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Foreign Direct Investment and Entrepreneurship in MENA Region: Does Country's Absorptive Capacity Matter?

BEN ALI TAREK[1] and ADI SUDAN ALBAQAMI[2]

[1] Assistant professor, University of Gafsa, Higher Institute of Business Administration, Tunisia, e-mail: tarek.benal@yahoo.fr
[2] Assistant professor, Department of Business Administration, College of Business Administration, Majmaah University, Majmaah 11952, Saudi Arabi, e-mail: as.albaqami@mu.edu.sa

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ABSTRACT

In the recent years, the impact of international capital flows on domestic entrepreneurship has become a main topic of serious debate between both policymakers and scholars. Actually, this debate becomes increasingly important with the recent recognition of the strategic role of entrepreneurship as one of the main growth channels for inclusive development. Within this context, this study investigates in the MENA region, on the one hand, if and how inward FDI affects domestic entrepreneurship, and on the other hand, if, how and when institutional quality and human capital moderate the FDI-entrepreneurship nexus. Using panel data analysis aver the period 2006-2019, we firstly find that inward FDI crowds out entrepreneurial activities and these negative spillover effects are both felt short-term and long-term. Secondly, both institutional quality (across aggregation and disaggregate measures) and education have positive contingent effects on the FDI-entrepreneurship link at the short term as well as at the long term. Lastly, some implications relative to the knowledge transfer process from inward FDI to entrepreneurship in MENA region are discussed.

INTRODUCTION

More recently, the impact of international capital flows on the host country's economic development has become a main topic of serious debate between both policymakers and scholars. On the one hand, FDI represents a strategic long-term investment allowing host countries to stimulate economic growth (Haskel et al., 2007). On the other hand, it may harm domestic economic performance when it captures the domestic market rather than enhance host economic efficiency (De Mello, 1999). Particularly, this possible drawback concerns the crowding-out effects of inward FDI on domestic entrepreneurs. Actually, these later are considered as the main source of economic innovation and creativity. In this context, existing literature concerning the spillover effects of FDI inflows on host entrepreneurship has produced conflicting evidence and has not led to a definitive and conclusive consensus regarding this debate. Furthermore, when examining the determinants of domestic entrepreneurship, domestic absorptive capacities of

host countries have not been sufficiently taken into account by previous research as possible transmission channels of the FDI spillover effects on entrepreneurship. In view of that, re-examining the relationship between inward FDI and entrepreneurial activities in this study represents a relevant topic from policy and academic perspective.

The purpose of this study is to examine whether inward FDI stimulates entrepreneurial activities in Middle Eastern and North African region and whether *country's absorptive capacity* explain the variations in the FDI spillover effects on domestic entrepreneurship. According to best of our knowledge, there is no previous research that has addressed this subject in the case of MENA region. Moreover, the countries of this region since the 1980s have opted for an integral policy to attract FDI, and they have been successful in this policy especially during the decade 2000-2010 (i.e., an inflow of FDI greater than 2.3% of GDP). On the other hand, during the last decade these countries (especially the Gulf Cooperation Council countries) have changed their development model by focusing more on the strategic role of the private sector. In such context, promoting entrepreneurship in MENA region for sustained development becomes an irreversible political choice. Therefore, a crucial question arises for these economies: are these two strategic types of economic policy (attracting FDI and promoting domestic entrepreneurship) complementary or, on the contrary, substitutable? These supplementary considerations make our research an appealing question for MENA-policymakers.

This article is structured as follows. The second section reviews recent literature on the FDI-entrepreneurship nexus. The third section details the empirical strategy and the research hypotheses. The fourth part presents and discusses our empirical results. In the fifth section, an extensive robust check is executed to reach further insights and to check the validity of our main finding. The final section presents the paper's conclusions and contributions.

1. THEORETICAL BACKGROUND

When examining the FDI-entrepreneurship nexus, scholars often use the theory of crowding effects and the knowledge spillover theory of entrepreneurship at either industry level or economy-wide level. In a host economy, existing literature distinguish two potentially opposing effects of inward FDI on domestic entrepreneurial activities, namely positive spillover effects and negative spillover effects. Current research is moving in a different way by focusing more on the absorptive capacities of host countries to explain under which domestic conditions the crowding-in effects or the crowding-out effects from FDI to entrepreneurship may predominate.

1.1 Main Transmission Channels of Positive Spillover Effects from FDI to Domestic Entrepreneurship

The positive effects of inward FDI on domestic entrepreneurship as well as the transmission channels of these effects have been identified and explained by the theory of knowledge spillovers on entrepreneurship (Acs et al. 2008). The positive technology spillovers may spill over the domestic firms through the diffusion of new technologies and innovative management practices provided by foreign entrants (e.g., Javorcik, 2004; Newman et al., 2015). According to the localization theory of entrepreneurship (e.g., Acs et al., 2013; Audretsch and Lehmann, 2005), inward FDI may foster entrepreneurial activity both in the same region and in neighboring regions. Scholars also talk about the diffusion of technology spillovers within and between industries (Haskel et al., 2007; Javorcik, 2004). Such a diffusion of entrepreneurial skills may occur through the mobility of local managers and workers who are already trained and employed by foreign companies (Fosfuri et al., 2001). After obtaining superior technical skills, such workers can then set up their own businesses or move to other local firms and contribute in the development of their productivities. Another mechanism of the knowledge diffusion is the demonstration effect, defined as the explicit and tacit channels allowing host firms to benefit from the advance technology of foreign firms in terms of organization, production, quality control, process and distribution systems. This effect occurs indirectly when local firms improve their technologies or reproduce new practices previously used by foreign-owned

firms. Through the mechanism of demand creation effects, qualified as horizontal spillover effects and as a main generator of favorable business conditions, host economy may benefit from new markets and entrepreneurial opportunities thanks to the presence of inward FDI (Javorcik, 2004). Through this mechanism, both existing and prospective domestic entrepreneurs may identify and craft potentially promising entrepreneurial opportunities in several ways. On the one hand and through a simple imitation strategy, local companies may offer new products or services, which allows them to reduce their development and planning costs and then increase their competitiveness. On the other hand, local firms may avoid a direct competition from foreign-owned firms by instead exploiting niches in some sectors neglected by their foreign competitors.

In the field of entrepreneurship, the crowding-in impact of inward FDI occurs essentially through its productivity effects upstream and downstream along the supply chain (Kim and Li, 2014). Scholars have referred to this transmission mechanism as vertical spillover effects where both foreign and local firms may benefit from mutually fruitful business conditions. In the case of backward linkages, inward FDI stimulates additional upstream demand along the supply chain through which foreign-invested firms resort to local suppliers to source their raw materials (Javorcik, 2004). To meet an increased demand from local suppliers, generated by foreign companies, additional demand for new goods or services may be exploited by existing or prospective local companies (Blalock and Gertler, 2008). Regarding forward linkages, they mean situations where goods and services produced by foreign-invested enterprises may be purchased by local enterprises (Ayyagari and Kosová, 2010). In such a case, new local firms help MNCs to reach local markets in a more efficient manner. There are a number of ways that domestic firms may take advantage of this situation. First, they may simply distribute foreign goods and services. Second, they may enhance these foreign goods and services by making them better suited to local preferences. Others positive spillover effects from inward FDI may again occur when foreign and local companies produce together goods and service or develop some collaborations for different activities to meet efficiently local demand (De Clercq and Arenius, 2007). They may still occur when local firms, having more direct knowledge of local marketplace, themselves develop new products, which may be used by foreign-owned firms. In this perspective, Markusen and Venables (1999) highlighted that inward FDI represents a promising catalyst for local industrial development, increasing the profits of local suppliers.

Besides positive externalities through demonstration effects and labor mobility, scholars emphasize the positive spillover effects through export channel as a dynamo of export-oriented growth. According to this mechanism, FDI inflows may spur the import-competing production and export competitiveness of local firms (Kneller and Pisu, 2007) because it enables them to acquire the knowledge necessary to penetrate foreign markets and to take advantage of foreign business opportunities. In this same context, foreign firms may also create adequate transport infrastructure and new local firms may benefit from such situation. Moreover, foreign-owned firms may provide domestic ones with additional financial support and resources through an access to capital worldwide (Herrera-Echeverri et al., 2014). Furthermore, they may push domestic firms to adopt business strategies and competitive operating methods (Djankov and Hoekman, 2000), forcing less competitive ones to leave the market. In addition, FDI inflows may intensify the competition in host countries, thus forcing domestic firms to introduce new production technologies.

1.2 Main Transmission Channels of Negative Spillover Effects from FDI to Domestic Entrepreneurship

Negative spillover effects of FDI inflows on domestic entrepreneurship occur especially when foreign-owned firms take advantage of their best position on the international market and their superior technology to draw demand away from local firms (Aitken and Harrison, 1999), thereby crowding out existing and prospective entrepreneurs (e.g., Djankov and Hoekman, 2000; De Backer and Sleuwaegen, 2003). This is called the technological barrier effect, which may harm the productivity growth of local firms and conduct to market stealing behaviour (e.g., Aitken and Harrison, 1999; Meyer and Sinani, 2009; Ayyagari and Kosová, 2010). Among the modes for foreign market entry, MNCs sometimes choose the form of a wholly owned subsidiary instead of joint ventures or alliances. By opting for this high control mode, MNCs prefer to protect their technologies and maintain their comparative advantages.

When the level of foreign investment presence is moderate, competition in host country, both in factor and product markets, itself becomes moderate, and agglomeration and positive spillover effects are more likely to dominate (Folta et al., 2006). On the other side, once the level of FDI presence exceeds a certain threshold, congestion costs increase, which may further restrict local business creation activities (Aitken and Harrison, 1999; De Backer and Sleuwaegen, 2003). The market stealing and competition effects may spill over into neighboring regions. In this case, the aforementioned negative spillover effects of FDI are often less intense within regions than across regions. Inward FDI, through its local competition, may lead to crowding- out effects in local labor markets. These effects appear when multinationals offer higher wages as well as better working conditions than their domestic counterparts (De Backer and Sleuwaegen, 2003). On the supply side of the labor market, previous studies (e.g., Danakol et al., 2017) show that prospective entrepreneurs as well as highly educated people can give up on startup ideas, with less certain rewards, and choose to work in MNCs for higher wages. Moreover, the factor market crowding-out effects may threaten domestic firms through the availability of financing and access to suppliers. This is the case, for example, when the financial support that domestic entrepreneurs might have received will be absorbed by MNCs (Garcia et al., 2013). Thus, instead of supporting domestic entrepreneurs, investors and credit institutions may prefer to lend money and buy equity in investment projects that involve MNCs. On the side of domestic entrepreneurial ecosystem, MNCs may receive preferential regulatory support and tax benefits from host governments to the detriment of local entrepreneurs (Aitken and Harrison, 1999).

Although researchers distinguish two potentially opposing effects of FDI inflows on firm entry (crowding-in and crowding-out effects), we assume in our empirical investigation the existence of negative link between FDI inflows and entrepreneurial activities and we propose the following principal hypothesis:

Hypothesis 1 (H1): A country's level of inward FDI is negatively associated with its entrepreneurial activity.

1.3 Domestic Absorptive Capacities and FDI-Entrepreneurship Relationship

Absorptive capacity represents the ability to internalize knowledge created by others and modifying it to fit their own specific applications, processes and routines. Recent research recognizes that countries with sufficient levels of absorptive capacity may facilitate the transfer of positive spillover effects from inward FDI to domestic entrepreneurship. Here, we focus on the absorptive capacity of institutional quality and that of human capital.

1.3.1 Contingent Effects of Institutional Quality on FDI-Entrepreneurship Nexus

Institutional support represents, according to North (1990), the effective functioning of rules, regulations and policies adopted by host governments to minimize the doubt and riskiness related to cross-border capital flows and their repercussions on local business environment. There are different arguments that support the view according to which FDI inflows may promote entrepreneurship in countries with low level of institutional quality and discourage entrepreneurship in countries having *higher levels of institutions*. A first argument considers that economic regions with weak institutional infrastructure offer few credible regulatory guarantees for their domestic entrepreneurs. On the contrary, the latter can benefit from new entrepreneurial opportunities generated by inward FDI and may profitably exploit the additional commercial insurance produced by MNCs. In countries with low institutional support, the long-term financial commitment of foreign investors may represent for domestic entrepreneurs both a positive signal and a stimulus that absorb their fears of bankruptcy. In this context, the positive effects of inward FDI on entrepreneurial activities may be amplified in countries with low institutional quality (Kim and Li, 2014). According to these scholars, FDI inflows may represent for domestic entrepreneurs an appropriate substitute for ineffective government rules and policies. A second argument considers that countries with weak institutions are often characterized by a lower degree of political stability, which can hinder the creation and development of their local businesses. When choosing to engage in this type of country, foreign investors take, on the one hand, appropriate legal and strategic measures to protect themselves and, on the other

hand, they also seek to protect the interests of the local firms with which they conduct their commercial transactions.

When domestic firms benefit from strong institutional support, the positive influence of inward FDI on local entrepreneurial activity may drop. According to this third argument, FDI inflows may provide little additional benefits compared to the supporting rules and other types of positive assurances provided by host governments. In this case, new domestic firms, instead of benefiting from positive spillover effects of inward FDI, they may be crowded out by aggressive competition from both foreign and domestic firms (Aitken and Harrison, 1999). Furthermore, in the presence of high institutional support resulting in a stable political context, prospective entrepreneurs may be less likely to benefit from protections provided by foreign investors. However, in such contexts, it is rather established companies that benefit more from technology transfer from FDI inflows at the expense of new domestic firms. The latter, by being adversely affected by great competitions in product and labor markets, they may have less incentive to accept the risks of business failure.

Contrary to the arguments previously mentioned, an extensive body of research (e.g., Meyer and Sinani, 2009; Slesman et al., 2020) have brought to light an alternative reasoning according to which inward FDI may foster entrepreneurship in countries with better institutions and *vice versa*. Among the arguments supporting this point of view, scholars assume that institutional quality spurs the conducive business environment, which considered as a fundamental prerequisite for low transaction costs and as a startup simulator for potential entrepreneurs (Acs et al., 2008). By strengthening their motivations and incentives, better institutional quality helps local firms to acquire foreign innovations and to take the risks of adapting and improving external knowledge (Meyer and Sinani, 2009). This enables them to attract qualified employees and to respond competitively to foreign multinational competition threats (Liu et al., 2000). When studying the impact of FDI inflows on domestic entrepreneurship, several scholars have found that it is positive in the case of developed countries (e.g., Albulescu and Tămăşilă, 2016; Ayyagari and Kosová, 2010; Kim, 2019) while it is negative in the case of developing countries (e.g., Aitken and Harrison, 1999; Agosin and Machado, 2005; Munemo, 2017). The most suggested explanation for such findings is that the quality of institutions is narrowly related to the country's economic progress. In this context, Slesman et al. (2020) show that the inward FDI-entrepreneurship link is nonlinearly moderated by the quality of local institutions. That is, institutional capacity in developed countries, which is itself high, moderates positively the impact of FDI inflows on local entrepreneurial activities. On the contrary, in developing countries, the institutional capacity that is itself low moderates negatively the effects of FDI on domestic entrepreneurship. However, these above arguments become less convincing when one takes into account the empirical results highlighted by some scholars (e.g., Eren et al., 2019, De Backer and Sleuwaegen, 2003; Danakol et al., 2017) in the case of developed countries, demonstrating the existence of a negative relationship between FDI and entrepreneurship.

Drawing on the above arguments concerning the contingent effects of institutional quality on FDI-entrepreneurship nexus, we suppose in this study that positive moderating effects of institutional quality is more likely to occur in our empirical context and we opt for the following hypotheses:

Hypothesis 2 (H2): The relationship between inward FDI and entrepreneurship rate is positively moderated by the level of domestic institutional quality.

1.3.3 Contingent Effects of Human Capital on FDI-Entrepreneurship Nexus

When examining how human capital in host economy may moderate the positive externalities from FDI inflows to local entrepreneurship, scholars suggest that the role of education may moderate these effects either positively or negatively (Berrill et al., 2020). In the case of positive contingent effects, theoretical and empirical arguments (e.g., Bosma and Schutjens, 2011) show that entrepreneurship can be an attractive option for people with high level of education because the identification and the seizing of entrepreneurial opportunities as well as the business development require certain entrepreneurial skills, which themselves depend on the level of education and training that an individual has completed. Moreover, entrepreneurs may prefer to start companies in economic regions with more individuals that are educated in order to benefit from a more skilled workforce. A labor market with skilled workforce represents a

good business environment where knowledge spillovers may spread quickly and prosper (Acs et al., 2013). On the one hand, when working in foreign firms, enjoying advanced technology, management, and production capabilities, highly skilled employees can generate technological ideas and then exploit them to create their own businesses. On the other hand, the absorptive capacity of domestic firms greatly increases when they have a highly skilled workforce, which allows them to outsource technical tasks and benefit from market reallocation effects of foreign multinational competition. In countries with low human capital, multinationals allow their employees to have training and development opportunities and to acquire different technical and business skills, implying that inward FDI may be regarded as useful means of *closing* the skills *gap in these types of economies*.

Another body of research assesses the impact of FDI inflows on entrepreneurial activities in host economies, emphasizing the negative moderating impact of human capital. In this perspective, the arguments provided by scholars are mainly related to the threat of foreign multinational competition in the labor market. Indeed, it is both foreign and local firms that may benefit from a highly skilled workforce; however, the competitiveness of domestic entrepreneurs can be threatened when domestic skilled workers are hired by multinationals rather than local companies (Berrill et al., 2020). This negative market reallocation channel occurs specially when multinationals internalize knowledge-based resources and target regions with higher educated human capital (Buckley and Casson, 2009). By offering well-paid jobs, these foreign companies succeed in *attracting domestic* talent and *skilled* workers (Danakol et al., 2017). This negative moderating impact of human capital may be reinforced if, for *some educated* person, the advantages of secure and well-paid jobs provided by multinationals outweigh the benefits of being an entrepreneur.

Drawing on the above arguments concerning the contingent effects of human capital on FDI-entrepreneurship nexus, we suppose in this study that positive moderating effects of human capital is more likely to occur in our empirical context and we opt for the following hypotheses:

Hypothesis 3 (H3): The relationship between inward FDI and entrepreneurship rate is positively moderated by the macro-level of domestic education.

2. EMPIRICAL STRATEGY AND RESEARCH HYPOTHESES

2.1 Data and Sample

In appendix A, we present our research data used to analyze empirically if, how and when does the presence of FDI affect host-country's entrepreneurial activity in the region of Middle East and North Africa (MENA). These data, spanning from 2006 to 2019, were drawn from three sources: the World Development Indicators, the World Bank Group Entrepreneurship Snapshots Database and the Worldwide Governance Indicators. Depending on the availability of our independent variable, our results are based on a panel study of data for 11 countries (Algeria, Bahrain, Iraq, Jordan, Malta, Morocco, Oman, Qatar, Saudi Arabia, Tunisia and United Arab Emirates)

2.2 Definition of Variables and Formulation of Research Hypotheses

2.2.1 Dependent Variable

For each country of our sample, the measure for entrepreneurship levels is the rate of entry of new companies (entry density). This measure is calculated, according to the World Bank (2020), as the number of new registered limited-liability firms by each 1000 people of working age (see appendix A) and it captures only the number of businesses officially recognized in formal economy during a given period of time.

2.2.2 Independent Variable

To reveal cross-national differences in the rates of domestic entrepreneurial activities, a measure of FDI was taken from the World Bank database. Precisely, we have chosen to use the inward FDI, defined as the "net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor" (WB, 2018).

2.2.3 Interaction Variables

To test our moderating predictions in Hypotheses H2 and H3, we created two interaction terms (FDI*IQ and FDI*ED) using our independent variable (inward FDI) with the following moderator variables: institutional quality (IQ) and education (ED) measured by tertiary education enrollment. When examining, in the section 2, how these variables can moderate the impact of FDI inflows on host entrepreneurship, we have concluded that these indicators can have negative or positive contingent effects and the effects that dominate in practice become a central empirical issue.

2.2.4 Control Variables

To take into account other possible explanations of the level of entrepreneurship in our sample countries, we adopt six control variables from the World Development Indicators (see appendix A). The first one, capturing the level of domestic development, is the Gross Domestic Product (GDP) per capita. We prefer this variable rather than GDP growth because it varies slightly over time and well assesses domestic standards of living and prevalence of sound national institutions. An increase in GDP per capita, reflecting an increase of the country's wealth, spurs investment opportunities and encourages people to start a business. The second variable is the foreign trade, measured as a percentage of GDP. Freedom to trade internationally may be positively related to the domestic entrepreneurship. As an indicator of the local financial environment, we use domestic credit to private sector. Thanks to a financial developed market, both prospective entrepreneurs and local firms can access the necessary funds, thereby increasing the domestic entrepreneurial activities (Aghion et al., 2007). Since the prospects of starting a business are largely dependent on the general economic conditions of a country and on its regulatory environment (Djankov et al*.,* 2010), we add two other independent variables: total tax and contribution rate (% of profit) and cost of business start-up procedures (% of GNI per capita). When population growth increases, the demand for goods and services also increases and, therefore, stimulates favorable circumstances for starting a business. So that, population growth was included as a control variable.

According to Kaufmann et al. (2010), the quality of institutional support for private sector development can be measured by the Worldwide Governance Indicators (WGI) (that are voice and accountability (VA), political stability and absence of violence (PSAV), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), and control of corruption (CC)). These WGI indicators are calculated on a scale varying from -2.5 to 2.5, where a lower value indicates poor outcome. An index (IQ), measuring the overall institutional quality, was created as the mean value of the WGI indicators and was introduced as an explanatory variable. To assess the impact of the level of human capital development on entrepreneurship, scholars often use two measures that are the labor force participation rate with tertiary education and the tertiary education gross enrollment ratios. Due to missing values for the former variable, we use the later measure (ED) as a final control variable.

Table 1 highlighted both the descriptive statistics and the correlation matrix of our variables. We can conclude, according to the correlation matrix, that there is low correlation between the explanatory variables, which imply the absence of the multicollinearity problem.

Table 1. Summary Statistics (Correlation Matrix and Descriptive Statistics)

	NewBus	*FDI*	*IQ*	*ED*	*DC*	*TT*	*CBS*	*LGDP-pc*	*TR*	*POP*
Mean	2.1908	11.679	-0.0792	33.198	59.905	33.048	14.84	10.060	119.260	3.3719
Std. Dev	3.0545	49.503	0.6778	13.391	29.764	19.825	19.404	0.8871	62.391	3.3014
Min	0.0879	-4.3368	-1.7247	4.349	2.2639	11.3	0.5	8.6234	52.044	0.1766
Max	17.484	451.639	1.2711	70.034	124.518	76.9	126.9	11.553	326.006	17.510
NewBus	1									
FDI	0.1933	1								
IQ	0.647	0.3545	1							
ED	0.0821	0.0254	-0.0713	1						
DC	0.4252	0.3074	0.7344	0.0454	1					
TT	-0.0311	0.0776	-0.3071	0.0419	-0.0436	1				
CBS	-0.2008	-0.0341	-0.5142	-0.0342	-0.4124	-0.0122	1			
LGDP-PC	0.3597	0.0627	0.6233	-0.0622	0.1298	-0.7448	-0.3457	1		
TR	0.7479	0.4496	0.7202	0.2468	0.5983	-0.1006	-0.1503	0.3412	1	
POP	0.0321	-0.1337	0.2102	-0.3518	-0.129	-0.4558	-0.0774	0.4651	-0.0811	1

Notes: This table shows the descriptive statistics and the correlation matrix of our dependent, independent and control variables for our study sample. See Appendix A for variable details.

Source: own

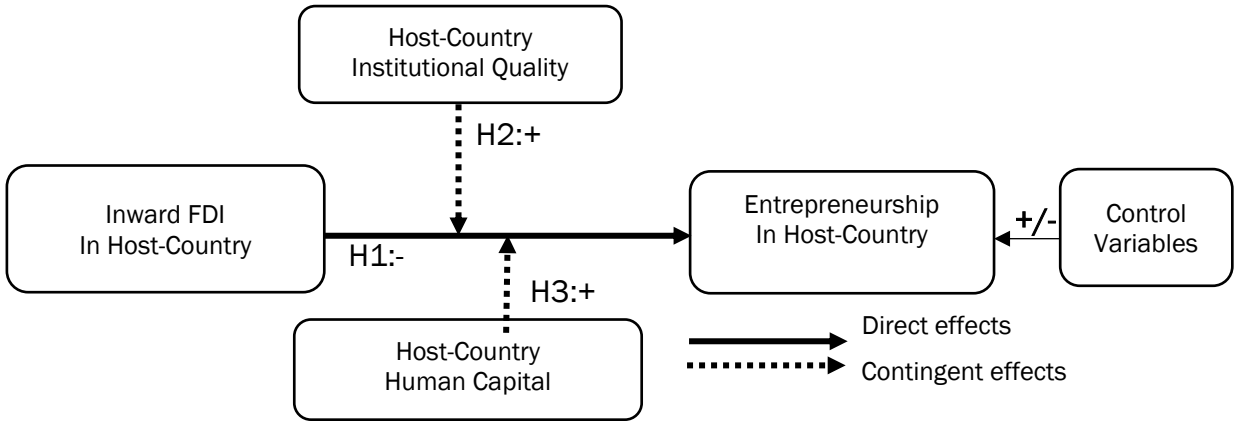

Figure 1. The conceptual framework for assessing the direct and indirect effects of inward FDI on domestic Entrepreneurship

Source. own

2.3 MODEL SPECIFICATIONS

We make use of the following panel data models to test empirically our hypotheses:

$$NewBus_{it} = \beta_0 + \beta_1 FDI_{it} + \delta X_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad (1)$$

$$NewBus_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 EI_{it} + \varphi X_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad (2)$$

In Equation (1) and Equation (2), $NewBus_{it}$ represents the dependent variable (new business density), FDI_{it} represents inward foreign direct investment and X_{it} is a vector of our control variables as described

above (*IQ, ED, GDP-pc, TR, DC, TT, CSB, POP*). For the terms α_i, λ_t and ε_{it}, they represent respectively time-specific effects, country-specific fixed effects and disturbance term. The term EI_{it}, in Equation (2), represents respectively the interaction terms ($FDI_{it}*IQ_{it}$) and ($FDI_{it}*ED_{it}$) through which we test the significance of institutional quality and education as channels for facilitating the positive spillover effects from FDI inflows to domestic entrepreneurship. We proceed along two steps to assess the direct and indirect effects of FDI on entrepreneurship rate. Firstly, Equation (1) will be estimated to test the main or direct effects of FDI on entrepreneurial activity.

Secondly, the Equation (2) will be estimated in order to test the contingent impacts of institutional support and human capital on the FDI-entrepreneurship nexus. Assuming that EI_{it} (in Equation 2) represents the interaction variable ($FDI_{it}*IQ_{it}$), then when β_1 is negative while β_2 is positive, thereby one may conclude that there is some threshold value for institutional quality ($-\frac{\beta 1}{\beta 2}$) beyond which inward FDI is starting to have a positive effect on domestic entrepreneurship. If the term EI_{it} represents the interaction variable ($FDI_{it}*ED_{it}$) and the estimate of Equation (2) produces a negative β_1 and a positive β_2, then we can also conclude that there is a threshold value for education ($-\frac{\beta 1}{\beta 2}$) beyond which FDI inflows is starting to have a positive effect on entrepreneurship.

3. MAIN EMPIRICAL RESULTS

The estimation of Equation (1) and Equation (2) by the fixed effects model and the random effects model gave us similar results, while the Hausman test shows that it is the random effects model which is the most appropriate. The regression analysis through Panel Data Estimates provides the results presented in Table 2. As we can see from this table, there are five models. The first one presents our regression analysis of Equation (1) without taking into account the term FDI_{it} (only the effects of control variables on entrepreneurship are considered). The second model shows our regression analysis of Equation (2) without considering the term EI_{it} (only the effects of control variables and independent variable on entrepreneurship are considered). The third model presents our regression analysis of Equation (2) where the term EI_{it} represents the interaction term between FDI_{it} and institutional quality ($FDI_{it}*IQ_{it}$). The fourth model shows our regression analysis of Equation (2) where the term EI_{it} represents the interaction term between FDI_{it} and education ($FDI_{it}*ED_{it}$). The five model, which is our most complete one, presents our regression analysis of Equation (2) where the term EI_{it} represents respectively the interaction term between FDI_{it} and institutional quality ($FDI_{it}*IQ_{it}$) and the interaction term between FDI_{it} and education ($FDI_{it}*ED_{it}$). Thus, in the models 3, 4 and 5 of table 2 the effects of control variables, independent variable and interaction variables on entrepreneurship are considered together. Hypothesis *H1* is tested by model (2). The model 3 serves for testing *H2*. Hypothesis *H3* is tested by model 4. Model 5 serves to test simultaneously *H2* and *H3*.

For all models in table 2, the overall fit is decent as R2 shows high level ranging between 0.49 and 0.73. In addition, we can confirm the joint significance of coefficients in all these models as shown by the F-statistics ($p < 0.001$). First and foremost, through the second row of table 2, it is clear that Models (2, 3, 4 and 5) produce significantly negative coefficients on FDI_{it}, spanning between 0.0154 and 0.267. This implies that the crowding-out influence of inward FDI holds for entrepreneurship rate in MENA region. The regression analysis provided by model 2, the key concern of *H1*, implies that a 10% growth in inward FDI decreases the *rate* of *new-business creation* in MENA region by 0.0015%. The econometric significance of such impact may be computed as follows: assuming that the inward FDI raises by one standard deviation (that is 49.503) and that all other explanatory variables of model 2 keep their averages. This situation produces a decrease in the entrepreneurship rate by 0.76% (this value was obtained by multiplying the standard deviation of FDI with its coefficient). Therefore, we can well support *H1*. Keeping in mind the fact that our sample contains both developed and developing countries, our first finding corroborates recent previous studies like those of Pathak et al. (2015), Albulescu and Tămăşilă (2016), Danakol et al. (2017), Munemo (2017), Berrill et al. (2020), Eren et al. (2019) and Slesman et al. (2020).

Looking at the regression analysis in model (3) of table 2, we can see that the coefficient of FDI_{it} is negative and statistically significant at the 1 % level while the interaction term $FDI_{it}*IQ_{it}$ has a positive and

statistically significant coefficient at the same percent level. This indicates, on the one hand, that institutional quality has a positive contingent impact on the FDI-entrepreneurship link and, on the other hand, this positive contingent effect only appears beyond a threshold value of institutional support. This finding confirms recent investigations like those of Munemo (2015) (in African countries), Herrera-Echeverri et et al. (2014) (in a sample of developed and developing countries), Xiao and Park (2018) and Slesman et al. (2020) (in the context of emerging markets). To compute this threshold value, we consider in model 3 the estimated coefficient for FDI_{it} (that is β1 = -0.0897) and for the interaction term $FDI_{it}*IQ_{it}$ (that is β2 = 0.0611) and we calculate the quotient previously defined (- β1 / β2). By doing so, we obtain an estimated threshold value of institutional quality equals to 1.46. Thus, when the IQ_{it} level reaches this value and beyond, the effect of FDI inflows on domestic entrepreneurship turns positive. In our sample study, all MENA countries do not satisfy this threshold value on institutional quality, and the majority has a negative mean value of IQ (see figure 2).

Regarding our third hypothesis *H3*, it can be tested either by model 4 or by model 5 in table 2. According to the regression analysis in this table, the coefficient of FDI_{it} (in model 4) is negative and statistically significant at the 1% level while the interaction term $FDI_{it}*ED_{it}$ has a positive and statistically significant coefficient at the same percent level. Model 5 provided these same results. Therefore, we can deduce, contrary to the findings highlighted by Kim and Li (2014) and Berrill et al. (2020) in developed and developing countries, that human capital in MENA region has a positive contingent impact on the FDI-entrepreneurship link and this positive moderating effect only starts to appear beyond a threshold value of education which is equal to 34.1% according to model 4. In our sample study, only 45.45% of MENA countries (that are Saudi Arabia, Jordan, Bahrain, Algeria and Malta) satisfy this threshold value on education. Qatar has the lowest share of these countries (13.55%), followed by Morocco (22.73%), Oman (30.67%), UEA (33.19%), Iraq (33.2%) and Tunisia (33.88%) (see figure 3).

As regards to our control variables in table 2, we note that entrepreneurship is positively related to institutional quality and trade (in models 2, 3, 4, 5) and to GDP per capita (in model 2) whereas education is negatively related to business startup (in model 4 and 5). In all models (2, 3, 4 and 5), estimation results show that there is no influence of domestic credit to private sector and population growth on entrepreneurship rate. For the effects of business start-up regulations (as measured by the cost of business start-up procedures (CBS) and the total tax and contribution rate (TT)) on entrepreneurship, we note a positive influence of TT and CBS while only the estimated coefficients of TT successfully pass the conventional tests of statistical significance as highlighted in models 2, 3, 4 and 5 in table 2. Although economic literature predicts that an increase in the tax burden reduces start-up business, our finding related to the positive effect of TT supports the argument that domestic governments can provide good business infrastructure thanks to high levels of tax revenue, which encourages the creation of new businesses (Sun and Lee, 2017). For the first model in table 2, we only display the influence of our control variables without independent or interaction variables. As we can see, the coefficient of domestic credit is negative and statistically significant, but when we introduce additional variables in models 2, 3, 4 and 5 its statistical significance is loosed. This result may imply that the effects of financial sector development may depend on the absorptive capacities of MENA countries as it may also imply the existence of a non-linear effect (Munemo, 2017; Comin and Nanda, 2019).

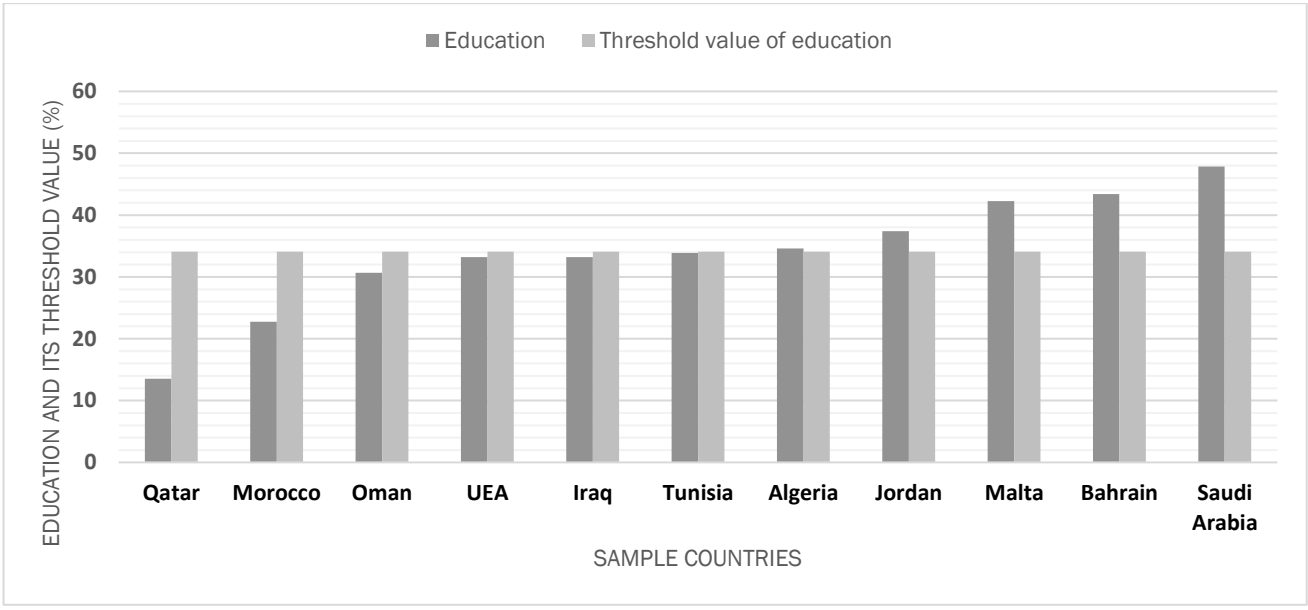

Figure 2. Comparison between the average value of education and its threshold value (the value beyond which the effects of FDI on entrepreneurship become positive) in MENA region
Source: Own

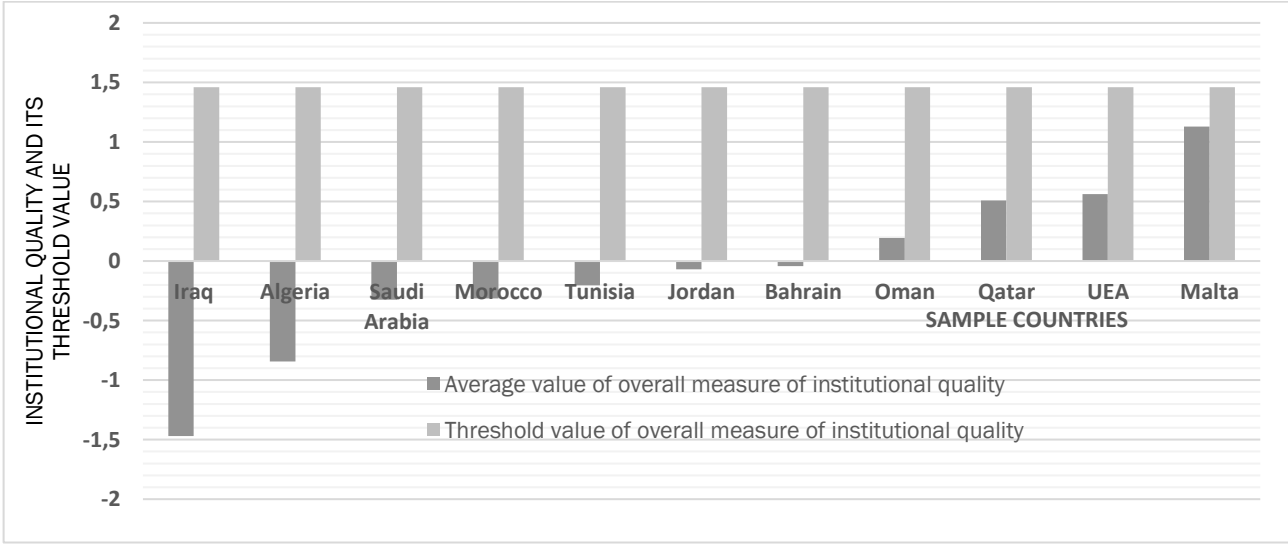

Figure 3. Comparison between the average value of overall measure of institutional quality and its threshold value (the value beyond which the effects of FDI on entrepreneurship become positive) in MENA region
Source: Own

4. ROBUST CHECKS

We lead, here, a supplementary investigation to reach further insights and to check the validity of our leading findings. Firstly, we perform a check of the possibly lagged impact of inward FDI on entrepreneurial activities. This test enables us to ascertain if the impact of inward FDI on domestic entrepreneurship is felt short-term or long-term. Secondly, we perform another check to examine whether our findings on the contingent effects of institutional support remain robust across disaggregate measures of institutional quality.

4.1 Short-Term Effects of Inward FDI on Domestic Entrepreneurship

In table 3, we repeat our main regression models (i.e., models 2, 3, 4 and 5 from table 2) by lagging all independent variables, including inward FDI, respectively by up to one year and two years and reporting the effects of each of those lagged variables on entrepreneurship rate. This choice concerning the lags of FDI is similar, for example, to that of Eren et al. (2019). We note here, on the one hand, that a shift structure beyond two years becomes very expensive in terms of degrees of freedom and, on the other hand, that considering the lagged inward FDI when estimating Equation (1) and Equation (2) allows us to avoid any issues pertaining to reverse and temporal causality. At first sight, we can see that the effects of inward FDI with a one-year lag and two-year lag on domestic entrepreneurial activities are well consistent with the corresponding effects highlighted in Table 2. As shown in table 3, the corresponding effects of implied short-run are similar to the long-run effects of our explanatory variables. Model M1 in table 3 displays two types of regression analysis (one-year lag (j=1) and two-year lag (j=2)) where the estimated coefficients on the inward FDI are all negative and statistically significant. This finding implies that lagged FDI have significant effects beyond one and two years, thereby the negative spillover effects of inward FDI on entrepreneurial activities occur both in the short and long-term.

For model M2 in table 3, the estimated coefficients on FDI_{t-1} and FDI_{t-2} are negative and statistically significant while the interaction terms $FDI_{t-1}*IQ_{t-1}$ and $FDI_{t-2}*IQ_{t-2}$ have positive and statistically significant coefficients. This again confirms our second hypothesis H2. In table 3, the estimated coefficients for FDI_{i-j} in M2 is −0.105 (for j=1) and −0.111 (for j=2) respectively while those of the interaction terms $FDI_{t-1}*IQ_{t-1}$ and $FDI_{t-2}*IQ_{t-2}$ are 0.0723 (for j=1) and 0.0769 (for j=2) respectively. Therefore, the estimated threshold value of institutional quality beyond which inward FDI starts to have a positive impact on entrepreneurship (if j=1) is 1.45 (-(-0.105/0.0723)) while if j=2, it becomes 1.44 (-(-0.111/0.0769)). Concerning our second interaction term, regression analysis in table 3 (model 4) reveals that the estimated coefficients on FDI_{t-1} and FDI_{t-2} are negative and statistically significant whereas $FDI_{t-1}*ED_{t-1}$ and $FDI_{t-2}*ED_{t-2}$ have positive and statistically significant coefficients. Thus, our third hypothesis (*H3*) is reconfirmed. Using the same calculation method above, we find that FDI inflows starts to have a positive impact on entrepreneurship when the level of education exceeds a threshold value equals to 35.64% (if j = 1) and 36.74 % (if j = 2). Consequently, we conclude that there are both lagged and contemporaneously crowding-out effects of FDI inflows on entrepreneurial activities, and that the positive moderation effects of institutions and education on FDI-entrepreneurship nexus may be felt contemporaneously and over time. Moreover, the coefficients of $FDI_{t-j}*ED_{t-j}$ (j=1 et j=2) in model 4 are lower than those of FDI_t*ED_t reported in table 2 (model 4), namely the contingent effects of education are more important in the short-term. Accordingly, the threshold values beyond which education starts to have positive moderating effects on the FDI-entrepreneurship relationship in the short run (that is 35.64% for j=1 and 36.74% for j=2) are slightly higher than the threshold value in the long run (that is 34.1%). For the moderating effects of institutional quality, our results are slightly different. In fact, the coefficients (in absolute value) of $FDI_{t-j}*IQ_{t-j}$ (j=1 and j=2) in model2 (table 3) are higher than those of FDI_t*IQ_t reported in table 2 (model 3), while the threshold values beyond which institutional support starts to have positive moderating effects on the FDI-entrepreneurship relationship in the short run (that is 1.47) is almost the same in the long run (that is 1.46). As for our first hypothesis, the coefficients in absolute value of FDI_{t-j} (j=1 and j=2) as reported in model M1 (table 3) are larger in magnitude than those of FDI_t (M2 in table 2). This implies once again that the crowding-out effects of inward FDI on entrepreneurial activities are higher in the short-term.

Table 3. Supplementary analysis: Short-term effects of inward FDI on domestic entrepreneurship

	Model M1		*Model M2*		*Model M3*		*Model M4*	
	J=1	*J=2*	*J=1*	*J=2*	*J=1*	*J=2*	*J=1*	*J=2*
FDI_{t-j}	-0.0171***	-0.0184***	-0.105***	-0.111***	-0.144***	-0.122***	-0.215***	-0.196***
	(0.00301)	(0.00266)	(0.0374)	(0.0355)	(0.0390)	(0.0409)	(0.0504)	(0.0502)
IQ_{t-j}	1.848**	1.452**	2.161***	1.902***	1.541**	1.425**	1.849***	1.738**
	(0.735)	(0.739)	(0.703)	(0.691)	(0.683)	(0.684)	(0.688)	(0.682)
ED_{t-j}	0.00356	-0.000460	-0.0162	-0.0305**	-0.0315**	-0.0421***	-0.0287**	-0.0389***
	(0.0140)	(0.0143)	(0.0135)	(0.0138)	(0.0138)	(0.0142)	(0.0137)	(0.0140)
DC_{t-j}	-0.0129	-0.00695	-0.0154	-0.0123	-0.0119	-0.0108	-0.0118	-0.0104
	(0.0108)	(0.0105)	(0.0105)	(0.0101)	(0.0104)	(0.0101)	(0.0102)	(0.00991)
TT_{t-j}	0.0519***	0.0507***	0.0415***	0.0395***	0.0393***	0.0403***	0.0367***	0.0369***
	(0.0171)	(0.0185)	(0.0143)	(0.0138)	(0.0141)	(0.0138)	(0.0139)	(0.0136)
CBS_{t-j}	0.0144	0.0104	0.0186*	0.0183*	0.0118	0.0126	0.0148	0.0159
	(0.0111)	(0.0103)	(0.0112)	(0.0107)	(0.0109)	(0.0107)	(0.0109)	(0.0106)
$IGDP\text{-}pc_{t-j}$	0.790	0.872	0.347	0.344	0.606	0.595	0.421	0.399
	(0.517)	(0.550)	(0.455)	(0.441)	(0.439)	(0.435)	(0.441)	(0.434)
TR_{t-j}	0.0309***	0.0343***	0.0340***	0.0389***	0.0301***	0.0362***	0.0294***	0.0355***
	(0.00500)	(0.00507)	(0.00463)	(0.00457)	(0.00477)	(0.00482)	(0.00472)	(0.00473)
POP_{t-j}	-0.0285	-0.0490	-0.0357	-0.0647	-0.0372	-0.0639	-0.0318	-0.0607
	(0.0518)	(0.0470)	(0.0562)	(0.0538)	(0.0551)	(0.0539)	(0.0544)	(0.0528)
$IQ_{t-j}*FDI_{t-j}$			0.0723**	0.0769***			0.0635**	0.0691**
			(0.0300)	(0.0285)			(0.0292)	(0.0281)
$ED_{t-j}*FDI_{t-j}$					0.00404***	0.00332***	0.00379***	0.00295**
					(0.00122)	(0.00128)	(0.00121)	(0.00126)
Constant	-10.23*	-11.50*	-4.791	-4.859	-6.881	-7.123	-4.756	-4.848
	(6.049)	(6.312)	(5.439)	(5.239)	(5.247)	(5.165)	(5.266)	(5.145)
R^2	0.6995	0.7387	0.7227	0.7753	0.7327	0.7744	0.7420	0.7851
F test (p-values)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Observations	143	132	143	132	143	132	143	132
N. of countries	11	11	11	11	11	11	11	11

Source: Own

Notes: The dependent variable for country i at year t is the number of new companies registered per 1000 people of working age (age between 15 and 64). In four models (M1, M2, M3 and M4) a lag of one year (j=1) and two years (j=2) have been applied to all independent, interaction and control variables. The Model M1 shows regression analysis where the effects of control variables and independent variable on entrepreneurship are considered. The Model M2 presents regression analysis where the effects of interaction term ($FDI_{it}*IQ_{it}$), independent variable and control variables on entrepreneurship are considered. The Model M3 shows regression analysis where the effects of the interaction term ($FDI_{it}*ED_{it}$), independent variable and control variables on entrepreneurship are considered. The Model M4 presents regression analysis where the effects of the interaction terms ($FDI_{it}*IQ_{it}$ and $FDI_{it}*ED_{it}$), independent variable and control variables on entrepreneurship are considered. The study period is from 2006 to 2019. The definition of the dependent, independent, interaction and control variables are explained in Appendix A. Robust standard errors are in parentheses. *** Significant at 0.01 level, ** 0.05 level, *0.10 level. Coefficients are based on the Random effects GLS regression.

4.2 Contingent Effects of Disaggregate Measures of Institutional Quality on FDI-Entrepreneurship Nexus

To evaluate the individual contingent effects of governance indexes on FDI-entrepreneurship nexus, we dissociate the independent variable IQ into its six measures (VA, PSAV, GE, RQ, RL, CC). Table 4 summarizes the regression analysis using disaggregate IQ sub-components.

Looking at the sign and statistical significance of the coefficients on our focal explanatory variables FDI_{it} (line 3) and $FDI_{it}*WGI_{it}$ (line 21), we may easy deduce that our second hypothesis *H2* is only confirmed

in model 2 where institutional quality is measured by PSAV (with highly significant at the 1 % level). Contrary to the results of Kim and Li (2014) covering 104 developed and developing countries and that of Pathak et al. (2015) related to 38 developed and developing countries, our finding reveals that the absorptive capacity of institutional infrastructure in MENA region, as measured by political stability and absence of violence, moderates the negative spillover effect of FDI on entrepreneurial activities. This positive contingent effect starts to appear when the PSAV exceeds the threshold value of 1.47, which is almost the same threshold value when institutional quality is rather measured by the aggregate variable IQ (defined as the average of the six-component WGI of the World Bank). Coefficient assessment of other interaction terms ($FDI_{it}*CC_{it}$, $FDI_{it}*RL_{it}$, $FDI_{it}*RQ_{it}$, $FDI_{it}*VA_{it}$) reveals that, exception made for $FDI_{it}*GE_{it}$, there are positive contingent effects of disaggregate measures of institutional quality on FDI-entrepreneurship nexus, but these effects are not statistically significant.

Results analysis concerning our control variables as highlighted in table 4 are in line with those of table 2, except that related to institutional quality. In fact, in models M2, M4, and M6 of table 4 institutional quality fosters entrepreneurship, while in model M4 of table 4 there is a negative and significant correlation between these variables. For model M5 of table 4, institutional quality as measured by GE variable is negatively correlated with entrepreneurship. This may imply that in economies with good government effectiveness, domestic firms will be more productive and have more investment opportunities through higher economic growth, which favors the supply of wage job. This can encourage participants in the labor market to choose the status of an employee rather than being an entrepreneur.

Table 4. Supplementary analysis: Contingent Effects of Disaggregate Measures of Institutional quality on FDI-Entrepreneurship Nexus

	M1 *WGI=CC*	*M2* *WGI=PSAV*	*M3* *WGI=RL*	*M4* *WGI=RQ*	*M5* *WGI=GE*	*M6* *WGI=VA*
FDI_t	-0.0291	-0.0952***	-0.0315	-0.0516	0.0200	-0.0370
	(0.0381)	(0.0287)	(0.0491)	(0.0424)	(0.0293)	(0.0241)
ED_t	-0.0198	-0.00496	-0.0152	-0.0105	-0.0213	-0.00368
	(0.0134)	(0.0131)	(0.0132)	(0.0137)	(0.0130)	(0.0118)
DC_t	0.0102	-0.00495	-0.00578	-0.00460	0.0186*	-0.00628
	(0.0110)	(0.00899)	(0.0102)	(0.00961)	(0.0108)	(0.00743)
TT_t	0.0596***	0.0422***	0.0577***	0.0700***	0.0643***	0.0102
	(0.0150)	(0.0143)	(0.0146)	(0.0166)	(0.0148)	(0.0146)
CBS_t	0.00817	0.0165	0.0166	0.0182	0.00482	0.000915
	(0.0115)	(0.0110)	(0.0128)	(0.0126)	(0.0114)	(0.0101)
Log $(GDP\text{-}pc)_t$	1.582***	0.580	1.017**	1.099***	2.052***	1.493***
	(0.509)	(0.414)	(0.428)	(0.395)	(0.499)	(0.341)
TR_t	0.0375***	0.0362***	0.0354***	0.0297***	0.0394***	0.0151***
	(0.00427)	(0.00394)	(0.00439)	(0.00587)	(0.00418)	(0.00527)
POP_t	0.0493	0.00172	0.0302	0.0463	0.0326	-0.0400
	(0.0602)	(0.0569)	(0.0586)	(0.0586)	(0.0574)	(0.0545)
WGI_t	-0.525	0.849***	0.854	1.189*	-1.379**	2.587***
	(0.594)	(0.291)	(0.595)	(0.690)	(0.620)	(0.450)
FDI_t*WGI_t	0.0165	0.0647***	0.0110	0.0346	-0.0283	0.0167
	(0.0370)	(0.0225)	(0.0299)	(0.0372)	(0.0253)	(0.0196)
Constant	-20.17***	-8.551*	-13.56***	-14.46***	-25.52***	-11.98***
	(5.853)	(4.837)	(4.960)	(4.588)	(5.773)	(3.927)
R^2	0.6518	0.6889	0.6544	0.6570	0.6632	0.7344
F test (p-values)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Observations	154	154	154	154	154	154
Number of countries	11	11	11	11	11	11

Source: Own

Notes: This table is a replication of Table 2 with a particular focus on the contingent effects of disaggregate measures of institutional quality on FDI-Entrepreneurship Nexus. It summarizes 6 regression analysis using disaggregate measure of Word Governance Indicators (WGI). The dependent variable for country i at year t is the number of new companies registered per 1000 people of working age (age between 15 and 64). The models M1, M2, M3, M4, M5 and M6 show regression analysis where the effects of the interaction term (FDI_{it}*WGI_{it}), independent variable and control variables on entrepreneurship are considered, knowing that WGI represents respectively CC, PSAV, RL, RQ, GE and VA for the models M1, M2, M3, M4, M5 and M6. The study period is from 2006 to 2019. The definition of the dependent, independent, interaction and control variables are explained in Appendix A. Robust standard errors are in parentheses. *** Significant at 0.01 level, ** 0.05 level, *0.10 level. Coefficients are based on the Random effects GLS regression.

CONCLUSION AND IMPLICATIONS

We use data on MENA countries from 2006 to 2019 to study firstly if and how inward FDI affects entrepreneurial activity, and secondly if, how and when institutional support and human capital moderate the FDI-entrepreneurship link.

Contributing to the recent literature on FDI-entrepreneurship nexus, our empirical results robustly support some previous studies and contradict others. Concerning the direct impact of inward FDI on domestic entrepreneurship, our findings show that there are strong negative spillover effects of FDI inflows on entrepreneurial activities and these negative externalities are both felt short-term and long-term. According to literature, as discussed in the second section, there are at least three possible explanations for this negative relationship in MENA region. First, foreign-owned firms may decrease the productivity of local firms and crowd out domestic entrepreneurs due to market stealing and competition effects. Second, local entrepreneurs may prefer to work in foreign firms to benefit from higher wages as well as better working conditions. Third, the factor market crowding-out effects may threaten domestic firms through the availability of financing and access to suppliers. Regarding the possible moderating effects of the main socioeconomic conditions in the MENA region, we find, in line with earlier studies (e.g., Herrera-Echeverri et al., 2014; Munemo, 2015; Xiao and Park, 2018; Slesman et al., 2020) that institutional quality (across aggregation and disaggregate measures) has positive moderating effects on the inward FDI-entrepreneurship nexus at the short term as well as at the long term, and these positive externalities only appear beyond a threshold value of institutional support equals to 1.46. In the same way, our results reveal, contrary to some precedent results (e.g., Kim and Lee, 2014; Berrill et al., 2020), that education has positive moderating effects on the FDI-entrepreneurship nexus both at the short and long term, and these positive contingent effects only start to be positive beyond a threshold value of education equals respectively to 34.1% and 36.19% in the long and short-term.

In light of our findings, MENA governments should be strategic in the ways in which they design and manage their socioeconomic conditions and how they choose the type of inward FDI to foster domestic entrepreneurship through external technological spillovers effects. With reference to our main findings, the following implications may be proposed concerning the direct and indirect effects of FDI inflows on local entrepreneurship. To explain the negative inward FDI- entrepreneurship relationship (direct effect), we have to understand first of all the possible sources (inside and outside) of the transfer of negative spillover effects of FDI inflows on entrepreneurial activities in MENA region. There are at least three sides in the negative knowledge transfer process: entry mode of inward FDI, firms' absorptive capacity and countries' absorptive capacity. First, in MENA countries most foreign firms may be fully foreign-owned (greenfield strategies) which allow them to protect their technologies and maintain their comparative advantages. On the contrary, if they are partially foreign-owned (i.e., joint ventures and alliances), the knowledge transfer process will be easy thanks to possible partnerships between a foreign and local partner through which MNCs establish domestic relationships and share their technologies with local entrepreneurs and suppliers. This transmission channel, known as the vertical linkages channel, is either disabled or not working properly, that is why MENA governments should, on the one hand, promote business social networks and help their entrepreneurs to develop some collaborations with foreign companies, and on the other hand, only attract efficiency-seeking FDI. Second, in some MENA countries (especially those in North Africa), foreign companies, preferring foreign investment in the form of resource-seeking or market-seeking, are often content with export platform strategies to serve foreign markets rather than local ones. This disapproves

or weakens the argument, related to the demonstration channel, that domestic entrepreneurs can detect gaps in foreign goods and services sold locally, and offer through imitation strategies more attractive products to respond effectively to local preferences. Third, an extent of technological difference between domestic and foreign firms may play a crucial role in the knowledge transfer process. Indeed, new domestic firms with lower productivity can benefit more from the domestic presence of MNCs (through the labor turnover channel) than domestic firms with higher productivity because the latter are more likely to be strongly competing in labor markets by foreign firms. Fourth, host countries in MENA region have to rather foster their entrepreneurial ecosystem to counterbalance the negative spillover effects (competition channel) from inward FDI. Fifth, in MENA region, inward FDI is concentrated in the non-tradable and extractive industries sectors (WB, 2013).

Besides these general recommendations, some others precious implications may be deduced from our empirical results relating to the MENA entrepreneurship absorptive capacities. For the moderating effects of institutional infrastructure, we find that no country in this region satisfies the threshold beyond which institutional quality starts to positively moderate the inward FDI-entrepreneurship nexus. Consequently, all countries of our sample must foster their institutional infrastructure, which enables their domestic entrepreneurs to absorb external knowledge and profit from investment opportunities given by FDI spillovers. This urgent implication concerns first of all five countries, namely Iraq, Algeria, Saudi Arabia, Morocco and Tunisia. Concerning the MENA educational absorptive capacities, we find that only almost half of the sample's countries satisfy the threshold value beyond which education starts to positively moderate the spillover effects of FDI inflows on entrepreneurship rate. Particularly, there are mainly five countries (Qatar, Morocco, Oman UEA and Iraq) which should improve their macro-level education.

This study contributes well to the recent literature on the determinants of international entrepreneurship and its importance in inclusive growth. Nevertheless, it suffers from certain limitations, which may be the subject of further extensive research. First, our sample does not cover all the MENA countries because of a lack of macroeconomic data availability. Future studies may overcome this research constraint by considering, for example, industrial level data across MENA countries. Second, we find in this study that the knowledge transfer process from FDI to domestic entrepreneurship on MENA countries depend on their institutional absorptive capacities. However, other previous studies have found that the absorptive ability itself may depend across different levels of development. As our sample included both high-income and low-middle income countries, future studies may retest our research hypotheses across these types of economies. This study uses the rate of entry of new companies (entry density) as a measure of entrepreneurship rate. Or this indicator includes only formal entrepreneurship. Previous studies found that international capital flows may hardly stimulate competition, which may force some entrepreneurs to migrate to the informal sector and thereby increasing informal entrepreneurship. Future studies may shed further enquiries using for example entrepreneurship measure from the GEM data that includes formal and informal entrepreneurship. Third, this study leaves out the crucial roles of both financial system and financial inclusion (as a dimension of financial development). In fact, financial market development not only resolves financing constraints for entrepreneurs, it may help strengthen the national ability to absorb technological spillovers and knowledge arising from FDI inflows by financing innovation and technical progress.

APPENDIX

Appendix A. Definition of variables and their data sources

Indicators	*Expected sign*	*Definition of variables and their sources*[a]
NewBus		The rate of entry of new companies (entry density): "The number of newly registered limited liability corporations per calendar, normalized by population"(DB)
Inward FDI	+/-	"Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor "(WDI)

Institutional Quality (IQ)	+/-	The Quality of Institutions: the overall measure of institutional quality is obtained as the mean value of the six Worldwide Governance Indicators (WGI) (Voice and Accountability (CC), Political Stability and Absence of Violence (PSAV), Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL), and Control of Corruption (CC)).
Education (ED)	+/-	Tertiary enrollment: "Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown" (WGI)
Domestic Credit (DC)	+/-	"Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations that establish a claim for repayment"(WGI)
Total tax rate (TT)	-	"Total tax rate measures the amount of taxes and mandatory contributions payable by businesses after accounting for allowable deductions and exemptions as a share of commercial profits"(WGI)
Cost of business (CBS)	-	"Cost to register a business is normalized by presenting it as a percentage of gross national income (GNI) per capita"(WGI)
LGDP-PC	+	" GDP per capita based on purchasing power parity (PPP). Data are in constant 2017 international dollars"(WGI)
Trade (TR)	+	"Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product"(WGI)
Population (POP)	+	"Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage"(WGI)

Notes: [a] DB: Doing business ; WDI : World Development Indicators; WGI. : Worldwide Governance Indicators. The natural logarithm of GDP per capita is used. Some missing values of variables were calculated indirectly, by using the average values of other countries in the same region or by using values of the country for the closest year available.

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