
Public spending on education and health is a powerful equalizer

<table>
<thead>
<tr>
<th>Country</th>
<th>Gini</th>
<th>Gini</th>
<th>Gini</th>
<th>Gini</th>
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</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>0.563</td>
<td>0.542</td>
<td>0.541</td>
<td>0.469</td>
</tr>
<tr>
<td>Bolivia</td>
<td>0.503</td>
<td>0.493</td>
<td>0.501</td>
<td>0.450</td>
</tr>
<tr>
<td>Brazil</td>
<td>0.489</td>
<td>0.478</td>
<td>0.489</td>
<td>0.439</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.497</td>
<td>0.478</td>
<td>0.497</td>
<td>0.437</td>
</tr>
<tr>
<td>Peru</td>
<td>0.563</td>
<td>0.542</td>
<td>0.541</td>
<td>0.396</td>
</tr>
<tr>
<td>Uruguay</td>
<td>0.478</td>
<td>0.478</td>
<td>0.459</td>
<td>0.369</td>
</tr>
</tbody>
</table>

Legend:
- Blue: Argentina
- Green: Bolivia
- Red: Brazil
- Purple: Mexico
- Orange: Peru
- Yellow: Uruguay
Defining Progressive/Regressive Taxes and Transfers

Cumulative proportion of population (ordered by market income) 0 1
Cumulative proportion of benefits, taxes, or income 0 1

- Transfer: progressive in absolute terms
- 45 degree line
- Transfer: progressive in relative terms; tax: regressive
- Transfer: regressive; tax: progressive
- Market income Lorenz curve; transfer or tax: neutral
- Tax: neutral
## Progressivity

Kakwani Index for Taxes: Red= regressive

<table>
<thead>
<tr>
<th>Country</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>
Direct and Indirect Taxes as % of GDP

- **Bolivia**: 11% Direct Personal Income Taxes, 0% VAT and Other Indirect Taxes
- **Brazil**: 2% Direct Personal Income Taxes, 8% VAT and Other Indirect Taxes
- **Mexico**: 2% Direct Personal Income Taxes, 4% VAT and Other Indirect Taxes
- **Peru**: 1% Direct Personal Income Taxes, 8% VAT and Other Indirect Taxes
- **Uruguay**: 5% Direct Personal Income Taxes, 12% VAT and Other Indirect Taxes
## Progressivity

### Concentration Coefficients for Transfers

Green = progressive in abs terms

<table>
<thead>
<tr>
<th></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>
Reduction in inequality with respect to Market Income Gini coefficient, Social Spending, and Redistributive Effectiveness

Disposable
Final
Social Spending (% GDP)
Effectiveness Social Spending
Fiscal Incidence Indicators: Winners and Losers

Who bears the burden of taxes and receives the benefits from cash transfers?

• Fiscal incidence by decile and socio-economic groups

• Impoverishment: Fiscal mobility matrix

• Horizontal equity indicators
Incidence of Taxes and Cash Transfers

Net Change in Income after Direct and Indirect Taxes and Transfers by Decile

Bolivia
Brazil
Mexico
Peru
Uruguay
Fiscal Incidence of Income, Taxes and Transfers, by Socioeconomic Groups

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>BOLIVIA (2009)</strong></td>
<td></td>
<td></td>
<td><strong>MEXICO (2008)</strong></td>
<td></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>
<td>12.3%</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>
<td>-0.1%</td>
</tr>
<tr>
<td>Middle Class ($10-$50)</td>
<td>30.8%</td>
<td>-1.9%</td>
<td>Middle Class ($10-$50)</td>
<td>35.3%</td>
<td>-8.3%</td>
</tr>
<tr>
<td>Rich (&gt;$/50)</td>
<td>1.3%</td>
<td>-1.2%</td>
<td>Rich (&gt;$/50)</td>
<td>2.9%</td>
<td>-9.8%</td>
</tr>
<tr>
<td>Total population</td>
<td>100.0%</td>
<td>-1.4%</td>
<td>Total population</td>
<td>100.0%</td>
<td>-6.1%</td>
</tr>
<tr>
<td><strong>BRAZIL (2009)</strong></td>
<td></td>
<td></td>
<td><strong>PERU (2009)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor ($&lt;$4)</td>
<td>26.7%</td>
<td>15.1%</td>
<td>Poor ($&lt;$4)</td>
<td>28.6%</td>
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<td>Middle Class ($10-$50)</td>
<td>35.3%</td>
<td>-14.0%</td>
<td>Middle Class ($10-$50)</td>
<td>32.0%</td>
<td>-9.9%</td>
</tr>
<tr>
<td>Rich (&gt;$/50)</td>
<td>4.5%</td>
<td>-20.7%</td>
<td>Rich (&gt;$/50)</td>
<td>2.0%</td>
<td>-17.8%</td>
</tr>
<tr>
<td>Total population</td>
<td>100.0%</td>
<td>-13.7%</td>
<td>Total population</td>
<td>100.0%</td>
<td>-8.5%</td>
</tr>
</tbody>
</table>
In sum...

• Taxes and transfers reduce inequality and poverty by nontrivial amounts in Argentina, Brazil, and Uruguay, less so in Mexico and relatively little in Bolivia and Peru.

• Personal income tax varies from around five percent of GDP in Uruguay to nearly zero in Bolivia.

• In all countries in which they exist, direct taxes are progressive, but because direct taxes are a small percentage of GDP almost everywhere their redistributive impact is small.
In sum...

• Cash transfers have reduced extreme poverty by more than 60 percent in Uruguay and Argentina but only by seven percent in Peru, which spends too little on cash transfer to achieve much poverty reduction.

• Bolivia spends five times more than Peru (as a share of GDP) but because funds are not targeted to the poor, the amount of redistribution and poverty reduction has been limited. It is only slightly higher than Peru.
In sum...

- In Brazil and Bolivia, indirect taxes wipe out most effect of direct transfers, and poverty is almost the same after as before taxes and cash transfers.
- In contrast, in Mexico poverty after indirect taxes and subsidies is lower because the poor pay little in the form of indirect taxes due to exemptions and informality.
- Public spending on education and health is more equalizing than cash transfers in all the countries.
In sum...

The largely positive redistributive picture of Argentina, Brazil and Uruguay hides some unpleasant facts.

• For instance, about 16 percent of Brazilian social spending goes to tertiary education, mostly benefitting the five percent of the population with incomes above US$50 per day.

• Uruguay, too, allocates subsidies to upper income students.

• In Argentina, progressive cash transfers are substantially less than indirect (and regressive) subsidies to agricultural producers, airlines and other transportation sectors, manufacturing industries, and energy companies. Argentina’s sharp rise of public spending during the 2000s has been increasingly financed by distortionary taxes and unorthodox and unsustainable revenue-raising mechanisms.
THANK YOU
COMMITMENT TO EQUITY

Led by Nora Lustig (Tulane University) and Peter Hakim (Inter-American Dialogue), the *Commitment to Equity* (CEQ) project is designed to analyze the impact of taxes and social spending on inequality and poverty, and to provide a roadmap for governments, multilateral institutions, and nongovernmental organizations in their efforts to build more equitable societies. CEQ/Latin America is a joint project of the Inter-American Dialogue (IAD) and Tulane University’s Center for Inter-American Policy and Research (CIPR) and Department of Economics. The project has received financial support from the Canadian International Development Agency (CIDA), the Development Bank of Latin America (CAF), the General Electric Foundation, the Inter-American Development Bank (IADB), the International Fund for Agricultural Development (IFAD), the Norwegian Ministry of Foreign Affairs, the United Nations Development Programme’s Regional Bureau for Latin America and the Caribbean (UNDP/RBLAC), and the World Bank.

http://commitmenttoequity.org


