The Impact of Greenfield Investment on Domestic Entrepreneurship

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Abstract

The FDI-entrepreneurship nexus has received growing attention over the last decade. However, the empirical findings on their relationship have been inconsistent at best. This study seeks to examine how the inflows of Greenfield investment influence entrepreneurship of the host country. Using panel data from 110 countries during the period 2001-2018, we find that growing level of Greenfield investment brings detrimental impact on the level of total and opportunity-driven entrepreneurial activities in the host countries while the impact on necessity-driven entrepreneurship have been mixed. The results regarding the impact of Greenfield investment on total entrepreneurial activities and opportunity-based entrepreneurial activities are robust across different econometric settings, different time span and different categories of control variables.

1. Introduction

Only in recent decades that entrepreneurship has been considered as the main engine of economic development and entrepreneurs as the national assets to be cultivated, motivated, and remunerated to the greatest possible extent (Albulescua and Tămăşilă, 2014). Entrepreneurs drive innovation, deliver improved products and develop new markets but too much entrepreneurship can cause damaging effect to economic development (Gromb and Scharfstein, 2002). One of the most well-known puzzles in management is the stylized fact that entrepreneurship level varies systematically across countries and across different time periods (Gromb and Scharfstein, 2002). Thus, the origins and determinants of entrepreneurship are the topic of wide spectrum of explanations and theories. Even though increasing number of scholars have made attempts to establish a comprehensive framework on the determinants of entrepreneurship (Brock and Evans, 1989; Govran et al., 1998), an understanding of cross-variations in entrepreneurship at the macro level is still limited.

Foreign direct investment (FDI) is regarded as one of the most important contributors of economic growth (Ahmeti and Kukaj, 2016). Foreign direct investment can be a key driver of development when tuning the economy but can also be considered predicament in relation to the entry and performance of domestic companies (Apostolov, 2017). FDI into a host country can take a wide variety of forms in manufacturing, assembly or services such as mergers and acquisitions, Greenfield investment and extension of domestic capital. Each type of FDI brings distinctive benefits to the host countries' growth and welfare but also offers corresponding distinctive threats and damages (Moran, 2012). As a consequence, it is logical to deduce that each market entry modes exerts distinctive impact on the domestic entrepreneurial activities.

Schumpeter (1942) has shown that entrepreneurship and new firm creation are the engines of economic growth and development. Domestic entrepreneurship and foreign direct investment refers to two distinctive ways on how new firms are created (Ayyagari and Kosová, 2010), thus both being classified as different types of investments into the host countries. The relationship between FDI and entrepreneurship suggests a substitution effect such that entrepreneurship provides an alternative way of doing business to attracting investment from foreign investors.

Significant efforts have been made in finding the linkages between entrepreneurship and foreign direct investment. Most existing studies have pooled mergers and acquisitions (M&A) and Greenfield investment (Greenfield) together into one group of FDI in investigating the impact of FDI on local firms. However, the conclusions that these studies come to are highly questionable. First, the composition of FDI inflows into the host countries is dominated by M&A. In addition, the acquisition of existing assets (M&A) has been growing more rapidly than the investment in new assets (Greenfield) (Calderon, 2002). However, the distinctiveness of Greenfield has been largely neglected by scholars when making the link between FDI and entrepreneurship. Second, despite their similarities Greenfield and M&A carry certain distinct differences (Raff et al, 2009). First and foremost, while M&A involves the transfer of asset ownership, Greenfield depends solely on firms' own capacities, which are linked to host countries' intrinsic attributes (Davies et al, 2018). Next, Greenfield involves high investment costs and highly risky (the riskiest type of foreign direct investment), making it the less popular type than mergers and acquisitions (Muller, 2006). In other words, Greenfield investment bears more similarities to entrepreneurship than M&A does. In that light, one question may arise: Whether Greenfield investment crowds in or crowds out domestic entrepreneurship?

Theoretically, foreign direct investment is expected to generate the impact of technology and knowledge transfer, improve competitiveness, productivity and long-run growth of the local economies (Guimón, 2009; Blonigen and Piger, 2014). However, the empirical literature is far from universal on the effects of FDI. Recently, an increasing number of papers has examined the connection between FDI and new local firms' entry and survival (De Backer and Sleuwaegen, 2003; Ayyagari and Kosová, 2010; Munemo, 2015; Danakol et al., 2017). The first strand of literature suggests that the positive spillover effects would increase the productivity of domestic firms, enhance domestic investment and firms' entry (De Mello 1999; Munemo, 2015). Another strand offers a substitution effect in the sense that domestic investment is crowded out by the same amount of foreign investment, forcing the exit of local firms and deterring the entry of new firms. In short, existing empirical literature offers inconsistent predictions on the entrepreneurship-FDI connection.Amoroso and Muller (2018)

argues that the relationship between FDI and entrepreneurship is established based on a complex framework that involves new ventures' regulations (Munemo, 2015) and horizontal and vertical industry spillovers (Markusen and Venables, 1999). Another reason for the unanimous finding is that the impact of FDI on entrepreneurship hinges on the types of FDI such as Greenfield (new foreign firm) or Brownfield (M&A or foreign acquisition of local firms). Traditional literature associate Greenfield with positive impact such as employment generation or capital formation, mergers and acquisitions have been criticized for their speculative motives or value destruction (Norbäck and Persson, 2005; Johnson et al., 2006; Ashraf et al., 2016)

Previous empirical findings have typically focused on the impact of either overall FDI inflows or cross-border M&As on entrepreneurship and local economies. Amoroso and Muller (2018) is the first the examine the relationship between knowledge intensive Greenfield investment and local firm entry and survival. However, their study is limited to the context of European countries and knowledge intensive FDI and does not address the influence of Greenfield on entrepreneurial activity. Another reason for the under-investigation of studies on Greenfield is the lack of reliable data on Greenfield. This gap is theoretically intriguing because we expect that the impact of Greenfield on domestic entrepreneurship differs from M&A and diverges among different countries.

In this paper, we use a comprehensive dataset on Greenfield investment from the World Investment Report online database that allows us to explore the under-investigated impact of Greenfield FDI on the rate of entrepreneurial activity in the host countries. We constructed a country-level panel dataset by matching information on Greenfield FDI inflows to the rate of national entrepreneurial activity and additional macroeconomic control variables from GEM and World Bank Database. The first contribution is the extensive coverage of all available countries around the world in a strongly balanced panel from 2001 to 2018. The second contribution is the disentanglement of FDI inflows into Greenfield investment in predicting the rate of entrepreneurial activity. Most previous studies investigated the linkage between FDI and domestic entries or survivals without taking into consideration entrepreneurs who operate the daily business and entrepreneurial activities (Albulescua and Tămăşilă, 2014). The TEA variable measures the proportion of working population who bears the intention pursue entrepreneurial activities. Finally, most research scholars seem to show their approval for the positive impact of Greenfield investment such as R&D stock or knowledge intensive Greenfield. Our paper will offer another interesting insight into the impact of Greenfield investment on domestic investment and domestic entrepreneurship. Our analysis will be also split and tested in pre- and post-crisis as for robustness checks. The remainder of the paper is the following. Section 2 presents a brief overview of the literature on entrepreneurship and FDI. Section 3 describes the stylized facts, the data and the methodology. Section 4 highlights the empirical findings. The last section is conclusion.

2. Literature Review

Foreign direct investment (FDI) can take two very different forms: Greenfield investment, which involves the creation of a new facility, or mergers and acquisitions (M&A), which involve the purchase of assets of existing domestic firms (Ashraf, 2014). The origin of Greenfield investment comes from the fact that a multinational company builds a newly-developed venture from the ground up by plowing and prepping an entire green field. Unlike brown-field investors that lease existing assets and facilities and transform them to adapt to their needs, Greenfield investment involves building everything from the scratch and investors exerts the highest degree of control over the facilities and land of the sponsoring company.

Harms ad Méon (2011) shows that Greenfield FDI has a significantly positive effect on economic growth. This finding is robust across various definitions of Greenfield FDI and across various subsamples. A much debated question is whether FDI crowds in or crowds out investment from domestic sources. On the one hand, FDI can crowd out domestic investment if foreign firms finance their investment through borrowing in the host country, thus increasing the host country's interest rate (Harrison and McMillian, 2003). Crowding-out may also occur if foreign firms 'steal' market share from domestic competitors (Aitken and Harrison, 1999) and if foreign firms purchase fewer inputs locally than the domestic firms they displace (Rodriguez-Clare, 1996). On the other hand, an increase in FDI can lead to an increase in domestic investment if FDI stimulates new domestic investment through forward and backward linkages (UNCTAD, 1999).

Entrepreneurship is an essential engine for economic growth and development. entrepreneurs are prime movers of innovation (Harbison). Establishment of enterprises leads to increase in employment avenues both directly and indirectly. Entrepreneurship has a French origin which refers to the creation or extraction of value. With this definition, entrepreneurship is viewed as change, which may include other values than simply economic ones.Therefore, entrepreneurship is known to involve high risks associated with launching a startup. Given the importance of entrepreneurship in socio-economic aspects, a number of studies have investigated the determinants of entrepreneurship. However, the influence of FDI and especially Greenfield on entrepreneurship has been largely ignored in the literature.

It is also important to distinguish Greenfield investment from M&A. Harms and Meon (2011) demonstrate that, in contrast to Greenfield FDI, a larger volume of M&A results in an appreciated real exchange rate. The resulting loss in price competitiveness may explain the poor

growth effect of the M&A variant of FDI. Existing literature on the economic consequences of Greenfields and M&As has pointed out the possibility that Greenfields would contribute to increasing the recipient's capital formation and productivity, while M&As may not (Kim, 2009). This is because, whereas Greenfields involve the direct investment and construction of new facilities, cross-border M&As involves the transfer of the recipient country's income to the home market. As a result, M&As might not lead to any capital formation and/or productivity enhancement of the host country. Danako et al (2016) reveal that the FDI inflows via M&A act to crowd out and reduce domestic investment at the level of the host economy and within sectors. The effect however is modest in scale; at the economy-wide level, a 10% increase in M&A FDI inflows as a share of GDP is associated with a 0.19% decline in domestic entrepreneurship. The reason has something to do with the fact that foreign firms can attract scarce domestic resources for example talented   and skilled workforce. This translates into additional competitive pressure in labor markets, with the potential to change the entrepreneurial landscape in the local economy. If local enterprises fail to adopt the superior technology, they will be forced to exit.

Previous literature has focused on the nexus between the total entrepreneurial activity and aggregate foreign direct investment. Most papers linking entrepreneurship and FDI are based on the theories of spillovers effect and crowding out effect (Pathak et al, 2015; De Backer and Sleuwaegen, 2003; Knoben et al. 2011). Danakol et al. (2013) and Stiebale and Reize (2011) are few of the studies that examine the influence on entrepreneurship a specific category of FDI, which is Mergers & Acquisitions. On the other side, a large proportion of literature has been devoted to the identification of the determinants of entrepreneurship (Ayyagari and Kosová, 2010), some of which are macroeconomic fundamentals, quality of institutions and commercial infrastructure.The FDI-entrepreneurship relationship was first investigated by Kim & Li (2012) and the literature has produced mostly contradictory results. Theoretical arguments suggest that Greenfield investment could have both positive and negative impact on entrepreneurship.

New waves of foreign Greenfield firms entering the host countries could lead to the diffusion of new technology management practices and the creation of new sub-contracting opportunities (Albulescu and Tămăşilă, 2014). This is supported by the research of Javorcik (2004) that domestic entrepreneurship may be expected to gain benefits from knowledge spillovers or technology transfer beyond the actual undertaken project by new Greenfield.

Javorcik (2004) finds that the establishment of new Greenfield firms would generate new demands in the host countries by creating new entrepreneurial opportunities and allowing domestic firms to imitate and learn from their failures. Alternatively, firms established under Greenfield investment can produce what is called the demand creation effect, bringing new demand to the local markets, new opportunities and higher-quality products. Greenfield can also bring diffusion of new managerial skills to the domestic firms when trained employees move from foreign to indigenous firms for higher salaries or senior positions, they carry with them new management practices which they acquired in foreign firms (Fu, 2012).

Negative spillover effects can occur when Greenfield investment would crowd out domestic entrepreneurs through their selections in product and labor markets (De Backer and Sleuwaegen, 2003). Ayyagari and Kosová (2010) refer the entry barrier effect by stating that the presence of foreign firms in an industry can discourage entry of domestic firms by raising the technological barriers to entry. Additionally, newly-established Greenfield would generally receive favorable incentives from the local government and authority, giving them unfair competitive edge over the local entrepreneurs.

On the other hand, domestic entrepreneurs may also suffer from negative spillover effects when the presence of multinational companies drive up the competition create barriers to entry (Gorg and Greenaway, 2004).

M&A and Greenfield are completely different if we take into account the actual investment into the host countries (Gopalan et al, 2017). Unlike FDI via mergers and acquisitions, Greenfield investment refers to one mode of foreign entry via setting up a new venture (Muller, 2006). In addition, Greenfield investment would lead to the appearance of new entrepreneurial entities but M&A involves the acquisition of existing local firms.

3. Methodology And Empirical Results

3.1 Data and methodology

Data for the total early-stage entrepreneurial activity including necessity- and opportunity-driven entrepreneurship is obtained from the Global Entrepreneurship Monitor (GEM) while information about Greenfield is extracted from the World Investment Report (UNCTAD). We assess the role of Greenfield investment in determining the rate of entrepreneurial activity in the period from 2005 to 2011.

The panel data includes 110 countries for the period 2001-2018 (695 observations). Data related to entrepreneurial activity are produced by Global Entrepreneurship Monitor (GEM) while the dataset on macroeconomic variables including Greenfield investment are obtained

from UNCTAD. Table 1 provides the descriptive statistics of the variables used in the paper.

3.1.1. Fixed and random effects

The fixed-effect panel regression model is the preferred choice in evaluating the explanatory variables of entrepreneurial activity because the within model (or fixed effect) is able to disentangle the variations among different cross sections of countries (Albulescu and Tămăşilă, 2013). However, we also include random model in the regression results because the number of countries (T=110) is much higher than the number of years (N=18). A Hausman test is also utilized in order to compare and contrast between fixed-effect and random-effect equations.

The fixed effect panel model is usually used for assessing the entrepreneurship determinants. Fixed effects underline disparities between countries. A new development of this classical model is the panel negative-binomial model, which accounts for violations in the assumption of homoscedasticity and, in the same time, provides the flexibility to address unobserved heterogeneity (Hausman et al., 1984). Nevertheless, as Allison & Waterman (2002) show, this method does not, in fact, control for all stable covariates. We then test a simple fixed effect model, but also a random model, having in mind the fact that the structure of our sample shows a N<T situation (the number of countries is higher that the number of periods). In addition, for the robustness check we do not have strongly balanced panels (lack of data for the beginning of the period) and the random-effects models address these aspects. In order to avoid the broken panel problem, when entrepreneurship data were missing (Germany - 2007; Ireland - 2009; Sweden - 2008, 2009 and Switzerland - 2006, 2008), we have used the linear interpolation. A Hausman test was performed in order to select the most appropriate model between the fixed and random effects. The general tested equations for fixed and respectively for random effects are:

$$Y_{i,t} = \beta_0 + \beta_1\ Greenfield + \beta_2 X_{i,t} + a_i + e_{i,t}\ (1)$$

In which: $Y_{i,t}$ is the explained variable (tea, necessity, opportunity); β_0 is the constant; a_i represents all the constant time-invariant characteristics of the countries; $X_{i,t}$ represents the vector of independent variables; β_1 and β_2 are the coefficients; $e_{i,t}$ is the error term.

$$Y_{i,t} = \beta_0 + \beta_1\ Greenfield + \beta_2 X_{i,t} + \mu_i + e_{i,t}\ (2)$$

In which: μ_i represents between-entity errors; $e_{i,t}$ is the within-entity error.

3.1.2. GMM estimated method

Most of the previous studies conducted on the influence of foreign investment on domestic entries use panel data fixed/random effect models or least square dummy variable (LSDV) models. These kinds of models are based on a strong assumption that the effect across the panel is homogeneous. With the estimation of the random and fixed effect panel models, some specification issues are expected, the first and foremost of which is the endogeneity issue of Greenfield investment. A wide variety of techniques and different variables have been adopted to mitigate the endogeneity issue of foreign direct investment. Lagged value of Greenfield will be used as an instrument for Greenfield to deal with the problem (Alfaro et al. 2004). The main reason is that foreign direct investment is expected to reinforce itself from time to time (Wheeler and Mody, 1992). Therefore, the endogeneity issue would be best dealt with by the dynamic panel model that includes lagged value of FDI as an instrumental variable. The GMM estimated method will be used on data for the total entrepreneurial activity and the opportunity- and necessity-based components.

This paper uses a dynamic panel data model and generalized method of moments (GMM) estimation method to model the impact of Greenfield investment on domestic entrepreneurship. The dynamic panel data model and GMM estimation deal with the potential FDI endogeneity problem.

The following dynamic panel data models is estimated to model the impact of Greenfield on domestic entrepreneurship.

$$Y_{i,t} = \beta_0 + \beta_1\ Y_{i,t-1} + \beta_2\ Greenfield_{i,t} + \beta_3\ X_{i,t} + e_{i,t}\ (3)$$

where $Y_{i,t}$ is the total entrepreneurial activity, Y_{it-1} is the lagged value of the total entrepreneurial activity. Greenfield$_{i,t}$ is the total of net Greenfield investments inflow to the host country. $X_{i,t}$ represents the control variables for the determinants of total entrepreneurial activity including gross domestic product growth rate, entrepreneurial intentions and the fear of failure rates and $e_{i,t}$ is the random error term. Adopting from existing similar studies (for example Albulescu and Tămăşilă 2013), we used fear of failure rates, GDP growth rate and entrepreneurial intentions as explanatory variables of total entrepreneurial activity.

3.2 Empirical results and discussion

We have conducted one main overall test and three sets of robustness checks. The main test has been performed in the total dataset of 110 countries over the 18-year period from 2001 to 2018 (Panel A). The other sets of analysis consist of similar methodology over the same number of panel, but the sample period has been split into pre-crisis (Panel B), during crisis (Panel C) and post-crisis (Panel D). For each set of tests, both fixed-effect and random-effect models have been shown along with the Hausman test (to determine whether the fixed-effect or random-effect is more preferred). In addition to the Panel on total entrepreneurial activity, we have also made distinction between necessity-driven entrepreneurship and opportunity-driven entrepreneurship.

Table 1: Descriptive statistics

	Mean	Sd	Min	Max
gdpgrowth	3.82	5.17	-62.08	123.14
gdpcapita	8.46	1.54	4.72	12.15
lngreen	6.81	2.65	-1.61	12.41
fof	34.13	9.24	12.3	75.4
ei	18.73	15.28	0	90.95
opportunity	7.9	5.35	0.81	31.89
necessity	2.96	2.93	0.09	19.55
tea	11.45	7.66	1.48	52.11

Table 1 above presents descriptive statistics for all the variables. The summary indicates a great deal of variations within each variable with GDP growth rate (gdpgrowth) ranging from -62% to 123% while its average only at 4%. The same is also true for Greenfield investment so we take log of this variable (lngreen). Fear of failure rate (fof) represents the percentage of population who indicates that fear of failure leads them not to open a business while entrepreneurial intentions (ei) refers the percentage of population who intend to open a new venture and this figure varies significantly from 0% to 90%. As predicted, the sum of opportunity-based entrepreneurship (opportunity) and necessity-based entrepreneurship (necessity) are equal to total entrepreneurship (tea) in every single statistic, which is actually observed in Table 1.

Table 2: Correlation matrix

	gdpgrowth	fof	ei	tea	lngreen	gdpcapita
gdpgrowth	1.00					
fof	-0.10	1.0				
ei	0.25	-0.27	1.00			
tea	0.24	-0.31	0.82	1.00		
lngreen	-0.13	0.26	-0.52	-0.45	1.00	
gdpcapita	-0.33	0.17	-0.65	-0.56	0.57	1.00

Table 2 correlation matrix shows no indication of multicollinearity and there is no significant correlation between *lngreen* and *tea.* However, the correlation between *tea* and *ei* is strong and statistically negative.

Table 3: Impact of Greenfield investment on necessity driven, opportunity-driven and total entrepreneurial activity.

	tea			opportunity			necessity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Random	Fixed	GMM	Random	Fixed	GMM	Random	Fixed	GMM
tea_{t-1}			0.2***			0.2***			
			(0.03)			(0.03)			
$opportunity_{t-1}$									0.31***
									(0.03)
$necessity_{t-1}$									
lngreen	-0.37***	-0.50***	-0.26***	-0.19**	-0.22*	-0.03	-0.07	-0.14**	-0.04
	(0.11)	(0.13)	(0.09)	(0.1)	(0.12)	(0.08)	(0.05)	(0.06)	(0.04)
gdpcapita	-0.28	1.62***	-1.54	0.30	2.16***	-0.66	-0.80***	-0.48**	-1.7*
	(0.32)	(0.51)	(2.53)	(0.26)	(0.42)	(1.97)	(0.1)	(0.22)	(0.001)
gdpgrowth	-0.04	-0.05	0.002***	-0.004	-0.01	0.001***	-0.03*	-0.04**	0.005**
	(0.04)	(0.04)	(0.004)	(0.03)	(0.03)	(0.004)	(0.02)	(0.02)	(0.002)
fof	-0.04**	-0.03*	-0.07***	-0.04**	-0.03*	-0.05***	-0.02***	-0.01	-0.01*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.007)	(0.008)	(0.007)
ei	0.30***	0.22***	0.3***	0.19***	0.14***	0.2***	0.09***	0.05***	0.08***
	(0.02)	(0.02	(0.02)	(0.02)	(0.02)	(0.02)	(0.007)	(0.008)	(0.008)
Constant	12.94***	-3.56	14.09	4.52*	-12.8***	7.02	10.09***	7.92***	8.28*
	(3.01)	(4.85)	(10.8)	(2.45)	(4.0)	(8.39)	(1.15)	(2.04)	(4.31)
Observations	695	695	571	555	555	447	555	555	447
R-squared	0.53	0.24		0.44	0.18		0.55	0.11	
Adjusted R^2	0.52	0.12		0.44	0.03		0.54	0.05	
F Statistic	767.22***	37.57***	163.55	438.01***	21.04***	105.22	661.76***	11.84***	129.72
		(df = 5; 604)	(df = 6, 564)		(df = 5; 466)	(df = 6, 440)		(df = 5; 466)	(df =6, 440)
Note:				*p<0.1; **p<0.05; ***p<0.01					

Table 3 shows the results of Panel A, which is the main model of our paper. As can be seen in the table, Greenfield investment exerts negative influence on the total entrepreneurial activity with the coefficients *lngreen* being negative in all settings except for the random-effect model on necessity entrepreneurship. Another noteworthy feature is that the *lngreen* coefficient shows lesser degree in terms of both magnitude and statistical significance in model (7), (8) and (9) that measure the impact of Greenfield on necessity entrepreneurship. Correspondingly, the inflows of Greenfield investment would have damaging impact on the rate of opportunity-based entrepreneurs while not necessarily decreasing the rate of necessity-based entrepreneurs.   This is referred to as the crowding-out effect of FDI. The crowding-out effect of Greenfield could be explained by the replacement of entrepreneurship by employment. More specifically, setting up a new Greenfield venture in the foreign country may involves employing potential entrepreneurs, contributing to a reduction in the rate of potential future entrepreneurs (Goel, 2017). Along with another related dimension, foreign investors might also lure some potential entrepreneurs as employees. This would result in a reduction in domestic entrepreneurship (as employment replaces entrepreneurship). The overall impact of FDI on entrepreneurship might then be negative or positive and might vary across demographic groups. For example, female entrepreneurs might face special challenges in competing against foreign investors (Goel, 2017). In addition, Ashraf et al. (2016) and Calderón et al. (2004) both state that Greenfield investment bears crowding-out effect and hamper long-term economic growth. Since

productive entrepreneurship is positively related to economic growth (Salgado-Banda, 2007), Greenfield investment would damage the long-term economic potential, which in turn decrease the rate of opportunity entrepreneurs.

Another interesting result is that high GDP growth rate and high GDP per capita are negatively associated with necessity-driven entrepreneurs while we find no significant evidence of the relationship between GDP growth rate or GDP per capita and opportunity entrepreneurship. This results are consistent with the current literature. Necessity-driven entrepreneurs often have poor education, run smaller businesses and their firms tend to lag behind others (Poschke, 2012). As soon as necessity-based entrepreneurs find better opportunities elsewhere, they will abandon their businesses (Rissman, 2003). When people have higher standard of living and sufficient livelihood, they will be less motivated to pursue entrepreneurship out of necessity (Poschke, 2012). Secondly, the direction and significance of the coefficients *fof* and *ei* are generally consistent across all models. More specifically, fear of failure (fof) would prevent entrepreneurs from setting up new ventures out of both opportunity and necessity. Next, entrepreneurial intention is the conscious state of mind that precedes entrepreneurial actions and positively direct people towards entrepreneurial behaviors (Moriano et al., 2012).

Table 4: Relationship between Greenfield investment and entrepreneurship in pre-crisis period

	tea			opportunity			necessity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Random	Fixed	GMM	Random	Fixed	GMM	Random	Fixed	GMM
tea_{t-1}			0.41*** (0.07)						
$opportunity_{t-1}$						0.53*** (0.09)			
$necessity_{t-1}$									0.51*** (0.08)
lngreen	-0.38** (0.18)	-0.12(0.20)	-0.24** (0.12)	-0.35** (0.14)	-0.18(0.15)	-0.22* (0.13)	0.002(0.07)	0.14* (0.08)	-0.02 (0.09)
gdpcapita	-0.76(0.60)	-1.45(1.27)	-0.02 (0.1)	-0.11(0.48)	0.18(0.95)	0.04 (0.08)	-0.57*** (0.20)	-1.20** (0.51)	0.06* (0.04)
gdpgrowth	0.15(0.12)	0.18(0.14)	-0.00** (0.00)	0.13(0.09)	0.10(0.11)	0.014* (0.08)	0.01(0.05)	0.07(0.06)	0.01* (0.11)
fof	-0.0003(0.04)	0.01(0.04)	-0.09*** (0.03)	-0.02(0.03)	-0.01(0.03)	0.07*** (0.02)	0.01 (0.01)	0.02 (0.02)	-0.005 (0.675)
ei	0.26***(0.04)	0.16*** (0.05)	0.24*** (0.04)	0.14*** (0.03)	0.09** (0.04)	0.12*** (0.03)	0.11*** (0.02)	0.06*** (0.02)	0.06*** (0.02)
Constant	15.25** (6.14)		6.91*** (1.39)	8.55* (4.89)		5.53*** (1.43)	5.52** (2.15)		-4.2* (2.43)
R-squared	0.53	0.18		0.39	0.09		0.61	0.4	
F Statistic	141.77***	3.56***	60.14 (df = 6, 75)	78.04***	1.65	27.66 (df = 6, 74)	195.85***		84.62 (df = 6, 74)
Observations	82	82	82	82	82	82	82	82	82
Note:				*p<0.1; **p<0.05; ***p<0.01					

Similar findings have also been found in the pre-crisis period as can be seen in Table 4. The inflows of Greenfield investment significantly lower the rate of total entrepreneurship and opportunity-driven entrepreneurship. The distinct finding is that Greenfield may actually increase necessity-driven entrepreneurs with coefficient lngreen being significantly positive in model 8. This could be explained by the fact that the entry of Greenfield venture might drive up competition pressure for domestic firms, forcing them out of market and thereby decreasing employment in host economy (Karlsson, 2007). Giant MNEs may raise the average wages in the local narrowly-defined industry and then qualify job growth in the host countries. Subsequently, there would be a higher number of potential entrepreneurs who start up new business upon losing their jobs.

Table 5: Relationship between Greenfield investment and entrepreneurship during crisis

	tea		opportunity		necessity	
	(1)	(2)	(4)	(5)	(7)	(8)
	Random	Fixed	Random	Fixed	Random	Fixed
lngreen	-0.03(0.22)	0.14(0.23)	0.07(0.16)	0.24(0.18)	-0.06(0.10)	0.02(0.13)
gdpcapita	-2.50***(0.85)	5.80**(2.46)	-1.10*(0.62)	5.27***(1.86)	-1.07***(0.33)	0.80(1.42)
gdpgrowth	-0.15**(0.07)	-0.02(0.07)	-0.11**(0.05)	-0.01(0.05)	-0.06(0.04)	-0.04(0.04)
fof	-0.002(0.04)	-0.08*(0.04)	0.01(0.03)	-0.05(0.03)	-0.01(0.02)	-0.03(0.02)
ei	0.10*(0.06)	-0.09(0.06)	0.07*(0.04)	-0.06(0.05)	0.06**(0.02)	-0.05(0.04)
Constant	33.36***(8.41)		15.75**(6.16)		13.15***(3.41)	
R-squared	0.39	0.37	0.27	0.44	0.50	0.24
F Statistic	41.86***	2.78**	23.45***	3.76**	63.97***	1.51
Observations	73	73	71	71	71	71
Note:			*p<0.1; **p<0.05; ***p<0.01			

Regarding entrepreneurship during turbulent times, we see no significant relationship between entrepreneurship and Greenfield investment during crisis in Table 5. Entrepreneurial activity is also unrelated to fear of failure and entrepreneurial intentions. Meanwhile, the other coefficients such as GDP per capita and GDP growth rate show contradictory results in between fixed-effect and random-effect model. We are unable to carry out GMM estimation method in the crisis period due to insufficient observations. Thus, we cannot generalize the results regarding the impact of Greenfield investment during the turbulent times. Future research could resolve the data issue by conducting studies at the country level to examine the distinct impact Greenfield investment may have on different country settings.

Table 6: Relationship between Greenfield investment and entrepreneurship after-crisis period

	tea			opportunity			necessity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Random	Fixed	GMM	Random	Fixed	GMM	Random	Fixed	GMM
tea_{t-1}			-0.42*** (0.08)						
$opportunity_{t-1}$						-0.39*** (0.1)			
$necessity_{t-1}$									0.47*** (0.12)
lngreen	-0.24* (0.13)	-0.53*** (0.16)	-0.42** (0.12)	-0.06(0.12)	-0.21(0.16)	-0.24 (0.28)	-0.02(0.06)	-0.20** (0.08)	-0.12 (0.14)
gdpcapita	-0.93*** (0.35)	0.30(1.10)	-0.15** (0.07)	-0.33(0.29)	2.53** (1.12)	-0.06 (0.08)	-0.94*** (0.14)	-2.17*** (0.57)	-0.06 (0.04)
gdpgrowth	0.01(0.05)	-0.03(0.05)	0.34*** (0.18)	0.05(0.04)	0.01(0.04)	0.06*** (0.09)	-0.02(0.02)	-0.01(0.02)	-0.37*** (0.1)
fof	-0.07*** (0.02)	-0.05** (0.02)	0.11*** (0.05)	-0.06*** (0.02)	-0.02(0.02)	0.14*** (0.04)	-0.03*** (0.01)	-0.02(0.01)	0.04** (0.02)
ei	0.28*** (0.02)	0.21*** (0.02)	0.18*** (0.05)	0.18*** (0.02)	0.10*** (0.02)	0.06 (0.05)	0.09*** (0.01)	0.05*** (0.01)	0.03 (0.03)
Constant	19.36*** (3.37)		7.82*** (1.89)	10.24*** (2.82)		5.71*** (2.22)	11.59*** (1.33)		9.14*** (3.11)
R-squared	0.54	0.21		0.47	0.12		0.57	0.12	
F Statistic	576.76***	21.11***		308.91***	7.12***		452.06***	7.50***	
Observations	491	491	373	354	354	253	354	354	253
Note:				*p<0.1; **p<0.05; ***p<0.01					

Finally, the results in post-crisis time is generally in line with the findings from our main model as Greenfield investment illustrates negative impact on total entrepreneurial activity. However, Greenfield appears to no longer adversely influence the rate of opportunity-based entrepreneurship. This empirical finding may suggest that, after crisis, policy makers have re-considered the strategies to attract FDI and offset the unfavorable effect of Greenfield investment (Danakol et al., 2013). Major developed countries have taken a big hit from FDI response during the crisis period and policy makers have since shown enhanced focus on "sustainable FDI" (Poulsen and Hufbauer, 2011).

4. Conclusion

Our paper is the first one to examine disentangle the impact of Greenfield investment on entrepreneurship as previous research points to contradictory results when referring to the FDI-entrepreneurship nexus. The results show that Greenfield investment negatively affects the level of entrepreneurial activity in the host countries and the results are robust across different settings. Our paper generates important theoretical and practical implications. Previous studies showed inconsistent findings towards the impact of FDI on entrepreneurship. This paper provides another explanation that Greenfield and M&A are separate categories of foreign investment and thus pooling those two

could thwart the validity of the prediction results. Additionaly, Policy makers could devise more feasible and hands-on strategies in evaluating and attracting different types of FDI projects.

However, there are several caveats that should be taken when generalizing the results from our paper. First, the influence of Greenfield on entrepreneurship has been insignificant during crisis and the negative impact is less significant on necessity entrepreneurship than on opportunity-based entrepreneurship. That could be due to data limitation but also suggests the involvement of other important mediators and moderators. Future research could take into consideration the effect of institution quality and regulations, which have been proved to exert influence on both Greenfield and entrepreneurial activity. Second, it should be carried out similar work to another category of FDI, which is mergers & acquisitions, so that comparison could be made between M&A and Greenfield.

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