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ENTREPRENEURSHIP AND ECONOMIC GROWTH:
THE MEDIATION ROLE OF ACCESS TO FINANCE

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Abstract

The purpose of this paper is to examine the mediating role of finance in the relationship between economic growth and entrepreneurship in a sample of 17 OIC countries. We developed a model where banking finance as a proxy for Access to finance mediates the relationship between the total early stage entrepreneurship (TEA) as a proxy for entrepreneurship and economic growth. Correlation, Baron and Kenny approach (causal steps approach) and PROCESS Macro (normal test theory) developed by Hayes were used to find out the direct and indirect effects of financing between entrepreneurship and economic growth. The bootstrap mediation results indicated that finance was a significant predictor of entrepreneurship and entrepreneurship was a significant predictor of economic growth. These findings support the mediation hypothesis. In addition, findings showed that there is a positive relation between entrepreneurship and economic growth and a positive relation between finance and economic growth in OIC countries. Furthermore, the findings of this study indicate that the total association between entrepreneurship and economic growth in OIC countries is not only direct, but also that entrepreneurship contributes to levels of economic growth through the increased levels of finance. As a result, countries with higher levels of access to finance tended to experience entrepreneurship at higher levels, which in turn contributed to the emergence of increased levels of economic growth. The results indicated that the direct effect of entrepreneurship on the economic growth remained significant when controlling for finance, thus suggesting partial mediation. In other words, finance only mediates part of the effect of entrepreneurship on economic growth.

Keywords

Finance, Entrepreneurship, Economic growth, mediation effect

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1- Introduction

Entrepreneurship is generally seen as an essential stimulus for economic growth through the environment. It is therefore considered essential to recognize the role of entrepreneurship in achieving economic progress factor for recognizing the progress of society (Al-Sokari et al., 2014). A growing body of research has shown positive entrepreneurship impacts on a variety of economic indicators, including investment and foreign direct investment (Goel, 2018), productivity (Williams & Thompson, 1998), equality of income and wealth (Lippman et al., 2005; Packard) & Bylund, 2018), human capital development (Martin et al., 2013; Marvel et al., 2016) and exports (Cumming et al., 2014). In addition, previous empirical studies have looked at the relationship between entrepreneurship and economic growth (Wennekers & Thurik, 1999; Audretsch et al., 2006; Carree & Thurik, 2010; Valliere & Peterson, 2009; Baumol & Strom, 2007). They argue that entrepreneurship can make a significant contribution to economic growth by serving as a means to innovate, disseminate knowledge, increase competition and increase diversity. Furthermore, most studies used direct relationships to confirm the impact of entrepreneurship on economic growth. Some of them have demonstrated the significant impact of entrepreneurship on economic growth (Baumol 1990, Kreft & Sobel, 2005; Nyström, 2008; Parker, 2018), while some studies have shown insignificant influence of entrepreneurship on economic growth (Caree et al., 2007). From the above, empirical studies show mixed results on the role of entrepreneurship in economic growth due to the diversity of types of entrepreneurship, but also on the characteristics of the macroeconomic environment in which economic growth takes place.

Some contributions dealt with the nature and scope of the relationship between finance and economic growth (Allen et al., 2005; Law & Singh, 2014). The role of the financial system for economic development has received increasing attention from academics and policymakers (Ndikumana 2001), leading to different views. The focus on this area has increased in recent decades, with mixed results remaining a theoretical and empirical controversy (Boulika and Trabelisi 2002). The main reason why finance is important is that financial development and brokerage has proven empirically to be a major driver of economic growth and development. There is evidence that this process not only leads to economic development but can also play a positive role in reducing poverty and income inequality. Despite their key role in advancing efficiency and equality in society, 2.7 billion people (70% of the adult population) in emerging markets still do not have access to basic financial services, and a large proportion of them come from countries with a predominantly Muslim population. Given the growing interest in the development of a

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financial system, it is worth examining the contribution that financing makes to the relationship between entrepreneurship and growth. Access to finance is increasing rapidly worldwide due to the demand for financial products and services.

All of these different views provide sufficient reasons to think about the indirect and mediating relationship that is the main goal of the current study. While previous research has focused primarily on determining whether there is a relationship between a pair of these three variables. As a result, the main concern of the current study is to fill the gap and examine the relationship between these three variables by including indirect relationships between entrepreneurship and economic growth. the effects of financial development on entrepreneurship-growth nexus. In this context, the goal of our research is to examine the mediating role of banking finance as a proxy for access to finance in the relationship between the total early stage entrepreneurship (TEA) as a proxy for entrepreneurship and economic growth (expressed as per capita (gross domestic product GDP)) and to determine whether the contribution of entrepreneurship to economic growth differs depending on access to finance of entrepreneurs in a country. Our empirical analysis is based on the panel data covering the period 2013-2018 and 17 member countries of Organization of Islamic Cooperation (OIC) (Bahrain, Bangladesh, Brunei, Egypt, Indonesia, Iran, Jordan, Kuwait, Malaysia, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Sudan, Turkey, and United Arab Emirates), which were selected based on the availability of data relating in particular to entrepreneurship The study contributes to the literature on entrepreneurship and economic growth in three ways. First, we offer new insights on the mediating role of access to finance on entrepreneurship-growth nexus. Second, to the best of our knowledge, no article has examined the relationship between financial development, entrepreneurship and economic growth in OIC countries. Third, this paper will equally contribute to the literature by incorporating up-to-date time series data covering recent strategies for the main variables used. In this direction, this paper tries to answer the following research question: whether the financing mediates the relationship between entrepreneurship and economic growth in OIC countries?

The rest of the paper study was divided into five sections. Section two discusses entrepreneurship literature and its relevance to finance and economic growth. While the third presents the empirical method and data used; section four deals with research methodology and the last section deals with the practical implications, conclusions and limitations of this article.

2- Literature Review

2.1- Entrepreneurship and economic growth

Entrepreneurship is considered one of the basic motives for economic growth as it increases the prosperity of the society that produces and goods more services and creates new employment opportunities. For this reason, many countries have tried to consolidate entrepreneurial activities and look for the factors that improve such activity as it plays an active role in economic growth (Méndez-Picazo et al., 2012).

Entrepreneurship has aroused great interest in recent decades and is seen as an important driver of economic development, inclusive society, well-being and a source of innovation. There are two trends in business literature when assessing the impact of entrepreneurship on economic development. One is based on horizontal innovation

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growth models and an increasing product range (e.g. Romer, 1990). The other is based on vertical innovation growth models and increasing quality (e.g. Schumpeter 1934; Aghion & Howitt, 1992), which is mainly explained by Joseph Schumpeter's famous argument of "creative destruction", according to which an entrepreneur says when a new product or When a technological innovation is marketed, the less productive companies are withdrawn from the market and a more competitive environment is created that leads to higher productivity and economic growth (Schumpeter, 1934). Since then, Acs, et al., (2012)) completed the economic literature with the knowledge spillover theory of entrepreneurship. The authors assume that economically relevant knowledge is most important, with entrepreneurship playing the role of the link between knowledge, commercialization, and economic growth. There are several theoretical explanations for the relationship between economic growth and entrepreneurship (Baumol, 1990; Desai et al., 2013). While Solow (1956) viewed physical and human capital as the drivers of economic growth, Romer (1990) developed Solow's (1956) model by emphasizing the importance of knowledge capital as an endogenous factor, with human capital and technological innovations as the main drivers The main drivers are economic growth. Romer (1990) further argued that new ideas and most research and development (R&D) are produced by well-educated entrepreneurs who create and exploit new technological advances and ultimately drive economic growth. Although Romers (1990) economic growth model helped explain the different growth rates between countries, Acemoglu et al. (2014) argued that if these institutions provide adequate incentives for entrepreneurs to be more productive and ultimately contribute to economic growth, institutions could play a central role in the production and organization of factors of production (i.e. physical capital, human capital and technological innovations). Historically, Schumpeter (1934) first introduced the important role of entrepreneurship in economic growth. He claimed that innovative entrepreneurs were referred to as "agents of creative destruction". These "agents" destroy the value of existing markets by creating new markets with new products, services and technological innovations that offer higher returns than existing companies. Unlike previous growth models, Schumpeter (1934) concluded that creative destruction is the ultimate source of economic growth. Given economic growth and development, it is best to focus on entrepreneurship that can lead to economic growth (Acs, 2006).

2.2- Finance and economic growth:

Economic growth has been of focal interest in many macroeconomic papers and researches. Thus, it is imperative that this topic is also addressed in light of access to finance. The relationship between finance and growth begins with Bagehot's (1873) articles on classic thinking and later with the work of Schumpeter (1912). On the other hand, modern literature on economic growth often begins with research that led to Robert Solow receiving a Nobel Prize in the mid-1950s. Nonetheless, the theoretical and empirical literature of that time focused mainly on the role of capital and labor resources and the use of technology as growth resources to secure economic growth.

The role of financial development is particularly important in allocating resources to their most productive use. Moreover, the services provided by the financial sector can contribute to economic growth by: (i) producing ex-ante information about investment opportunities; (ii) improving ex-post monitoring of investment and exerting corporate

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governance; (iii) facilitating risk management and diversification; (iv) mobilizing and pooling savings; and (v) easing the exchange of goods and services (Levine, 2005).

In addition, Much evidence has pointed in the direction that financial development is a driver for economic growth (see for instance Levine et al., 2000; Beck et al., 2000). Furthermore, Levine (2002) claims that overall financial development is robustly linked to economic growth regardless of it being bank-based or market-based. Lack of adequate access to financing sources for entrepreneurs is considered as one of the main challenges of starting a business. Because of the disadvantages of commercial banks and financial institutions active in the field of financial services of the countries, financing and provision of other financial services to micro, small and medium businesses is often costly. Existing research on access to finance for entrepreneurs considers both the demand and supply side factors affecting access to finance for entrepreneurs (Carter et al., 2003). Demand-side arguments raise risk aversion as a factor in reducing the willingness of entrepreneurs to use external financial resources (Mittal & Vyas, 2011). On the other hand, supply-side argumentation discriminates financial institutions on the payment of entrepreneurship-based financial resources (Carter & Shaw, 2006). Access to finance is also the most widely recognized object of entrepreneurship policy, and non-entrepreneurs regularly cite insufficient finance as a barrier to starting a business (Choo and Wong, 2006). Moreover, the field of entrepreneurship, with seminal contributions from Williamson (2000), argues that entrepreneurship play a key role in economic development. Recent studies on economic growth show that entrepreneurs are a fundamental cause of economic growth, shaping more proximate causes like the accumulation of physical and human capital (Hall and Jones 1999; Acemoglu et al. 2014). The literature, however, largely separates analyses of finance on relation between entrepreneurship and economic growth. Some of authors investigate the links between finance, entrepreneurship and economic growth.

Thus, based on the above literature, we came up with the following hypotheses:

H1:*"There is a positive association between finance and economic growth"*

H2: *"There is a positive association between finance and entrepreneurship"*

H3:*"finance mediates the relation between economic growth and entrepreneurship"*

3- Development Challenges and the Role of Finance in OIC Countries

The financial system has an outstanding role in channeling funds to investments efficiently
to support economic growth resulting in the decrease of income inequality, especially in developing and underdeveloped nations such as the members of Organization of Islamic Cooperation (OIC) countries**.** The financial system plays a prominent role in the efficient channeling of funds for investments to support economic growth, which leads to a reduction in income inequality, especially in developing and underdeveloped countries such as the members of the countries of the Organization for Islamic Cooperation (OIC). The key component in a financial system is banks. They act as an intermediary between fund providers and those who need funds that contribute to economic growth. Banks also play a role in the implementation of a country monetary policy. In this way, profitable banks will ensure the continuity of economic growth and the stability of the financial system.

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Based on OIC Economic Outlook (2019), the OIC countries are well endowed with productive resources, especially human and natural resources. Efficient use of these resources can lead to higher economic growth rates and human welfare. Ineffective use of productive resources leads to lower growth rates and income levels. This is also due to the fact that the OIC economies are mainly characterized by a high export concentration and limited diversification of the domestic economy. Another important consequence of inefficient use of productive resources is the lack of competitiveness. In this context, the OIC member countries could not grow in the long term like the industrialized countries in the last century. There are a number of tools that OIC countries can use to meet development challenges and achieve higher growth rates. This includes investing in human and institutional capacity, facilitating technological progress and innovation, and channeling resources for productive investment through financial development. An important element in the policy mix to increase productivity and competitiveness is the need to maintain macroeconomic stability, as this would create a business environment that is free from uncertainty and unexpected costs. In addition to economic instability, political instability also has a major impact on growth paths in some OIC countries where the negative impact of armed conflict goes well beyond the measurable social and economic cost. The initiatives at the global level, regional resolution mechanisms and efforts at the national level did not meet the growing needs of developing countries to fund their development and enable them to complete developing country status. UNCTAD estimates that total funding needs, including investment needs, in developing countries alone range from $ 3.3 trillion to $ 4.5 trillion a year. Some OIC countries are rich in resources where such resources have great potential to promote development. From a financial perspective, Islamic funding in the OIC countries offers a window of opportunity that could be used to fill the development funding gap. The OIC countries have a long history of active collaboration within the OIC in many areas, from trade and infrastructure development to capacity building and investment. This facilitates the transfer of capital, know-how and expertise between OIC member countries, which are crucial for development. This also enables several OIC countries to benefit from each other's experiences and sources and at the same time to advance their development paths. Finally, the OIC countries have unique tools and mechanisms, including Islamic financial instruments, Zakat and Waqf funds, that have the potential to make a significant positive contribution to financing development. Overall, these factors would improve funding for development in the OIC countries by helping to go beyond traditional understanding and benefit from unique solution mechanisms.

4- Data and Methodology

4.1- Data

In the current study, entrepreneurship as the independent variable decided to take a share of total early stage entrepreneurial activity (TEA). Entrepreneurship data was taken from the Global Entrepreneurship Monitor database from 2013-2017. The paper uses the domestic credit to private sector by banks as a proxy for Access to finance. To have a balanced panel of data, we had limited the data used to years that are covered in all data sets, and then we would have ended up the data consists of 17 countries

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from all around the world and tracks information from 2013 until 2017. The dataset for economic growth obtained from World Bank.
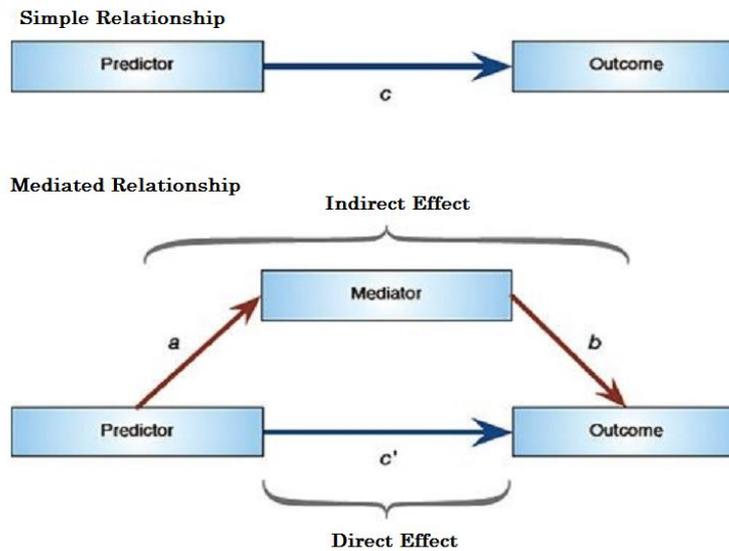
The GDP growth of OIC countries has slowed down to 3.1% in real terms in 2018, as compared to 3.8% in 2017. Economic growth in OIC countries is expected to decline to 2.4% in 2019 and continue to remain below the world average. Only in 2020, OIC countries are expected to grow above the world average. Lower income OIC countries have been growing at a lower rate than the OIC average during 2014-2018, implying a widening gap between rich and poor OIC countries. At the individual country level, Libya, with a growth rate of 17.9% in 2018, was the fastest growing economy in the group of OIC countries. In total, 26 OIC countries recorded a growth rate higher than the world average of 3.6% in 2018 (OIC Economic Outlook, 2019).

The level of financial sector development in OIC countries remains shallow. The broad money relative to the GDP of OIC countries was recorded at 60.1% in 2 much as 137% in non-OIC developing countries and 124% of the world average. Domestic credit provided by the financial sector in OIC countries was on average of the GDP whereas this figure was 141.8% in non-OIC developing countries and On the other hand, access to finance in OIC countries improved significantly o increased from 27.8% in 2011 to 46.3% in 2017. Financial depth in OIC countries remains shallow and needs to be further improved. Without access to finance, it would be difficult to expect entrepreneurial activities to flourish and contribute to economic development. Access to finance in OIC countries remains among the most important constraints faced in promoting entrepreneurial activity. Moreover, small firms consistently report higher financing obstacles than medium and large companies, and they are also more adversely affected in their operation and growth by these obstacles. Therefore, innovative approaches are needed to solve the financing constraints of businesses for them to invest in productive investment opportunities. More detailed discussions will be made in the following chapters on the issue of mobilizing resources for financing development (OIC Economic Outlook, 2019).

4.2- Model

Baron and Kenny's method of determining whether an independent variable influences a dependent variable through a mediator is so well known that it is used by authors and requested by reviewers almost reflexively. To determine that an independent variable X influences distal dependent variable Y through a mediating variable M, as shown in Figure 1, Baron and Kenny (1986) recommend three tests.

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Figure 1: Diagram of a basic mediation model

A variable acts as a mediator if it meets the following conditions: (a) Variations in the levels of the independent variables explain significant variations in the suspected mediator (i.e., path a), (b) Variations in the mediator explain significant variations in the dependent variable (i.e., path b) and (c), when paths a and b are controlled, a previously significant relationship between the independent and dependent variables is no longer significant, with the strongest evidence of mediation occurring when path c is zero. Note that condition c requires a significance test for the "direct" path c. Paths a, b and c are tested and estimated by equations 1, 2 and 3:

$$M = i_1 + \alpha X + e_1 \qquad (1)$$

$$Y = i_2 + c'X + e_2 \qquad (2)$$

$$Y = i_3 + cX + bM + e_3 \qquad (3)$$

Baron and Kenny then state: To test mediation, one should estimate the three following regression equations: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator. . . . To establish mediation, the following conditions must be met: first, the independent variable must affect the mediator in the first equation; second, it must be shown that the independent variable influences the dependent variable in the second equation; and third, the mediator must influence the dependent variable in the third equation. Baron and Kenny go on to recommend the Sobel z-test for the indirect path $a \times b$ in figure 1, as shown in equation (4):

$$z = \frac{a \times b}{\sqrt{b^2 s_a^2 + a^2 s_b^2}} \qquad (4)$$

Here *a*, *b*, and their squared standard errors come from equations 1 and 3, respectively. We will contest three of these points. First, Baron and Kenny claim that mediation is

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strongest when there is one indirect effect, but no direct effect in equation 3. But the strength of mediation should be measured by the size of the indirect effect, not the absence of the direct effect. The presence of the direct effect can inform theorizing about other mediators. Second, there must be no significant "mediate effect" in Equation 2. There should only be one requirement to establish mediation that the indirect effect $a \times b$ is significant. Other Baron and Kenny tests are especially helpful in classifying the type of mediation. Third, the Sobel test is in some cases extremely poor compared to a bootstrap test popular by Preacher and Hayes (2004). In addition, a researcher expecting a positive indirect effect $a \times b$ can overlook the fact that despite positive correlations between X and Y, X and M, and Y and M, it can be significant and negative. Baron and Kenny (1986) claimed that the evidence for Mediation is strongest, but when there is an indirect effect, there is no direct effect that they call "full mediation". If there are both indirect and direct effects, they call it "partial mediation". Although full mediation is the gold standard, Iacobucci (2008) states "If all tests are done and reported properly, most articles end with" partial mediation ". That is, mediation is usually accompanied by a direct effect.

5- Results and Analysis

Multiple regression and mediation analysis were conducted to assess each component of the proposed mediation model, using PROCESS Macro (Hayes, 2013) and SPSS 23.

In the first step, it was found that entrepreneurship was positively associated with economic growth (total effect) (b = 23.2, t = 18.23, p < .001). In the second step, it was found that finance was positively related to entrepreneurship (b = 10.34, t = 12.82, p < .001). Lastly, in the third step results indicated that the increasing in finance was positively associated with economic growth (b = 1.225, t = 4.32, p < .001).

Figure 2: Model of access to finance as a mediator
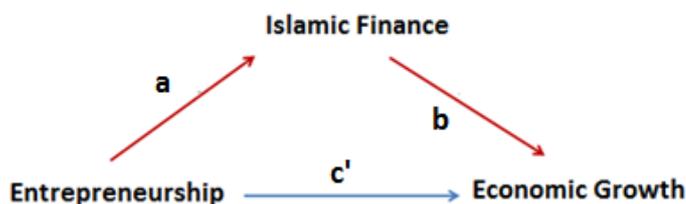
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Table 2 and 3 illustrate that all the paths are statistically significant. Results of the mediation analysis confirmed the mediating role of finance in the relation between access to entrepreneurship and economic growth in OIC countries (b = 12.67; CI = 4.231 to 8.581).

In addition, results indicated that the direct effect of entrepreneurship on the economic growth remained significant (b = 12.67, t = 5.36, p < .001) when controlling for finance, thus suggesting partial mediation. In other words, financing only mediates part of the effect of entrepreneurship on economic growth, that is, the intervention

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(entrepreneurship) has some residual direct effect even after the mediator (finance) is introduced into the model.

Table 2: Mediation effect of access to finance on economic growth through entrepreneurship

Effect	Path	Mean	SD	95% Lower bound (BC)	95% Upper bound (BC)
Indirect effect	$FIN \rightarrow ENT \rightarrow GDP$	12.67	1.351	4.231	8.581

Note: SD: standard deviation; BC: Bias-Corrected

From the bootstrap percentile confidence interval shown in Table 2, the entire path is 95% of the bootstrap estimates, not including zero. This confidence interval leads to the conclusion that the indirect effects of access to finance on entrepreneurship are significantly different from zero.

Table 3: The direct effect, indirect effect and total effect

path	Direct	Indirect	Total
$FIN \rightarrow ENT$	10.53	12.67	23.2
$ENT \rightarrow GDP$	1.225	-	1.225

Table 4: Summary of Zero-Order Correlations, Semi-Partial Correlations & Squared Semi Partial Correlation Coefficients

variable	R^2	Zero order	partial	Semi partial (part)	*$\mathbf{sr^2}$
Finance	0.489	0.598	0.259	0.262	0.146
Entrepreneurship		0.421	0.135	0.142	0.171

* Squared semi partial correlation

Table 4 shows the output for the zero order, partial and part (semi partial) correlation of access to finance and economic growth controlling for entrepreneurship. The partial correlation between access to finance and economic growth is 0.259, which is less than the correlation when the effect of entrepreneurship is not controlled for ($r = 0.598$). In terms of variance, the value of R^2 for the partial correlation is 0.13, which means that entrepreneurship now shares only 13% of the variance in economic growth (compared to 35.8% when finance was not controlled). Running this analysis has shown us that entrepreneurship alone does explain some of the variation in economic growth. Semi partial correlations (also called part correlations) indicate the "unique" contribution of an independent variable. Specifically, the squared semi partial correlation for a variable tells us how much R^2 will decrease if that variable is removed from the regression equation. If we want to know what R^2 would be if access to finance were eliminated from the equation, just compute $R^2 - sr_1^2 = 0.489 - 0.146 = 0.343$; and, if we want to know what R^2 would be if entrepreneurship were eliminated from the equation, compute $R^2 - sr_2^2 = 0.489 - 0.131 = 0.318$.

From the above results, we can concluded that access to finance has a positive effect on entrepreneurship; which indicate that our first hypothesis confirm empirically. Moreover, entrepreneurship tends to increase the level of economic growth; these results support our second hypothesis. In addition, an examination of the specific indirect effect (see table 1) indicates that access to finance is a mediator.

6- Conclusion

The main purpose of this research was to provide information about the mediating role of finance in the relationship between entrepreneurship and growth. We find clear evidence that entrepreneurship after controlling access to finance has a significant positive impact on economic growth. The positive relationship between entrepreneurship and economic growth is well known and documented. However, we show that entrepreneurship also has indirect positive effects on economic growth by improving access to finance and not just having a direct impact. The mediation of finance between entrepreneurship and economic growth shows that better access to finance would lead to an improvement in economic growth. These results show that the overall relationship between entrepreneurship and economic growth is not only direct, but also that entrepreneurs' access to finance contributes to economic growth. As a result, higher-level OIC countries tended to experience higher-level entrepreneurship, which in turn contributed to increased economic growth. In addition, the results showed that there is a positive correlation between the increase in business activities and economic growth.

The current study extends the literature on economic growth by taking into account the mediating effect of finance between entrepreneurship and economic growth. Evidence of the indirect impact of funding on the relationship between entrepreneurship and economic growth shows that access to finance makes a significant contribution to promoting economic growth. In addition, the results of current and previous research suggest that to stimulate and improve economic growth, OIC countries should create an environment that can improve access to finance and, consequently, promote economic growth. In financial terms, access to finance in the OIC countries provides a window of opportunity that could be used to fill the development funding gap. Islamic finance, including Zakat, is estimated to be around $ 2 trillion in 2015, which is expected to increase to $ 3 trillion by 2020. For example, the provision of Zakat grants by formal institutions can ensure that more people are reached and the neediest are reached and could therefore contribute to the achievement of sustainable development. Many OIC countries need to make more efforts to achieve sustainable development, for which more financial resources have to be devoted to their development.

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