Are there Productivity Spillovers from Foreign Direct Investment in Uganda? Evidence from Firm Level Panel Data

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Introduction

- Attracting FDI has become an essential part of development strategies of many developing countries;
    - Liberalization of the domestic and external sector
    - Privatization
- Direct contributions of FDI is well documented in Obwona (2001) and other earlier paper
- Although the contribution of policies in attracting FDI cannot be refuted, the effects of FDI on the productivity of domestic firms in Uganda are far from clear.
- the empirical literature is ambiguous on the effects of FDI on productivity spillovers to domestic firms.

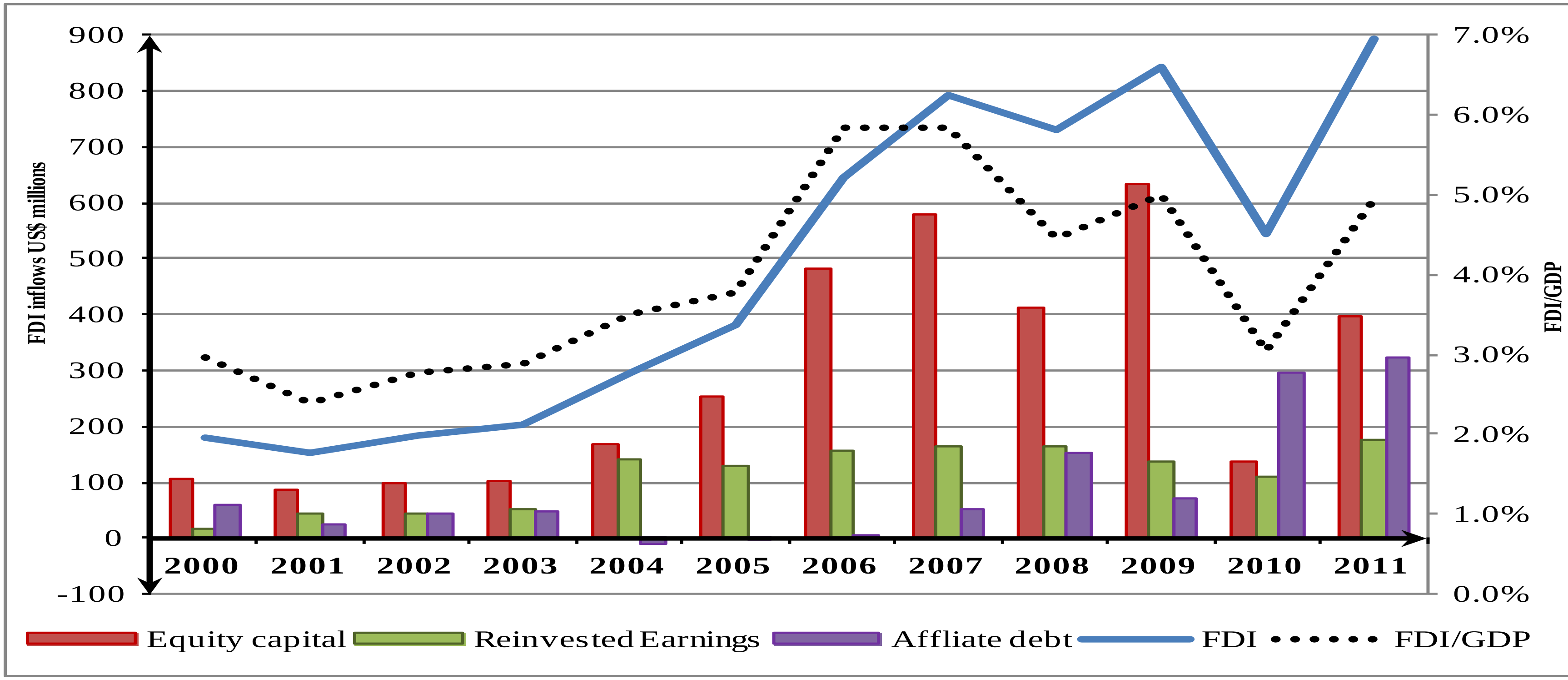
Purpose and Objective

- The purpose of this study is to investigate whether the presence of FDI affects the productivity of local firms through vertical spillovers across sectors.
    - Estimate the magnitude and direction of inter-industry spillovers.
- The specific objectives was to estimate:
    - horizontal spillovers within the manufacturing sector;
    - backward spillovers from manufacturing FDI to local firms
    - forward spillovers from manufacturing FDI to local firms

Background: FDI in Uganda

- Uganda began to receive large amount of FDI inflows in the late 1990s following successful implementation of economic structural reforms.
- Uganda’s FDI inflows have been on an upward trajectory since the year 2000.
  - FDI expanded by 18.0 percent between 2000 and 2005;
  - 21.7 percent between 2006 and 2011 albeit with a decline in 2010

Background: FDI in Uganda



- The ratio of FDI inflows to GDP increased from 3.0% in 2000 to 5.0 % in 2011;
- Equity and reinvested earning has been the main component of FDI inflows – stability

Background: FDI in Uganda

- The major FDI recipient sectors were:
  - manufacturing,
  - finance & insurance,
  - information, communication and technology (ICT)
  - mining & quarrying
  - agriculture
- In terms of regional distribution, Uganda’s FDI are concentrated in the Central region mainly within Kampala and its neighbouring districts.

Literature Review

- **Overview of FDI Spillovers**
- FDI productivity spillovers occur endogenously through firm and human resource interaction in the use of superior technology in the host economy.
- Productivity spillovers from FDI to local firms can take the form of:
    - horizontal (intra-industry) spillovers

$$Horizontal_{jt} = \frac{\left(\sum_{i \text{ for all } i \in j} Foreign\ Share_{it} \times Y_{it} \right)}{\sum_{i \text{ for all } i \in j} Y_{it}}$$

Literature Review

- vertical (inter-industry) spillovers
  - Backward

$$Backward_{jt} = \sum_{k\, if\, k \neq j} \alpha_{jk} Horizontal_{kt}$$

  - Forward

$$Forward_{jt} = \sum_{m\, if\, m \neq j} \alpha_{jm} \frac{\left(\sum_{i\ for\ all\ i \in m} Foreign\ Share_{it} \times (Y_{it} - X_{it}) \right)}{\sum_{i\ for\ all\ i \in m} (Y_{it} - X_{it})}$$

Literature Review

- ***Empirical Literature***
  – Despite the suggestion in theory that presence of FDI firms have positive productivity on local firms, the empirical evidence have however been mixed
  – The literature on FDI and productivity spillovers have continued to grow, however there has been limited study on SSA economies.
  – This paper extends the literature by estimating FDI and productivity spillovers on Ugandan firms.

Data and Methodology

- ***Data***
  - unbalanced firm level panel data panel covering the period 2005 –2011.
  - Used annual enterprise survey or Private Sector Investment Survey (PSIS) jointly conducted by the Bank of Uganda, Uganda Bureau of Statistics and Uganda Investment Authority;
  - Focus on the interaction between manufacturing FDI with other firms in the downstream and upstream sectors

Data and Methodology

- **Model Specification**
- OLS model

$$\ln Y_{ijt} = \alpha + \beta_1 \ln K_{ijt} + \beta_2 \ln L_{ijt} + \beta_3 \ln M_{ijt} + \beta_4 \mathit{Foreign\ Share}_{ijt} + \beta_5 \mathit{Horizontal}_{jt} + \beta_6 \mathit{Backward}_{jt} + \beta_7 \mathit{Forward}_{jt} + \alpha_t + \alpha_r + \alpha_j + \varepsilon_{ijt}$$

- OLS model with lags

$$\ln Y_{ijt} = \alpha + \beta_1 \ln K_{ijt} + \beta_2 \ln L_{ijt} + \beta_3 \ln M_{ijt} + \beta_4 \mathit{Foreign\ Share}_{ijt-1} + \beta_5 \mathit{Horizontal}_{jt-1} + \beta_6 \mathit{Backward}_{jt-1} + \beta_7 \mathit{Forward}_{jt-1} + \alpha_t + \alpha_r + \alpha_j + \varepsilon_{ijt}$$

Findings

- Focus on the result of the OLS regressions with fixed effects
- Found significant and positive coefficient on both the backward spillovers variables for OLS estimates
- Existence of horizontal spillovers within the manufacturing sector;
- result shoes that forward spillover variable were not statistically significant.

Variables	Contemporaneous OLS Results		Lagged OLS results	
	All firms	**Domestic**	**All firms**	**Domestic**
Intercept	8.534*** (0.0810)	8.270*** (0.1027)	7.938*** (0.1172)	7.601*** (0.1208)
Foreign share	0.003*** (0.0004)		0.002*** (0.0003)	
Horizontal	0.001** (0.001)	0.003*** (0.001)		
Horizontal (lagged)			0.002* (0.002)	0.003** (0.002)
Backward	0.011** (0.003)	0.016** (0.005)		
Backward (lagged)			0.015*** (0.004)	0.013*** (0.005)
Forward	-0.001 (0.002)	0.000 (0.004)		
Forward (lagged)			-0.001 (0.003)	-0.001 (0.004)
Number of observations	5,342	2,736	4,507	2,014
Regression fit (R^2)	0.86	0.83	0.86	0.83

Notes:

a) The dependent variable is natural log of enterprise output (or ln*Y*). Each regression includes natural log of employment (or ln*L*), natural log of capital stock (or ln*K*) and natural log of materials used in production (or ln*M*);

b) Standard errors are presented in parentheses

c) Levels of significance of variables:

* significant at 10% levels
**significant at 5% levels
***significant at 1% levels

Conclusion

- Uganda like many developing countries in Africa and Asia has designed and used strategies to attract FDI by offering incentive packages expecting direct benefits and externalities;
- This study uses firm level data to estimate backward and forward spillovers;
- Preliminary results suggest that a one-standard-deviation increase in foreign presence in downstream sectors is associated with a 1.5 percent rise in output of each domestic firm in supplying industries.
- Work-in-progress to improve the results

Thank you