Discussion of RED 2018 “Institutions for Productivity: Towards a Better Business Environment”

Diego Restuccia
University of Toronto
and NBER

FLAR-CAF Meeting
Cartagena de Indias, Colombia
June 6, 2019
In This Report

- Income per capita remains low in Latin America (around 20 percent of the US level)
- Income gap due to productivity gap, even after accounting for differences in human capital quality
- Key question: What accounts for the productivity gap?
- Productivity differences are large in all sectors, hence focus on productivity at the micro level
- Similar findings in “The Latin American Productivity Problem,” Economía, Spring 2013
- Characterizes institutions affecting productivity at the micro level, where Latin America lags behind developed countries: competition, access to inputs, labor markets, financial markets
My discussion

- Focus on connecting institutions with micro-level productivity
- Describe simple framework to emphasize potential channels of low productivity: misallocation, selection, and technology
- Highlight characteristics of policies/institutions driving low productivity:
  - **Idiosyncratic** distortions across establishments (misallocation)
  - **Systematic** idiosyncratic distortions, where more productive establishments face larger distortions (selection, technology)
In each period, a single good produced by \( M \) potential heterogeneous production units indexed by \( i \)

Output \( y_i \) is produced according to

\[
y_i = A_i \cdot h_i^\gamma, \quad \gamma \in (0, 1)
\]

where \( A_i \) reflects productivity differences across producers, \( h_i \) is labor input, and \( \gamma \) measures the extent of decreasing returns to scale at the establishment level

Fixed cost of operation \( c \) in units of output
Efficient allocation:

- Consider the efficient allocation of labor across producers that maximizes aggregate output net of operation costs.
- Given aggregate labor $H$, there is unique threshold $\bar{A}$ such that producers with $A_i \geq \bar{A}$ operate, producers with $A_i < \bar{A}$ do not operate.
- Among operating producers, those with higher $A_i$ are allocated greater amount of labor, producers with the same productivity operate at the same scale.
**Stylized Efficient Allocation**

- Any deviation from this allocation would lower aggregate output and hence aggregate TFP
Stylized Misallocation

![Graph showing stylized misallocation with log Ai and log hi axes.]
Misallocation and Selection/Technology

Efficient Data

Restuccia
Institutions and Productivity
FLAR-CAF Meeting
Simple Framework of TFP Differences

- Holding the amount of aggregate resources constant, three channels can account for aggregate TFP differences across countries:
  - Distribution of $A_i$’s differs across countries (technology)
  - Countries choose different set of producers to operate (selection)
  - Countries allocate inputs differently across producers (misallocation)

- Remark: specific policies/institutions generating misallocation can have larger effects on TFP by affecting technology/selection channels (Restuccia and Rogerson, 2017)
Virtue of Production Heterogeneity

- Aggregate production function:

\[ Y = \sum_{i=1}^{O} y_i = AO^{1-\gamma} H^\gamma = \text{TFP} \times F(\text{factors}) \]

- Limited scope for policies/institutions that drive TFP differences across countries (aggregate institutions)

- Recognizing production heterogeneity opens the door for many policies/institutions to drive idiosyncratic effects across producers that are potentially measurable
Key insight: to maximize aggregate output, the marginal (or average) product of factors should equalize across producers

\[(1 - \tau_i)\gamma \frac{y_i}{h_i} = w \Rightarrow TFPR_i \equiv \frac{y_i}{h_i} \propto \frac{1}{(1 - \tau_i)}\]

Value of marginal output

- Suggests two broad approaches to assess the empirical relevance of misallocation:
  - Indirect: measure deviations in TFPR \(_i\) across producers using data on output and inputs
  - Direct: Measure specific policies and institutions that generate \((1 - \tau_i)\) differences

- Policies/institutions can have aggregate productivity effects (low TFP) even if no impact on aggregate prices or aggregate resources
**Examples**

- **Indirect**: Evidence points to substantial misallocation, large TFP loses (e.g. Hsieh and Klenow 2009, Pages 2010 for Latin America context)

<table>
<thead>
<tr>
<th>Country</th>
<th>SD (log TFPR&lt;sub&gt;i&lt;/sub&gt;)</th>
<th>TFP gains</th>
</tr>
</thead>
<tbody>
<tr>
<td>China (1998)</td>
<td>0.74</td>
<td>115%</td>
</tr>
<tr>
<td>India (1994)</td>
<td>0.67</td>
<td>128%</td>
</tr>
<tr>
<td>United States (1997)</td>
<td>0.49</td>
<td>43%</td>
</tr>
</tbody>
</table>

- **Direct**: Land institutions
  - Poor countries characterized by lack of well-defined property rights over land, land-use rights distributed uniformly across rural households, restrictions to sales/rentals
  - Result: land not allocated to best uses
  - Institution resulting in implicit wedges
Adamopoulos et al (2017): Efficient reallocation of operated land can increase agricultural productivity by 57%
(2) **Systematic Idiosyncratic Effects**

- **Idiosyncratic** effects from policies/institutions: dispersion in effective prices (wedges) across producers
  - Generate misallocation
  - Note that a tax/wedge common to all producers has no effect on aggregate productivity (given factors)

- **Systematic** idiosyncratic effects: policies/institutions that effectively penalize more productive producers (correlated distortions)
  - Affecting aggregate productivity via selection and technology channels
  - Altering occupational/production choices
  - Effectively lowering the return to technology adoption/productive investments
Implicit Agricultural Distortions in China

- Large implied correlated distortions in the agricultural sector
  $\sigma(\log\text{TFPR})=0.78, \rho(\log\text{TFPR}, \log\text{TFP})=0.86$
(2) **Systematic Idiosyncratic Effects**

- Systematic idiosyncratic effects common, most often implicit/effective, not designed

- Example 1: a regulation that applies to all producers in a market but...in practice is enforced more strictly among larger (more productive) producers, connects to informality

- Example 2: land institutions

- Example 3: labor market policies, firing costs

- Example 4: financial development

- Example 5: trade policy
Broader Consequences of Misallocation

- A prevalent property of policies/institutions that create misallocation in developing countries: disproportionately affect more productive producers (correlated distortions)
- In models of firm dynamics these distortions effectively lower the return to productivity growth
  - Connection between misallocation and technology/selection channels
  - Establish a connection to the average size of establishments
Plant Life-Cycle Growth

Source: Hsieh and Klenow (2014)
Average Establishment Size

(a) Manufacturing

(b) Services

Source: Bento and Restuccia (2017, 2018)
(3) The Pitfalls of Well-Intended Policies

- Report suggest numerous areas for policy action
- A key insight of the misallocation literature is that size is deeply confounded by distortions, making policy implementation challenging
- Even if policy makers can identify productivity at the micro level, difficult to assess “optimal” size
- My take on policy:
  - Focus on better rather than more policy: review policy framework to minimize systematic idiosyncratic effects
  - Foster the development and efficiency of markets for the allocation of productive resources
  - Delink resource allocation from redistribution: for instance, operational scales achieved via efficient rental markets