Fiscal Policy and Redistribution in Latin America
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Tulane University
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Suppose you want to know...

Assessment of current fiscal system:

• What is the impact of taxes and government transfers on inequality and poverty?
• Who are the net tax payers to the “fisc”?
• How equitable is access to government education and/or health services? By income, gender, ethnic origin, for example.
• How progressive are taxes and public spending?
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?
Basic elements of standard fiscal incidence

Start with:

• Before taxes income of unit $h$, or $I_h$
• Taxes $T_i$
• “Allocators” of tax $i$ to unit $h$, or $S_{ih}$ (or the share of tax $i$ borne by unit $h$)

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

$$ Y_h = I_h - \sum_i T_i S_{ih} $$
Market Income = $I^m$
Wages and salaries, income from capital, private transfers; before government taxes, social security contributions and transfers; benchmark (sensitivity analysis) includes (doesn’t include) contributory pensions

Net Market Income = $I^n$

Disposable Income = $I^d$
Direct transfers + Indirect subsidies

Post-fiscal Income = $I^{pf}$
In-kind transfers (free or subsidized government services in education and health) +

Final Income = $I^f$
Personal income taxes and employee contributions to social security (only contributions that are not directed to pensions, in the benchmark case)
Indirect taxes
Co-payments, user fees
Allocation Methods

Direct Identification in microdata

If not in microdata, then:
- Simulation
- 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
• Incidence at the national level; rural and urban; by race and ethnicity
Methodological Contributions

• Clarify and homogenize terminology: e.g., definitions of progressive or regressive taxes and transfers

• Disaggregate changes in outcome indicators (disposable income inequality or poverty) into market and redistribution component

• Development of new indicator: rate of impoverishment
Definitions of Progressive and Regressive
Disaggregating Changes into Market and Redistribution Components

\[ G_d^t = G_m^t - R^t \]  \hspace{1cm} (1)

\[ G_d^{t'} = G_m^{t'} - R^{t'} \]  \hspace{1cm} (2)

Subtracting (2) from (1) and re-arranging yields:

\[ (G_d^{t'} - G_d^t) = (R^{t'} - R^t) + (G_m^{t'} - G_m^t) \]

Change in Redistribution
Change in Market Income

\begin{align*}
\text{Change in Disposable Income} & \quad \text{Inequality (Poverty)} \\
\text{Redistribution} & \quad \text{Change in Market Income} \\
\text{Inequality (Poverty)} & \quad \text{Inequality (Poverty)}
\end{align*}
Rate of Impoverishment

• Extent to which poor (nonpoor) people who are made poorer (poor) by fiscal system
• Traditional indicators of poverty, inequality, stochastic dominance, horizontal inequity, progressivity fail to capture impoverishment
• Proposed measures (show example for Brazil later):
  – Fiscal Mobility Matrix
  – Impoverishment Headcount
  – Impoverishment Gap

See Higgins and Lustig (2013)
Main Results

• Six countries publication in progress in Public Finance Review: Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay

• Six countries finished recently: Chile, Colombia, Costa Rica, El Salvador, Guatemala, Paraguay
Main Results: the Foreseeable

• Direct Taxes generally progressive but with little impact on inequality
• CCTs progressive in absolute terms; well targeted in practically all countries
• Indirect taxes regressive or neutral
• Redistribution is larger through in-kind benefits in education and health than cash transfers
## Progressivity of Taxes & Transfers

<table>
<thead>
<tr>
<th>Gini Market Income</th>
<th>Argentina</th>
<th>Bolivia</th>
<th>Brazil</th>
<th>Mexico</th>
<th>Peru</th>
<th>Uruguay</th>
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<tbody>
<tr>
<td>Direct Taxes</td>
<td>na</td>
<td>ne</td>
<td>0.19</td>
<td>0.30</td>
<td>0.43</td>
<td>0.25</td>
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<tr>
<td>Indirect Taxes</td>
<td>na</td>
<td>-0.13</td>
<td>-0.06</td>
<td>0.01</td>
<td>0.02</td>
<td>-0.05</td>
</tr>
<tr>
<td>All</td>
<td>na</td>
<td>-0.13</td>
<td>0.02</td>
<td>0.11</td>
<td>0.08</td>
<td>0.07</td>
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</table>

| Noncontributory Pensions | -0.27 | 0.01 | -0.48 | -0.10 | ne  | -0.53 |
| Flagship CCTs\(^a\)     | -0.50 | -0.25 | -0.58 | -0.54 | -0.65 | -0.61 |
| All                      | -0.31 | -0.07 | 0.03  | -0.30 | -0.48 | -0.47 |

| Pre-school           | na    | -0.21 | -0.33 | -0.24 | -0.25 | -0.45 |
| Primary              | -0.39 | -0.25 | -0.31 | -0.25 | -0.34 | -0.43 |
| Secondary            | -0.24 | -0.12 | -0.21 | -0.08 | -0.20 | -0.12 |
| Tertiary             | 0.20  | 0.30  | 0.44  | 0.32  | 0.31  | 0.47  |
| All                  | -0.20 | -0.02 | -0.15 | -0.09 | -0.17 | -0.11 |
| Health Spending      | -0.23 | -0.04 | -0.11 | 0.04  | 0.18  | -0.10 |
Public spending on education and health is a more powerful equalizer than cash transfers.

Gini

Net Market Income
Disposable Income
Post-fiscal Income
Final Income*

Argentina
Bolivia
Brazil
Mexico
Peru
Uruguay
Main Results: the Foreseeable

- Redistribution through cash transfers is still considerably less than in Europe and the US.
- Leftist governments tend to be more redistributive.
Inequality Reduction by Direct Taxes and Transfers: Brazil, Europe and US

Change between Market and Disposable Income Ginis

Source: Higgins et al. (2013) for Brazil and US; Immervoll et al. (2009) for Europe
Main Results: the Unexpected

• Diversity:
  – government size: primary spending from 40 in Brazil to 14 percent of GDP in Guatemala
  – extent of redistribution: 3.8 pts in Chile to 0.4 in Guatemala

• Net payers to the fisc (in terms of cash) start at relatively low deciles

• Tertiary Education is progressive in relative terms or neutral, except for Guatemala where it is regressive

• Contributory Pensions are progressive (in relative terms) or regressive depending on the country
Budget Size and Composition
Primary and Social Spending as % of GDP

Brazil
Argentina
Bolivia
Uruguay
Mexico
Peru

Primary Spending
Social Spending
Fiscal Policy and Inequality
Gini Coefficient by Income Concept

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<td>Bolivia</td>
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<tr>
<td>Brazil</td>
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<td>Chile</td>
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<td>Costa Rica</td>
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<td>Guatemala</td>
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<td>Mexico</td>
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<td>Paraguay</td>
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<td>Uruguay</td>
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Cash Transfers reduce poverty notably 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
Net Payers to the Fisc

Incidence of Post-Fiscal Income by Decile

Net Change in Income

Decile

-20.0%
-15.0%
-10.0%
-5.0%
0.0%
5.0%
10.0%
15.0%
20.0%

1 2 3 4 5 6 7 8 9 10

Bolivia (2009)
Brazil (2009)
Mexico (2010)
Peru (2009)
Uruguay (2009)
## Contributory Pensions and Inequality

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<tbody>
<tr>
<td>Pensions as % GDP</td>
<td>7.2</td>
<td>3.5</td>
<td>9.1</td>
<td>3.7</td>
<td>0.9</td>
<td>8.7</td>
</tr>
<tr>
<td>Gini pre-pensions</td>
<td>0.506</td>
<td>0.503</td>
<td>0.600</td>
<td>0.509</td>
<td>0.503</td>
<td>0.527</td>
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<tr>
<td>Gini post-pensions</td>
<td>0.489</td>
<td>0.503</td>
<td>0.579</td>
<td>0.511</td>
<td>0.504</td>
<td>0.492</td>
</tr>
<tr>
<td>Change in pts</td>
<td>-1.7</td>
<td>0.0</td>
<td>-2.1</td>
<td>0.2</td>
<td>0.1</td>
<td>-3.5</td>
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</table>
Main Results: the Unexpected

• Argentina is among the most ‘effective’ countries at redistribution and poverty reduction; however, redistribution might have gone “too far”

• Bolivia is a leftist government that redistributes little

• Brazil
  – indirect taxes wipe out cash transfers’ benefits to the poor and cause a significant amount of impoverishment
  – the poor whites receive more in cash transfers than the poor black and pardos
Argentina: Redistributive Effectiveness

Change in Gini from Direct Transfers
Change in Gini from Indirect and Inkind Transfers
Effectiveness Indicator for Total Social Spending
Effectiveness Indicator for Direct Transfers
Argentina-Reduction in Inequality: Market (blue) vs. Redistribution (red)

- 2003-06
  - Market: 124%
  - Redistribution: -24%

- 2006-09
  - Market: 58%
  - Redistribution: 43%
Argentina—Reduction in Poverty: Market (blue) vs. Redistribution (red)

- 2003-06: Market -10%, Redistribution 110%
- 2006-09: Market 12%, Redistribution 88%
Bolivia: a Leftist Gov that Redistributes Little
Brazil Reduces Inequality Significantly

Gini Coefficient by Income Concept

<table>
<thead>
<tr>
<th>Income Concept</th>
<th>Bolivia</th>
<th>Brazil</th>
<th>Chile</th>
<th>Colombia</th>
<th>Costa Rica</th>
<th>Guatemala</th>
<th>Mexico</th>
<th>Paraguay</th>
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<td>Market Income</td>
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<td>Net Market Income</td>
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<td>Disposable Income</td>
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<td>Post-Fiscal Income</td>
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<tr>
<td>Final Income</td>
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</table>
However, indirect taxes wipe out the poverty-reducing effect of cash transfers.
Poor Pardos in Brazil Receive Less in Cash Transfers than Equally Poor Whites

Incidence of Cash Transfers by Race
Impoverishment in Brazil is Significant

<table>
<thead>
<tr>
<th>Pre-tax and transfer income groups</th>
<th>% of Pop.</th>
<th>Post-tax and transfer income groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Pop.</td>
<td>14%</td>
<td>&lt; $2.50</td>
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<td>$2.50 – 4.00</td>
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<td>$4.00 – 10.00</td>
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<td></td>
<td></td>
<td>&gt; $10.00</td>
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<tr>
<td>$2.50 – 4.00</td>
<td>14%</td>
<td>14%</td>
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<tr>
<td>$4.00 – 10.00</td>
<td>13%</td>
<td>75%</td>
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<tr>
<td>&gt; $10.00</td>
<td>0%</td>
<td>0%</td>
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14% 14% 36% 36% 100%
Main Results: the Unexpected

• Guatemala: even direct taxes are regressive
• Mexico:
  – Over time, redistribution has increased but Mexico still lags behind its peers such as Arg, Bra and Ury
  – coverage of Oportunidades and other cash transfers leave about 30 percent of extreme poor without safety net
• Peru: health spending is progressive only in relative terms
Guatemala: Concentration Curves for Taxes
Mexico: Inequality Reduction 1996 vs. 2010
(Impact of Social Spending)
Mexico still less redistributive than peers
“Poster-child:” Uruguay

- Primary Spending/GDP is within reasonable levels
- Reduces inequality and poverty among the highest
- Has among the highest effectiveness indicators
- Taxes are neutral
- All social spending categories are progressive in absolute terms
- Coverage of the poor is close to 100 percent
- Only evident problem: access to tertiary is concentrated in the nonpoor
Commitment to Equity (CEQ), joint project of Tulane University and Inter-American Dialogue.

www.commitmenttoequity.org
 References


• *Introduction to PFR* special issue: Lustig, Nora, Carola Pessino, and John Scott, editors. Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.

References


• **Brazil:** Higgins, Sean and Claudiney Pereira. The Effects of Brazil’s High Taxation and Social Spending on the Distribution of Household Income. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, *Public Finance Review*, forthcoming.

• **Chile:** Dante Contreras and Jaime Ruiz-Tagle
References

- **Colombia:** Carlos Hurtado, Nora Lustig and Marcela Melendez
- **Costa Rica:** Pablo Sauma and Juan Diego Trejos
- **El Salvador:** Margarita Beneke, Nora Lustig and Jose Andres Oliva
- **Guatemala:** Maynor Cabrera, Nora Lustig and Hilcias Estuardo Moran
- **Mexico:** Scott, John. Redistributive Impact and Efficiency of Mexico’s Fiscal System. In Lustig, Nora, Carola Pessino, and John Scott, editors, Fiscal Policy, Poverty and Redistribution in Latin America, Special Issue, Public Finance Review, forthcoming.
References

- **Paraguay**: Sean Higgins, Nora Lustig, Julio Ramirez and William Swanson (for 2011 Jose Manuel Gomez)


New countries

Ecuador: Cristina Llerena

Ecuador (top incomes): Facundo Alvaredo

Nicaragua: Manuel Deshon

Venezuela: Emiro Molina
Acknowledgements

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Thank you!