



# Foreign Direct Investment and Entrepreneurship: Gender Differences Across the World

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# Introduction

- Research on causes of entrepreneurship has gained momentum in recent years as policymakers and researchers have recognized the need for fostering entrepreneurial activity (Cebula et al. (2015)).
- Influences of various factors on entrepreneurial activity have been examined, although challenges with underlying measurement issues limit applicability of findings (Acs et al. (2008), Acs et al. (2014), OECD (2012)).
- Definitive answers for fostering entrepreneurship, especially among various demographic groups, remain elusive.

- A significant related aspect is differences across gender in effectiveness of factors driving entrepreneurial activity.
- *Do similar factors significantly affect entrepreneurship by males and females across nations?*
- Attention to gender differences in entrepreneurial research is relatively new, with many dimensions still not formally examined (Acs et al. (2011), Elam (2008), Jennings and Brush (2013), Shinnar et al. (2012), Stephan and El-Ganainy (2007) and Sullivan and Meek (2012)).

# Contribution(s) of this work

- This paper examines effect of foreign direct investment (FDI) on entrepreneurial activity across a large sample of nations, with focus on gender differences.
- Not clear a priori whether FDI necessarily fosters entrepreneurship.

*FDI could have positive effects on entrepreneurship via dissemination of technology; conversely, there could be negative consequences when FDI crowds out domestic entrepreneurship.*

- Few scholars have considered FDI-entrepreneurship nexus and none have studied gender differences (Albulescu and Tămășilă (2014), Danakol et al. (2013) and Jennings and Brush (2013)).
- **It could be the case that FDI fosters entrepreneurship among males but crowds out female entrepreneurship (or vice versa).**

Along another dimension, effect of FDI along nations with varying prevalence of entrepreneurship will be studied.

**Is FDI more effective at fostering entrepreneurship in nations with a high degree of entrepreneurship?**

- *Some Asian nations receive large FDI inflows but are not at the top of entrepreneurial activity.*

- Main contributions:
- (i) examining impact of foreign direct investment on entrepreneurial activity;
- (ii) studying differences in factors driving entrepreneurial activity for females compared to overall entrepreneurship;
- (iii) investigating whether effect of FDI is different among nations with varying prevalence of entrepreneurship; and
- (iv) using recent data on a large sample of nations.

# The model

- ▶ Although several channels impact entrepreneurship, linkage between FDI and entrepreneurship can be nested in knowledge spillover theory of entrepreneurship (Acs et al. (2007)).
- ▶ Spillovers of knowledge present entrepreneurship opportunities. New knowledge generates ideas for new products or complementary components that lead to new businesses.
- ▶ Entrepreneurship is shaped by institutional setup. Nations with a stronger property rights protection and a due legal process provide good conditions for fostering entrepreneurship.
- ▶ With FDI, often the technologies associated with foreign investments are new or cutting-edge that bring new knowledge. Such knowledge can bring new opportunities for domestic entrepreneurs and in this case FDI will be complementary to domestic entrepreneurship. On the other hand, more “routine” FDI by foreign firms would substitute for domestic entrepreneurship, (e.g., foreign conglomerates from whom budding domestic entrepreneurs feel threatened).
- ▶ Extant empirical evidence on the impact of FDI on entrepreneurship is mixed.

# Estimated equation

- **Entrepreneurship<sub>ij</sub> = f(FDI<sub>i</sub>, Economic prosperity<sub>i</sub>, Institutions<sub>ik</sub>, Country size<sub>i</sub>, Unemployment<sub>i</sub>, Urbanization<sub>i</sub>)** (1)
- $i = 1, 2, \dots, 128$
- $j = \text{GeneralENT, FemaleENT}$
- $k = \text{DEM, EconFree, GovtCons, EconFree-GSP, EconFree-Corr, EconFree-Prop}$
- **Dependent variable is alternately index of overall entrepreneurship climate (GeneralENT) and entrepreneurship climate for females (FemaleENT).**

# Data

- We restrict our analysis to 2015, with main constraint being availability of comparable time series data on female entrepreneurship (and due to corruption index).
- Although sample size with FemaleENT is smaller, correlation between GeneralENT and FemaleENT is 0.93.



- **FemaleENT**: United States was at the top with an index score of 82.9; Pakistan was at the bottom with 15.2.
- **GeneralENT**: led by United States with a score of 85; Bangladesh ranked at the bottom with 14.4.
- **FDI** (% of GDP): mean = 34.22; with range 76.37 and -32.93, (*negative signifying FDI outflows*).
- Correlation between FDI and GeneralENT 0.17; and the same was the case for correlation between FDI and FemaleENT.

**Table 1. Variable definitions, summary statistics and sources**

Variable	Definition (Mean; SD)	Source
GeneralENT	General Entrepreneurship Index – “... index that measures the health of the entrepreneurship ecosystems ... It then ranks the performance of these against each other. The GEDI methodology collects data on the entrepreneurial attitudes, abilities and aspirations of the local population and then weights these against the prevailing social and economic ‘infrastructure’” (39.07; 16.78)	The Global Entrepreneurship and Development Institute thegedi.org/global-entrepreneurship-and-development-index/
FemaleENT	Female Entrepreneurship Index – “... Index is a barometer of a country's current situation relative to a group of other countries with respect to the conditions present that will fuel high potential female entrepreneurship development”, (44.94; 15.98)	The Global Entrepreneurship and Development Institute thegedi.org/female-entrepreneurship-index-2015-report/
FDI	FDI(mill.\$)/GDP(bill.\$) ratio (34.22; 76.37)	Heritage Foundation
EconFree	Index of economic freedom; (62.95; 9.44)	Heritage Foundation
DEM	Index of democracy (sum of political rights and press freedom), higher value, lesser democracy (6.33; 3.70), 2014	Freedom House <a href="http://www.freedomhouse.org">www.freedomhouse.org</a>
EconFree-Prop	Index of freedom of property rights (46.52; 24.95)	Heritage Foundation
EconFree-Corr	Index of freedom from corruption, (46.07; 19.13)	Heritage Foundation
EconFree-GSP	Index of economic freedom related to government spending, (61.92; 23.40)	Heritage Foundation
GovtCons	Government expenditure (% of GDP), (33.94; 10.99)	Heritage Foundation
POP	Population in millions (51.18; 166.16)	Heritage Foundation
GDPpc	GDP per capita (PPP\$), (18259.45; 17535.16)	Heritage Foundation
UNEMP	Unemployment rate (%), (8.80; 6.33)	Heritage Foundation
URBAN	Urbanization rate (%), (61.80; 22.62), 2014	World Development Indicators

*Note: All data are by country for 2015 (unless otherwise noted)*

# Results

- All baseline models estimated using OLS with t-statistics based on robust standard errors.
- Overall fit of all models is decent as shown by  $R^2 \geq 0.75$ .
- The RESET test showed that, relatively speaking, fit of female entrepreneurship models was better than overall entrepreneurship.

# Baseline models

- Baseline models (Table 2) show that crowding out effect of FDI holds for general entrepreneurship. This is consistent with foreign investment dissuading some domestic entrepreneurial activity.
- With female entrepreneurship, negative impact of FDI is statistically insignificant. *It could either be the case that female entrepreneurs are not easily deterred or the focus of foreign investments is generally in areas in which female entrepreneurs tend to not specialize.*
- Crowding out effect supports earlier findings (Da Backer and Sleuwaegen (2003) and Danakol et al. (2013)).
- *Elasticity of GeneralENT with respect to FDI is -0.025.*

- Greater economic prosperity, greater economic freedom (EconFree), freedom from corruption (EconFree-Corr), stronger property rights protection (EconFree-Prop) and greater democracy increase entrepreneurial activity for both overall and female entrepreneurship.
- Neither entrepreneurship is significantly affected by country size (population) and unemployment rate.
- Effect of urbanization is positive and mostly statistically significant.
- Government size, whether denoted by GovtCons or EconFree-GSP, has a positive impact on overall entrepreneurship, but not on female entrepreneurship.

Table 2

## Panel A- Determinants of general entrepreneurship

Dependent variable: GeneralENT

	2A.1	2A.2	2A.3	2A.4	2A.5	2A.6	2A.7
<b>FDI</b>	<b>-0.03**</b> <b>(2.2)</b>	<b>-0.03**</b> <b>(2.9)</b>	<b>-0.03**</b> <b>(2.8)</b>	<b>-0.03**</b> <b>(3.5)</b>	<b>-0.03**</b> <b>(2.6)</b>	<b>-0.02**</b> <b>(2.7)</b>	<b>-0.02**</b> <b>(2.0)</b>
<b>N</b>	128	127	126	128	128	127	127

## Panel B- Determinants of female entrepreneurship

Dependent variable: FemaleENT

	2B.1	2B.2	2B.3	2B.4	2B.5	2B.6	2B.7
<b>FDI</b>	<b>0.0002</b> <b>(0.01)</b>	<b>-0.04</b> <b>(1.3)</b>	<b>-0.05</b> <b>(1.3)</b>	<b>-0.02</b> <b>(0.7)</b>	<b>-0.02</b> <b>(0.6)</b>	<b>-0.02</b> <b>(0.8)</b>	<b>-0.01</b> <b>(0.2)</b>
<b>N</b>	77	77	76	77	77	76	76

## Robustness check1: Effect of FDI on entrepreneurship across varying prevalence of entrepreneurship

- We examine effect of FDI on entrepreneurship across nations with different prevalence of entrepreneurship, using quantile regression (see Koenker and Hallock (2001)).
- Report regression results for overall and female entrepreneurship across q25, q50 and q75.
- q50 focusing on median regression, while q25 and q75, respectively, capture low and high entrepreneurship.

- Results, across two model setups, show overall pattern similar to Table 2.
- While FDI has a negative impact on entrepreneurship across all quantiles, the crowding out effect has statistical significance in the median regression for overall entrepreneurship.
- Crowding out is not significant in the tails (or for female entrepreneurship).
- This suggests that nations with mature (or nascent) entrepreneurship activity have to be less concerned with negative effects of FDI.



- In other findings, similar to Table 2, greater democracy and greater economic prosperity promote entrepreneurship. Also, unemployment is statistically insignificant.
- Whereas greater urbanization promotes overall entrepreneurship in all except high entrepreneurship prevalence nations (q75), reverse true for female entrepreneurship – urbanization promotes female entrepreneurship in nations with high entrepreneurship climates.
- *These findings suggestive of gender differences in information exchange (see Goel et al. (2015b)) and perhaps some minimum threshold level of entrepreneurship climate for females to benefit from urbanization.*

## Robustness check2: Employing similar samples for general and female entrepreneurship

- Overall sample has 127 countries, while female entrepreneurship subsample has 76 countries. We restricted full sample so that the same number of countries were covered.
- Rerunning Table 2, the pattern of results was similar.
- Coefficient on FDI was again negative, confirming crowding out effect. However, given reduced sample size, the statistical significance was more modest.
- Results for other regressors similar to Table 2.

# Concluding remarks

- This paper examines the effect of FDI on entrepreneurial activity, with focus on gender differences. It is not clear a priori whether FDI necessarily fosters entrepreneurship.
- Results support crowding out effect.
- Crowding out effect is stronger for full sample, rather than female entrepreneurship subsample.
- A 10% increase in FDI lowers overall entrepreneurship by about 0.2 percent.
- Also find some differences in efficacy of the crowding out effect across nations with different prevalence of overall entrepreneurship. Nations with median prevalence of entrepreneurship face negative effects of FDI and such consequences are not borne in female entrepreneurship.

# Policy import

- Gender differences warrant special efforts to foster female entrepreneurship.
- Negative spillovers on entrepreneurship from FDI should go into the cost-benefit calculations of efforts to encourage foreign investments.
- Efforts to boost female entrepreneurship need not be concerned about negative effects of foreign investments.

- Importance of good institutions, including economic freedom, corruption control, and property rights protection in fostering entrepreneurship is recommended.
- A large government size is not necessarily an impediment to entrepreneurship.
- Existing prevalence of entrepreneurship activity should be kept in mind in framing policies.
- Differing effects of urbanization across gender have implications for knowledge spillovers.
- Given the positive effect of economic prosperity, rich and poor nations perhaps need to approach entrepreneurship-enhancement somewhat differently.