Financial disincentives to formal work in Ecuador and Colombia

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Motivation

- Important research on the effect of payroll taxes on labour informality (demand of formal work)

- Informality is stubbornly high in Ecuador and Colombia

- Less is known about how taxes disincentive the supply of formal work
Research Questions

- What is the role of the tax-benefit system on financial incentives to enter formal work?
  - (i.e. Formalization monetary costs for workers)

- Is the tax-benefit system hampering formalization in Ecuador and Colombia?
Informality (Definition)

Our paper follows the *legalistic view* which allows us to separate formal from informal workers depending on a component of the tax-benefit system: Social Insurance Contributions (SIC).

We consider formal workers those reporting contribution (affiliation) to Social Security in the survey in Colombia (Ecuador).

Social Security entitles among others to: health insurance, sickness, maternity and paternity leave payments and an old age pension under some additional conditions.
Exclusion

- Regulations hamper firms and workers, always eager to formalise, from doing it

Exit

- Workers and firms choose optimally to be informal analysing expected returns and costs, taking into account low government's enforcement capacity and available non-contributory social security
Data

Income and Expenditure Household Surveys

Ecuador: National Urban and Rural Household Income and Expenditures Survey (ENIGHUR)
2011-2012
Monetary values uprated to 2014

Colombia: Quality of Life National Survey (ENCV)
2014
Strategy

- Make use of detailed multi-country tax-benefit microsimulation models.
- Simulate transitions to the formal sector for informal workers.
- Estimate the proportion of earnings that will be taxed away in the form of
  - Increased taxes
  - Increased social insurance contributions or
  - Reduced benefits
- Analyse individual or HH welfare effects of simulated changes
  - I.e. Disposable Income
Microdata: HH Income and Expenditure surveys

EUROMOD Interface

Market Income
- SIC (Simulated)
- Taxes (Sim.)
+ Benefits (Sim.)
= Disposable Income (Sim.)

Each country’s Tax and Benefit Policy Rules
Microdata: HH Income and Expenditure surveys

Draw alternative dataset

Each country’s Tax and Benefit Policy Rules

EUROMOD Interface

Market Income
- SIC (Simulated)
- Taxes (Sim.)
+ Benefits (Sim.)

= Disposable Income (Sim.)
Transition Strategies

Informal → Formal
(exit or exclusion?)

Mincer equation (Heckman selectivity correction)

- Carneiro and Henley (2002)

\[ \Pr(U_i^F - U_i^I \geq 0) = \Pr(\rho + \phi D_i + \eta F_i + \kappa X_i + e_i) = \Pr(\Psi_i + e_i) \]  \hspace{1cm} (1)

\[ \log(w_i) = \alpha + D_i'\beta + F_i'\gamma + J_i'\delta + \lambda \frac{\phi(\Psi_i)}{\Phi(\Psi_i)} + \theta_i \]  \hspace{1cm} (2)

- Estimated based on formal workers and predicts earnings for informal workers
- Pooled employees and self-employed because we observe few formal self-employed
- Alternative scenario accounts for Minimum Wage
Following Koettl and Weber, (2012): formalization costs could be defined as

\[ FTR_i = \frac{Y_{h,i}^0 - Y_{h,i}^1}{w_i} \]

\( i \): informal worker; \( w_i \): labour income; \( y_{h,i} \): HH disposable income

However, this formulation does not account for earnings change after formalization.
Instead, we assume formal work disincentives are measured relative to changes in earnings due to formalization:

\[
FTR_i = \begin{cases} 
(1 - \frac{y_{h,i}^1 - y_{h,i}^0}{w_i^1 - w_i^0}) & \text{if } w_i^1 > w_i^0 \\
- \left(1 - \frac{y_{h,i}^1 - y_{h,i}^0}{w_i^1 - w_i^0}\right) & \text{if } w_i^1 < w_i^0
\end{cases}
\]

- \(FTR_i = 0\) → No effect of the tax benefit system
- \(FTR_i > 0\) → % of additional income taxed away
- \(FTR_i < 0\) → formalization “subsidy”
Contribution

- To the best of our knowledge, these are the first detailed tax and benefit microsimulation models for Latin American countries using representative microdata.

- This is the first attempt to give an estimate of the Financial disincentives to formal work with data at the microlevel.

- We take into account wage differentials between sectors in the estimation of disincentives to formal work.
Results (Tax-Benefit System)

Share of Tax-Benefits in HH Disposable Income by quintiles (2014)

Ecuador                                      Colombia

Source: Author’s calculations
Results (Income change)

Percent change in labour income (2014) by decile of pre-reform earnings

Source: Author’s calculations
Results (Formalization Tax Rate)

FTR Self-Employed
by quintile of pre-reform earnings

Source: Author’s calculations
FTR Employees
by quintile of pre-reform earnings

Source: Author’s calculations
Results (Formalization Tax Rate)

FTR Self-Employed

Ecuador               Colombia

Source: Author’s calculations
FTR Employees

Ecuador  Colombia

Source: Author’s calculations
Formalization improves aggregate SIC around 60%  
Given informality distribution, different burdens between employee and self-employed in each country  

Formalization improves tax revenue marginally  
Much less in Colombia  

Aggregate earnings are not always higher  

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**Results (Aggregate)**

<table>
<thead>
<tr>
<th>Percent Change of</th>
<th>Ecuador</th>
<th>Colombia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Without MW</td>
<td>With MW</td>
</tr>
<tr>
<td>Worker's SIC</td>
<td>67.1%</td>
<td>69.5%</td>
</tr>
<tr>
<td>Employer's SIC</td>
<td>58.7%</td>
<td>59.8%</td>
</tr>
<tr>
<td>Total SIC</td>
<td>63.7%</td>
<td>65.6%</td>
</tr>
<tr>
<td>Income Tax</td>
<td>3.9%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Earnings</td>
<td>2.0%</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

Source: Author’s calculations
**Formalization improves original income distr.**
- Informal work: At the bottom of dist. increase income

**Improves disposable income distr. in Ecuador**

**Mixed results for disposable income distr. in Colombia**
- (high burden of SIC)
Tax and Benefit Systems are quite different for the two countries
- They have a modest effect on income distribution (especially in Colombia)

Workers are likely to self select in informal activities
- Strategies for transitions to formality matter for this kind of analysis

Informal workers face a heavy formalization burden
- Especially self-employed in Colombia as a result of a minimum payment of social insurance contribution of around 28.5% of a minimum wage.
Introduce behavioural responses of workers by means of a labour supply model featuring:
- informality choice
- labour demand restrictions
In the case of no income change

\[ FTR_i = \frac{Y_{h,i}^0 - Y_{h,i}^1}{w_i} \]

Ecuador

Colombia

Source: Author’s calculations