

Governance quality, foreign direct investment, and entrepreneurship in emerging markets

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Abstract

Purpose – The purpose of this paper is to thoroughly investigate the interplay between institutions, foreign direct investment (FDI) and entrepreneurship in the context of emerging markets (EMs).

Design/methodology/approach – The authors argue that the impact of FDI on entrepreneurial activity depends on different natures of capital flow and entrepreneurial motivation and relates to the quality of institutional environment. First, the roles of inward and outward FDI are examined in connection with the new firm creation by opportunity- and necessity-motivated entrepreneurs. Second, the integrated influences of (inward/outward) FDI and governance quality (GQ) on (opportunity/necessity) entrepreneurship are tested. This nexus of relationships is analyzed through segmented regressions using the GEM data of 39 EMs over the 2004–2015 period.

Findings – It is evidenced that the quality of governance infrastructure affects the relationship between FDI and entrepreneurship: in emerging countries with low GQ, opportunity entrepreneurship is stimulated by inward FDI and diminished by outward FDI; and in emerging countries with high GQ, necessity entrepreneurship is discouraged by inward FDI and promoted by outward FDI.

Practical implications – This research has implications for the institutional context-based execution of public policy in emerging economies. As the entrepreneurial effects of inward and outward FDI are pronounced differently under the two types of entrepreneurship and the two extremes of GQ, public policy makers who recognize the catalytic role of FDI in domestic business development should take the distinct institutional context of their country into consideration.

Originality/value – The paper contributes to the extant literature on international entrepreneurship in emerging economies by making a breakdown on the roles played by different types of FDI in the entrepreneurial activity, analyzing the mediating effects of GQ on the relationship between inward/outward FDI and entrepreneurship, and interpreting the capital and institutional determinants of entrepreneurship in terms of entrepreneurial motivations by opportunity and necessity.

Keywords Entrepreneurship, Institutions, Emerging markets, Foreign direct investment, Governance quality, Necessity entrepreneurship, Opportunity entrepreneurship

Paper type Research paper

1. Introduction

Modern theories of entrepreneurship from the perspective of economics postulate that institutional conditions can facilitate or hinder entrepreneurial activities which drive a country's economy (Baumol, 1990; Acs *et al.*, 2008, 2009, 2013). Consequently, variations in the nature and structure of entrepreneurship – for instance, differences in entrepreneurial motivations by opportunity and necessity, should be witnessed across countries (Acs *et al.*, 2008; Stenholm *et al.*, 2013). Despite a large number of studies surveying the relationship between institutions and entrepreneurship, a consensus has been not reached among empirical findings, especially, in emerging markets (EMs) (see Herrera-Echeverri *et al.*, 2014).

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Fuentelsaz *et al.* (2015) show that different formal institutions play distinctive roles in opportunity and necessity entrepreneurship across a large sample of 63 selected countries. In relation to the specific influence of governance institutions on entrepreneurship, typical studies probing into distinct institutional infrastructures in EMs (e.g. Tracey and Phillips, 2011; Herrera-Echeverri *et al.*, 2014) have not drawn a distinction between, for example, opportunity- and necessity-motivated behaviors of entrepreneurship.

In the context of business internationalization, spillover theories of entrepreneurship aim to explain the stimulating effect of foreign direct investment (FDI) on indigenous business development (Markusen and Venables, 1999; Görg and Strobl, 2002; Acs *et al.*, 2009, 2012; Ayyagari and Kosová, 2010). Nevertheless, FDI in actual fact creates both positive and negative externalities in entrepreneurial activity. While the positive FDI-based spillover of entrepreneurship has been well evidenced in emerging, transitional economies (e.g. Ayyagari and Kosová, 2010; Anwar and Sun, 2012; Apostolov, 2017), evidence of negative or neutral spillovers, at least in the short run, has been found in both developing and developed economies (e.g. De Backer and Sleuwaegen, 2003; Albuлесcu and Tămășilă, 2014, 2016; Apostolov, 2017; Danakol *et al.*, 2017). The nature of spillover effect becomes much more ambiguous when considering FDI characteristics, such as different sources and directions of FDI, and diffusion mechanisms, such as horizontal/vertical spillovers and backward/forward linkages (see Javorcik, 2004; Ayyagari and Kosová, 2010; Anwar and Sun, 2012; Albuлесcu and Tămășilă, 2014, 2016; Danakol *et al.*, 2017). Albuлесcu and Tămășilă (2014) show that inward and outward flows of FDI exert opposite spillover impacts on different types of entrepreneurship, namely, opportunity entrepreneurial activity (OEA) and necessity entrepreneurial activity (NEA). Moreover, it is essential to realize that the FDI-based spillover of entrepreneurship becomes complex in connection with differences in institutional framework (Acs *et al.*, 2008, 2009; Meyer and Sinani, 2009; Danakol *et al.*, 2017). Albeit several attempts to deal thoroughly with this nexus in EMs, mainly with regard to the inward or net terms of FDI (typically, e.g. Herrera-Echeverri *et al.*, 2014), international entrepreneurship studies have paid scant attention to co-existent (institutional quality-integrated) effects of different components, including inflows and outflows, of FDI on entrepreneurial activities in this area.

Addressing above-mentioned shortfalls in entrepreneurship research in EMs, this study delves into the linkages between institutions, FDI and entrepreneurship in an as-large-as-possible sample of EMs through a consolidated systematic approach using the Global Entrepreneurship Monitor (GEM) data. Particularly, our research models consider the differences between different types of entrepreneurship (i.e. OEA and NEA), and between different types of FDI (i.e. inward FDI and outward FDI) as well as the impacting nexus among these variables. Our study additionally digs deeper into the entrepreneurship effects of institutional environment by looking at the different levels of national governance quality (GQ). By that way, the study has three key contributions to the entrepreneurship literature in the context of EMs. First, we distinguish different roles played by inward FDI and outward FDI in entrepreneurship (further, by way of an institutional contextualized approach). Second, we explore the moderating effects of GQ on the relationship between inward/outward FDI and entrepreneurship. Finally, we investigate the capital and institutional determinants of entrepreneurship in terms of OEA and NEA.

In particular, we find that the quality of national governance infrastructure plays its role in the entrepreneurial activity through both inward and outward FDI channels. The creation of new firms by opportunity-motivated entrepreneurs (i.e. OEA) in EMs with the lowest GQ is significantly supported by inward FDI whose positive spillover effects on domestic business environment encouragingly pull individuals into self-employment activities realized to help improve their income and increase their independence. At the same time, an increase in outward FDI in these markets tends to erode OEA. This may be a result of a decline in the individuals' realization of good business opportunities created.

The patterns are reversed in the case of NEA, but only in EMs with the highest GQ. While NEAs in these well-governed economies are discouraged by an increase in inward FDI, they proliferate with the FDI outflow. Possible explanations for these could be borrowed from the ideas of negative FDI spillovers. Increased domestic competition and technological barriers in these advanced EMs may demolish entrepreneurial motivations of indigenous individuals. On the other side, an increase of outward FDI in these markets, implying that capital from home-based multinational corporations leaves home in order to explore overseas investment opportunities, can be a manifestation of reduced opportunities for domestic job creation. In this case, the emergence of necessity-motivated entrepreneurs may be a consequence of attempts at business formation and development made by individuals who lose their jobs and have no other options for work.

In summary, our above contributions to the EMs entrepreneurship literature can be regarded as a complete analytical framework for the nexus between governance infrastructure, FDI, and entrepreneurship. Our approach to decomposing FDI and entrepreneurship into direction-specified and motivation-specified compositions, respectively, helps clarify the essence of these connections and offer compelling explanations for economic relationships among them.

The remainder of the paper is organized as follows. Section 2 presents a literature review on the associations of entrepreneurship with institutions, including governance institutions, and with FDI and develops research hypotheses. Section 3 justifies the selection of research sample and describes the data. Section 4 presents the research methodology. Section 5 reports and discusses the empirical results. Section 6 concludes.

2. Literature review

2.1 *Institutions, GQ and entrepreneurship*

In this study, we refer to “institutions” as the term defined in institutional economics (North, 1990, 1991, 2005). This institutional framework defines institutions as “the rules of the game in a society” or “humanly devised constraints that shape human interactions” (North, 1990, p. 3). Our study relates to two groups of institutions: formal institutions and governance institutions. Formal institutions are legal rules set up as governmental solutions to societal problems. Precisely, they are structures of systematized and explicit rules and standards that shape interactions among individuals in a society (North, 1990).

Governance institutions which revolve around contractual relations are associated with the function of defining contract laws and enforcing contracts. Governance institutions can be regarded as (national) GQ. According to Kaufmann *et al.* (2011), a country’s GQ is reflected by its voice and accounting, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption. Herrera-Echeverri *et al.* (2014) refer to these as six dimensions of institutional quality[1]. In EMs characterized by the high degree of institutional uncertainty, institutional uncertainty can serve as a barrier or an opportunity to entrepreneurship (Tracey and Phillips, 2011). As institutional environment is strongly believed to affect individuals’ motivation to create businesses, our discussion focuses on the association of governance institutions with entrepreneurship. Entrepreneurial activity is also referred to by its behavioral types[2].

Evidence of the influence of institutional quality on entrepreneurial activity has been well established. Herrera-Echeverri *et al.* (2014) find a significantly positive association of new firm formation with institutional strength in all three groups of countries, namely, low-income, high-income and emerging countries. The detrimental impact of weak governance institutions on entrepreneurship may be typical in EMs like Russia, whose state has a serious level of corruption and a weak enforcement of property rights (Aidis *et al.*, 2008). Studying countries across the world, Aidis *et al.* (2012) and Estrin *et al.* (2013) find institutional deficiencies in terms of high corruption, weak property protection rights and

large government size are, to some extent, inversely associated with entrepreneurial aspirations and entry. In general, studies tend to endorse the notion that a higher degree of national GQ is related to a higher level (rate) of domestic entrepreneurial activity.

The nature and structure of entrepreneurship should also matter in association with institutional dimensions. In support of Baumol's (1990) theory, Sobel (2008) finds that better institutional quality stimulates productive entrepreneurship – which, in turn, creates income and wealth – and discourages unproductive entrepreneurship. Based on Scott's (1995) “institutional pillars” – regulative, cognitive and normative institutions – Stenholm *et al.* (2013) show that the regulatory dimension of institutional arrangements (including property rights and business freedom) is positively associated with the rate of entrepreneurial activity (i.e. the entry density), and not related with the type of entrepreneurial activity (i.e. entrepreneurial aspirations). Broadly, Stenholm *et al.* (2013) highlight the importance of considering other categorizations of entrepreneurial activity, including OEA vs NEA. Using the GEM data, Fuentelsaz *et al.* (2015) and Angulo-Guerrero *et al.* (2017) advocate that more property rights protection encourages OEA – which are believed to contribute much more to economic growth – and discourages NEA.

2.2 FDI and entrepreneurship

2.2.1 Positive FDI-based spillovers of entrepreneurship. It is well recognized in the literature that benefits domestic business development by bringing in the technological know-how of products and services that may be absorbed or imitated by local firms. This is regarded as knowledge spillover or demonstration effect (Markusen and Venables, 1999). As regards entrepreneurship, the positive role of FDI has evidenced in both developed and developing countries (e.g. Görg and Strobl, 2002; Ayyagari and Kosová, 2010; Anwar and Sun, 2012; Apostolov, 2017).

Other entrepreneurship-impacting channels of FDI relates to human capital spillovers (Meyer, 2004; Acs *et al.*, 2007, 2009, 2013). For example, some well-trained employees in terms of management and business practices could leave MNEs to initiate their own local businesses. In a broader view, inward FDI can play its role as a means of providing knowledge, technology and skills for knowledge-based (i.e. opportunity) entrepreneurial activities (Acs *et al.*, 2013). This argument is supported by empirical evidence from developed and emerging economies (Acs *et al.*, 2007, 2012).

Lastly, it is necessary to realize that positive FDI-based spillovers of entrepreneurship can be observed in the context of export business. For example, De Clercq *et al.* (2007) suggest that both inward and outward FDI positively affect entrepreneurs' export orientation. They urge that domestic entrepreneurs can also take advantage of decent transport infrastructure created by and new knowledge about specific foreign markets acquired from the foreign MNEs to become international suppliers or exporters. On the other hand, higher productivity of the host country's economy brought out by outward FDI may force entrepreneurs to deliver products with higher overall quality and thus increase their probabilities of success in international markets.

2.2.2 Negative FDI-based spillovers of entrepreneurship. Domestic entrepreneurial activities can be impeded by the international market expansion of MNEs. Indeed, the market power of MNEs could displace native entrepreneurs as a consequence of increased competition in the product and factor markets (Grossman, 1984; Markusen and Venables, 1999; Görg and Strobl, 2002; De Backer and Sleuwaegen, 2003). In particular, the market competition effects are reflected in lower product prices and/or higher average labor costs which can crowd out inefficient domestic firms and depress potential entrepreneurs to start their new businesses. There are several empirical studies that detect such negative FDI-based spillovers of entrepreneurship, at least in the short run, in both developing and

developed economies (e.g. De Backer and Sleuwaegen, 2003; Albuлесcu and Tămășilă, 2014, 2016; Apostolov, 2017; Danakol *et al.*, 2017). It should be noted that other studies relate negative spillovers of entrepreneurship to a decrease in market competition due to entry barriers created by MNEs (e.g. Ayyagari and Kosová, 2010). The nature of FDI can also matter in this case because, for instance, the product-market competition can affect the entry mode of MNEs (Caves, 1996). For instance, Danakol *et al.* (2017) recently find that (inward) FDI via cross-border M&A hinders indigenous entrepreneurial activities across the world, which is exacerbated in developed countries[3].

Another channel via which FDI spills a negative impact over entrepreneurship is the labor market. Acs *et al.* (2008) argue that an increase in capital stock (e.g. through inward FDI) should bring individuals back to wage work, and a negative relation between FDI and entrepreneurial activity could be observed. Grossman (1984) theoretically implies the crowding-out effect that relates to changes in relative income, which can be exacerbated if there exist differences in worker skills and/or gaps in technology (De Backer and Sleuwaegen, 2003). The crowding-out effect has been found in developed countries (e.g. De Backer and Sleuwaegen, 2003) and especially manifested in developing countries (e.g. Apostolov, 2017).

2.3 GQ, FDI and entrepreneurship

In summary, FDI can spill over entrepreneurship in both positive and negative ways. These spillovers may even be different via horizontal and vertical channels and/or backward and forward linkages and across industries (Javorcik, 2004; Ayyagari and Kosová, 2010; Anwar and Sun, 2012), while negative spillovers are often short-run effects and moderated or even reversed in the long-run (De Backer and Sleuwaegen, 2003). The type (nature) of FDI also matters because it can lead to divergent paths of the spillovers (of different types of entrepreneurship) (Acs *et al.*, 2008, 2012; Albuлесcu and Tămășilă, 2014, 2016; Danakol *et al.*, 2017). Among the most typical studies of the decomposing approach, Albuлесcu and Tămășilă (2016) differentiate the effects between OEA and NEA and between inward and outward FDI. They find the European context interesting that both inward and outward FDI increase domestic NEA and reduce OEA. Demanding for the differentiation approach, claimed by Albuлесcu and Tămășilă (2016), is visible as they find no empirical effect of FDI on overall entrepreneurial activity.

Moreover, the connection between FDI and entrepreneurship (with different types of both) may be more complicated because it may be mediated by institutional factors, public policy and economic development (Acs *et al.*, 2008, 2009; Meyer and Sinani, 2009; Danakol *et al.*, 2017). Herrera-Echeverri *et al.*'s (2014) approach on such a nexus in EMs contends that entrepreneurial activity is positively associated with the product of FDI (in net terms) and institutional quality (institutions of governance). Their evidence shows that the spillover impact of FDI on new business creation is significant in EMs with higher quality of institutions and largest in frontier EMs. Our study, which distinguishes between the inflow and outflow of FDI[4], would shed another light on this perspective of the literature.

2.4 Hypothesis development

Figure 1 illustrates the potential relationships between any two concepts relating to entrepreneurship and institutional/investment factors. Based on the theoretical arguments discussed so far, we develop three main research hypotheses as follows:

- H1. Entrepreneurship in EMs is associated with institutional environment (i.e. national GQ in particular).
- H2. Entrepreneurship in EMs is contingent upon the direction of FDI (i.e. inward FDI and outward FDI).

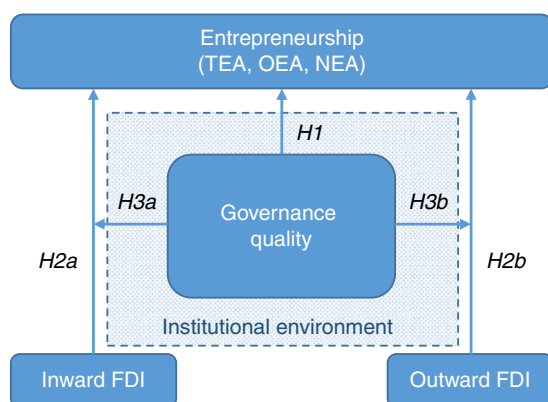


Figure 1.
Illustration of the
potential effects of
governance quality
and FDI on
entrepreneurship

H3. Country-level GQ moderates the relationship between FDI and entrepreneurship in EMs.

More complicated relationships can be established in terms of the componential associations of OEA/NEA with inward/outward FDI and with GQ.

3. Sampling and data

3.1 Why emerging markets?

Traditionally, advanced economies with the prominent role played by European countries are regarded as the major source and destination of FDI (Carril-Caccia and Pavlova, 2018). It may be one of the reasons the international research on structural determinants of entrepreneurship has paid much attention to the European landscape (e.g. Albuлесcu and Tămășilă, 2014, 2016; Wach and Wojciechowski, 2016; Rusu and Roman, 2017). However, these studies either ignore or underestimate the importance of institutional quality. EMs which are playing an increasingly important role in the global economy are considered as an excellent ground for scholarly researchers digging deeper into the entrepreneurship effects of FDI and institutions as well as for the theoretical development of entrepreneurship. At a first glance, we justify broadening the research landscape of entrepreneurship to EMs, which is not indicated by Herrera-Echeverri *et al.* (2014).

There are some reasons why the expansion of the study sample from advanced economies such as European countries to emerging countries is critical and necessary. First, it is far from sufficient to understand the essentials of entrepreneurial activity in EMs. While the literature on empirical determinants of European entrepreneurship has been well established, it could not be generalized to EMs. Indeed, EMs provide distinctive and dynamic settings for the international entrepreneurship research because this area has diversified characteristics in terms of different historical backgrounds, cultural norms, institutional heritages, and political processes (Kiss *et al.*, 2012). Second, entrepreneurial motivations coupled with the recent fast growth of EMs should get heavier weights on capital and institutional factors. In fact, EMs are characterized by a higher degree of institutional uncertainty which could lead to more amplified effects on – both detrimental and beneficial to – entrepreneurship (Tracey and Phillips, 2011). As regards the capital factor, the global FDI landscape in the twenty-first century has witnessed a reverse in the dominant role as both the source and destination of FDI from advanced economies including European countries to EMs. Carril-Caccia and Pavlova (2018), for example, draw an illustrative comparison: By 2014, EM economies represented 41 and 56 percent of global

outward FDI and inward FDI, respectively, while the Europe's share of outward FDI and inward FDI had shrunk to only 15 and 18 percent, respectively. Finally, the prior studies on the European context opt to examine entrepreneurship determinants separately and incomprehensively. Our study tries to take the nexus of entrepreneurship effects into consideration in a single framework.

3.2 Data and sample selection

We use the GEM data for studying on the entrepreneurial activity in EMs. Our sample consists of 39 EMs whose entrepreneurship data are available in the GEM data over the period of 2004–2015. Table I shows all selected markets which are divided into three groups of EMs: advanced emerging, secondary emerging and frontier emerging (based on the Financial Times and the London Stock Exchange classification).

Data for institutional variables come from two sources. Measures of formal institutions (i.e. business freedom, fiscal freedom and trade freedom) are from the Index of Economic Freedom of the Heritage Foundation. Components of governance institutions (i.e. dimensions of institutional quality) are sourced from the Worldwide Governance Indicators of the World Bank. The six dimensions of institutional quality have values ranging from -2.5 to 2.5 [5]. Similar to Herrera-Echeverri *et al.* (2014), we take the arithmetic average of these six factors in each year to make a new variable measuring the strength of governance. We rescale the new variable on the value range from 0 to 100.

Similar to Albuлесcu and Tămăşilă (2014), data for inward and outward FDI, GDP growth rate and GDP per capita are collected from the United Nations Conference on Trade and Development statistics. Entrepreneurial control variables, fear of failure and entrepreneurial intentions, are extracted from the same GEM data, whereas macroeconomic control variables, excluding GDP growth rate and GDP per capita, are from the World Development Indicators of the World Bank. For more details, the definitions and sources for all variables are described in Table AI.

4. Methodology

We establish empirical models based on the panel data approach in order to test *H1* and *H2*. Fixed effects (FE) and random effects (RE) regressions are commonly employed to control

Advanced emerging	Secondary emerging	Frontier emerging
Brazil	Chile	Argentina
Czech Republic	China	Bangladesh
Hungary	Colombia	Botswana
Malaysia	Egypt	Bulgaria
Mexico	India	Croatia
Poland	Indonesia	Estonia
South Africa	Morocco	Ghana
Thailand	Pakistan	Jordan
Turkey	Peru	Lithuania
	The Philippines	Macedonia
	Russia	Nigeria
	United Arab Emirates	Qatar
		Romania
		Serbia
		Slovakia
		Slovenia
		Tunisia
		Vietnam

Table I.
Sampled emerging
markets

unobserved heterogeneity. We use the Hausman specification test to determine whether the FE model (1) or RE model (2) is appropriate for analytical inference:

$$Entre_{it} = \beta_1 \mathbf{FI}_{it} + \beta_2 Gov_{it} + \beta_3 \mathbf{FDI}_{it} + \beta_4 \mathbf{Z}_{it} + \alpha_i + \varepsilon_{it}, \quad (1)$$

$$Entre_{it} = \beta_1 \mathbf{FI}_{it} + \beta_2 Gov_{it} + \beta_3 \mathbf{FDI}_{it} + \beta_4 \mathbf{Z}_{it} + \alpha_i + \mu_{it} + \varepsilon_{it}, \quad (2)$$

where $Entre_{it}$ is a measure of entrepreneurial activity, total entrepreneurial activity (TEA), opportunity-motivated entrepreneurial activity (OEA) or necessity-motivated entrepreneurial activity (NEA); \mathbf{FI}_{it} is a vector of formal institutions, business freedom, fiscal freedom and trade freedom; Gov_{it} is GQ; \mathbf{FDI}_{it} refers to both inward and outward FDI; \mathbf{Z}_{it} is a vector of controls for macroeconomic conditions and entrepreneurs' characteristics; α_i is the unobserved time-invariant individual effect; μ_{it} is the unobserved country-specific RE; and ε_{it} is the idiosyncratic error term.

We run three groups of regressions in reference to the three measures of entrepreneurial activity, $Entre_{it}$. The results from the modified Wald test of the existence of heteroscedasticity indicate that variances of estimated errors from all regressions are non-constant. Thus, we re-estimate the specifications with estimated standard errors being clustered at a country level. By doing so, our estimates are robust to heteroskedasticity and autocorrelation[6].

To investigate the moderating roles of GQ in the influence of FDI on entrepreneurship (H3), we allow both inward and outward FDI to interact with the different groups of GQ. Equations (1) and (2), respectively, become:

$$Entre_{it} = \beta_1 \mathbf{FI}_{it} + \beta_2 Gov_{it} + \beta_3 \mathbf{FDI}_{it} \times Gov_dum_{it} + \beta_4 \mathbf{Z}_{it} + \alpha_i + \varepsilon_{it}, \quad (3)$$

$$Entre_{it} = \beta_1 \mathbf{FI}_{it} + \beta_2 Gov_{it} + \beta_3 \mathbf{FDI}_{it} \times Gov_dum_{it} + \beta_4 \mathbf{Z}_{it} + \alpha_i + \mu_{it} + \varepsilon_{it}, \quad (4)$$

where Gov_dum_{it} is a set of dummies that indicates specified value intervals of Gov_{it} . To construct these dummies, we divide sorted values of Gov_{it} into two intervals and then into three intervals (see Table AI for definitions of these dummies).

Finally, for robustness check, we use the first differencing approach to alleviate endogenous problems between FDI and institutions. Although FEs' model can help mitigate unobserved heterogeneity – which is one source of endogeneity – it is potential that there are endogenous relations between FDI and formal institutions, or FDI and governance institutions. Accordingly, first differences of the variables are employed to estimate the specifications. In this case, results of specification tests as shown in Table VII indicate that the OLS model is more appropriate than FE and RE models.

5. Results

5.1 Descriptive statistics

Table II provides descriptive statistics for the variables. The average percentage of individuals (aged between 18 and 64) getting involved in early-stage entrepreneurial activities is 12.84 percent. The proportion of opportunity-motivated entrepreneurs (8.52 percent) is substantially larger than that of necessity-motivated counterparts (5.16 percent), implying OEA is dominant in EMs. Statistic values of the indexes for formal institutions and GQ in our sample are quite similar to those in Herrera-Echeverri *et al.*'s (2014) group of EMs. For FDI patterns, inward FDI is predominant in EMs. While outward FDI in these markets accounts for 10.53 percent of GDP on average, FDI flowing into this area is much larger – at 36.73 percent of GDP on average. The correlation matrix, presented in Table III, indicates no serious correlation between explanatory variables.

	Obs	Mean	SD	Min.	25%	Mdn	75%	Max.
<i>Entrepreneurship</i>								
TEA	240	12.84	7.83	1.88	6.78	10.71	17.20	40.27
OEA	152	8.52	5.46	1.61	4.17	6.97	11.38	26.83
NEA	152	5.16	3.07	0.50	3.08	4.63	6.28	17.50
<i>Formal institutions</i>								
Business freedom	240	67.36	10.66	37.30	60.60	69.15	73.60	93.50
Fiscal freedom	240	77.01	8.34	54.40	70.10	77.95	82.05	99.90
Trade freedom	240	76.43	9.99	24.00	69.65	77.50	86.00	88.00
<i>Governance quality (Gov)</i>								
Control of corruption	240	-0.01	0.61	-1.21	-0.41	-0.11	0.29	1.57
Rule of law	240	0.28	0.53	-1.08	-0.10	0.21	0.71	1.29
Regulatory quality	240	-0.16	0.84	-2.81	-0.81	-0.07	0.59	1.12
Government effectiveness	240	0.33	0.59	-1.08	-0.11	0.39	0.65	1.67
Political stability and absence of violence	240	0.05	0.62	-1.22	-0.45	0.00	0.52	1.42
Voice and accountability	240	0.13	0.74	-1.69	-0.24	0.31	0.63	1.24
Governance quality (average)	240	0.11	0.57	-1.18	-0.29	-0.03	0.52	1.24
Governance quality (scaled)	240	52.13	11.43	26.40	44.21	49.48	60.44	74.82
<i>Foreign direct investment (FDI)</i>								
Inward FDI	240	36.73	19.32	4.99	22.39	32.99	47.27	92.19
Inward FDI×Gov (upper half)	120	45.82	18.89	15.56	32.15	40.41	57.78	92.19
Inward FDI×Gov (lower half)	120	27.65	15.04	4.99	16.24	25.74	36.20	84.20
Inward FDI×Gov (< q1)	60	21.91	11.17	4.99	12.08	20.16	28.83	53.19
Inward FDI×Gov (q1–q3)	120	37.10	15.74	7.71	25.66	37.51	43.92	87.65
Inward FDI×Gov (> q3)	60	50.82	21.50	15.56	32.31	52.92	69.78	92.19
Outward FDI	240	10.53	10.21	0.09	2.97	7.25	15.05	49.17
Outward FDI×Gov (upper half)	120	14.38	12.18	0.16	5.10	10.15	22.19	49.17
Outward FDI×Gov (lower half)	120	6.67	5.57	0.09	2.17	5.62	9.72	27.97
Outward FDI×Gov (< q1)	60	6.75	6.33	0.09	2.17	5.61	8.45	27.97
Outward FDI×Gov (q1–q3)	120	10.20	11.09	0.16	2.16	7.43	12.50	49.17
Outward FDI×Gov (> q3)	60	14.96	9.95	2.72	5.69	13.88	22.10	42.27
<i>Control variables</i>								
Financial development	240	59.58	36.77	0.19	33.96	49.50	75.11	156.98
Trade	240	4.14	0.59	2.84	3.71	4.10	4.69	5.19
GDP growth	240	3.85	3.51	-7.82	2.09	4.02	5.87	14.20
GDP per capita	240	8.93	0.79	6.67	8.48	9.05	9.50	11.46
Unemployment	240	8.99	5.95	0.21	5.18	7.38	10.94	33.80
Fear of failure	240	33.73	8.82	10.43	28.04	33.11	38.62	72.01
Entrepreneurial intentions	240	24.10	15.68	1.55	12.86	20.73	31.87	90.95

Table II.
Descriptive statistics

5.2 Empirical results

Table IV describes the empirical results for estimating the influences of institutions and FDI on entrepreneurship. Business freedom and GQ negatively affect overall entrepreneurial activity (TEA)[7]. However, the effects of institutions on OEA and NEA are statistically insignificant. Both inward and outward FDI do not offer a significant explanation for TEA.

As expected, the relation between inward FDI and OEA is significantly positive. This is in line with many findings of the stimulating role of inward FDI in opportunity entrepreneurship (Acs *et al.*, 2007, 2012; Albuлесcu and Tămăşilă, 2014). It is argued that the presence of MNEs in EMs encourages opportunity-motivated entrepreneurs to initiate their own businesses. The effect of outward FDI on this type of entrepreneurs is also positive but weak— just at the 10 percent level of significance. Meanwhile, neither inward FDI nor outward FDI shows an explanatory power to variations in NEA.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) TEA	1.00															
(2) OEA	0.96***	1.00														
(3) NEA	0.86***	0.67***	1.00													
(4) Business freedom	-0.18***	-0.13	-0.38***	1.00												
(5) Fiscal freedom	0.07	-0.01	-0.04	0.03	1.00											
(6) Trade freedom	-0.16**	-0.19**	-0.34***	0.38***	0.12*	1.00										
(7) Governance quality	-0.26***	-0.09	-0.20***	0.36***	-0.12*	0.58***	1.00									
(8) Inward FDI	-0.11*	-0.01	-0.27***	0.42***	0.10	0.42***	0.55***	1.00								
(9) Outward FDI	-0.20***	-0.07	-0.34***	0.28***	-0.02	0.17***	0.40***	0.34***	1.00							
(10) Financial development	-0.16**	-0.12	-0.29***	0.06	-0.19***	0.10	0.21***	0.22***	0.53***	1.00						
(11) Trade	-0.29***	-0.23***	-0.42***	0.43***	0.16**	0.5***	0.58***	0.50***	0.25***	0.27***	1.00					
(12) GDP growth	0.22***	0.22***	0.30***	-0.25***	0.03	-0.34***	-0.24***	-0.26***	-0.18***	-0.01	-0.12*	1.00				
(13) GDP per capita	-0.34***	-0.18**	-0.41***	0.31***	-0.06	0.58***	0.64***	0.25***	0.38***	0.06	0.34***	-0.38***	1.00			
(14) Unemployment	-0.18***	-0.31***	-0.02	0.19***	-0.05	0.11*	0.15**	0.22***	0.01	0.10	0.01	-0.19***	0.00	1.00		
(15) Fear of failure	-0.27***	-0.26***	-0.36***	-0.05	0.16**	0.03	-0.11*	-0.01	0.03	0.15**	0.17***	-0.11*	-0.06	-0.2***	1.00	
(16) Entrepreneurial intentions	0.78***	0.73***	0.78***	-0.08	0.15**	-0.20***	-0.24***	-0.10	-0.27***	-0.23***	-0.30***	0.21***	-0.39***	0.00	-0.33***	1.00

Note: ***, **, * Significant at 10, 5 and 1 percent, respectively

Table III.
Correlation matrix

Table IV.
Institutions, FDI and
entrepreneurship

Explanatory variables	TEA		OEA		NEA	
	Fixed effects (1)	Random effects (2)	Fixed effects (3)	Random effects (4)	Fixed effects (5)	Random effects (6)
Business freedom	-0.1235 (-1.71)*	-0.1127 (-2.08)**	-0.0250 (-0.48)	-0.0353 (-0.75)	-0.0042 (-0.11)	-0.0671 (-2.75)***
Fiscal freedom	0.0099 (0.10)	-0.0210 (-0.36)	-0.1705 (-1.48)	-0.0668 (-1.14)	0.0278 (0.47)	-0.0200 (-0.75)
Trade freedom	-0.0510 (-0.70)	0.0311 (0.46)	0.0406 (0.47)	-0.0053 (-0.06)	0.0301 (0.37)	0.0293 (0.66)
Governance quality	-0.3422 (-2.33)**	-0.1135 (-1.22)	-0.2147 (-1.63)	-0.0481 (-0.54)	-0.0859 (-0.68)	-0.0040 (-0.09)
Inward FDI	0.0445 (0.82)	0.0198 (0.62)	0.1010 (2.76)***	0.0527 (1.97)**	-0.0084 (-0.35)	-0.0145 (-1.11)
Outward FDI	0.0426 (0.63)	0.0735 (1.26)	0.0715 (1.95)**	0.0513 (1.50)	-0.0108 (-0.35)	0.0214 (1.15)
Financial development	0.0393 (1.13)	0.0051 (0.36)	-0.0105 (-0.36)	-0.0095 (-0.58)	-0.0460 (-2.35)**	-0.0118 (-1.50)
Trade	1.0637 (0.38)	0.2880 (0.24)	1.7003 (0.59)	-0.5263 (-0.42)	-0.6684 (-0.39)	0.2175 (0.48)
GDP growth	-0.0603 (-0.85)	-0.0545 (-0.84)	-0.1163 (-1.05)	-0.1197 (-1.30)	-0.0777 (-0.89)	-0.0125 (-0.14)
GDP per capita	0.7216 (0.63)	-0.3798 (-0.47)	4.5624 (2.48)**	0.4919 (0.68)	-3.3250 (-1.73)*	-0.8578 (-1.84)*
Unemployment	-0.0424 (-0.31)	-0.1395 (-1.45)	-0.4065 (-2.53)**	-0.3292 (-4.13)***	0.1459 (1.66)	0.0199 (0.64)
Fear of failure	-0.0534 (-1.32)	-0.0661 (-1.31)	0.0286 (0.57)	-0.0099 (-0.17)	-0.0455 (-1.68)	-0.0558 (-2.07)**
Entrepreneurial intentions	0.1769 (4.00)***	0.2530 (7.05)***	0.0659 (1.37)	0.1433 (3.24)***	0.0649 (2.00)*	0.1040 (5.48)***
<i>Intercept</i>	25.0219 (1.07)	23.3731 (2.71)***	-19.2203 (-0.92)	14.7560 (1.66)*	40.2138 (1.71)*	16.0692 (3.11)***
F-test of joint significance (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>R</i> ²						
Within	0.2792	0.2474	0.2367	0.1433	0.2292	0.1512
Between	0.3469	0.7108	0.0119	0.5685	0.3790	0.8026
Overall	0.3548	0.6351	0.0269	0.5534	0.3710	0.7112
No. of countries	39	39	37	37	37	37
No. of observations	240	240	152	152	152	152
<i>Specification tests</i>						
<i>F-test</i> (all <i>u</i> _{<i>i</i>} = 0)	8.47	0.0000	9.47	0.0000	3.18	0.0000
Breusch-Pagan (LM)	94.01	0.0000	51.82	0.0000	4.28	0.0386
Hausman	69.34	0.0000	42.33	0.0001	33.72	0.0013
(Indicated model)						
						(Fixed effects)

Notes: The coefficients are based on the robust errors estimation in which standard errors are adjusted for clustering at the country level. *, **, ***Significant at 10, 5 and 1 percent, respectively

It is possible that the relation between FDI and entrepreneurship is mediated by institutional factors. Tables V and VI show our results obtained by using interactions of inward/outward FDI with indicators of GQ. Obtained results using the two-interval *Gov* approach in Table V indicate a relationship pattern resembling those in Table IV. Institutions are negatively related to TEA, and FDI promotes OEA. The picture of FDI-OEA relation is now more illustrative. Inward FDI produces productive effects on OEA in both two group of EMs. At the same time, the positive relation between outward FDI and OEA only occurs in the group with higher GQ. The outward FDI-OEA relation now appears to be negative, albeit statistically insignificant, in the group with lower GQ. Again, the presence of NEA in all EMs, regardless of GQ, is found irrelevant to both inward and outward FDI.

Table VI shows estimated results using the more segmented categorization of GQ. The influence of FDI on entrepreneurship now appears to be significant in all models with *TEA*, *OEA*, and *NEA*. The relation, however, varies across the three different groups of countries. The positive effect of inward FDI on OEA is strongest in economies with the lowest GQ (lying below the first quartile of the GQ distribution). A positive, but weaker, relation is also found in economies with the medium GQ (between the first and third quartiles). The role of inward FDI in OEA is inconclusive for economies with the highest GQ (above the third quartile). The positive influence found here serves as an evidence of the positive spillover effect induced by inward FDI.

For outward FDI, OEA is only positively related to the outflow of FDI in EMs with the GQ above the first quartile. In the group with the lowest institutional quality, a strongly negative relation is witnessed, implying that outward FDI damages OEA. Such a negative impact is also found by Albuлесcu and Tămășilă (2014) and Albuлесcu and Tămășilă (2016) for European economies. They argue that this is the consequence of a reduction in collaboration opportunities created by international enterprises for indigenous businesses once such enterprises decide to find better opportunities abroad.

The approach with three intervals of GQ now uncovers the influence of FDI on NEA in EMs with the highest GQ. However, the effects of inward and outward FDI are in opposite directions. In better governed EMs, outward FDI stimulates and inward FDI discourages NEA. The promoting effect of outward FDI can be explained by the fact that the outward movement of capital investments by home-based MNEs leads to a decline in the supply of jobs, and, consequently, unemployed individuals are pulled into NEA. In addition, export-oriented NEA is widely opened up by such a movement of investment capital. The negative effect of inward FDI on NEA may be through the channel of job demand creation, by both international entrants and new domestic businesses born by perceiving new opportunities (i.e. evidently, start-ups emerging as a result of OEA). An increase in the availability of wage work reduces jobless individuals' attempts on seeking income from NEA (i.e. they now have more than one option for work).

5.3 Robustness checks

Table VII reports estimates from the first differencing approach. As shown, the most important impacts of FDI on entrepreneurship remain significantly robust through all panel estimations, except for the case of TEA[8]. Plainly, changes in OEA in EMs with the lowest GQ are explained by changes in both inward and outward FDI. Variations in (inward and outward) FDI also lead to differences in NEA, but only in EMs with the highest GQ. It is critical to note that the effects of FDI on entrepreneurship are inversely different between the two types of FDI and between the two types of entrepreneurship, which is in the same pattern with our FE results in Table VI.

Controlling the endogenous relation between FDI and institutions wipes out the significance of some other variables in our models. The entrepreneurship-related roles of business freedom and FDI in other EMs become inconclusive. Noticeably, all estimates in the model of TEA become insignificant[9]. Variations in entrepreneurial intentions, notably,

Table V.
Governance
quality, FDI and
entrepreneurship:
the two-interval
Gov approach

Explanatory variables	TEA		OEA		NEA	
	Fixed effects (1)	Random effects (2)	Fixed effects (3)	Random effects (4)	Fixed effects (5)	Random effects (6)
Business freedom	-0.1293 (-1.90)*	-0.1067 (-2.08)**	-0.0259 (-0.50)	-0.0372 (-0.77)	-0.0010 (-0.02)	-0.0616 (-2.67)***
Fiscal freedom	0.0193 (0.23)	-0.0240 (-0.42)	-0.1708 (-1.48)	-0.0682 (-1.15)	0.0231 (0.38)	-0.0259 (-1.07)
Trade freedom	-0.0522 (-0.72)	0.0290 (0.44)	0.0353 (0.41)	-0.0044 (-0.05)	0.0255 (0.30)	0.0193 (0.52)
Governance quality (Gov)	-0.3373 (-2.14)**	-0.1472 (-1.54)	-0.2119 (-1.60)	-0.0298 (-0.32)	-0.0826 (-0.67)	-0.0170 (-0.33)
Inward FDI×Gov_upper half	0.0571 (1.31)	0.0311 (0.99)	0.0926 (2.67)**	0.0455 (1.69)*	-0.0133 (-0.54)	-0.0023 (-0.18)
Inward FDI×Gov_lower half	0.0456 (0.51)	-0.0038 (-0.09)	0.1312 (2.29)**	0.0664 (2.02)**	-0.0029 (-0.09)	-0.0310 (-2.16)**
Outward FDI×Gov_upper half	0.0646 (0.88)	0.0611 (1.04)	0.0786 (2.14)**	0.0580 (1.58)	-0.0115 (-0.40)	-0.0037 (-0.19)
Outward FDI×Gov_lower half	-0.0757 (-0.45)	0.0996 (0.76)	-0.0111 (-0.10)	0.0441 (0.43)	0.0315 (0.29)	0.0984 (1.70)*
Financial development	0.0480 (1.43)	0.0070 (0.51)	-0.0069 (-0.22)	-0.0115 (-0.74)	-0.0495 (-2.26)**	-0.0078 (-1.15)
Trade	0.7012 (0.26)	0.3678 (0.27)	1.7816 (0.63)	-0.5696 (-0.43)	-0.6225 (-0.36)	0.4191 (1.02)
GDP growth	-0.0456 (-0.64)	-0.0541 (-0.79)	-0.1030 (-0.88)	-0.1152 (-1.23)	-0.0683 (-0.75)	-0.0007 (-0.01)
GDP per capita	0.5481 (0.46)	-0.3377 (-0.43)	4.6915 (2.50)**	0.5375 (0.73)	-3.1191 (-1.72)*	-0.7928 (-1.76)*
Unemployment	-0.0220 (-0.16)	-0.1335 (-1.37)	-0.4462 (-2.55)**	-0.3372 (-4.02)***	0.1339 (1.37)	0.0312 (1.13)
Fear of failure	-0.0479 (-1.21)	-0.0670 (-1.35)	0.0277 (0.55)	-0.0092 (-0.15)	-0.0477 (-1.82)*	-0.0569 (-2.20)**
Entrepreneurial intentions	0.1629 (3.71)***	0.2528 (6.69)***	0.0643 (1.32)	0.1397 (3.07)***	0.0669 (2.01)*	0.1151 (6.81)***
Intercept	26.8983 (1.09)	24.3631 (2.61)***	-20.2118 (-0.95)	13.9289 (1.45)	38.7280 (1.68)	15.4854 (3.37)***
F-test of joint significance (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R^2						
Within	0.2871	0.2497	0.2430	0.1478	0.2332	0.1345
Between	0.3184	0.7221	0.0134	0.5577	0.3811	0.8478
Overall	0.3255	0.6272	0.0330	0.5520	0.3660	0.7465
No. of countries	39	39	37	37	37	37
No. of observations	240	240	152	152	152	152
Specification tests	<i>t</i> -statistic	<i>p</i> -value	<i>t</i> -statistic	<i>p</i> -value	<i>t</i> -statistic	<i>p</i> -value
F-test (all $u_i = 0$)	8.46	0.0000	8.94	0.0000	2.56	0.0001
Breusch-Pagan (LM)	99.88	0.0000	39.94	0.0000	0.22	0.6423
Hausman	85.78	0.0000	45.51	0.0001	66.89	0.0000
(Indicated model)		(Fixed effects)		(Fixed effects)		(Fixed effects)

Notes: Estimated coefficients are reported with *t*-statistics in parentheses. The coefficients are based on the robust errors estimation in which standard errors are adjusted for clustering at the country level. *, **, ***Significant at 10, 5 and 1 percent, respectively

Table VI.
Governance quality, FDI and entrepreneurship: the three-interval Gov approach

Explanatory variables	TEA		OEA		NEA	
	Fixed effects (1)	Random effects (2)	Fixed effects (3)	Random effects (4)	Fixed effects (5)	Random effects (6)
Business freedom	-0.1212 (-2.05)**	-0.1093 (-2.36)**	-0.0377 (-0.78)	-0.0460 (-0.96)	-0.0144 (-0.36)	-0.0667 (-2.84)***
Fiscal freedom	-0.0124 (-0.15)	-0.0079 (-0.14)	-0.2226 (-1.80)*	-0.0780 (-1.14)	-0.0047 (-0.08)	-0.0126 (-0.46)
Trade freedom	-0.0021 (-0.03)	0.0388 (0.70)	0.1131 (1.56)	-0.0031 (-0.04)	0.0744 (0.85)	0.0314 (0.73)
Governance quality (Gov)	-0.0964 (-0.53)	-0.1410 (-1.26)	-0.0768 (-0.65)	-0.0709 (-0.70)	-0.0359 (-0.31)	-0.0476 (-0.83)
Inward FDI×Gov_ < q1	0.2373 (2.75)***	0.1444 (2.51)**	0.2742 (3.64)***	0.1327 (1.85)*	0.0216 (0.29)	-0.0218 (-0.67)
Inward FDI×Gov_q1-q3	0.0342 (0.67)	0.0041 (0.15)	0.0911 (2.33)**	0.0435 (1.54)	-0.0293 (-1.25)	-0.0237 (-2.11)**
Inward FDI×Gov_ > q3	-0.0128 (-0.20)	0.0301 (0.77)	0.0335 (-0.36)	0.0347 (0.75)	-0.0888 (-2.54)**	0.0113 (0.53)
Outward FDI×Gov_ < q1	-0.4174 (-3.30)***	-0.2701 (-2.00)**	-0.4662 (-2.74)***	-0.2747 (-1.61)	-0.1959 (-1.01)	-0.0241 (-0.26)
Outward FDI×Gov_q1-q3	0.0405 (0.64)	0.0587 (1.09)	0.0557 (2.04)**	0.0542 (1.81)*	-0.0298 (-0.94)	0.0225 (1.32)
Outward FDI×Gov_ > q3	0.3019 (1.77)*	0.1721 (2.04)**	0.3947 (1.96)*	0.1174 (0.97)	0.2076 (3.63)***	-0.0087 (-0.17)
Financial Development	0.0185 (0.53)	0.0061 (0.42)	-0.0148 (-0.51)	-0.0104 (-0.62)	-0.0523 (-2.75)***	-0.0083 (-1.07)
Trade	0.5905 (0.21)	-0.4859 (-0.33)	1.7386 (0.61)	-0.7280 (-0.48)	-0.6005 (-0.37)	0.1328 (0.25)
GDP growth	-0.0606 (-0.83)	-0.0257 (-0.39)	-0.1565 (-1.36)	-0.1276 (-1.43)	-0.0934 (-1.01)	-0.0039 (-0.04)
GDP per capita	1.0638 (0.82)	-0.0470 (-0.05)	4.5790 (2.68)**	0.9350 (1.17)	-3.5755 (-1.79)*	-0.7549 (-1.28)
Unemployment	0.0165 (0.13)	-0.1051 (-1.05)	-0.2701 (-1.87)*	-0.3062 (-3.64)***	0.1845 (2.03)**	0.0218 (0.59)
Fear of failure	-0.0446 (-1.07)	-0.0570 (-1.17)	0.0340 (0.67)	-0.0057 (-0.10)	-0.0444 (-1.64)	-0.0594 (-2.20)**
Entrepreneurial intentions	0.1533 (3.90)***	0.2310 (6.62)***	0.0535 (1.12)	0.1298 (2.81)***	0.0570 (1.75)*	0.1018 (4.81)***
Intercept	9.5986 (0.39)	22.6610 (2.48)**	-27.3160 (-1.24)	14.5387 (1.51)	40.4847 (1.64)	16.9242 (3.12)***
F-test of joint significance (p-value)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>R</i> ²						
Within	0.3425	0.3106	0.2967	0.1841	0.2700	0.1643
Between	0.3806	0.6526	0.0042	0.5198	0.3866	0.8134
Overall	0.4319	0.6317	0.0109	0.5190	0.3658	0.7302
No. of countries	39	39	37	37	37	37
No. of observations	240	240	152	152	152	152
Specification tests	<i>t</i> -statistic	<i>p</i> -value	<i>t</i> -statistic	<i>p</i> -value	<i>t</i> -statistic	<i>p</i> -value
<i>F</i> -test (all <i>u</i> _{<i>i</i>} = 0)	9.03	0.0000	9.38	0.0000	2.85	0.0000
Breusch-Pagan (LM)	86.13	0.0000	40.19	0.0000	0.42	0.5154
Hausman	75.91	0.0000	67.19	0.0000	81.35	0.0000
(Indicated model)		(Fixed effects)		(Fixed effects)		(Fixed effects)

Notes: Estimated coefficients are reported with *t*-statistics in parentheses. The coefficients are based on the robust errors estimation in which standard errors are adjusted for clustering at the country level. ***, **, * Significant at 10, 5 and 1 percent, respectively

Table VII.
Governance quality,
FDI and
entrepreneurship: the
first differencing
approach

Explanatory variables	ΔTEA		ΔOEA		ΔNEA	
	Fixed effects (1)	Pooled OLS (2)	Fixed effects (3)	Pooled OLS (4)	Fixed effects (5)	Pooled OLS (6)
ΔBusiness freedom	-0.0937 (-1.32)	-0.0615 (-1.16)	-0.0910 (-1.17)	-0.0289 (-0.48)	0.0011 (0.02)	-0.0130 (-0.24)
ΔFiscal freedom	-0.0482 (-0.73)	-0.0688 (-0.95)	-0.0725 (-0.55)	-0.1855 (-1.10)	-0.0220 (-0.29)	-0.0685 (-0.86)
ΔTrade freedom	0.0684 (1.04)	0.0725 (1.34)	0.1281 (1.49)	0.1426 (1.63)	0.0854 (1.23)	0.0540 (0.73)
ΔGovernance quality (Gov)	0.5631 (1.78)*	0.3079 (1.23)	0.4174 (1.14)	0.3289 (1.27)	0.2855 (1.44)	0.0156 (0.08)
ΔInward FDI×Gov_ < q1	0.1139 (0.52)	0.1367 (0.66)	0.3759 (2.82)***	0.2953 (2.62)**	0.0019 (0.02)	0.0124 (0.12)
ΔInward FDI×Gov_ > q3	0.0140 (0.44)	0.0040 (0.12)	0.0805 (0.63)	0.0187 (0.18)	-0.0992 (-1.20)	-0.0593 (-1.19)
ΔInward FDI×Gov_ < q1	0.0146 (0.14)	-0.0119 (-0.14)	-0.2096 (-0.89)	-0.1518 (-1.02)	-0.1903 (-2.08)**	-0.1050 (-1.85)*
ΔOutward FDI×Gov_ < q1	-0.2250 (-0.51)	-0.2506 (-0.59)	-0.5937 (-2.06)**	-0.6084 (-2.48)**	-0.0204 (-0.07)	-0.0628 (-0.25)
ΔOutward FDI×Gov_ > q3	-0.0635 (-0.43)	0.0467 (0.50)	0.1241 (0.50)	0.0909 (0.50)	0.2858 (1.33)	0.1203 (1.12)
ΔOutward FDI×Gov_ > q3	0.0943 (0.40)	0.2056 (1.10)	0.8677 (1.42)	0.5493 (1.53)	0.6015 (2.28)**	0.3342 (2.77)***
ΔFinancial development	-0.0182 (-0.33)	-0.0192 (-0.37)	-0.1226 (-2.14)**	-0.0656 (-1.44)	-0.1608 (-1.93)*	-0.1132 (-2.09)**
ΔTrade	1.9394 (0.69)	3.1055 (1.15)	5.7278 (0.85)	2.3520 (0.51)	-5.6801 (-1.03)	0.2379 (0.07)
ΔGDP growth	-0.0724 (-0.87)	-0.0605 (-0.81)	-0.1545 (-1.19)	-0.1469 (-1.12)	-0.0317 (-0.24)	-0.0311 (-0.24)
GDP per capita	0.3649 (0.29)	0.7898 (1.57)	4.2205 (1.02)	0.4831 (1.09)	-2.7036 (-0.64)	0.0023 (0.01)
Unemployment	-0.3032 (-1.49)	-0.0140 (-0.39)	-0.6021 (-2.18)**	-0.0210 (-0.70)	-0.1285 (-0.56)	-0.0252 (-0.87)
Fear of failure	0.0025 (0.04)	-0.0065 (-0.17)	0.0194 (0.29)	-0.0254 (-0.64)	0.0224 (0.24)	0.0013 (0.05)
Entrepreneurial intentions	0.0862 (1.65)	0.0219 (1.72)*	0.1359 (2.36)**	0.0173 (1.12)	0.0706 (0.95)	0.0099 (0.67)
Intercept	-2.5824 (-0.22)	-7.2206 (-1.23)	-37.1342 (-0.98)	-3.6282 (-0.69)	22.9843 (0.59)	-0.1123 (-0.04)
F-test of joint significance (p-value)	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000
R ²						
Within	0.0802	0.0613	0.2894	0.2038	0.1943	0.0954
Between	0.0000		0.0250		0.0699	
Overall	0.0089		0.0457		0.0057	
No. of countries	31	31	29	29	29	29
No. of observations	174	174	107	107	107	107
Specification tests	t-statistic	p-value	t-statistic	p-value	t-statistic	p-value
F-test (all u_i = 0)	0.80	0.7564	0.97	0.5190	0.51	0.9731
Hausman	54.58	0.0000	56.40	0.0000	na	na
(Indicated model)		(Pooled OLS)		(Pooled OLS)		(Pooled OLS)

Notes: Estimated coefficients are reported with *t*-statistics in parentheses. The coefficients are based on the robust errors estimation in which standard errors are adjusted for clustering at the country level. ***,**,*Significant at 10, 5 and 1 percent, respectively

have a positive effect on changes in total new firm formation, yet at the 10 percent level of significance. Apart from interactions of FDI differentials and GQ, dynamics in financial development (measured by domestic credit) are found significantly associated with fluctuations in business development by NEA. It is plausible that the process of financial development leads to a decrease in unemployment and thus reduces NEA. Finally, the direct influence of fluctuations in GQ on changes in TEA disappears.

5.4 Additional discussions

Robust results[10] show that FDI has both positive and negative spillover effects on entrepreneurship in EMs. However, such effects on the different types of entrepreneurial activity depend on the strength of GQ. First, in EMs with the lowest GQ, inward FDI has a positive spillover impact and outward FDI has a negative spillover impact on OEA. The pronounced influence of inward FDI we find in EMs is consistent with the knowledge spillover theory of entrepreneurship (Acs *et al.*, 2009, 2012, 2013)[11]. This theory argues that new knowledge created by the process of inward FDI spills over to would-be entrepreneurs who recognize and exploit potential opportunities in order to create new firms. This knowledge-driven entrepreneurial activity becomes stronger under the less efficient process of exploiting knowledge flows which may arise in economies with weaker governance infrastructure. Regarding the OEA-reducing effect of outward FDI in this institutional context, an inverted interpretation should be only fair[12].

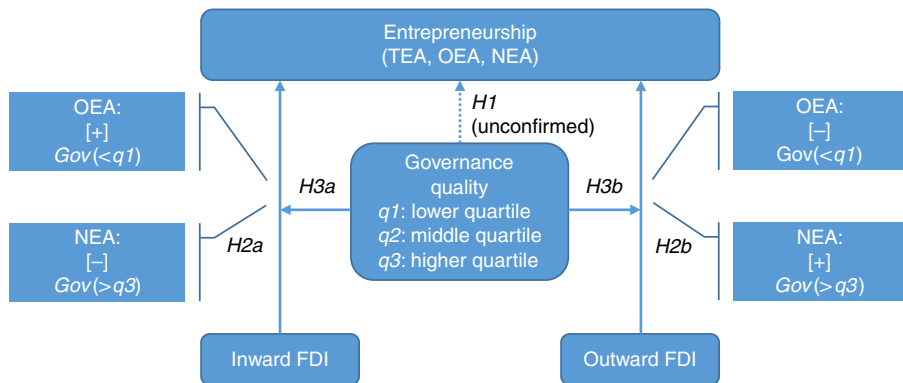
Second, in EMs with the highest GQ, NEA is discouraged by the entrance of FDI but supported by the outflow of FDI. As regards the diminishing effect of inward FDI on NEA, one possible explanation is that job demand created by the increased presence of foreign firms recalls wage work (Acs *et al.*, 2008), which brings about a discouragement of NEA. This is consistent with the analyses of the crowding-out effect of FDI in the labor market by Grossman (1984) and De Backer and Sleuwaegen (2003). A reversed trend of such labor mobility is observable in the case that home-based MNEs increasingly make overseas investments resulting in less domestic employment. Along with this outflow of FDI, export-oriented NEA can emerge. It is plausible to think that these situations should occur in markets with better governance infrastructure[13].

Ultimately, this study sheds new light on the understanding of the role of FDI in entrepreneurial activity in connection with institutional factors. In the context of EMs, our findings are complementary to results by Herrera-Echeverri *et al.* (2014). More specifically, our study clarifies the essence of the compound impact of GQ and FDI on entrepreneurship by delving into different natures of FDI and of entrepreneurial motivation. Our results suggest a much more complex mechanism of interaction: the strength of governance infrastructure shapes the FDI-based spillovers of entrepreneurship in ways that hinge on whether FDI is inward or outward and entrepreneurship is opportunity-motivated or necessity-motivated. Figure 2 illustrates the mechanism through our empirical confirmations of the hypothesized relationships.

6. Conclusion

We further investigate the interplay of institutions, FDI and entrepreneurship in EMs. Our empirical results affirm that governance institutions and FDI play significant roles in entrepreneurial activity. National governance infrastructure facilitates FDI-based spillover effects of entrepreneurship. In particular, empirical patterns of the relationship between direction-specified FDI and motivation-specified entrepreneurship vary across the spectrum of GQ. That is, in EMs with different levels of GQ, the effects of inward FDI and outward FDI on OEA and NEA are in opposite directions. Inward FDI stimulates OEA in markets with the lowest GQ and discourages NEA in markets with the highest GQ; and, at the same time, outward FDI diminishes OEA in markets with the lowest GQ and promotes NEA in markets with the highest GQ.

Figure 2.
Illustration of the entrepreneurship effects of FDI and governance quality



Our findings have implications for the institutional context-based execution of public policy in EMs. It is a fact that countries with better governance infrastructure attract more FDI. It is also observable that the efflux of capital is stronger for countries with higher GQ. Our research demonstrates that inward FDI itself is both beneficial and detrimental to entrepreneurial activity which, in turn, promotes economic growth, and so is outward FDI. Such effects of inward FDI and outward FDI are pronounced differently under the two types of entrepreneurship and the two extremes of GQ. Once public policy makers recognize the catalytic role of FDI in new firm formation, the distinct institutional context of their country should be taken into consideration. As OEA, for instance, has been proved more contributory to economic performance, attracting the inflow of FDI should be an economic development policy at the top of the agenda for governments of countries with weak GQ. When the governance infrastructure improves sufficiently to be advanced, the development policy framework conducive to, for example, export-oriented entrepreneurial activities encouraged by outward FDI should be well established in order to take advantage of NEA's (presumed) marginal contributions toward intensifying economic growth.

Our study has limitations. First, we do not consider informal institutions such as social norms which may be potentially related to entrepreneurial activity in EMs. This may be a potential direction for future research. Second, the research sample which is limited to a finite, small number of EMs might be confronted with some estimation problems of biasedness and inconsistency. Also, there is a potential issue of data incompatibility and irrelevance since our data come from different sources.

Notes

1. Throughout this study, the two terms '(national) governance quality' and 'institutional quality' are used interchangeably.
2. A brief review of the literature on entrepreneurship with its two types and the entrepreneurial role of formal institutions is introduced in Appendix 2.
3. Regarding the FDI direction, Albuлесcu and Tămăşilă (2014) and Albuлесcu and Tămăşilă (2016) report empirical evidence from European economies on the contemporaneous existence of both negative and positive effects with respect to different types of FDI (inward vs outward) and of entrepreneurial motivation (necessity vs opportunity). Regarding the FDI source, Anwar and Sun (2012) show that FDI inflows from Hong Kong, Macau and Taiwan increase the exit rate of domestic firms located in mainland China. At the same time, the influx of FDI from the rest of the world increases the entry rate. These effects are through both backward and forward linkages of FDI spillovers.

4. A majority of the studies mentioned above relates to inward FDI. As one of very few exceptions, the work of Albuлесcu and Tămăşilă (2014, 2016) considers both inward and outward FDI, merely for European countries. However, Albuлесcu and Tămăşilă (2014, 2016) do not examine the role of institutional quality.
5. Each of six aggregate governance indicators is constructed by averaging data from underlying sources that correspond to the concept of governance being measured. The obtained governance measures are in standard normal units (i.e. units of a standard normal distribution with a mean of 0 and a standard deviation of 1) ranging from approximately -2.5 to 2.5 . Higher values correspond to better governance.
6. In fact, we implement estimating three approaches in terms of panel data regression (i.e., OLS, FE, and RE) and use specification tests to determine which is appropriate. For all clustered regressions, results of the F -test (FE vs OLS) are in favor of FE model; results of the Breusch–Pagan LM test (random effects vs OLS) are in favor of RE model; and results of the Hausman test (FE vs RE) are in favor of FE model. Thus, the FE model is the most appropriate in all cases and the eventual reference to our analysis. For the sake of comparison, we report estimated results for both FE and RE models.
7. A negative effect of institutional quality on entrepreneurship is striking but not too strange. However, the effect is often predicted/found for a certain type of entrepreneurship such as unproductive entrepreneurship (Baumol, 1990; Sobel, 2008) and necessity entrepreneurship (Fuentelsaz *et al.*, 2015; Angulo-Guerrero *et al.*, 2017). We argue that the negative effect on overall entrepreneurial activity found here may be a manifestation of the dominant effect of a certain type of entrepreneurship. Also, we empirically perceive that using different data sources of entrepreneurship may reach opposite conclusions on the relation between institutional quality and entrepreneurship. For example, authors studying the level (rate) of entrepreneurial activity or business density tend to find a positive impact of institutional quality (e.g. Stenholm *et al.*, 2013; Herrera-Echeverri *et al.*, 2014). Studies that use the data distinguishing entrepreneurial activity based on its nature tend to find both positive and negative effects (e.g., Sobel, 2008; Fuentelsaz *et al.*, 2015; Angulo-Guerrero *et al.*, 2017). We suggest that this phenomenon should necessitate a consolidation of the empirical evidence on the entrepreneurship impact of institutional quality in the future.
8. For brevity, we do not report RE results whose patterns are similar to both FE and OLS ones through all panels relating to the three alternative measures of entrepreneurship. It should be noticed that the Breusch–Pagan (LM) test cannot be conducted after the RE estimation in this first differencing approach. Also, the Hausman test is not available for the case of NEA panel.
9. A mostly similar phenomenon is also observed in robust results by Albuлесcu and Tămăşilă (2016) for European economies.
10. Our main results are not driven by the potential endogeneity of inward/outward FDI, trade, and GDP growth. (Results from further robustness checks through 2SLS and GMM estimators – as tabulated in Table AII – indicate that the empirical patterns of inward/outward FDI interacting with institutional quality in the OEA and NEA models are unchanged.) We would like to thank an anonymous reviewer for pointing out this issue.
11. Basically, this result from our study is also consistent with empirical evidence on the positive externalities of FDI that benefit entrepreneurial activity, which is found by some country-specific studies (Görg and Strobl, 2002; Ayyagari and Kosová, 2010; Anwar and Sun, 2012; Apostolov, 2017). Also, the rationale of this finding can be augmented by De Clercq *et al.*'s (2007) analysis of the positive relationship between inward FDI and entrepreneurs' export orientation.
12. This result is in line with European evidence of Albuлесcu and Tămăşilă (2014, 2016), who advocate that outward FDI reduces OEA as a consequence of having no new opportunities in the market anymore.
13. Indeed, for European economies, Albuлесcu and Tămăşilă (2014, 2016) relate their findings of the negative relation between outward FDI and NEA to the argument that job loss that is related to a heightened local competition induced by the presence of foreign MNEs will encourage NEA.

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(The Appendix follows overleaf.)

TEA	Total early-stage entrepreneurial activity: percentage of the adult population between the ages of 18 and 64 years who are in the process of starting a business (a nascent entrepreneur) or owner-manager of a new business which is less than 42 months old	GEM
OEA	Opportunity-motivated entrepreneurial activity: percentage of improvement-driven TEA of the adult population aged 18–64 years old who are pulled into entrepreneurship because they recognize an opportunity that can improve their income or increase their independence	GEM
NEA	Necessity-motivated entrepreneurial activity: percentage of improvement-driven TEA of the adult population aged 18–64 years old who have started a business out of necessity because they had no other option for work	GEM
Business freedom	Composite measure of the extent to which the regulatory and infrastructure environments constrain the efficient operation of businesses. The quantitative score is derived from an array of factors that affect the ease of starting, operating and closing a business	IEF
Fiscal freedom	Composite measure that reflects marginal tax rates on both personal and corporate income and the overall level of taxation (including direct and indirect taxes imposed by all levels of government) as a percentage of gross domestic product (GDP)	IEF
Trade freedom	Composite measure of the extent of tariff and non-tariff barriers that affect imports and exports of goods and services	IEF
Control of corruption	It captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests	WGI
Rule of law	It captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence	WGI
Regulatory quality	It captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development	WGI
Government effectiveness	It captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation and the credibility of the government's commitment to such policies	WGI
Political stability and absence of violence/terrorism	It measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism	WGI
Voice and accountability	It captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and a free media	WGI
Governance quality (<i>Gov</i>)	Rescaled average measure of the six WGI indexes of institutional quality: control of corruption, rule of law, regulatory quality, government effectiveness, political stability and absence of violence/terrorism, and voice and accountability	WGI and authors' calculation
<i>Gov_dum</i>	Binary indicator of the institutional state of FDI corresponding to a specified value interval of <i>Gov</i> . For the two-interval <i>Gov</i> approach to the segmented linear specifications (i.e. Equations (3) and (4)), there	Authors' calculation

Table A1.
Variables' definition
and data source

(continued)

are two dummies: *Gov_upper half* equals 1 if *Gov* is in the upper half of the governance quality distribution or 0 otherwise, and *Gov_lower half* equals 1 if *Gov* is in the lower half or 0 otherwise. For the three-interval *Gov* approach, there are three dummies: *Gov_ < q1* equals 1 if *Gov* is below the first quartile (25th percentile) of the governance quality distribution or 0 otherwise, *Gov_q1–q3* equals 1 if *Gov* is within the range from the first quartile to the third quartile or 0 otherwise, and *Gov_ > q3* equals 1 if *Gov* is above the third quartile (75th percentile) or 0 otherwise

Inward FDI	Inward FDI stock as a percentage of GDP	UNCTAD
Outward FDI	Outward FDI stock as a percentage of GDP	UNCTAD
Financial development	Domestic credit to private sector (% of GDP): it refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, which establish a claim for repayment	WDI
Trade	Trade (% of GDP): it is the sum of exports and imports of goods and services measured as a share of gross domestic product. This variable is expressed in natural log	WDI
GDP growth	GDP growth (annual %): annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 US\$. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products	UNCTAD
GDP per capita	GDP per capita growth (annual %): Annual percentage growth rate of GDP per capita based on constant local currency. This variable is expressed in natural log	UNCTAD
Unemployment	Unemployment, total (% of total labor force): it refers to the share of the labor force that is without work but available for and seeking employment	WDI
Fear of failure	Percentage of 18–64 population perceiving good opportunities to start a business who indicate that the fear of failure would prevent them from setting up a business	GEM
Entrepreneurial intentions	Percentage of 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years	GEM

Table AI.

Appendix 2. A brief review on entrepreneurship and formal institutions

Entrepreneurship and the two types of entrepreneurship: opportunity and necessity

Entrepreneurship in general terms is usually regarded as an essential determinant of economic growth or literally, the main engine of economic growth. In fact, Reynolds *et al.* (2002) argue that entrepreneurial activity is a major mechanism leading to economic growth in the way that intensive levels of entrepreneurship are connected to higher growth rates of national economy. For four last decades, extensive theoretical models have been built on the associations of entrepreneurship with different aspects of economic performance (e.g. Wilken, 1979; Birch, 1987; Audretsch and Feldman, 1996; Minniti and Lévesque, 2010; Colino *et al.*, 2014). A positive entrepreneurship–growth relationship has often been well established among empirical studies (Audretsch and Keilbach, 2004, 2005; Baptista *et al.*, 2007; Neumark *et al.*, 2011; Urbano and Aparicio, 2016). Another stream of entrepreneurship research has focused on its determinants. Well-recognized factors determining entrepreneurship should be those coming out from institutional theories of entrepreneurship (North, 1990; Baumol, 1990, 1993; and for a review, see Bruton *et al.*, 2010) and the spillover theories of entrepreneurship (Markusen and Venables, 1999; Görg and Strobl, 2002; Audretsch and Lehmann, 2005; Ayyagari and Kosová, 2010; Acs *et al.*, 2009, 2013).

One classification distinguishing opportunity- and necessity-based entrepreneurial activities has been widely recognized in the recent literature of entrepreneurial research. According to Fuentelsaz *et al.* (2015), this classification is early advocated by Shane *et al.* (1991), Reynolds and Miller (1992) and Krueger and Brazeal (1994). Reynolds *et al.* (2002) give out a clear analysis in their report for the Global Entrepreneurship Monitor (GEM) laying a stress on initiating motivations to involve individuals in entrepreneurial activities. Accordingly, individuals who are labeled as “opportunity-driven” entrepreneurs opt to start their own companies because they perceive a business opportunity. These opportunity-driven entrepreneurs see entrepreneurship as one of several possible career options. Meanwhile, individuals who are labeled as “necessity-driven” entrepreneurs are themselves forced to initiate their own companies because they have no other options for work. For these necessity-driven entrepreneurs, participating entrepreneurial activities is their last resort. Apparently, motivations behind opportunity and necessity entrepreneurship are different, leading to different productive orientations between them and thus different consequent contributions to national economic vigor.

The categorization of entrepreneurial behaviors like opportunity and necessity motivations is aptly needed because potential effects of different types of entrepreneurs on economic activities may differ considerably. For instance, Reynolds *et al.* (2002) find the correlation of economic growth with necessity entrepreneurship is stronger than that with opportunity entrepreneurship. Wennekers *et al.* (2005) indicate a negative relation between necessity entrepreneurship and economic performance in terms of per capita GDP and innovations and a positive relation for the case of opportunity entrepreneurship. Other studies show that entrepreneurship based on knowledge (i.e. opportunity entrepreneurship), rather than entrepreneurship without a knowledge base (i.e. necessity entrepreneurship), has a larger impact on economic growth (Audretsch *et al.*, 2008; Acs *et al.*, 2012). In this strand of the literature, higher economic growth is presumably attributed to wider spillovers of knowledge and technology generated by heightened levels of opportunity entrepreneurship (Wong *et al.*, 2005; Audretsch *et al.*, 2008; Valliere and Peterson, 2009; Acs *et al.*, 2012; Noseleit, 2013; Aparicio *et al.*, 2016).

It is obvious to realize that entrepreneurship research has focused on both causes and consequences of entrepreneurship (Carlsson *et al.*, 2013). Because of the possible dissimilar effects of different types of entrepreneurial motivation such as opportunity and necessity on economic development (for evidence, see Urbano and Aparicio, 2016), an insightful understanding of specific determinants of each type of entrepreneurship should be critical to delving into the essence of entrepreneurial activities.

Formal institutions and entrepreneurship

Gnyawali and Fogel’s (1994) framework classifies five dimensions of entrepreneurial environments believed to conducive to new business creation process. Similar to Álvarez *et al.* (2014) and Fuentelsaz *et al.* (2015), our study uses this approach to define compositions of formal institutions. We examine the first two dimensions in Gnyawali and Fogel’s (1994) classification framework: government policies and procedures, and socioeconomic conditions. Following Herrera-Echeverri *et al.* (2014), our study in the context of EMs considers business freedom as a representative of the first dimension and fiscal freedom and trade freedom as representatives of the second dimension.

The idea that freedom to create and close businesses promotes entrepreneurial activity is clear. That is because regulatory flexibility in a government’s administrative processes helps reduce fears of penalty and encourage its citizens to formally register their businesses. On the contrary, regulatory complexity and strict administrative requirements can deteriorate entrepreneurial activities because they create an entry barrier (Klapper *et al.*, 2006; Fuentelsaz *et al.*, 2015). Herrera-Echeverri *et al.* (2014) find that entry density of firms in all EMs significantly increases with freedom to establish businesses. Distinguishing the two types of entrepreneurs, Fuentelsaz *et al.* (2015) show that more business freedom is related to more opportunity-based entrepreneurial activities but less necessity-based entrepreneurial activities. Similarly, recent results of Angulo-Guerrero *et al.* (2017) for the OECD countries imply that more flexible regulation of business (including the ease of starting a business) will encourage opportunity entrepreneurship and discourage necessity entrepreneurship. Thus, the distinct motivations of entrepreneurship imply different responses of differently-motivated entrepreneurs to institutional environments. Furthermore, Djankov *et al.* (2002) argue that the relative scale of informal economy is larger in countries with heavy regulations, that is, less business freedom – where small businesses may prefer operating without registration (Fuentelsaz *et al.*, 2015).

Fiscal freedom reflects the flexibility of tax barriers that businesses face. High marginal tax rates imposed on individual and corporate incomes as well as complex procedures relating to tax payment should negatively affect entrepreneurial behaviors. Researchers refer to such a negative effect as the demotivating effect (Djankov *et al.*, 2002; Dean and McMullen, 2007; McMullen *et al.*, 2008). Although a positive relation between fiscal freedom and entrepreneurship is usually found, a negative relation is also evidenced by several studies (e.g. Gordon and Cullen, 2002). Herrera-Echeverri *et al.* (2014) show that the effect of fiscal freedom on entrepreneurship in emerging markets might be insignificant because small firms in this area are less beneficial from tax savings and more vulnerable to bureaucracy costs than large firms. Also, Herrera-Echeverri *et al.* (2014) find no substantial relation between trade freedom and entrepreneurial activity in their selected group of emerging markets. The irrelevance of fiscal freedom (i.e. relating to top marginal tax rates) to business development seems to be a case of the OECD economies as Angulo-Guerrero *et al.*'s (2017) results indicate. However, Angulo-Guerrero *et al.* (2017) show that the significance of the effect of trade freedom in these countries depends on the type of entrepreneurial motivation. In particular, they testify that higher freedom to trade significantly diminishes necessity entrepreneurship, whereas the tested relation between trade freedom and opportunity entrepreneurship is negative insignificantly.

Table AII.
Governance quality,
FDI and
entrepreneurship:
2SLS and GMM
approaches

Explanatory variables	TEA		OEA		NEA	
	2SLS (1)	GMM (2)	2SLS (3)	GMM (4)	2SLS (5)	GMM (6)
Business freedom	-0.0841 (-1.74)*	-0.1590 (-0.84)	-0.0324 (-1.40)	-0.0239 (-0.15)	-0.0355 (-0.89)	-0.0921 (-1.83)*
Fiscal freedom	0.0546 (0.67)	-0.0061 (-0.04)	-0.0113 (-0.47)	0.2153 (0.64)	-0.1440 (-2.38)**	-0.0715 (-0.49)
Trade freedom	-0.0708 (-0.62)	0.1625 (0.58)	0.0847 (1.44)	0.1253 (0.44)	0.2016 (1.45)	0.2387 (1.38)
Governance quality (<i>Gov</i>)	-0.4381 (-3.61)***	-0.2462 (-0.31)	-0.1074 (-1.89)*	0.0581 (0.38)	0.1483 (1.05)	0.1941 (1.15)
Inward FDI× <i>Gov</i> _{< q1}	0.0536 (0.42)	0.3604 (0.92)	0.1110 (1.83)*	0.2741 (1.71)*	-0.0325 (-0.36)	0.1200 (0.40)
Inward FDI× <i>Gov</i> _{> q3}	-0.0032 (-0.08)	0.0144 (0.08)	-0.0179 (-1.03)	-0.1031 (-0.88)	-0.0360 (-1.17)	-0.0427 (-0.52)
Inward FDI× <i>Gov</i> _{> q1}	0.0610 (1.38)	0.0058 (0.02)	0.0072 (0.39)	-0.1726 (-0.98)	-0.0874 (-3.10)***	-0.2060 (-1.72)*
Outward FDI× <i>Gov</i> _{< q1}	-0.6692 (-3.70)***	-0.7208 (-0.82)	-0.3351 (-2.99)***	-1.0956 (-2.19)**	0.2791 (1.47)	-0.4484 (-0.24)
Outward FDI× <i>Gov</i> _{> q3}	-0.0181 (-0.21)	0.2246 (0.68)	0.0092 (0.34)	0.0670 (0.21)	0.1298 (2.79)***	0.1736 (1.33)
Domestic credit	0.0175 (1.21)	0.1933 (0.33)	0.0582 (1.29)	0.3708 (1.00)	0.3790 (6.22)***	0.7061 (2.08)**
Trade	1.2336 (0.83)	-1.7084 (-0.21)	-1.9125 (-2.96)***	-1.0798 (-0.35)	-0.0354 (-2.94)***	-0.0532 (-2.10)**
GDP growth	0.0053 (0.02)	-1.0394 (-0.79)	0.1703 (1.39)	-0.3337 (-0.59)	-3.9346 (-3.77)***	-3.3827 (-1.01)
GDP per capita	2.3419 (2.29)**	-1.4447 (-0.20)	-0.8081 (-0.61)	-1.6853 (-0.26)	-0.0925 (-1.00)	-0.2068 (-0.73)
Unemployment	-0.0684 (-0.72)	-0.4956 (-2.20)**	0.0598 (1.80)*	-0.1252 (-0.55)	-6.6816 (-3.17)***	-9.4339 (-2.02)**
Fear of failure	-0.0742 (-1.41)	-0.1368 (-0.77)	0.0170 (0.40)***	-0.0739 (-1.56)	-0.0068 (-0.17)	0.1047 (0.73)
Entrepreneurial intentions	0.3898 (9.05)***	0.5017 (1.08)	0.0410 (1.56)	0.0527 (0.22)	0.1957 (7.37)***	0.0492 (0.81)
Prob.	0.0000		0.0000		0.0000	0.0213 (0.16)
R ²	0.7975		0.7936		0.9295	
AR(2) test (<i>p</i> -value)		0.966		0.619		0.425
Hansen <i>J</i> -test (<i>p</i> -value)		0.865		0.871		0.889

Notes: Estimated coefficients are reported with *t*-statistics in parentheses. The coefficients are based on the robust errors estimation in which standard errors are adjusted for clustering at the country level; 2SLS and system GMM estimators are used to deal with the potential endogeneity of inward/outward FDI, trade and GDP growth. Estimates for the intercept and lagged dependent variable (in the dynamic GMM approach) are not reported. *, **, ***Significant at 10, 5 and 1 percent, respectively