Informal Labor Markets in Times of Pandemic: Evidence from Latin America and Policy Options*

Gustavo Leyva\textsuperscript{1} Carlos Urrutia\textsuperscript{2}

\textsuperscript{1}Banco de México, Research Department
\textsuperscript{2}ITAM, Department of Economics

CEMLA-FRBNY-ECB Meeting, July 2021

* The views expressed here are those of the authors and do not necessarily reflect those of Banco de México or its Board of Governors. This project was sponsored by the Inter-American Development Bank. Leyva declares having worked for this project \textit{ad honorem}. 
Relative to past recessions, in this pandemic we observe

- Large fall in employment
  - mirrored by decline in the participation rate
  - with small response of unemployment
- Rapid recovery in 2020.Q3
• Unprecedented fall in the informality rate at the onset of the pandemic recession
  … driven by a huge decline in informal employment
• Recovery of employment in 2020.Q3
  … with a rebound in the informality rate
Employment contraction in 2020.Q2 driven almost entirely by job destruction
... more so than during the Great Recession
Job destruction has receded significantly by 2020.Q3
... to levels comparable to those observed in 2008-9
We confirm observed changes in key labor market indicators for Mexico

- **Large drop in overall employment**
  - ... largely linked to huge decline in participation rates
  - ... partially reflected in higher unemployment rates

- **Unprecedented informal job destruction**
  - ... informality rates decreasing at the outset of the pandemic
  - ... with one exception: Peru

We also decompose these results by gender, age, and sector

- **Pandemic has a stronger impact on women, younger workers, and in contact-intensive sectors (services)**
  - ... but aggregate results are not driven by a composition effect only
Latin American Labor Markets during the Pandemic (absolute changes)


Previous Downturns

- Employment to population
- Informality rate
- Informal employment to population
- Unemployment rate
- Unemployment duration
- Inactivity rate

Leyva and Urrutia
Informal Labor Markets in Times of Pandemic, July 2021
Latin America: Unequal Burden of the Pandemic by Gender

Pandemic Recession (2019.Q2/2020.Q2) vs Previous Downturns

- Brazil
  - Males: informal employment to population, labor force to population, employment to labor force, informality rate
  - Females: informal employment to population, labor force to population, employment to labor force, informality rate

- Chile
  - Males: informal employment to population, labor force to population, employment to labor force, informality rate
  - Females: informal employment to population, labor force to population, employment to labor force, informality rate

- Colombia
  - Males: informal employment to population, labor force to population, employment to labor force, informality rate
  - Females: informal employment to population, labor force to population, employment to labor force, informality rate

- Mexico
  - Males: informal employment to population, labor force to population, employment to labor force, informality rate
  - Females: informal employment to population, labor force to population, employment to labor force, informality rate

- Peru
  - Males: informal employment to population, labor force to population, employment to labor force, informality rate
  - Females: informal employment to population, labor force to population, employment to labor force, informality rate

Informal Labor Markets in Times of Pandemic, July 2021
A Model of Informal Labor Markets

Key ingredients of the model (based on Leyva and Urrutia, *JIE* 2020)

- Endogenous participation (leisure choice)
- Formal and informal (self-employed) sectors
- Matching frictions in the formal labor market
  - Unemployed workers search for jobs, firms post vacancies
  - Employment protection in the formal sector, modeled as firing cost
- Representative family (full insurance within household)
- Small open economy subject to technology and interest rate shocks

The model is calibrated to Mexican data before the pandemic.
Calibrating the Model: Business Cycle Moments

<table>
<thead>
<tr>
<th>Relative Volatility</th>
<th>Data 1</th>
<th>Model 2</th>
<th>Correlation with Output</th>
<th>Data 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\sigma(Y)$</td>
<td>1.35</td>
<td>1.35</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>$\sigma(C)/\sigma(Y)$</td>
<td>0.93</td>
<td>1.02</td>
<td>$Corr(C, Y)$</td>
<td>0.97</td>
<td>0.85</td>
</tr>
<tr>
<td>$\sigma(I)/\sigma(Y)$</td>
<td>2.33</td>
<td>2.33</td>
<td>$Corr(I, Y)$</td>
<td>0.87</td>
<td>0.75</td>
</tr>
<tr>
<td>$\sigma(L)/\sigma(Y)$</td>
<td>0.41</td>
<td>0.41</td>
<td>$Corr(L, Y)$</td>
<td>0.68</td>
<td>0.99</td>
</tr>
<tr>
<td>$\sigma(l^s)/\sigma(Y)$</td>
<td>0.53</td>
<td>0.53</td>
<td>$Corr(l^s, Y)$</td>
<td>−0.57</td>
<td>−0.31</td>
</tr>
<tr>
<td>$\sigma(1 + i^*)$</td>
<td>0.49</td>
<td>0.49</td>
<td>$Corr(1 + i^*, Y)$</td>
<td>−0.24</td>
<td>−0.24</td>
</tr>
</tbody>
</table>

- The model reproduces by construction the volatilities of output, investment, employment and the informality rate
  ... and the volatility and counter-cyclicality of the foreign interest rate
Extended model with two new AR(1) shocks
  • A shock to labor supply (disutility of work parameter)
  • A sector-specific productivity shock (informal productivity parameter)

These shocks are reduced-form representations of the impact of COVID-19
  • Very small variance (quite infrequent) ⇒ do not affect calibration
  • Their persistence ($\rho_{\text{new}}$) reflects uncertainty about future evolution

Accounting exercise: recover shocks that rationalize the behavior of GDP, interest rate, employment, and informality rate up to 2020.Q3
Accounting for the Pandemic Recession: Shocks Recovered

A1. GDP

B1. Foreign Interest Rate

C1. Employment Rate

D1. Informality Rate

A2. Aggregate Technology Shock

B2. Foreign Interest Rate Shock

C2. Work Disutility Shock

D2. Informal Productivity Shock

Leyva and Urrutia

Informal Labor Markets in Times of Pandemic, July 2021
Simulating the Recovery: Different Scenarios

- We simulate the recovery for two years letting all shocks to dissipate
- Recovery led by the more flexible informal employment (similar to previous recessions)
  - Informality rate quickly rebounds
  - This implies a decline in labor productivity, dragging the recovery in output
- We simulate next the recovery under alternative policies
Policy Options: Summary of Results after Two Years

<table>
<thead>
<tr>
<th>Policy Instrument</th>
<th>Employment Rate</th>
<th>Informality Rate</th>
<th>GDP</th>
<th>Fiscal Cost % GDP</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Policy Intervention</td>
<td>−1.78</td>
<td>−0.49</td>
<td>−0.76</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Payroll Tax Cut</td>
<td>0.00</td>
<td>−6.95</td>
<td>3.86</td>
<td>6.96</td>
<td>17.8</td>
</tr>
<tr>
<td>Hiring Subsidy</td>
<td>0.00</td>
<td>−6.93</td>
<td>3.87</td>
<td>0.26</td>
<td>68.1</td>
</tr>
<tr>
<td>Unemployment Benefits</td>
<td>−1.63</td>
<td>−1.11</td>
<td>−0.40</td>
<td>4.60</td>
<td>100.0</td>
</tr>
<tr>
<td>Informal Income Subsidy</td>
<td>0.00</td>
<td>3.46</td>
<td>0.36</td>
<td>3.56</td>
<td>9.2</td>
</tr>
</tbody>
</table>

- Payroll tax cuts and hiring subsidies incentivize job creation in the formal sector...
  reducing informality and fostering labor productivity
- Hiring subsidies are more cost-effective in promoting formal employment
- Unemployment benefits have very little impact on employment
- Informal income subsidies incentivize informal employment...
  dragging productivity and GDP in the recovery
Policy Options: Some Caveats

- Our framework does not allow for a feedback from policies to the pandemic itself
  - Would require an epidemiological model

- The model ignores distributional issues
  - Representative household, perfect risk-sharing
  - No role for income protection of poor households
  - Would require heterogeneous-agents framework (with incomplete markets)

- Separations in the model are exogenous
  - No role for policies protecting existing formal jobs
  - Would require model of heterogeneous firms