

The Impact of Business Incubators on Entrepreneurship Performance: A Benchmark Study Based on Panel Models of Entrepreneurs in Middle Eastern Countries for the Period (2017-2023)

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Abstract

Entrepreneurship has recently an active role in promoting economic activity in all contemporary economies, but it faces many obstacles that could lead to failure. With notable developments in this field, new support and assistance mechanisms have been created, the most important of which are business incubators that encourage investment and thus achieve economic growth and development for the country. This research paper addresses the concept of entrepreneurship as well as business incubators and their role in supporting the national economy and achieving local development.

Keywords: *Entrepreneurship, Business Incubators, Middle East, Economic Development.*

Received: 27 March 2025 Accepted: 16 May 2025 Published: 24 July 2025

Introduction

In line with the new economic changes and transformations in the world, and with the proliferation of technologies and modern developments in all fields, it has become necessary to keep pace with this development. Emerging entrepreneurial projects play a key role in supporting economic and social development because they contribute to providing job opportunities, reducing unemployment, and improving living standards. Despite this important role, entrepreneurship faces several obstacles to its development, the most important of which is a lack of support and guidance. This is where business incubators come in as a means of support and guidance, as well as financing and strengthening entrepreneurial capacity. Based on the above, this study seeks to answer the following question:

Do business incubators influence the support and development of entrepreneurship in the Middle East?

In order to understand and grasp the details of the subject, we have attempted to break down the main question into the following sub-questions:

- _ What is the concept of entrepreneurship?
- _ What are business incubators and why are they important?
- _ Can business incubators contribute to the sustainability of start-ups?

To answer this question and highlight the most important aspects of the topic, we have adopted the following three themes:

Theme 1: The conceptual framework of start-ups

The second axis: The concept of business incubators

The third axis: Business incubators as a means of developing entrepreneurship

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Importance of the study: The study derives its importance from its focus on entrepreneurial projects, which have become extremely important, and from highlighting one of the sources of support for start-ups, namely business incubators.

Objectives of the study: The study aims to achieve a set of objectives, which are as follows:

- _ Highlighting the concept of entrepreneurship and business incubators and their characteristics;
- _ Identifying the support mechanisms provided by business incubators;
- _ Highlighting the common link between business incubators and entrepreneurship;
- _ Highlighting the most important obstacles and barriers that hinder the work of business incubators.

Definition of entrepreneurship: The word “entrepreneurship” is originally a French word meaning a person who starts or initiates a business venture. French economist and businessman Say was the first to use the term in 1800. There are several definitions of this term, including:

Burch's definition (1986): Entrepreneurship is defined as a set of activities based on interest and opportunity, and meeting needs and desires through creativity and the establishment of organizations.³ (Bolton, 2000)

Dolling's definition (1995): Entrepreneurship is defined as the process of creating an innovative economic organization in order to achieve profit or growth under conditions of risk and uncertainty. (Dollinger, 1995)

Schumpeter's definition: Schumpeter defined entrepreneurship as the process of innovation and creating new things in new ways (Kara aldjia ‘souad aknine و ‘souidi roza, 2022)

Entrepreneurship can be defined as the process of creating something of value, allocating the time, effort, and money necessary for the project, bearing the associated risk, and receiving the resulting efficiency. It is therefore a dynamic process for securing wealth.

_The importance of entrepreneurship:

Interest in entrepreneurship has increased in recent years, and it is considered a topic of utmost importance. With intensifying competition between organizations, entrepreneurship has become increasingly important as it is the ideal option for organizations to adapt to the demands of competition and change. It is an effective means of finding new markets and employing a number of workers, It also provides an opportunity for creativity and innovation, increased productivity and economic growth, and the achievement of personal satisfaction and income. (Natanya Meyer, 2018)

Despite growing awareness of the importance of entrepreneurship in the Middle East, it faces many challenges and problems that hinder its activity and even its establishment. The main obstacle to entrepreneurship in the Middle East is the problem of financing, which hinders the role of entrepreneurship in reducing poverty, providing job opportunities to eliminate unemployment, and achieving sustainable development goals. We find that entrepreneurship in the Middle East suffers from a lack of financial intermediaries (banking and non-banking) that provide it with financing, with the number of banking companies offering loans to this type of institution ranging from one bank in Iraq to 60 banks in the United Arab Emirates, In addition to other financing companies, including leasing companies, microfinance companies, microcredit associations, and funds that provide financing in Kuwait, Sudan, Morocco, and Egypt. In addition, specialized entities in some parts of the Middle East provide guarantees for entrepreneurial loans. In this context, (Piet Hausberg, 2018) crowdfunding platforms are becoming increasingly important in financing entrepreneurship in developed countries, with statistics showing that

³ (Bolton, 2000)

crowdfunding platforms contributed \$5 billion to entrepreneurship financing in the United States in 2012, while banks contributed only \$14 billion in the same year. This demonstrates the important role that crowdfunding platforms can play in financing entrepreneurship compared to traditional banks. (Tatia Zarkua, 2025)

It is important to address the factors that hinder the creation and development of entrepreneurship in order to help propose ways to improve the financing and development of entrepreneurial work. The following are the most significant difficulties faced by this segment of institutions:

- _ The absence of an independent body concerned with entrepreneurship;
- _ Marketing problems, especially in relation to competition from foreign investment;
- _ Lack of programs to guide graduates and job seekers to viable projects that require investment;
- _ Difficulty for entrepreneurship to obtain the necessary financing from financial institutions;
- _ Growth of the informal sector, represented by many activities such as the parallel market and parasitic income;
- _ Lack of connection and solidarity between large institutions and entrepreneurship due to lack of information;
- _ Lack of sufficient experience among people considering starting a business;
- _ Entrepreneurs' lack of strategic planning, which leads to the failure of the project in terms of its ability to survive and continue;
- _ Lack of sufficient competence and experience in decision-making is one of the main problems causing the failure of entrepreneurship;
- _ Poor cash flow management due to excessive inventory or excessive investment expenses, poor credit management, and lack of liquidity;
- _ Challenges facing entrepreneurship, such as poor choice of sales location, neglect of competitors, and neglect of environmental changes (Bogdea, 2024) incubators Definition and characteristics of business: According to the American Association of Business Incubators, business incubators can be defined as: "Organizations that aim to help innovative start-ups and new entrepreneurs by providing them with the necessary means and support to overcome the challenges of the start-up and establishment phases, as well as marketing the products of these organizations."

Business incubators are development organizations that provide support to emerging entrepreneurs. This support is not limited to material resources but extends to technical support and specialized consulting for the success of the activity, thus providing several benefits to project owners. This type of institution has recently become widespread and, in most cases, works in collaboration with universities. Therefore, students are among the groups that benefit most from these centers, and entrepreneurs are advised to look for this type of organization in their nearest area to take advantage of the many benefits they offer.

- _ Business incubators are defined as: "An integrated system that treats each project at the outset as if it were a newborn that needs special care and comprehensive attention to protect it from the risks that surround it and to provide it with the energy to continue, gradually pushing it to become strong, capable of growth and self-reliance, and equipped with the ingredients for continuity and success. (Ramar & Muthukumaran, 2019)

It can be defined as "independent institutions with legal status that provide a range of services and facilities to small investors who initiate the establishment of small enterprises, with the aim of providing them with an initial boost that enables them to overcome the burdens of the start-up phase. (Cai Li, 2020)

3_ Types of business incubators: Among the types of incubators are:

3_1_ General business incubators: These are incubators that deal with small projects with different and diverse specializations in all productive, industrial, and service fields without specifying a technological level for these projects.

3_2_ Technological business incubators: These are incubators with scientific and technological support units established within universities and research centers. They aim to take advantage of scientific research and technological innovations and transform them into successful projects through workshops and research equipment, in addition to faculty members, researchers, and experts in their fields.

3_3_ Local economic development incubators: These are often established through local public initiatives and initially rely heavily on local public funding. They mainly aim to develop and stimulate local economic activity by facilitating the creation of businesses and jobs. They are non-profit organizations whose mission is to welcome foreign businesses, help them adapt and settle, and connect them with local partners.

3_4_ International business incubators: These incubators focus on international, financial, and technological cooperation with the aim of facilitating the entry of foreign companies into these countries on the one hand, and developing and qualifying national companies to expand and move towards foreign markets on the other.

3_5_ Open business incubators without walls: These incubators are established to develop and grow existing projects and industries. They are located in industrial clusters to serve as integrated centers for servicing and supporting surrounding projects, performing all the activities of traditional incubators in terms of acting as intermediaries between projects, research centers, and universities, providing marketing, administrative and technical support, and offering the necessary advice for project growth.

3_6_ Large enterprise incubators: These are established by large enterprises as part of their overall strategy and innovation policies, which take various forms such as strategic research alliances, venture capital, and support for external incubators.

3_7_ Independent incubators: These are established by private investors, aim to make a profit, and are run by individuals with experience in business and capital. They use their experience, connections, and time to help other newcomers to the business world. They may be individuals or a group of individuals, and may be formal or informal.

3_8_ Specialized incubators: These address specific issues such as absorbing retirees or those laid off from large companies that have collapsed.

3_9_ Regional incubators: These aim to cover a specific geographical area with the goal of developing it, and work to use local resources by investing in the unemployed human resources in this area, or serving specific minorities or segments of society, such as women.

3_10_ Research incubators: These are established within universities and research and development centers and aim to develop the ideas and research of professors and researchers by utilizing the workshops and laboratories available at the university or research centers. The success of project incubators depends on the careful selection of host projects and ensuring that they graduate within an appropriate time frame of one to three years, with the need to employ a high-level administrative team and provide the necessary training, whether locally or externally. (Joao Leitao, 2022)

To study the impact of business incubators on entrepreneurship in Middle Eastern countries, six countries were selected as a sample for the study (United Arab Emirates, Egypt, Jordan, Bahrain, Qatar, Saudi Arabia), and these countries were selected based on the availability of data related to the study variables during the period (2018-2022), which was collected from the Crunchbase, MAGnitt, and GEM databases.

Research Methodology:

To achieve the study objectives and verify the hypotheses, a quantitative approach was adopted by constructing a standard model to analyze the nature of the relationship between the variables studied in the sample countries, using Stata 16 software to process the panel data.

Study Variables:

After taking into account previous empirical studies and theories explaining the nature of the relationship between business incubators and entrepreneurship, a set of variables was adopted, as explained below:

Dependent variable: Entrepreneurship, based on the percentage of start-ups.

Independent variable: Business incubators. The following indicators were used:

Duration in incubator: It is represented by the number of months spent in the incubator.

Survival Rate of Incubated Start-ups : Percentage of incubated companies that survived after 3-5 years.

The standard form for the study can be written:

$$\text{Start_Up rate}_{it} = \beta_{0it} + \beta_1 \text{Duration}_{it} + \beta_2 \text{Survival}_{it} + \varepsilon_{it}$$

Estimation of the study model: The studied model will be estimated using the three panel data models, the pooled regression model (PEM), the fixed effects model (FEM), and the random effects model (REM) in order to select the optimal model for the study.

Table 1: Estimation of the Pooled Regression Model (PEM)

```

. xtreg startuprate Duration survival

Random-effects GLS regression           Number of obs   =       42
Group variable: pays                   Number of groups =        6

R-sq:                                  Obs per group:
    within = 0.0107                      min =           7
    between = 0.8389                     avg =          7.0
    overall = 0.4057                     max =           7

Wald chi2(2) =       26.63
corr(u_i, X) = 0 (assumed)              Prob > chi2     =       0.0000

```

startuprate	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Duration	-.6502404	.1481881	-4.39	0.000	-.9406837	-.3597971
survival	.0361	.0478149	0.75	0.450	-.0576155	.1298155
_cons	5.58024	.9984822	5.59	0.000	3.623251	7.537229
sigma_u	0					
sigma_e	1.5223828					
rho	0	{fraction of variance due to u_i}				

Prepared by: researchers using Stata 16

Table 2: Estimation of the Fixed Effects Model (FEM)

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. xtreg startuprate Duration survival, fe

Fixed-effects (within) regression              Number of obs   =       42
Group variable: pays                          Number of groups =        6

R-sq:                                         Obs per group:
  within = 0.0429                             min =           7
  between = 0.0222                            avg =          7.0
  overall = 0.0017                            max =           7

corr(u_i, Xb) = -0.1957                      F(2, 34)        =       0.76
                                              Prob > F        =       0.4742

```

startuprate	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Duration	-.0701979	.1114073	-0.70	0.480	-.3047673	.1403716
survival	-.0535202	.0539331	-0.99	0.320	-.1631254	.0560051
_cons	3.775065	.71627	5.27	0.000	2.319429	5.2307
sigma_u	3.2150504					
sigma_e	1.5223020					
rho	.01692102	(fraction of variance due to u_i)				

```

F test that all u_i=0: F(5, 34) = 15.13                Prob > F = 0.0000

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Prepared by: researchers using Stata 16

Table 3: Estimation of the Random Effects Model (REM)

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. xtreg startuprate Duration survival, re

Random-effects GLS regression              Number of obs   =       42
Group variable: pays                      Number of groups =        6

R-sq:                                         Obs per group:
  within = 0.0107                             min =           7
  between = 0.8389                            avg =          7.0
  overall = 0.4057                            max =           7

corr(u_i, X) = 0 (assumed)                  Wald chi2(2)    =       26.63
                                              Prob > chi2     =       0.0000

```

startuprate	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
Duration	-.6502404	.1481881	-4.39	0.000	-.9406837	-.3597971
survival	.0361	.0478149	0.75	0.450	-.0576155	.1298155
_cons	5.58024	.9984822	5.59	0.000	3.623251	7.537229
sigma_u	0					
sigma_e	1.5223828					
rho	0	(fraction of variance due to u_i)				

Prepared by: researchers using Stata 16

Choosing The Best Model for The Study:

To figure out the best model for the study, we used the Fisher test to compare the pooled OLS model and the fixed effects model.

We find that the calculated value of the Fisher statistic is less than 5%, $F = 0.0000$. Therefore, the fixed effects model is better than the pooled model and is the best for the study. Consequently, cross-sectional and time effects must be taken into account.

In the next step, we differentiate between the pooled model and the random effects model using the Breusch and Pagan test, which is based on LM, where we find that **Prob > Chi2=0.0003** <0.05, and therefore the random effects model is better than the pooled model.

Table (04): Results of the Breusch and Pagan test

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Breusch and Pagan Lagrangian multiplier test for random effects

startuprate[pays,t] = Xb + u[pays] + e[pays,t]

Estimated results:

```

	Var	sd = sqrt(Var)
startup~e	10.43011	3.229568
e	2.260271	1.50342
u	.6815593	.825566

```

Test:  Var(u) = 0
      chibar2(01) = 11.77
      Prob > chibar2 = 0.0003

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Prepared by: researchers using Stata 16

After conducting the Fisher test and then the Breusch and Pagan test, we determine the type of effect based on the Hausman test.

Table 5: Hausman Test Results:

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. hausman model_fe model_re

      _____ Coefficients _____
      (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
      model_fe    model_re    Difference      S.E.
-----+-----
Duration        -.0781979    -.6502404    .5720425      .
survival        -.0535202     .0361      -.0896202    .0249502

      b = consistent under Ho and Ha; obtained from xtreg
      B = inconsistent under Ha, efficient under Ho; obtained from xtreg

      Test: Ho: difference in coefficients not systematic

      chi2(2) = (b-B)' [(V_b-V_B)^(-1)] (b-B)
              =      12.10
      Prob>chi2 =      0.0024
      (V_b-V_B is not positive definite)

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Prepared by: researchers using Stata 16

The results of this test indicated that $\text{Prob} > \text{Chi}^2 = 0.0024 < 0.05$, therefore, the appropriate model for the study is the **Fixed Effects model**

Standard Study Model:

$$\text{Start_Up rate}_{it} = 3,775065 - 0,0781979 \text{ Duration}_{it} - 0,0535202 \text{ Survival}_{it} + \varepsilon_{it}$$

Economic Analysis of Results:

There is a negative impact on the survival rate of incubated companies, indicating that companies that remain in the incubator for longer periods do not perform better than other companies. This is due to excessive reliance on the incubator despite the poor quality of support provided by some incubators that lack competencies, weak funding, and incubators that select companies randomly without conditions or evaluation. For example, the incubator incubates a startup that is not capable of growth. The entrepreneurial environment in the Middle East also faces many challenges, such as weak financing and the lack of government support programs or laws or legislation that regulate and protect entrepreneurial work, in addition to weak communication with investors who can provide financial support or even guidance and advice in the Middle East. The entrepreneurial culture is still in its infancy in some countries. This negative impact is due to poor performance and is not limited to business incubators, but also has an environmental and institutional context. These negative results of the relationship between the length of time startups remain in business incubators and their survival rate in the incubator reflect the incubators' lack of effectiveness in providing support to startups to face the market after leaving the incubator. This highlights the need to review the support mechanisms within incubators and restructure the programs offered to ensure the development of operational capabilities and increase independence, especially in the Middle East, where the entrepreneurial environment faces several challenges in terms of access to financing and support. Although business incubators are primarily established to support startups, the negative results are due to excessive dependence on the incubator, with some startups remaining in the incubator for a long time without developing the internal capabilities that would enable them to continue after leaving the incubator.

This keeps the incubator in its comfort zone and reduces the incentive for it to expand. Once they leave the incubator, the company fails to survive, Therefore, staying in the incubator for a long time is against the company's interests rather than being a factor for success. In addition, the quality of incubators in some environments, especially in the Middle East, is poor. Incubators were established as government or formal initiatives without a truly competent team. Furthermore, training programs are inadequate and not in line with the business environment in the Middle East. Business incubators lack support, especially in legal matters, and there is no effective relationship between investors or funding funds. As a result, the incubator is merely a place of residence and not an environment for accelerating growth.

Weak initial selection of companies in some incubators results in projects that are ill-conceived or unfeasible, This is due to the lack of strict project evaluation mechanisms, which leads to the incubation of ideas that are not viable for growth. Therefore, no matter how long they stay, they will inevitably fail. In addition, what is taught or practiced in the incubator does not reflect reality.

Conclusion:

Based on the above, it can be said that entrepreneurship is the main driver of economic growth, and the Middle East, including the Middle East, has come to attach great importance to emerging entrepreneurial projects within its plans and policies, but it faces several difficulties and challenges, the most important of which is the problem of financing. The following are the main findings of this study and the proposed recommendations:

Study results: The study reached the following conclusions:

- _ Entrepreneurship occupies an important place in the global economy, as studies have shown that this type of project contributes to reducing unemployment levels, promoting economic growth, and enhancing research and development in communities.
- _ Entrepreneurship is characterized by a set of features that distinguish it from other projects, as it is characterized by modernity and innovation to fill market gaps in society.
- _ Entrepreneurship goes through a life cycle, starting with thinking, then design and launch, and finally expansion. At each stage, there are a bunch of factors needed at the individual level and at the institutional level as a whole, and it also needs a bunch of parties to get involved in an integrated ecosystem.
- _ Middle Eastern countries have worked to establish the principles of a free economy by encouraging individual initiative and free competition in order to promote entrepreneurship.
- _ The biggest obstacles to entrepreneurs establishing their start-ups are their fear of their innovative ideas being stolen and the lack of guidance, moral support, and advice in dealing with the various parties involved in providing support.
- _ Entrepreneurship is a newly emerging entity that relies on technology, aims to introduce creative ideas and open new markets in the face of significant financial needs and uncertainty.
- _ Despite some limited initiatives in establishing entrepreneurship, there is no pioneering experience, as most of these projects are active in the field of e-marketing, and are merely imitations of previous experiences in other countries, while there are many successful models of companies in the Middle East.
- _ The Middle East relies heavily on the banking sector to finance entrepreneurial projects, given the lack of other financing alternatives. Furthermore, the reality of the banking sector in the Middle East makes it unable to finance entrepreneurship, which is characterized by its unique nature, as the lengthy file review process and bureaucracy hinder the establishment of entrepreneurship.

_ New mechanisms can be used to finance entrepreneurship, the most important of which are: venture capital, angel investment, crowdfunding, Islamic crowdfunding, initial coin offerings, public deals, tax exemptions, and bank financing.

Study recommendations: In light of the findings, the following recommendations can be made:

_Work to spread the culture of financing as an important alternative for financing entrepreneurship in the Middle East through study days, conferences, and gatherings.

_Work to diversify and develop sources of financing in line with the specific nature of entrepreneurship and focus on financial institutions that contribute private funds to start-ups.

_ Support the establishment of more Islamic banks and open special Islamic financing windows, as they offer financing formulas and tools that are appropriate for this type of institution;

_ Provide tax and fiscal exemptions for entrepreneurship through laws that regulate this process and the possibility of providing grants to finance start-up projects.

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