

Impact of Knowledge Management, Financial Resource, Innovation, and Foreign Direct Investment on Entrepreneurship

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ABSTRACT

The recent “Black Swan” event, Covid-19 is dramatically transforming the landscape of industry and business that will further dampen the survival of necessity-driven entrepreneurs. The objective of the present study is to examine the roles of knowledge management, financial resource, innovation, and foreign direct investment on necessity-driven entrepreneurship. By using a sample from 37 countries spanning from the year 2010 to 2016, the panel regression random effect model finds that financial resource is the most critical factor as financial capital supports necessity-driven entrepreneurship in the venture creation process. The results show that knowledge management, innovation, and foreign direct investment are negative and significantly related to necessity-driven entrepreneurship. We also attempt to investigate the interaction between financial resource and knowledge management when analysing the relationship between knowledge management and entrepreneurial outcomes. The impact of knowledge management on necessity-driven entrepreneurship is contingent on the financial resource. The implications of the study reveal that: (1) financial credit from the banks cannot effectively enhance the survivability of the necessity-driven entrepreneurship, which requires government-backed financial and support. (2) the stimulation on innovation and foreign direct investment may not benefit necessity-driven entrepreneurship as it is pushing them towards marginal market niches. (3) In the absence of adequate financial capital, necessity-driven entrepreneurship unable to reap the benefit from the cultivation of knowledge management. Hence, policymakers should ensure commensurate amounts of financial support and knowledge spillovers to reduce bankruptcy risk among necessity-driven entrepreneurs.

Keywords: Necessity-driven entrepreneurs, knowledge management, financial resource, crowding effect, economic crisis

I INTRODUCTION

The entrepreneurs as the prime mover of economic progress, spending their money and attracting capital to set up a business enterprise have led to the development and distribution of wealth. Entrepreneurs are a heterogeneous community with defining agents between opportunity-driven entrepreneurs (OE), who are willing to engage in the entrepreneurial spirit to pursue a business opportunity and the necessity-driven entrepreneurs (NE), who are forced into entrepreneurship because they are losing alternatives for jobs (Amorós, Poblete, & Mandakovic, 2019; Fossen & Büttner, 2013). Fostering entrepreneurial ecosystems is a policy to nurture the economy of the country by encouraging entrepreneurial mechanisms and practices that effectively promote the development of small enterprises. An integrated collection of elements in the entrepreneurial ecosystems such as knowledge transfer, financial resource, innovation and economies spillover effects could provide a smooth entrepreneurship development that strengthens social welfare and economic growth (Albulescu & Tămășilă, 2016; Kansheba, 2020).

The 2008-2009 global economic crisis has prompted a renewed interest in entrepreneurial ecosystems attributed to its significance in introducing employment into an economic system (Fossen & Büttner, 2013). Strikingly, in most of the countries, the NE has surged after the crisis, possibly attributed to the vast number of people who lost their jobs after the economic crisis. As illustrated by Table 1, most of the NE growth rate has increased by more than 50% in the year 2010 compared to pre-crisis in the year 2007. On the other hand, most of the OE growth rates are negative. Furthermore, in the face of the global Covid-19 pandemic, entrepreneurs have to face a new reality that NE will increase significantly during recessions (Ionescu-Somers, 2020). Therefore identifying the factors that influence NE is one of the major aims of all countries since it became part of the Sustainable Development Goals (SDGs). In particular, identify the factors that influence NE and take the corrective actions are crucial to achieving Goal 1 (no poverty) and Goal 8 (decent work and economic growth) as (Venâncio & Pinto, 2020) comment NE is the barriers to achieve SDG.

Table 1. Comparison of opportunity-driven entrepreneurs (OE) and necessity-driven entrepreneurs (NE) before and after the 2008-2009 crisis

Country	OE			NE		
	2007	2010	growth	2007	2010	growth
United States	5.25	3.11	-41%	0.87	1.56	79%
Russia	0.89	1.41	58%	0.35	0.67	91%
Greece	3.45	1.52	-56%	0.5	0.6	20%
Belgium	2.41	2	-17%	0.17	0.3	76%
France	1.51	2.87	90%	0.72	0.75	4%
Spain	2.67	1.59	-40%	0.48	0.57	19%
Hungary	2.89	4.03	39%	0.82	0.89	9%
Romania	1.75	2.44	39%	0.44	0.8	82%
United Kingdom	2.28	2.75	21%	0.29	0.29	0%
Norway	3.64	3.58	-2%	0.12	0.7	483%
Peru	11.2	17.8	59%	3.84	4.23	10%
Argentina	5.19	4.16	-20%	2.3	3	30%
Brazil	2.71	4.35	61%	1.44	1.54	7%
Chile	5.46	7.97	46%	1.55	3.36	117%
Colombia	5.34	5.77	8%	2.26	2.76	22%
Turkey	1.06	1.84	74%	0.72	1.47	104%
Ireland	3.29	2.84	-14%	0.21	1.5	614%
Iceland	7.18	6.62	-8%	0.51	0.52	2%
Latvia	1.77	4.1	132%	0.35	1.38	294%
Uruguay	5.14	5.36	4%	1.98	2.25	14%

Source: Global Entrepreneurship Monitor; Note: OE = % of adult age 18-64 to population are nascent entrepreneurs due to opportunity motive, NE = % of adult age 18-64 to population are nascent entrepreneurs due to necessity motive

According to the resource-based view (RBV) theory proposed by Barney (1991), the performance of entrepreneurs is primarily dependent on the availability of human capital, information, financial innovation and resources. A significant number of papers (Albulescu & Tămășilă, 2016; Berrill, O'Hagan-Luff, & van Stel, 2020) have documented the performance of entrepreneurs could be explained by the externality effects, which are knowledge spillover theory (the diffusion of knowledge can take place directly through the mobility of managers and employees, who are engaged by foreign-owned firms) and crowd out theory (negative impact may emerge when international companies compete with the same customers and domestic companies crowd out). The literature has unanimously agreed that knowledge management, financial resources, innovation and FDI are critical components of entrepreneurship. Most of the available empirical studies use OE as the focus of study to measure entrepreneurial activities (Fuentelsaz, Maicas, & Montero, 2018; Pathak, Laplume, & Xavier-Oliveira, 2015) or investigating the issue of entrepreneurship in a developed region (Millán, Congregado, Román, Van Praag, & Van Stel, 2014; Rusu & Dornean, 2019). Notably, there is, yet no consensus on the theoretical benefits of these elements in the entrepreneurial ecosystems on NE. When it comes to NE, the presence of these factors in affecting their performance are different from OE.

Therefore, the objective of this article is to investigate the impact of knowledge management, financial resource, innovation, and foreign direct investment on necessity-driven entrepreneurship. Our research builds on this existing literature by providing an

empirical assessment of the relationship between necessity-driven entrepreneurship, knowledge management, financial resource, innovation, and foreign direct investment. The relative lack of entrepreneurship research based on necessity-driven entrepreneurship and empirical approximation offers us the chance to contribute both through a theoretical and realistic approach to literature.

Using a cross-country sample consists of 37 countries from 2010 to 2016, the panel random regression model reveals that the financial resource is the most vital factor to support NE in the risk-creation process. The findings indicate that knowledge management, innovation and foreign direct investment are unfavourable and significantly linked to NE. We are also looking at the interaction between financial capital and knowledge management while examining the relationship between knowledge management and entrepreneurial outcomes. The effect of knowledge management on NE depends on financial capital.

The novelties of this study could offer new insights for research with both a theoretical and empirical approach. From the theoretical point of view, although studies about entrepreneurial ecosystems are increasing, little research is based on NE and specifically in the case of cross-country analysis. From the practical perspective, we demonstrate that knowledge management, financial resource, innovation and foreign direct investment react differently on NE, which may be beneficial for the implementation of government policies and initiatives to promote an entrepreneurial spirit for NE.

II LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In this section, we will establish conceptual elements that are essential for understanding some systematic factors based on the broad resource-based view (RBV) theory and market imperfections theory that could boost entrepreneurial dynamics. The RBV theory in the work of Barney (1991) explains the presence of knowledge, financial resource and innovation are crucial to determine the start-up of a business. The market imperfections theory notes that businesses often pursue their decision to invest abroad through foreign direct investment is a plan to leverage on capacities which rivals in foreign countries do not share (Morgan & Katsikeas, 1997). Hence, in this research, we emphasise the roles of knowledge management, financial resource, innovation, and foreign direct investment (FDI) on necessity-driven entrepreneurship.

A. Knowledge management and entrepreneurial activities

The human capital theory by (Becker, 1962) states that education enhances competitiveness may clarify the possible advantages of information management for entrepreneurship. Entrepreneurs may need formal education as a signal, for example, for customers, workers or capital lenders. Highly-educated businessmen are well known to be more capable of capturing and leveraging abundant entrepreneurial opportunities than those with less education. The cognitive capacity of a person in the form of knowledge has an effect that drives the overall productivity and efficiency of an organisation. The human capital of the entrepreneur relates to the range of skills acquired over many years through training and work experience, which contribute to generating tacit and codified knowledge that drives high performance. (Costa, Fernández-Jardon Fernández, & Figueroa Dorrego, 2014; Engelman, Fracasso, Schmidt, & Zen, 2017) generally support that an effective start-ups by human capital help entrepreneurs to make use of their knowledge, training, experience and skills to gain other tools to facilitate the risk development procedure. In contrary to these findings, Alfalih (2019) argues that without in the job training which offers the skills necessary to manage projects, education alone could not be sufficient to drive NE. Therefore, we formulate the first hypothesis as follows:

H1: Knowledge management is negatively related to NE.

B. Financial resource and entrepreneurial activities

In the venture formation process, successful financial development provides financial resources to start-ups business. A sound financial structure facilitates the mobilisation of savings to support these idea exploration by the entrepreneur. In the same vein, (Kutan, Samargandi, & Sohag, 2017; Tayssir & Feryel, 2018) explain that financial growth directly affects efforts to alleviate poverty by providing access to credit and other sources of funding for the venture-building process. This means that the entrepreneur would not have to rely on costly funding sources, which may ease their business operation. Based on the discussion above, we form the second hypothesis as follows:

H2: Financial resource is positively related to NE.

An exciting finding brought up by (Dutta & Sobel, 2018) which explains in the absence of adequate financial capital, entrepreneurs cannot benefit from

a rise in tertiary enrollment as. They argue that the previous literature has incorrectly overlooked the non-linear effect of human capital on entrepreneurship. Knowledge management and financial resource can jointly impact entrepreneurship. The relationship between knowledge management and entrepreneurship is positively moderated by a country's level of financial accessibility. With regards to this argument, we establish the third hypothesis as follows:

H3: Financial resource is moderating knowledge management in affecting entrepreneurship.

C. Innovation and entrepreneurial activities

In the Schumpeter's theories, innovation as a modern synthesis of the technical, marketing and operational facets of the topic may lead to an increase in the quality of products and a new or improved system of production (Schumpeter, 1934). The innovation output brings incremental improvements and radical inventions can improve the competitive and dynamic entrepreneurship practices. Amorós et al. (2019) and Fuentelsaz et al. (2018) deliberate that innovation in the form of innovative technological processes, product-market innovations, innovative technological processes, novel organisational design or imitative product serves as a tool that speeds up the diffusion of technology to improve the efficiency of entrepreneurial activities. Thus, the fourth hypothesis is formed as follows:

H4: Innovation is positively related to NE.

D. Foreign direct investment and entrepreneurial activities

The strength of local companies over the foreign countries is clarified by market imperfections that is attributed by FDI. An analysis of the positive impact of trade on entrepreneurship indicates that inbound FDI raises the rates of indigenous entrepreneurship through an information spillover process is known as knowledge spillovers (Albulescu & Tămășilă, 2016; Pathak et al., 2015). In this vein, global companies are introducing new goods to the market, providing new possibilities for local entrepreneurs to form new projects to sell them. International companies will often demand raw materials from the host country, which provides openings for entrepreneurs to start up new projects to supply them. The contrary theory, crowding effect states that the presence of foreign firms competing with local entrepreneurs in factor and product increases player density. Crowding effect have been correlated with "business theft" conduct in which multinational businesses enter domestic markets and steal their clients. We argue that FDI stimulates the exit of NE entrepreneurs that crowds out possible entrants as identified by

Venâncio and Pinto (2020). Thus, we form the fifth hypothesis as follows:

H5: FDI is negatively related to NE.

Drawing from the above literature review and hypotheses, we form the research framework as described by Figure 1. The existing literature is examining the direct impact of knowledge management, financial resource, innovation and FDI on NE. We close the literature gap by introducing H3 where financial resource is moderating knowledge management in affecting entrepreneurship.

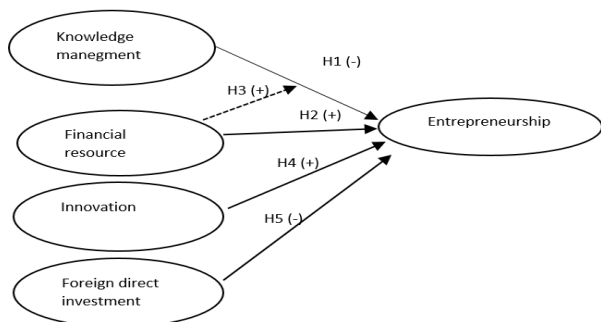


Figure 1. Research framework

III DATA AND METHODOLOGY

The present study is an attempt to examine the impact of knowledge management (KNOW), financial resource (FR), innovation (INNO), and foreign direct investment (FDI) on necessity-driven entrepreneurship (NE). By using a sample of 37 countries¹ ranging from the year 2010 to year 2016², we use panel regression random effect model with all the variables transformed to natural logarithm, that is analogous to typical determinants of entrepreneurial activity model (Albulescu & Tămășilă, 2016; Alfalih, 2019; Rodrigues Brás & Soukiazis, 2018) as illustrated in Eq. (1). Data for KNOW, FR, INNO and FDI are obtained from the World Bank, and the data for NE are extracted from Global Entrepreneurship Monitor.

$$\ln NE_{i,t} = \beta_0 + \beta_1 \ln KNOW_{i,t} + \beta_2 \ln FR_{i,t} + \beta_3 \ln INNO_{i,t} + \beta_4 \ln FDI_{i,t} + \varepsilon_{i,t} \text{-----Eq. (1)}$$

where,

NE= % of adult age 18-64 to population are nascent entrepreneurs due to necessity motive

KNOW=knowledge management of country *i* at time *t* with the indicator: % of total education expenditure over total expenditure in public institutions (TOTEX), or % of educational attainment least Bachelor's over population (EDUB)

¹Argentina, Australia, Belgium, Brazil, Canada, Colombia, Croatia, Czech, Estonia, Finland, Germany, Ghana, Guatemala, Hungary, Indonesia, Ireland, Israel, Italy, Jamaica, Japan, Latvia, Lithuania, Luxembourg, Malaysia, Mexico, Netherlands, Norway, Peru, Poland, Portugal, Romania, Singapore, Slovenia, Spain, Sweden, Switzerland, Thailand.

FR = financial resource of country *i* at time *t* with the indicator of: domestic credit to private sector over GDP (DCPS), domestic credit provided by financial sector over GDP (DCFS), or domestic credit to private sector by banks over GDP (DCPSB)

INNO= innovation of country *i* at time *t* with the indicator of: patent applications by nonresidents (PANR), patent applications by residents (PAR), researchers in R&D per million people (RRD)

FDI= foreign direct investment of country *i* at time *t*

IV DATA ANALYSIS AND INTERPRETATION

The descriptive statistics of this study are shown in Table 2. The lowest NE is at 0.05% that comes from Norway in the year 2013 and 2014 while highest NE comes from Colombia in the year 2015 at 5.26%.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std Dev	Min	Max
TOTEX	201	91.29174	4.985424	72.6465	99.905
EDUB	207	77.35077	43.52226	10.1303	193.04
PANR	207	22.10194	3.811121	13.862	37.4143
PAR	206	66.65126	21.11527	10.5	96.8103
RRD	188	68.50716	5.992221	53.91	82.52
DCFS	207	1.83E+07	2.59E+07	157818	1.30E+08
DCPSB	207	1.78E+07	2.57E+07	160223	1.30E+08
FDI	186	33008.63	38294.68	2053	166368
NE	204	1.263374	1.073402	0.05	5.26

The results of the whole sample based on Eq. (1) are presented in Table 3. Model 1 is the baseline model with the independent variables where the percentage of total education expenditure over total expenditure in public institutions (TOTEX), patent applications by nonresidents (PANR) and foreign direct investment (FDI) are negative and significantly related to NE, domestic credit to the private sector by banks over GDP is positive and significantly related to NE. The findings from this study show that education expenditure might be inappropriate knowledge management to help NE to gain the necessary knowledge to manage the business. The clarification could be explained from the findings of Alfalih (2019) and Costa et al. (2014) where entrepreneurs gain the skill through training and work experience to drive the performance of the business but not through the delivery of education. Another plausible reason could be the low emphasis on entrepreneurial training in the education system. Next, DCPSB is positively related to NE and supports that financial credits offered by banks to the

² Data begin from the year of 2010 to due to the fact that NE has risen after the 2008-2009 crisis. The data stop at the year 2016 as it is the latest available data provided by Global Entrepreneurship Monitor (GEM), which the datasets are only made available to the public 3 years after data collection.

private sector could allocate financial resources to assist NE in business startup and scale-up phases (Kansheba, 2020). However, innovation by nonresidents (PANR) is negatively related to NE, which proposed that the accumulated tacit knowledge and culture developed by nonresidents unable to create wealth for local NE as they might transfer the innovative output back to their home country. FDI is negatively related to NE due to FDI creates a competitive environment and crowd out the NE as foreign entrepreneurs steal their customers.

Model 2, 3, 4 and 5 are the robustness check for the baseline Model 1. Percentage of educational attainment least Bachelor's over population (EDUB) replaces TOTEX as another indicator for knowledge management in Model 2; researchers in R&D per million people (RRD) replaces PANR and PAR as another indicator for innovation in Model 3; domestic credit provided by financial sector over GDP (DCFS) and domestic credit to the private sector over GDP (DCPS) replaces DCPSB in Model 4 and 5, respectively as another proxy for the financial resource. Generally, the results are robust to support the findings from Model 1. Interestingly, DCPS in Model 5 postulates negative and significant relationship with NE and suggests that domestic credits provided by the financial corporation may not be sufficient to alleviate financial constraints of the NE. The explanation could explain this result that the efforts to help NE from the private institutions are not enough; therefore, the financial incentives and entrepreneurial programmes by the government is necessary (Fuentelsaz et al., 2018).

Table 3. Regression results from the panel regression random effect model

VARIABLES	(1) NE	(2) NE	(3) NE	(4) NE	(5) NE	(6) NE
TOTEX	-3.46** (1.52)		-2.76* (1.64)	-3.43** (1.52)	-3.12** (1.55)	
PANR	-1.01** (0.43)	-0.70* (0.39)		-1.00** (0.43)	-0.98** (0.47)	-0.76* (0.40)
PAR	-0.30 (0.25)	-0.15 (0.24)		-0.30 (0.25)	-0.30 (0.28)	-0.14 (0.24)
DCPSB	0.32** (0.15)	0.09 (0.14)	0.38** (0.15)			
FDI	-0.39** (0.17)	-0.12 (0.15)	-0.40** (0.18)	-0.39** (0.16)	0.14 (0.13)	-0.14 (0.16)
EDUB		-0.64*** (0.14)				-0.71*** (0.16)
RRD			0.88 (1.13)			
DCFS				0.33** (0.15)		0.09 (0.15)
DCPS					-0.20* (0.08)	
EDUB*DCFS						0.01* (0.01)
Constant	18.49** (7.58)	5.049** (2.30)	6.53 (9.61)	18.32** (7.563)	18.18** (7.89)	5.11** (2.54)
R2	0.30	0.46	0.20	0.30	0.42	0.46
Observations	169	175	155	169	160	173
Country	37	37	33	37	35	36

Note: ***, ** and * indicate that significant at p-value at 0.01, 0.05 and 0.10 respectively. NE = necessity-driven entrepreneurship, TOTEX = % of total education expenditure over total expenditure in public institutions, PANR = patent applications by nonresidents, PAR = patent applications by residents, DCPSB = domestic credit to private sector by banks over GDP, FDI = foreign direct investment, EDUB = % of educational attainment least Bachelor's over population, RRD = researchers in R&D per million people, DCFS = domestic credit provided by financial sector over GDP, DCPS = domestic credit to private sector over GDP (DCPS)

Model 6 shows the interaction effect of knowledge management on financial resource to influence NE. The positive coefficient of EDUB*DCFS (0.01*) suggests that with the adequate financial resource, the bachelor degree holders venture creation process is smoother as they are equipped with the stronger skill to determine risks better, future failures and ideas challenges, lead founders to refrain from “bad ideas” and do a successful business. This results is consistent with the findings from Alfalih (2019) that demonstrate a deficiency in the level of knowledge management in the Middle East and North Africa region does not encourage NE. However, the availability of financial resource could remove the barriers of credit access. Then, the delivery of entrepreneurship education could boost the knowledge base of entrepreneurs and the cognitive capacity to risk the process of venture formation.

V CONCLUSION

The objective of this article is to study the impact of knowledge management, financial resource, innovation, and foreign direct investment on necessity-driven entrepreneurship. We also explore the interaction between financial resource and knowledge management when analysing the relationship between knowledge management and entrepreneurial outcomes. The findings reveal that knowledge management, innovation, and foreign direct investment are unfavourable and significantly linked to need-driven entrepreneurship. The effect of knowledge management on entrepreneurship guided by the need to depend on financial capital.

The results of this research indicate that banks' financial credit does not efficiently boost the survival of necessity-driven entrepreneurship, which needs financial and help funded by the government. Furthermore, innovation and foreign direct investment stimulus can not benefit from necessity-driven entrepreneurship as it drives them into marginal niches of the market. In the absence of ample financial resources, necessity-driven entrepreneurship cannot reap the benefit from the cultivation of knowledge management. Therefore to minimise bankruptcy risk among necessity-driven entrepreneurs, policymakers should ensure proportionate amounts of financial support and information spillovers. Through doing so, entrepreneurs could establish successful ventures to

create jobs that would have an impact on poverty reduction in achieving sustainable development goals (Venâncio & Pinto, 2020).

This research could be improved by using the updated data and covering more countries by considering the impacts of Covid-19 on NE.

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