The Effect of FDI on Economic Growth in Low Income Countries

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Outline

1. Introduction and Definitions
2. Motivation and Preview of Results
3. Literature
4. Data
5. Results
   - Average Effect
   - The impact of study design
   - The impact of Publication Bias
   - Discussion
6. Conclusions
How do scholars define Foreign Direct Investment?

Stocks and Flows

- Foreign Direct Investment (FDI) is the investment that is made with a view to acquiring a lasting interest in a foreign enterprise, and of having an effective voice in its management (IMF definition);
  - This exclude quick speculative investment;

- FDI are investments made OUTSIDE the home country of the investors, but INSIDE the investing company;

- FDI = equity capital; reinvested earnings;

- In case of FDI, control remains with the investors, in other words an effective voice in the management;

- FDI = package of assets and intermediate products such as capital, technology, management skills, access to markets and entrepreneurship.
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Types of FDI: Why do firms pursue FDI?

1. Resources seeking (supply oriented):
   - Physical resources (for instance: energy sector);
   - Human resources (cheap labour);

2. Market seeking (demand oriented):
   - Domestic market;
   - Adjacent (e.g. regional) markets;

3. Efficiency seeking:
   - Rationalisation of production to exploit economies of specialisation and scope across value chain (product specialisation) and along value chain (process specialisation);

4. Strategic asset seeking:
   - To protect or augment ownership specific advantages of the investing firm (technology, organisational capabilities, markets) and/or to reduce those of their competitors.
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Low and Middle Income Countries

- This seminar will focus on the impact of FDI on economic growth in low in comparison with middle income countries;
- In 2008 FDI inflows to Emerging markets was lower than the inflows to developed countries;
- Estimates for 2009 indicate a reversal, i.e. comparable or higher percentage of FDI inflows in Emerging Economies with respect to advanced economies [EIU (2010)];
- We analyse how the literature has developed in recent decades, especially by exploiting firm-level studies;
- In other words we perform a statistical analysis of many others statistical analyses, this is why is called META-analysis;
- *[On a more technical note] We split the reported effect of FDI on Growth between macro and micro studies because we want to capture the net versus the gross effect of this impact.
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Motivation and Preview of Results

Preview of Results

- Our empirical work confirms the existence of positive, but small effect of FDI from the micro evidence (4.5% partial correlation, on a [0,1] scale);
- Our empirical work confirms the existence of positive, and somehow bigger (9.6%), effect of FDI from the preliminary macro evidence;
- On the one hand, we do observe quite a lot of country heterogeneity (countries’ behavior statistically different form each other);
- On the other hand, we do not observe much of a geographical area heterogeneity (geographical areas do not result being statistically different form each other), with the exception of transition countries (ex communist countries), which perform better.
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LICs versus Middle Income

One main finding is that the effect of FDI on growth is significantly greater in low- than in lower- and upper middle income countries.

**FOOD FOR THOUGHT AND OPEN DISCUSSION:**
- Could you find reasons in favour?
- Could you find reasons against?

*[On a more technical note]* We cover both published and unpublished papers and we do find sign of publication selection bias.
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The literature

FDI & Development

- Several studies document important effects -positive or negative- on host countries growth, let us review some of them:
  - technological upgrading via the demonstration effect: advanced firms in non advanced countries demonstrate how to build up high tech industries products to them [POSITIVE];
  - technology sourcing: firms relocate in advanced countries in order to learn. i.e. source the technology from them [POSITIVE/NEGATIVE];
  - market stealing effect: via increased competition MNCs increase their market share and displace domestic firms [NEGATIVE];
  - Transfer of skilled labour from MNCs to domestic firms and vice-versa [POSITIVE/NEGATIVE];
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  - level of development matters;
  - absorptive capability matters;
  - FDI type and motivation (market seeking, efficiency seeking) matter;
  - type of growth concept (i.e. data used for the analysis) matters!

- FDI limited development impact in emerging markets:
  - [Asiedu (2006)];
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*On a more technical note* META Analysis on FDI

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- $r_{ij} = \beta_0 + v_{ij}$;
- $r_{ij} = \beta_0 + B \times Z + v_{ij}$;

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\[
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Funnel Plot: a Pictorial Graph of the effect
Bar Chart: a statistical distribution
Number of a) - Significant. b) Insignificant. c) + Significant. coefficients in the studies
### Table 1: Regressions on the mean: Firm Level

#### Micro

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full sample</td>
<td>1/se &lt; 25000</td>
<td>1/se &lt; 15000</td>
<td>1/se &lt; 10000</td>
</tr>
<tr>
<td>Un-weighted</td>
<td>0.049***</td>
<td>0.049***</td>
<td>0.049***</td>
<td>0.048***</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.011)</td>
<td>(0.011)</td>
<td>(0.011)</td>
</tr>
<tr>
<td>Weighted</td>
<td>0.17</td>
<td>0.045</td>
<td>0.034</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.023)</td>
<td>(0.021)</td>
<td>(0.012)</td>
</tr>
<tr>
<td>Observations</td>
<td>556</td>
<td>554</td>
<td>549</td>
<td>546</td>
</tr>
<tr>
<td>N. Cluster (N. Papers)</td>
<td>105</td>
<td>105</td>
<td>104</td>
<td>104</td>
</tr>
</tbody>
</table>

Clustered SE in parentheses. Regression testing for different sample, where 'outliers' are selected according to precision.
## Table 1: Regressions on the mean: Macro Level

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<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Full sample</td>
<td>1/se &lt; 600</td>
<td>1/se &lt; 400</td>
<td>1/se &lt; 200</td>
</tr>
<tr>
<td>Un-weighted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.184**</td>
<td>0.186**</td>
<td>0.186**</td>
<td>0.205**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.065)</td>
<td>(0.070)</td>
<td>(0.070)</td>
<td>(0.068)</td>
</tr>
<tr>
<td>Weighted</td>
<td></td>
<td>0.096**</td>
<td>0.057***</td>
<td>0.057***</td>
<td>0.073**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.037)</td>
<td>(0.010)</td>
<td>(0.010)</td>
<td>(0.026)</td>
</tr>
<tr>
<td>Observations</td>
<td></td>
<td>19</td>
<td>18</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>N. Cluster</td>
<td></td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
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## Results

The impact of study design

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>Whole sample</th>
<th>Low &amp; Lower M.</th>
<th>Low M.</th>
<th>Middle</th>
<th>Lower</th>
<th>Upper M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dummy = 1 if FDI direct effect (omitted indirect)</td>
<td>0.067* (0.039)</td>
<td>0.021** (0.009)</td>
<td>0.021** (0.010)</td>
<td>0.149*** (0.008)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy = 1 if Vertical FDI spillover (omitted horizontal)</td>
<td>0.039*** (0.014)</td>
<td>0.040*** (0.007)</td>
<td>0.020*** (0.007)</td>
<td>0.139*** (0.029)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy = 1 if Firm level data (omitted sector)</td>
<td>-0.197*** (0.029)</td>
<td>-0.198*** (0.03)</td>
<td>-0.199*** (0.03)</td>
<td>-0.200*** (0.031)</td>
<td>-0.063 (0.047)</td>
<td></td>
</tr>
<tr>
<td>Dummy = 1 if Human capital (labour quality controlled for)</td>
<td>-0.117*** (0.032)</td>
<td>-0.117*** (0.032)</td>
<td>-0.159*** (0.042)</td>
<td>-0.160*** (0.043)</td>
<td>0.033 (0.031)</td>
<td></td>
</tr>
<tr>
<td>Dummy = 1 if R&amp;D (controlled for)</td>
<td>0.102*** (0.034)</td>
<td>0.122*** (0.044)</td>
<td>0.123*** (0.046)</td>
<td>0.026 (0.023)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy 1 if Endogeneity (controlled for)</td>
<td>-0.017 (0.012)</td>
<td>-0.016 (0.012)</td>
<td>-0.013 (0.009)</td>
<td>-0.012 (0.009)</td>
<td>-0.052 (0.036)</td>
<td></td>
</tr>
<tr>
<td>Dummy = 1 if Panel</td>
<td>0.008 (0.004)</td>
<td>-0.049*** (0.018)</td>
<td>-0.076*** (0.028)</td>
<td>-0.077*** (0.029)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Observations | 423 | 43 | 380 | 287 | 244 | 136 |
| Adjusted R-squared | 0.34 | 0.84 | 0.335 | 0.337 | 0.331 | 0.611 |
| N. Cluster | 83 | 4 | 80 | 51 | 48 | 32 |
| Mean N° Estimates per country | 17.6 | 8.6 | 20 | 26.1 | 40.1 | 10.5 |
| Countries | 24 | 5 | 19 | 11 | 6 | 13 |

| Country Dummies | Y | Y | Y | Y | Y | Y |

* sig. at 10%, ** sig. at 5%, *** sig. at 1%.
## Results

The impact of Publication Bias

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<tr>
<th>LHS:</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample '000.</td>
<td>t</td>
<td>log</td>
<td>t</td>
<td></td>
<td>t</td>
<td>log</td>
<td>t</td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1.978*** (0.378)</td>
<td>-0.072 (0.257)</td>
<td>1.714*** (0.417)</td>
<td>-0.058 (0.258)</td>
<td>2.053*** (0.362)</td>
<td>-0.093 (0.258)</td>
<td>2.104*** (0.368)</td>
<td>-0.066 (0.26)</td>
</tr>
<tr>
<td>1/se</td>
<td>0.001 (0.001)</td>
<td>0.003 (0.002)</td>
<td>0.000* (0.000)</td>
<td>0.000* (0.000)</td>
<td>0.001 (0.001)</td>
<td>0.001 (0.001)</td>
<td>0.001 (0.001)</td>
<td>0.001 (0.001)</td>
</tr>
<tr>
<td>LnSqrtDF</td>
<td>0.134* (0.068)</td>
<td>0.131* (0.068)</td>
<td>0.135** (0.068)</td>
<td>0.135** (0.068)</td>
<td>0.130* (0.068)</td>
<td>0.130* (0.068)</td>
<td>0.130* (0.068)</td>
<td>0.130* (0.068)</td>
</tr>
<tr>
<td>H0:LnSqrtDF=1</td>
<td>Rej***</td>
<td>Rej***</td>
<td>Rej***</td>
<td>Rej***</td>
<td>Rej***</td>
<td>Rej***</td>
<td>Rej***</td>
<td>Rej***</td>
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<tr>
<td>Obs</td>
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<td>424</td>
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<td>422</td>
<td>420</td>
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<tr>
<td>Clust.</td>
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<td>AdR2</td>
<td>0.042</td>
<td>0.016</td>
<td>0.125</td>
<td>0.015</td>
<td>0.002</td>
<td>0.017</td>
<td>0.003</td>
<td>0.015</td>
</tr>
</tbody>
</table>

* sig. at 10%, ** sig. at 5%, *** sig. at 1%.
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- FDI seems to be moderately correlated with growth in Low and Middle income countries included in our META regression analysis;
- From our preliminary study we can conclude that the gross effect (micro) is much weaker than the net (macro) effect....but this is probably due to:
  - Unaccounted spillover in the firm level literature;
  - Econometric macro bias: macro studies are more affected by 'omitted variable bias';
- We envisage a further increase of our database (mainly on Macro but also on Micro);
- *[On a more technical note] We are exploring a combined way of weighting the studies both for precision and for quality, e.g. measured as number of citation per years and/or published versus unpublished (as in [Meyer and Sinani (2009)]).
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