

# 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);
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# Foreign Direct Investment and Growth

## 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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# 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 from each other);
- On the other hand, we do *not* observe much of a *geographical area heterogeneity* (geographical areas do not result being statistically different from 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:
  - the 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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## FDI and Development

- Due to the existence of many channels there is no conclusive prediction [+ OR -]:
  - 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)];
  - [Buckley, Clegg, Cross, Liu, Voss and Zheng (2007)];
  - [Spencer (2008)].
- Some topical papers on MNCs theory: Hymer (1960) and (1976); [Vernon (1966)]; [Caves (1974)]; [Rugman (1981)]; [Dunning (1988)]; [Haddad and Harrison (1993)].

## The literature (cont.ed)

### \*[On a more technical note] META Analysis on FDI

- *Seminal*: [Gorg and Strobl (2001)]. Very small sample though;
- *Developing Countries*: [Wooster and Diebel (2006)]. 32 Studies (27 published and 5 WPs), 141 observations. 21 countries;
- *Role of level of economic development*: [Meyer and Sinani (2009)]. Both developed and developing countries;
- *Emerging European Markets*: [Hanousek, Koceda and Maurel (2009)]. Transition countries.
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# Statistical Data Construction: How the Studies were Selected

- We identify 143 Low and Middle income countries (for example see [www.data.worldbank.org/country](http://www.data.worldbank.org/country));
- We use the following research engines Scholar.Google, Scopus, Publish or Perish, SSRN to discover as many paper as possible;
- We standardize the search criteria, i.e. use of KEY WORDS;
  - Micro 'FDI + country' & 'Foreign Direct Investment + country';
  - Macro: We add the keyword 'cross section' + 'TFP' + 'growth' (but also MNCs and TNCs);
- We also use 'snowballing': look at the references in topical papers;
- Selection of papers conditional to relevance and econometric analysis, though:
  - Micro 105 (556 observations);
  - Macro 9 (19 obs), preliminary.

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- Our initial estimated equation assumes the following specification
  - $r_{ij} = \beta_0 + v_{ij}$ ;
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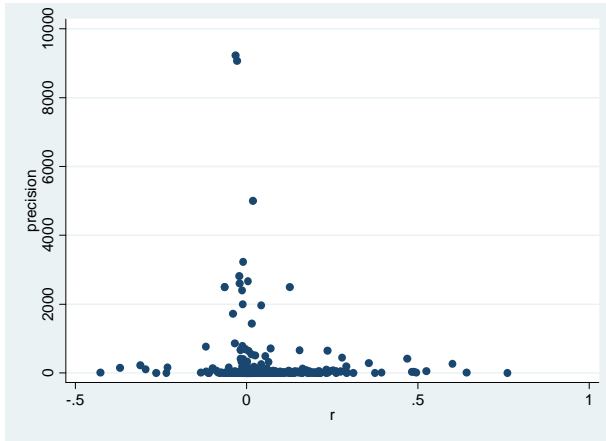
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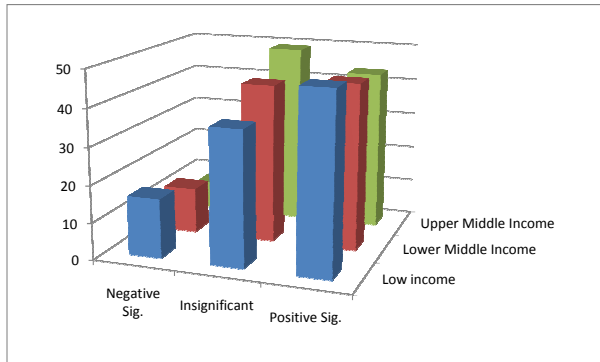
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# Funnel Plot: a Pictorial Graph of the effect



# 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

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

Clustered SE in parentheses. Regression testing for different sample, where 'outliers' are selected according to precision.

# Table 1: Regressions on the mean: Macro Level

## Macro

	Sensitivity			
	(1)	(2)	(3)	(4)
	Full sample	1/se < 600	1/se < 400	1/se < 200
Un-weighted	0.184** (0.065)	0.186** (0.070)	0.186** (0.070)	0.205** (0.068)
Weighted	0.096** (0.037)	0.057*** (0.010)	0.057*** (0.010)	0.073** (0.026)
Observations	19	18	18	16
N. Cluster	9	8	8	8

Clustered SE in parentheses. Regression testing for different sample, where 'outliers' are selected according to precision.

	(1)	(2)	(3)	(4)	(5)	(6)
Selected Variables	Whole sample	Low	Middle	Low & Lower M.	Lower Middle	Upper Middle
Dummy = 1 if FDI direct effect (omitted indirect)	0.067* (0.039)		0.067* (0.040)	0.021** (0.009)	0.021** (0.010)	0.149*** (0.008)
Dummy = 1 if Vertical FDI spillover (omitted horizontal)	0.039*** (0.014)	-0.005 (0.023)	0.040*** (0.014)	0.020*** (0.007)	0.020*** (0.007)	0.139*** (0.029)
Dummy = 1 if Firm level data (omitted sector)	-0.197*** (0.029)	-0.095* (0.031)	-0.198*** (0.03)	-0.199*** (0.03)	-0.200*** (0.031)	-0.063 (0.047)
Dummy = 1 if Human capital labour quality controlled for	-0.117*** (0.032)		-0.117*** (0.032)	-0.159*** (0.042)	-0.160*** (0.043)	0.033 (0.031)
Dummy = 1 if R&D controlled for	0.102*** (0.034)		0.103*** (0.035)	0.122*** (0.044)	0.123*** (0.046)	0.026 (0.023)
Dummy 1 if Endogeneity controlled for	-0.017 (0.012)	-0.051*** (0.003)	-0.016 (0.012)	-0.013 (0.009)	-0.012 (0.009)	-0.052 (0.036)
Dummy = 1 if Panel		0.008 (0.004)	-0.049*** (0.018)	-0.076*** (0.028)	-0.077** (0.029)	
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 <sup>o</sup> 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%.



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LHS:	t	log t	t	log t	t	log t	t	log t
Sample '000.	Full	Full	$\frac{1}{se}$ <15	$\frac{1}{se}$ <15	$\frac{1}{se}$ <10	$\frac{1}{se}$ <10	$\frac{1}{se}$ <5	$\frac{1}{se}$ <5
Intercept	1.978*** (0.378)	-0.072 (0.257)	1.714*** (0.417)	-0.058 (0.258)	2.053*** (0.362)	-0.093 (0.258)	2.104*** (0.368)	-0.066 (0.26)
1/se	0.001 (0.001)		0.003 (0.002)		0.000* (0.000)		0.001 (0.001)	
LnSqrtDF		0.134* (0.068)		0.131* (0.068)		0.135** (0.068)		0.130* (0.068)
H0:LnSqrtDf=1		Rej***		Rej***		Rej***		Rej***
Obs	427	426	425	424	423	422	420	419
Clust.	83	83	83	83	83	83	82	82
AdR2	0.042	0.016	0.125	0.015	0.002	0.017	0.003	0.015

\* sig. at 10%, \*\* sig. at 5%, \*\*\* sig. at 1%.

## Study design

- Direct Spillover (the relative performance of foreign firms) are relatively more important for growth;
  - If indirect, vertical spillovers (in different sectors) are impinging on growth more than horizontal (same sector);
  - \*[On a more technical note] No major differences between forward and backward though;
- Firm level studies are systematically reporting lower partial correlation;
- Control for Human Capital and R&D decrease the relationship between FDI-growth....
- Country dummies matter and China seems to under perform many other countries;
- \*[On a more technical note] There is some evidence of publications selection bias, but this disappears when when control for regression specification.

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## Conclusions

- 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:
  - ① Unaccounted spillover in the firm level literature;
  - ② 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);
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