The Nexus Relationship between Entrepreneurship and Economic Growth Dynamic: Evidence from Selected MENA Countries

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ABSTRACT. Entrepreneurship is suggested to be one of the key sources which promote economic growth and development, the increasing interest in entrepreneurship has expanded to include a sustainable and knowledge enhanced economic growth and development as requirements for the economic structural transformation. Furthermore, sustainable economic growth leads to enhance the promising production sectors and enterprises, which in turn increase entrepreneurial activities, enterprises and sectors. Therefore, the aim of our work is to highlight the nexus relationship and impact of both entrepreneurship and economic growth on each other. Thus, we emphasize the value of entrepreneurship as an economic growth promoter, from one side, and we detect the influence of economic growth on entrepreneurship in a panel of countries in the region of the Middle East and North Africa (MENA). Our panel data is including eight middle income level countries from the Middle East and North Africa (MENA) region, which are (Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine, Tunisia, Turkey) over the period from 2003 to 2019. A recent and notable econometric technique has been run that is a dynamic panel Data System analysis (GMM system technique), Arellano-Bond/Blundell-Bond estimators. Data were collected from World Bank and UNCTAD. The empirical findings show that there is a positive association between entrepreneurship and economic growth. Furthermore, the findings emphasize that entrepreneurship promotes economic growth. The findings of this work would be useful to policymakers in identifying and implementing the most effective measures to remove the macroeconomic barriers that entrepreneurs encounter, as well as package of policies have been provided to stimulate innovative entrepreneurial activities and enterprises. The article also recommends to invest more in human capital in order to improve managerial skills and productivity. In addition, government should invest more to create high-quality social and physical infrastructure and alliances to support business friendly environment and to establish efficient access to financing, foreign markets and access to technology methods for established and new start-ups.

KEYWORDS: entrepreneurship, economic growth, system GMM panel data and MENA countries.

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1. Introduction

One of the major aims of contemporary economics is identifying the factors which cause economic growth. Investments in physical and human capital have been highlighted as the key elements connected to economic growth in neoclassical studies of economic growth, while knowledge has been added to the equation in endogenous growth theory. Knowledge, as opposed to traditional factors of production (physical and human capital), would have a significant impact on economic growth as a result of its dissemination to third-party enterprises. Other variables that drive economic growth, such as entrepreneurship, were then included to the neo-classical model. Entrepreneurship has gained widespread attention over the last few decades as a strategy to increase economic growth, the role of entrepreneurship in stimulating economic growth is a subject of much debate in current literature.

Academics and policymakers have a common view that a relation exists between entrepreneurship and economic growth. The potential nexus relationship between entrepreneurship and economic growth, with both positive and negative effects, is believed by economists. About a hundred years ago, Schumpeter (1904) pointed out that entrepreneurship was essential to understanding the determinants of economic growth. Entrepreneurship as a process provides new jobs, new inventions, and new ideas, as well as increasing stimulating national income and so having the capacity to influence economic progress. Entrepreneurship contributes to a higher standard of living and regional development. Entrepreneurship is a crucial mechanism for economic prosperity as well as an essential issue facing both policymakers and economists. It has become recently a solution to many problems and a fundamental contributor in promoting economic growth and development in many ways such as: creates employment, drives innovation and competitiveness in markets, and knowledge transfers. Entrepreneurship is key to improving innovativeness and responsiveness of enterprises, boost productivity and improve costs structures, and performance in trade. The entrepreneurial spirit will turn up the evolution of new markets, new products, new methods of sales and management, new technologies found, and the establishment of new businesses and also of new institutions.

To relate entrepreneurship to economic growth, theoretical and empirical researches have been carried out. The theoretical literature indicates that entrepreneurship across different ranges of behaviors impacts economic growth. However, empirical studies show varied results when it comes to the role of entrepreneurship in economic

growth, according to the various types of entrepreneurship as well as the macroeconomic environment in which economic growth takes place. Despite the fact that the relationship between entrepreneurship and economic growth has been thoroughly researched, the majority of the literature accessible focuses on developed countries. The question is whether or not this relationship exists in developing countries, and if so, whether or not it has the same positive impact. As a result, not only is it necessary to grasp the relationship between entrepreneurship and economic growth nature in developing countries, but it is also necessary to comprehend the implications of this relationship for national policy. Such knowledge would make it easier to craft policies that are customized to the requirements of developing countries.

This study contributes to the literature on entrepreneurship and economic growth and brings, as a contribution, detecting the nexus relationship between entrepreneurship and economic growth for a sample of MENA countries whereas previous studies have focused on the developed countries. We contribute in the paper through including some recommendations for policymakers in MENA region to motivate the entrepreneurs. Furthermore, detecting the nexus relationship between both variables, dynamically, in the presence of main determinants influence our dependent variables is an essential issue. In addition, how these determinants influence both dependent variables, such as government role, allow to provide the suitable policies package for enhancing entrepreneurship environment. In this study, we employ the World Bank and UNCTAD data to estimate the impact of entrepreneurship on economic growth by using panel data of the selected countries in the MENA region (Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine, Tunisia, Turkey) for the period 2003-2019 will therefore be analyzed according to the availability of data of each country.

2. Conceptual Framework and Literature Review

2.1. Entrepreneurship

The phenomenon of entrepreneurship is still a vague conception to the present day. After reviewing a considerable body of literature, it turns out that there is no coherent, distinctive definition for entrepreneurship that emphasizes its multidimensional aspects. In the early 18th century, the word entrepreneurship was first formulated by Cantillon who viewed the entrepreneur as a risk-taker who purchases goods at certain prices in the present and sells at uncertain prices in the

future[3]. However, countless authors have exhibited various definitions of entrepreneurship. Schumpeter (1934), one of the earliest contributors in studying entrepreneurship, defined it as purposeful innovation and carrying out of new combinations. More precisely, "Whatever the type, everyone is an entrepreneur only when he actually carries out new combinations and loses that character as soon as he has built up his business when he settles down to running it as other people run their business."[4]. Perhaps the most prevalent definition of entrepreneurship is defined in the field of entrepreneurship as: "the scholarly examination of how, by whom and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited."[5] Also, other definition of entrepreneurship as: "a process by which individuals – either on their own or within organizations – pursue opportunities without regard to the resources they currently control".[6] Moreover, entrepreneurship is defined as: "a dynamic process of vision, change, and creation. It requires an application of energy and passion toward the creation and implementation of new ideas and creative solutions".[7] Another definition for Entrepreneurship:" is the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations to perceive and create new economic opportunities and to introduce their ideas in the market, in the face of uncertainty and other obstacles, by making decisions on location, form and the use of resources and institutions. "[8]. Entrepreneurship is: "the action of risk-taker, a creative venture into a new business or the one who revives an existing business".[9]

2.2. Literature review

Various theoretical models were presented to introduce the entrepreneurship and economic growth relationship. The effect runs from a rise in entrepreneurial activity in most theoretical models to a major impact on economic growth. First of all, the notion of a positive

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[3] Hebert ,R and A, Link .(1989)."*In search of the Meaning of Entrepreneurship*". Small Business Economics. 1: 39-49

[4] Salgado-Banda, H. (2005). "Entrepreneurship and Economic Growth: An Empirical Analysis DEGIT Conference Papers". Dirección General de Investigación Económica. Banco de México.

[5] Shane, S and S. Venkataraman. (2000)." *The Promise of Entrepreneurship as a Field of Research*". Academy of Management Review. 25(1): 217-219.

[6] Stevenson, H. H. and Jarillo, J. C. (1990) 'A Paradigm of Entrepreneurship: Entrepreneurial Management', Strategic Management Journal 11: 17–27

[7] Kuratko, D. F. (2007). Entrepreneurial leadership in the 21st century: Guest editor's perspective. *Journal of Leadership & Organizational Studies*, *13*(4), 1-11.

[8] Wennekers, S., &Thurik, R. (1999). Linking entrepreneurship and economic growth. Small business economics, 13(1), 27-56.

[9] Hebert ,R and A, Link .(1989)."*In search of the Meaning of Entrepreneurship*". Small Business Economics. 1: 39-49

and close association between entrepreneurship and economic growth dates back to Schumpeter's early studies who is one of the first economists to point out entrepreneurship as a significant factor in economic growth. To Schumpeter, an entrepreneur is an individual able to produce shocks through the mechanism of innovation in the economic cycle. Schumpeter formulated the economic development theory that is based on a process of creative destruction created by entrepreneurial activity Urbano.[10]

Economic development economists have also attempted to integrate entrepreneurship into growth models. For example, Romer, the creator of the theory of endogenous economic growth, emphasizing the accumulation of knowledge and the creation of human capital as driving forces of growth introduces research and development in his growth model as a field that produces new types of capital goods and entrepreneurs as individuals capable of producing new goods from activities leading to market changes, production boost, labor productivity increase and economic growth.[11] Based on previous theoretical and empirical studies, Audretsch and Keilbach (2004) argued that entrepreneurship influences economic growth in three ways:[12] (1) the diffusion technology and know-how, (2) increase creating more entrepreneurial firms, which creates more competition, (3) increased diversity and choice of goods and services offered in an economy as long as entrepreneurship increases the mix of enterprises. Furthermore, they add that the contribution of entrepreneurship to economic development allows new technologies to be commercialized more quickly, leading to higher productivity and economic growth. A debate has been opened on the role of Small to Medium Enterprises (SMEs) in fostering innovation and prosperity and economic growth.[13] It is also argued that large and incumbent companies, as well as SMEs and business activities, are causing economic growth and technological progress. Entrepreneurs are economic growth facilitators because they create an innovation network that fosters the development of new ideas and new business formations.[14] Entrepreneurship generates an externality network that stimulates the creation of new markets, and then each entrepreneurial activity has a more than proportionate effect on economic growth. A

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[10] Urbano, D., &Aparicio, S. (2016). Entrepreneurship capital types and economic growth: International evidence. Technological Forecasting and Social Change, 102, 34-44.

[11] Romer, P. M. (1990). Endogenous technological change. *Journal of political Economy*, *98*(5, Part 2), S71-S102.

[12] Audretsch, D. B., Keilbach, M., 2004. Entrepreneurship capital and economic performance. Regional Studies 38, 949–960.

[13] Audretsch, D. B. (1995). Innovation, growth and survival. *International journal of industrial organization*, *13*(4), 441-457.

[14] Minniti, M., & Lévesque, M. (2010). Entrepreneurial types and economic growth. Journal of Business Venturing, 25(3), 305-314.

study claims[15] that the important contribution of entrepreneurship to economic growth lies in serving as a medium for the spillover of knowledge that might otherwise have remained unmarketable.[16]

However, there is conflicting empirical evidence for the relationship between entrepreneurship and economic growth. Other recent study provides empirical evidence that supports the claim that entrepreneurship plays a different role in economic growth in countries with different levels of economic development, as follows: it examined the potential impact on economic growth at the national level of various forms of entrepreneurship (in particular early-stage entrepreneurship, opportunity-driven entrepreneurship, and necessity- driven entrepreneurship) and aimed to evaluate whether the contribution of entrepreneurship to economic growth varies depending on a country's economic development stage.[17] The empirical study was based on panel data divided into two categories, spanning 17 years (2002-2018) and 22 European countries. The findings showed that for the entire sample of European countries, all three forms of entrepreneurship have a greater effect on economic development, and some types of entrepreneurship are more significant than others. [18]

Another study[19] used data from the Kuwait Central Statistical Bureau, the Kuwait Ministry of Finance, the World Bank, and the United Nations from 2001 to 2014, an OLS regression was carried out to estimate the effects of entrepreneurship on GDP growth. Empirical results showed that entrepreneurship had a positive impact on Kuwait's GDP growth, although it was statistically insignificant and can be attributed to several rational reasons. First, there are a limited number of views. Second, in theory, the impact of various variables on GDP is to be effective over the long term. Third, other variables contribute to Kuwait's GDP, such as oil prices and the size of oil exports. Other study[20] assessed the degree to which the direct and indirect influence of different types of entrepreneurship, through human capital, is significant for economic growth in countries. The author used fixed impact panel data estimates over a relatively long period (1990-2016),

[15] Audretsch, D. B., &Keilbach, M. (2007). "The theory of knowledge spillover Entrepreneurship ". Journal of Management studies, 44(7), 1242-1254.

[16] Adusei, M. (2016). Does entrepreneurship promote economic growth in Africa?. African Development Review, 28(2), 201-214.

[17] Stoica, O., Roman, A., &Rusu, V. D. (2020). The Nexus between Entrepreneurship and Economic Growth: A Comparative Analysis on Groups of Countries. *Sustainability*, *12*(3), 1186.

[18] Stoica, O., Roman, A., &Rusu, V. D. (2020). The Nexus between Entrepreneurship and Economic Growth: A Comparative Analysis on Groups of Countries. *Sustainability*, *12*(3), 1186.

[19] Abu-Aisheh, A. A. (2018). Entrepreneurship and Economic Growth: Case of Kuwait. Kuwait Program at Sciences Po Student Paper Award.

[20] Rodrigues, D.(2018). "The Impact of (Opportunity and Necessity) Entrepreneurship on Economic Growth: Does Human Capital Matter?".

including a large number of both OECD and non-OECD countries. The findings showed that overall entrepreneurship had a positive effect on economic growth. There is strong evidence, distinguishing between forms of entrepreneurship, that opportunity entrepreneurship promotes economic growth, whereas necessity entrepreneurship prevents it. Another work[21] investigated whether using eight-year data (2004–2011), entrepreneurship is of any significance to the growth processes of 12 African countries. Two tests (Hausman specification and Wald tests) were conducted by the author to assess the suitability of the panel model used in this research. The results showed that entrepreneurship positively explained the differences in the growth of the study countries and therefore reasonable to contend that entrepreneurship is instrumental to economic growth in developing economies like Africa, even if replicative.

A study[22] was based on cross-sectional data for seven emerging countries (Egypt, Hungary, India, Mexico, Indonesia, Turkey, and Romania) over the period 2004-2014. A regression analysis has been conducted to seven nations, representing emerging countries, studying the effect of entrepreneurship on economic growth. The results revealed a significant negative relationship between entrepreneurship and economic growth, suggesting the significance of the role of other variables in influencing this relationship, such as the institutional structure and investment in the "new economy" sectors. Others[23] explored the nature of the relationship between entrepreneurship and economic growth in the Palestinian West Bank exclusive of the Gaza Strip. Secondary data was used to analyze the relationship between entrepreneurship and economic growth at the level of spatial aggregation (country) which is the observation unit used in this study over sixteen years (1995-2010). The study used business start-up rates as a measure of entrepreneurial activity and, particularly on GDP first, then on unemployment. The results revealed that contrary to a reservoir of research, entrepreneurship seems to have no significant influence on economic growth. This can be explained by the fact that entrepreneurial activity is expected to decrease as a result of growth in the economy as new jobs are created.

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[21] Adusei, M. (2016). Does entrepreneurship promote economic growth in Africa?. African Development Review, 28(2), 201-214.

[22] Zaki, I. M., & Rashid, N. H. (2016). Entrepreneurship impact on economic growth in emerging countries. *The Business & Management Review, 7*(2), 31

[23] Sabella, A. R., Farraj, W. A., Burbar, M., &Qaimary, D. (2014). Entrepreneurship and economic growth in West Bank, Palestine. Journal of Developmental Entrepreneurship, 19(01), 1450003.

2.3. General characteristics of MENA region

The expression MENA applies to the Middle East and North Africa. From Morocco in Northwest Africa to Iran in Southwest Asia and down to Sudan in Africa, the MENA region covers the area. It consists of 23 countries and accounts for about 6% of the world's population. Typically, MENA encompasses the following countries: Algeria, Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Libya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Syria Tunisia, UAE, Yemen. Afghanistan, Armenia, Azerbaijan, Chad, Cyprus, Djibouti, Eritrea, Ethiopia, Georgia, Mauritania, Pakistan Somalia, Sudan, Turkey, and Western Sahara are sometimes included. The MENA region's population is about 436 million, the vast majority of whom live in middle-income economies with a GDP of USD 3,111 trillion (World Bank, 2016). The region accounts for 60% of the world's reserves of oil and 45% of the world's reserves of natural gas. MENA is an important source of global economic stability due to the large petroleum natural gas reserves in the region (GEM report,2017).

Political and economic crises have occurred in large segments of the MENA region since the 2011 Arab Spring. As a result of poor economic management and conflicts, the MENA region has experienced significant economic and social losses. The region of MENA is no exception, as it is a large, complex, and diverse region, from a very rich country to a very poor county, and a part of the world facing a wide range of economic challenges. According to the world bank group 2021, pre-crisis youth unemployment stood at nearly 25%—nearly half of which (40%) were women. Before the COVID-19 crisis, nearly half of MENA's population (42%) lived on incomes below US$5.50 per day. "This situation calls for a radical change in higher education to increase the quality of education in the region and promote the employability of graduates. Also, the new normal low cost of oil and gas forces many nations to implement reforms to increase diversification. In this context, it is becoming increasingly important for governments, policymakers, and civil society leaders to work together to find out which are more effective growth-friendly policy instruments and, as is the case with many emerging countries, including the MENA region, which retains the potential for enormous growth opportunities in terms of young people and raw materials, engaging in innovative growth.[24]

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[24] Maliki, S., &Benghalem, A.) 2019)."Feedback effects of Entrepreneurship, Innovation, and Economic Development: Empirical evidence from selected MENA Countries".

2.4. Overview of Entrepreneurship in the MENA region

Overall, people in the MENA region have highly positive attitudes towards entrepreneurship. On average, almost three-quarters of people in the country see entrepreneurship as a successful career option − considerably higher than the averages for all the other regions, except for sub-Saharan Africa. As a career choice, as well as the highest respect for entrepreneurs, Egyptians have the most favorable views of entrepreneurship. On the other hand, only half of the population in Iran considers entrepreneurship as a good career option, the lowest rate in MENA.[25] The GEM 2017 MENA Regional Report, which draws on data from the 2015 and 2016 GEM national surveys, reveals that there is a marked drop off between intending and active entrepreneurs. The number of total early-stage entrepreneurs (TEA) in the MENA region is 70 percent lower than the number expressing entrepreneurial intentions. In 2016, only 10.8 percent of the adult population started a business. The MENA region as a whole has a relatively high proportion of entrepreneurs who, in the next five years, do not plan to generate many new jobs. Just over half of the MENA region's entrepreneurs expect at least one new job to be added. A promising finding is that the MENA region has one of the highest proportions of entrepreneurs with medium to high growth (i.e., those projecting to employ six or more people in the next five years). A quarter of entrepreneurs exhibit these higher-growth ambitions in both North America and the MENA region.

The MENA area demonstrates divergent outcomes at the national level in terms of expectations for job growth. In Saudi Arabia, over 80 percent of entrepreneurs have no potential hiring expectations; in Tunisia and Qatar, on the other hand, only a fifth of entrepreneurs expect no new jobs to be produced in the next five years. Qatar has the highest aspirations of high growth, with half the country's entrepreneurs planning to generate six or more new jobs in the next five years. Tunisia and the United Arab Emirates also have robust aspirations of high growth. However, these job-creation expectations must be seen in the sense of the low set business rate of the MENA zone, which needs to be tackled if these economic benefits are to be realized. Also, relative to other regions, the MENA region had the lowest rate of existing entrepreneurs (6.8 percent) and a high business discontinuance rate of 6.2 percent. There were only 1.7 people engaged in early-stage entrepreneurial activity for every person who left a company in MENA. The global average is one person to every three. Together with Africa, the percentage of planned entrepreneurs in the MENA region is higher

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[25] Alkasmi, A. J., El Hamamsy, O., Khoury, L., & Syed, A. (2018). Entrepreneurship in the Middle East and North Africa: How investors can support and enable growth. *McKinsey & Company Report May*.

than the average for the other geographical regions, with more than a third of working-age individuals voicing entrepreneurial intentions in the MENA countries. This is in line with the area as a whole is highly positive social and self-perceptions of entrepreneurship. With almost two-thirds of adults voicing an intention to start a company over the next three years, Egypt tops the rankings in terms of entrepreneurial intent. At 16 percent, less than half the regional average, the lowest level of entrepreneurial intent is in Jordan. Among the lowest levees, Jordan also recorded, among the lowest levels of both opportunity and capability perception in the region.[26]

3. Methodology and Data

The study aims to analyze the impact of entrepreneurship on economic growth in selected MENA countries which are (Algeria, Egypt, Jordan, Lebanon Morocco, Palestine, Tunisia, Turkey) during the period (2003-2019) by using a dynamic panel data model. Panel data combines cross-section and time series, are the data that will be used in the empirical analysis, so econometric methods suitable for panel data should be implemented in the empirical analysis. The advantage of panel data techniques is that they allow us to control individual heterogeneity, i.e., that each country has unique features (unobservable country-specific effects) that we are unable to quantify with the empirical model's set of variables.[27]

3.1. Data

The data set used in this study was acquired from the World Bank's World Development Indicators (WDI), while only the data on openness is taken from UNCTAD for the period between 2003 and 2019. This study uses panel data of eight countries of the MENA region which are selected due to availability of data, they are Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine, Tunisia, and Turkey. We choose these countries due to the unavailability of data for other countries in the chosen period, or as long as these countries are different in income level or have rental main source of income. All variables will be examined during the period 2003 to 2019, while one variable is startup over 2003 to 2019 for all selected countries, besides we have more observations on some countries than others, so the panel is unbalanced. Furthermore, all

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[26] Bonner, K., Hart, M., Levie, J., & Heery, L. (2017). GEM UK: Wales report 2017.
[27] Nyström, K. (2008). The institutions of economic freedom and entrepreneurship: evidence from panel data. *Public choice*, *136*(3), 269-282.

the variables are taken in the logarithm to get elasticity, ensure linearity and minimize any possible multicollinearity.

3.2. Variables

Economic growth: is our dependent variable in this study, GDP per capita is used as an economic performance proxy it is one of the most crucial measures of economic growth. GDP per capita is the gross domestic product divided by the mid-year population. The data source for this measure is the World Development Indicator (WDI) by the World Bank. **Entrepreneurship**: Our key explanatory variable is entrepreneurial activity at the country level. Due to its multidimensional nature, assessing entrepreneurship at the level of a country is a complex task, as demonstrated by the progress of the domain.[28] In our study, we used start-up as a proxy for entrepreneurship. Start-up procedures are those required to start a business, including interactions to obtain necessary permits and licenses and to complete all inscriptions, verifications, and notifications to start operations. Data are for businesses with specific characteristics of ownership, size, and type of production.[29] As a measure of entrepreneurship that allows the transfer of knowledge, we used the number of start-ups of new businesses relative to each country. Entrepreneurship in any country in the MENA region is therefore calculated in terms of the rate of new start-ups. This indicator is the ratio between the number of start-ups and each country's population. It represents the proportion of a country's inhabitants who want to start a new business. Data on this indicator was obtained from the World Bank's World Development Indicators (WDI) database.

In addition to the variables stated above, we have included several control variables in our econometric model. Different factors indicated by economic growth theories that would affect economic growth are represented as control variables (government expenditure, physical capital, population data for these indicators sourced from the World Bank's World Development Indicators (WDI) database, whereas trade openness data was obtained from UNCTAD). **Government expenditure**: general government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). **Physical capital:** The Gross Fixed Capital Formation

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[28] Van Stel, A., Carree, M., & Thurik, R. (2005). The effect of entrepreneurial activity on national economic growth. *Small business economics*, *24*(3), 311-321.
[29] Van Stel, A. (2005). COMPENDIA: Harmonizing business ownership data across countries and over time. *The International Entrepreneurship and Management Journal*, *1*(1), 105-123.

(investments in terms of percentage of GDP) is used as an indicator of physical capital. **Population:** in the growth literature, population growth is among the widely used explanatory variables. The total population is counting all residents regardless of legal status or citizenship. We used total population as a proxy of population growth. **Trade openness** is measured as the sum of exports of goods and services to GDP, as suggested by theoretical and empirical literature. Trade openness may result in more external shocks, as well as increased income, consumption, and GDP volatility.

3.3. Econometric Method

In this study, the econometric method which will be used in estimating is the dynamic panel data. To estimate dynamic econometric models, panel data is now commonly used. It's advantaged over aggregate time-series data include the possibility that aggregation biases may obscure underlying macroeconomic dynamics and the scope that panel data offers to investigate heterogeneity in adaptation dynamics between different types of individuals, households, or companies. Dynamic panel data (DPD) is the best way to take full advantage of every single data point. By using panel data, one can examine how economic growth is affected by variations in the variables over time in a country. By adding the time-series dimension, further degrees of freedom are also obtained[30].

3.3.1. Dynamic Panel Data System

Standard estimators for the static panel data model, which control for the existence of individual effects, are the Fixed Effects Model (FEM) and Random Effects Model (REM) approaches. The econometric analysis with these two models addresses several biases, these biases are related to heterogeneity across countries and time. The problem with standard FEM is that it cannot estimate parameters such as time invariant variables. On other hand, the problem of standard REM is the biases caused of endogeneity problem due to the potential correlation between one or several explanatory variables, and the residuals, in addition. However, choosing among the FEM and REM estimator rests on an all or nothing decision with respect to the assumed correlation of right-hand side variables (explanatory variables) with the error term. In empirical applications, the truth may often lie in between these two

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[30] Salgado-Banda, H. (2005). "Entrepreneurship and Economic Growth: An Empirical Analysis DEGIT Conference Papers". Dirección General de Investigación Económica. Banco de México

extremes.[31] Arellano-Bover, Blundell-Bond is a recent econometric technique, which is dynamic panel data system (DPD system) analysis. This method is based on the generalized method of moment GMM technique that has been widely used in empirical estimation of dynamic panel data models. Blundell and Bond proposed system GMM estimators to overcome the inconsistent instrumental variables estimators caused by weak instruments. Firstly, Arellano and Bover [32] showed that the level GMM estimators are free from weak instruments when even the parameters concerning the lagged variables is close to unity, and then combined the moment conditions, which are used in first differencing, and the level GMM estimators to improve the efficiency of the estimators.[33]

The dynamic panel data is GMM systems approach that estimates the parameters from a system of equations: the first differenced model using lagged levels entrepreneurship as instruments for the lagged difference of entrepreneurship equation, (similarly to Growth). Secondly, use the difference instrumental variables in the model[34]; [35]; [36]. Therefore, we run dynamic panel data system analysis, which is Arellano-Bover ∕ Blundell-Bond.

Model:

The study used for the dynamic analysis, Arellano-Bover; Blundell-Bond method, which is the Dynamic Panel Data System. Equation (1) represents model (1) which is used in the dynamic analysis.

The equation for economic growth (1):

To investigate the relationship between entrepreneurship and economic growth in selected MENA countries, this study will utilize a model based on two equations that reflect a feedback effect:

$$\Delta lnGDPC = \beta_{\circ} + \beta_1 \Delta lnGDPC_{t-1} + \beta_2 lnENT + \beta_3 \Delta lnGE + \beta_4 \Delta lnK + \beta_5 \Delta lnOpen + \mu + \Delta vt \ldots\ldots\ldots (1)$$

Where: GDPC is GDP per capita, and it is the proxy of economic growth. $GDPC_{t-1}$ is a lagged dependent variable as an explanatory variable. ENT is entrepreneurship measured by the business start-up. GE

[31] Mitze, T., & RWI, E. (2010). "Estimating gravity models of international trade with correlated time fixed regressors: To IV or not IV,". MPRA Paper No. 23540. 26.

[32] Arellano, M., & Bover, O. (1995). Another Look at the Instrumental-Variable Estimation of Error-Components Models. Journal of Econometrics, 68, 29-51.

[33] Hayakawa, K., 2005, Small Sample Bias Propreties of the System GMM Estimator in Dynamic Panel Data Models, (No. d05-82). Institute of Economic Research, Hitotsubashi University.

[34] Arellano, M., & Bover, O. (1995). Another Look at the Instrumental-Variable Estimation of Error-Components Models. Journal of Econometrics, 68, 29-51.

[35] Arellano, M., & Bond, S. (1998). Dynamic Panel Data Estimation using DPD98 for GAUSS. mimeo, Institute for Fiscal Studies, London. Balde, Y. (2011).

[36] Blundell, R., & Bond S., 1998, 'Initial Conditions and Moment Restrictions in Dynamic Panel Data Models', Journal of Econometrics, 87, pp. 115-143.

is government expenditure measured by general government final consumption expenditure. K is physical capital. OPEN is the trade openness measured by the sum of exports plus imports as a share of GDP. μ represents the unobserved country-specific effects and Δvt is the standard error.

The equation for Entrepreneurship (2):

$$\Delta lnENT = \beta_\circ + \beta_1 \Delta lnENT_{t-1} + \beta_2 \Delta lnGDPC + \beta_3 \Delta lnGE + \beta_4 \Delta lnPOP + \mu + \Delta vt \dots \dots \dots (2)$$

To examine the impact of economic growth on entrepreneurship, where entrepreneurship (ENT) is used as the dependent variable$ENT_{t-1}$is a lagged dependent variable as an explanatory economic growth (GDPC) is measured by GDP per capita (current US \$) from literature, the subsequent control variables are selected (POP) is population, (GE) is government expenditure, μ represents the unobserved country-specific effects, and Δvt is the standard error.

4. Empirical Results

Table 1

DYNAMIC PANEL DATA SYSTEM ESTIMATION FOR EQUATION (1)

	L.GDPC	ENT	GE	K	Open	Constant
GDPC	0.89 (0.019) *	0.02 (0.009) *	-0.05 (0.013) *	0.07 (0.011) *	0.032 (0.014) *	0.17 (0.13)
Sargan test of overidentifying restrictions H0: overidentifying restrictions are valid				chi2(135) = 301.79*		

Figures in parentheses are Std. Err*, ** and *** represent significance at the level of 1%, 5% and 10% significance

Table 2

DYNAMIC PANEL DATA SYSTEM ESTIMATION FOR EQUATION (2)

	L.ENT	GDPCU	GE	POP	Constant
ENT	0.86 (0.049) *	0.11 (0.042) *	-0.12 (0.052) *	0.13 (0.061) *	-0.13 (0.417)
Sargan test of overidentifying restrictions H0: overidentifying restrictions are valid			chi2(84)=73.6*		

Figures in parentheses are Std. Err.; *, ** and *** represent significance at the level of 1%, 5% and 10% significance

Tables (4.1) and (4.2) show EQ1 and EQ2 estimation. It shows a robust model, all variables coefficients are significant at 1%, where government expenditure (GE) has a negative effect on economic growth in the eight selected MENA countries during the period 2003 to 2019. The lagged variables of economic growth and entrepreneurship show the influence of past behavior of economy and entrepreneurship in the current growth and current entrepreneurship. Besides, we found that the constants in EQ1 & EQ2 are not significant. The dynamic panel data model was applied to establish the relationship between entrepreneurship and economic growth. Furthermore, Sargant test reveals that all moment restrictions are satisfied for the dynamic specifications. This indicates that the instruments are valid, the model is robust and correctly specified.

So, the formula for the Dynamic Panel-Data (DPD) models as follows:

The equation for economic growth (1):

$$\Delta \ln GDPC = 0.17 + 0.89\Delta \ln GDPC_{t-1} + 0.02\Delta lnENT - 0.05\Delta lnGE + 0.07\Delta \ln K$$
$$+ 0.032\Delta lnOPEN + \mu + \Delta vt$$

The equation for entrepreneurship (2):

$$\Delta lnENT = -0.13 + 0.86\Delta lnENT_{t-1} + 0.11\Delta lnGDPCU - 0.12\Delta lnGE + 0.13\Delta lnPOP$$
$$+ \mu + \Delta vt$$

We, first of all, find the coefficient of entrepreneurship is statistically significant, entrepreneurship has a positive impact on economic growth. Entrepreneurship plays a major role in fostering economic growth. This study selects the business start-up rate as an indicator to measure entrepreneurship. The estimated results suggest that an increase of 1% of entrepreneurship increases the GDP growth rate to 0.02 %. This finding is as expected and consistent with empirical studies that have addressed this relation and found that entrepreneurship contributes positively to economic growth[37]; [38]; [39]; [40], [41]. Furthermore, we find that GDPC is significant and positively correlated

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with entrepreneurship, which means that an increase of 1% in GDP increases entrepreneurship by 0.11%.

Government expenditure is negatively correlated with GDP as expected and following previous empirical studies [42]; [43]; [44]; [45]. The results show that government expenditure is statistically significant at 1% which means that an increase of 1% of government expenditure decreases economic growth by 0.05%. Also, we find that government expenditure has negatively related to entrepreneurship, which means an increase of 1% in government expenditure leads to a decrease in entrepreneurship of 0.12%. The results regarding physical capital indicate a positive effect on economic growth. This finding is following the previous empirical research [46]; [47]; [48]. The results indicate that an increase1% in gross fixed capital formation leads to an increase in growth by 0.07% of eight selected countries of MENA. In the case of trade openness, we find that the coefficient is positive and statistically significant, which means an increase of 1% in openness increases GDP by 0.032%. These results agreed with literature that has highlighted the positive impact of economic openness on economic growth [49]; [50]; [51]; [52]; [53]. Regarding the population, the estimates obtained have shown a positive relation with entrepreneurship according to results an increase of 1% in population increases entrepreneurship by 0.13%. These results are following the literature[54]; [55]; [56].

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5.   Research limitation and further prospects

There are various limitations to this study that should be taken into account. One of the study's major limitations is due to a lack of comprehensive, comparable data on entrepreneurship measurement in the selected economies, start-up rate was used as a proxy. However, other proxies may provide and reflect better additional entrepreneurship impact in these countries. Second, focusing on nascent entrepreneurs vs. young business owners in various sectors utilizing overall entrepreneurial activity rates as a proxy for entrepreneurship is highly suggested for further studies. Third, other panel of countries may have been added to provide a better comparison between MENA countries, but were dropped due to a lack of data. Incorporating the micro dynamics of entrepreneurship in these countries will undoubtedly enhance the analysis of entrepreneurship impact on economic development, in further studies. In addition, more research into the entrepreneurial growth effect in each of the eight countries could be beneficial. This can be used as a guide to describe how new firms have contributed to economic growth in each MENA country. Furthermore, more research on the factors that shape the relationship between entrepreneurship and economic growth, as well as the causality paradox between the two, would be good, with an emphasis on the gender entrepreneurial gap and the geographical entrepreneurial gap, would be advantageous.

6.   Discussion and Conclusion

The goal of this study was to examine the nexus relationship between entrepreneurship and economic growth in selected MENA countries during 2003-2019. The findings of our study, which were based on data from eight MENA countries, support the positive effect of entrepreneurship on economic growth. Furthermore, our findings are consistent with previous study findings, which indicate to the varied role of entrepreneurship on economic growth. The results clearly show that MENA region has been growing over the past 18 years. Overall, our research reveals that entrepreneurship is a key factor in boosting economic growth in the MENA region. The analysis of the control variables indicates that most of them would be key factors of the economic growth in the investigated MENA countries. These findings suggest that, first and foremost, MENA countries should invest more in

    56 Wennekers, S., Van Wennekers, A., Thurik, R., & Reynolds, P. (2005). Nascent entrepreneurship and the level of economic development. Small business economics, 24(3), 293-309.

their human capital in order to improve their productivity. Governments in these countries should be aware that allowing an expanding number of enterprises to start up on their own without promoting and enhancing the business environment will have a negative impact on their growth. Governments should build high-quality infrastructure to support business, as well as provide a business-friendly environment with reasonable taxes and regulations. In addition, governments have to reduce informal sectors in the area that enjoy a high percentage comparing to the countries of same level of income[57]. In fact, government expenditure should be moved from current spending to support R&D and innovative private sectors. Furthermore, government size in region exceeds optimal size tat impacts negatively on economic growth[58]. Considering the significance of entrepreneurship for economic growth and the findings of our study, we believe it is important that policymakers focus more on the adoption and implementation of measures to remove the macroeconomic barriers that entrepreneurs face, as well as measures to support innovative entrepreneurial activities. Besides, improving the business climate through healthy market competition, encouraging small companies to start up and expand through the granting of government subsidies to entrepreneurs and banning certain businesses' monopolistic actions, moreover through government subsidies, to establish efficient financing methods for start-ups. Making it simpler to start a business by eliminating government interfaces to start a business, simplifying processes by establishing a one-stop-shop, and making the process quicker by introducing digital technologies and online facilities, and potentially growing the number of days to register a property or receive electricity, and reducing the minimum criteria for money. Policymakers in the MENA area should focus on expanding possibilities for better educated entrepreneurs Furthermore, enhance the role of universities in fostering not only the creation of new knowledge but also the cultivation of creativity and innovation.

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