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"Entrepreneurship and Economic Growth: Case of Kuwait"

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Abstract

The main purpose of this research is to highlight on the importance of entrepreneurship as a mechanism for knowledge spillovers, thereby contributing to the economic growth and prosperity of Kuwait. Entrepreneurship is proposed to be one of the main sources for job creations that is expected to help meeting high demands for youth employment in Kuwait in the coming few years. Theoretical studies have shown that entrepreneurship reduces unemployment, increases wealth, and generates market competition through innovation and creativity.

Using data extracted from Kuwait Central Statistical Bureau, Kuwait Ministry of Finance, World Bank, and United Nations from 2001 to 2014, an OLS regression was done to estimate the effect of entrepreneurship on GDP growth. Empirical results revealed that entrepreneurship had positive effective on GDP growth of Kuwait, though it was statistically insignificant and this can be attributed to many reasonable explanations. First, the limited number of observations. Second, the impact of all the variables on GDP is theoretically to be effective on the long run. Third, there are other variables contributing to the GDP of Kuwait, like oil prices and the size of the oil exports.

In addition, the research summarized few recommendations for policy makers to foster entrepreneurship and to encourage young people to startup their own business instead of joining the public sector. First, making starting a business easier in Kuwait, through minimizing the government interfaces to startup a business, simplifying procedures, and foster healthy market competition free from monopolistic behavior. Second, enhancing the role of universities to foster not only creation of new knowledge but also to cultivate creativity and innovation. Third, create effective funding methods for startups through government subsidies.

1. Introduction

In the last few decades, entrepreneurship has gained a big attention universally as tool to enhance the economic growth. Theoretical and empirical researches have been done to link entrepreneurship to the economic growth. Early theories of entrepreneurship were developed by the Joseph Schumpeter (1934) who considered the entrepreneur is the innovator who adds "new combinations", such combinations bring development to markets, and eventually promotes economic growth. Audretsch (1995) claims that economic growth and technological progresses are triggered by large and incumbent firms, as well as Small to Medium Enterprises (SMEs) and entrepreneurial activities.

Entrepreneurs are the link between inventions and commercialization. Inventions may stay in the research lab unless converted into economic products by entrepreneurs. The world famous entrepreneurs like Steve Jobs and Bill Gates commercialize inventions of the other people and turn them into competitive profitable products. The future jobs will be created by those who are bold enough to seize business opportunities and convert knowledge into economic knowledge (Audretsch, 2015).

Previous empirical studies showed a positive effect of entrepreneurship on the economic growth. Some examples of previous research that showed a positive relationship between Growth and Entrepreneurship are: Audretsch (1995); Wennekers and Thurik (1999); Minniti (2000); Acs et al. (2004) ; Audretsch and Keilbach (2004); Thurik and Wennekers (2004); Van Stel and Suddle (2005); Demirguc-Kunt, and Levine (2005); Jolanda Hessels, André van Stel (2009); and Stam and Stel (2009).

All of the above efforts and many other related studies have paved the way for the Knowledge Spillover Theory of Entrepreneurship (KSTE) to emerge in 2004. Knowledge created endogenously through investments in human capital result in knowledge spillovers and positive externalities on the economic growth. The theory assumes that spillover does not happen automatically, but indeed a mechanism is required to convert the knowledge into economic knowledge through entrepreneurship. Acs et al. (2004 and 2012); Audretsch et al. (2006); Braunerhjelm et al. (2010); and Z. J. Acs et al. (2012).

Although the KSTE has been examined in many countries, as discussed later, however not yet in Kuwait on a macro-level. The purpose of this research is to empirically test entrepreneurship as one mechanism that facilitates the spillover of knowledge, which transforms knowledge into economic knowledge through startups. Therefore, entrepreneurship is assumed to serve as a channel for the spillover of knowledge, and eventually contributes to the economic growth of Kuwait.

In order to encourage young people to be innovative and turn their ideas into economic value added ideas, public and private institutional joint efforts shall be endeavored on providing a ground business foundation for entrepreneurs, providing financial grants, reducing legal and business obstacles, and fostering education, innovation and creativity.

2. Economic preliminary of Kuwait

The structure of the economy has changed entirely when Kuwait started exporting Oil in 1946. Kuwait witnessed massive growth in GDP, and became one of the richest countries in the world. Oil exports represents 60% of GDP and almost 90% of Kuwait Exports. Other sectors play a humble role in the GDP, including banking and financial sector, investment sector, Kuwait Stock Exchange, industrial sector, services sector, and some other sectors like wholesale trade, retail trade and real estate, etc.

The recent drop of world oil prices that started in 2014 has resulted in government public deficit, and because of the huge dependence on one single source of income, Kuwait faces a serious challenge that threatens its ability to continue to provide citizens with a decent life and high living of standards. It is no longer possible to delay its financial and economic reforms.

Kuwait has started planning for diversifying the economy and foster the private sector through the development of Economic Reforms 2016. One of themes was stressed on the need to secure future jobs for the growing scale of Kuwaiti youth and increasing the role of private business and supporting Small and Medium-sized Enterprises (SME's). The reforms included recommendations to foster entrepreneurship through easing licensing, establishing business incubators, and providing legal and financial support.

3. Literature review

3.1. Entrepreneurship definition

Entrepreneurship is multidimensional notion, where no specific general universal definition has been agreed on so far. Prior studies have used different terms to refer to entrepreneurship, with different measurements according to the purpose of each study.

Cantillon (1755) was the first economist who defined the term in his essay on the Nature of Trade in General. According to Cantillon, an entrepreneur is a person who purchases a product at a certain price then resells it at an uncertain price: "making decisions about obtaining and using the resources while consequently admitting the risk of enterprise." He considered the entrepreneur to be a risk taker who deliberately allocates resources to exploit opportunities with the purpose of maximizing profits.

Say (1803) defined the entrepreneur as the agent who combines others into productive mechanism. He emphasized the role of the entrepreneur in creating value by shifting resources out of less productive areas and into more productive ones.

Schumpeter (1951) mentioned that the entrepreneur did not bear risk: the capitalist did. Schumpeter referred to the entrepreneur as the innovator; one who gets the new things done and not necessarily the one who invented them.

Gartner (1985) presented a framework that emphasizes the differences among entrepreneurs and among their ventures. He stressed on the importance of act of the entrepreneurship rather than who is engaged in the act. He propositioned that researchers should use a "behavioral approach", the creation of new ventures and what the entrepreneur does, regardless of who dose this action.

Wennekers and Thurik (1999) defined entrepreneurship as the "ability and willingness of individuals to perceive and create new economic opportunities and 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." They stressed on the role of entrepreneurs to create new business and behavior to create opportunities for economic changes.

Shane & Venkataraman (2000) presented a conceptual framework describing the phenomena of entrepreneurship, where it's the discovery of the entrepreneurial opportunities and the exploitation of such opportunities to create new businesses.

Henderson (2002) referred to the entrepreneurship as creation of new organizations that lead to economic growth to local communities through high-tech innovation. He claims that entrepreneurs are the fuel for economic growth.

Due to the lack of universal definitions that depict the essence of entrepreneurship as a result, policy makers find it difficult to measure, assess, and develop the relevant policies to the entrepreneurial activities

in their regions. Several countries nowadays recognize the importance of entrepreneurship as key driver for economic growth. Thus, serious steps are being taken by some organizations to improve the measurement of entrepreneurship at the international level like the World Bank, Eurostat, Global Entrepreneurship Monitor, and Kuffan Foundation for Entrepreneurship.

3.2. Entrepreneurship and economic growth

Early theories of entrepreneurship were developed by the Schumpeter (1934) who considered the entrepreneur is the innovator who adds "new combinations", such combinations bring development to markets, and eventually promote the economic growth. According to Schumpeter, the concept of new combinations covers the following five items: (1) Introduction of new good or quality of a good. (2) Introduction of new method of production, that is not yet tested by experience in the branch of manufacture and need no means of new scientific discovery, and can also be a new way of handling a commodity commercially. (3) The opening of a new market, where a particular branch of a manufacture has not previously entered in a region, regardless this market has existed before or not. (4) The conquest of a new source of supply of new materials or parts, also regardless of the existence of this source or it has been the first created. (5) Carrying out of the new organization of any industry, like creating or breaking up of a monopoly position.

Audretsch (1995) initiated the discussion about the significance of Small to Medium Enterprises (SME's) in promoting innovations and generating wealth and economic growth. He argued that economic growth and technological progresses are triggered by large and incumbent firms, as well as SMEs and entrepreneurial activities.

Wennekers and Thurik (1999) presented a theoretical framework linking entrepreneurship to economic growth. Based on theories developed in previous related studies, they illustrated a chain involves three levels of analysis. They claimed that the starting point of the entrepreneurship chain is at a micro level where an entrepreneur transforms his/her skills, qualities, and attitudes and into entrepreneurial actions. Such actions will trigger the firm productivity and result in one of the two possible outcomes (1) New entry (startups) and (2) and Newness (innovation) business. Therefore these new outcomes will increase the market competition locally, regionally and globally which eventually will lead to survival of the most profitable firms. They assumed that the final outcome of this chain linking the entrepreneur to the national economy will be economic growth.

According to Minniti (2000), entrepreneurs are facilitators of the economic growth as they generate a network of innovation that promotes the creation of new ideas and new market formations. "Entrepreneurship creates a network externality that promotes the creation of new markets, then each individual entrepreneurial action has a more than proportional impact on economic growth".

Audretsch and Keilbach (2004) argued based on previous theoretical and empirical studies that entrepreneurship influences economic growth in three ways: (1) diffusion of knowledge, (2) increased competition through increased number of enterprises created, (3) increased diversity because entrepreneurship increases the mixture of enterprises and hence the selection of goods and services offered in an economy.

In another study performed by Van Stel and Suddle (2005) to examine the relationship between new firm formation and Economic growth. Where Economic growth was measured using employment

changes in a region. Using data for Netherlands from 1988 to 2002, they tested the effect of start-ups rates with respect of differences over time, sectors and urbanization. Start-up rates showed stable effect over regional employment.

Beck et al. (2005) found a positive and statistically significant relationship between (SMEs) and economic growth. Using a cross-country analysis for 45 developed and developing countries, where data on the share of SME employment in the total manufacturing sector is used a variable of Economic Growth (measured by real GDP per capita).

Acs et al. (2004) claim that knowledge does not spillover automatically but instead it needs a transmission mechanism such as entrepreneurship. They developed a model where growth is influenced by knowledge accumulation and its diffusion via incumbents and entrepreneurial activities. They argue that entrepreneurship is one missing link in transforming knowledge into economically relevant knowledge. Applying several regression techniques for (OECD) countries during 1981 to 2002 provides remarkably robust evidence that primarily entrepreneurs contributed to growth and especially during 1990s. The results reveal that policies helping entrepreneurship are a vital tool to improve knowledge diffusion and foster economic growth.

Audretsch and Keilbach (2005) introduced the "entrepreneurship capital" concept and tried to link it to the economic performance of Germany (1989-1992). Using regression and growth function, the Entrepreneurship capital was added to the production function along with the other traditional production factors (capital, labor, knowledge) and measured by number of startups. The results reveled that regions with greater entrepreneurship capital exhibited higher level of labor productivity.

Jolanda Hessels, André van Stel (2009) investigated the relationship between new venture creation and economic growth, at the same time as taking into account new ventures' export orientation. Using OLS regression on data for 34 countries participating in GEM between 2002 and 2005 taken from the Global Entrepreneurship Monitor (GEM). Results confirmed a positive relationship between entrepreneurship and economic growth in general; also export-driven new ventures added a significant contribution to the economic growth.

Klapper et al. (2010) examined the effect of entrepreneurship in 84 countries from 2003 to 2005 using two different estimation methods: (GLS[1]) and (GEE[2]). Entrepreneurship was measured in two different indicators: 1) new registrations and 2) entry rates. Regression Results showed positive correlation between entrepreneurship and economic growth. Suggesting that countries with less barriers to enter the market and ease of doing business have higher proportions of firm registrations and entry that enable entrepreneurship boost economic growth.

Acs. and Audretesch (2011) suggested that diffusion of knowledge may not occur automatically as predictably assumed by the endogenous growth model. To be more precise, a mechanism is needed to serve as intermediary for knowledge to spill from the source it was created to the firms that actually commercialize it to an economic knowledge. Using two-stage least squares estimations model on panel data from 18 countries from 1981 to 1998, empirical evidence was provided to support the hypothesis that entrepreneurship has a positive statistically significant impact in

[1] GLS: Generalized Least Squares
[2] GEE: Generalized Estimating Equations

promoting economic growth. The study suggested that investment in new knowledge creation (through human capital and Research & Development) is not enough to promote economic growth; governments shall focus also on polices that promote knowledge spillovers through encouraging entrepreneurial activities and startups.

Hafer (2013) examined the effect of entrepreneurship on the economic growth of USA. Kauffman Index of Entrepreneurial Activity (KIEA)3 was used to measure entrepreneurial activity in USA between on the period 1997 to 2005. Besides, different measures of economic growth were used to capture the multidimensional effect that entrepreneurship may have on 1) real per capita gross state product, 2) real per capita personal income and 3) employment growth. The liner regression model results showed that entrepreneurial activity has a positive statistically significant effect on the state economic growth. Such findings call for policy changes at the state level that foster entrepreneurship.

Moreover, many researchers tried to examine the relationship between the economic growth and the different types of the entrepreneurship. In a recent study done by Hojnik, et al. (2015) on 24 developed countries between 2006 and 2010 using panel data obtained from the Global Entrepreneurship Monitor database and other re to sources to estimate the relation between different types of entrepreneurship and type of economy and GDP growth. In their study, countries were grouped into three different categories based on their type of economy (factor driven, efficiency driven, and innovation driven). The results showed that entrepreneurship is positively correlated with the economic growth in general but the innovation-oriented was the higher and contributed more than other types of entrepreneurships, also the result showed that total early stage activity of entrepreneurship (TEA[4]) in these countries is related to the economic growth however in some countries was influenced by the development stage and time frame included in the study.

In addition to some studies that have been made to examine the effect of entrepreneurship on economic growth according to the level of national income. Stam and Stel (2009) investigated the outcome of entrepreneurship on the economic growth for 1) high income, 2) transition and 3) low income countries. They presented an empirical tests of the impact of entrepreneurial activity on GDP growth over a four year period for a sample of 36 countries using data from the Global Entrepreneurship Monitor. Results showed that entrepreneurship does not have an influence on economic growth in low income countries, however it affected both transition and high income countries remarkably growth-oriented entrepreneurship seems to influence macroeconomic growth.

In the summary of the above theoretical and empirical studies, entrepreneurship appears to contribute to the economic growth despite the different research methodologies, measurements implemented, countries involved, and time frame used in such research.

[3] Kauffman Index of Entrepreneurial Activity (KIEA) is set of indicators that measures the state-level entrepreneurial activities including start-up activities, main street entrepreneurship, and growth of entrepreneurship in the USA

[4] Total early-stage Entrepreneurial Activity (TEA) is an index developed by GEM indicates for percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.

3.3. Measuring entrepreneurship

To examine the relationship between entrepreneurship and economic growth, it's critical to define a clear indicator to measure the entrepreneurship in a region. Current literature on entrepreneurship shows that researchers have used different variables to measure entrepreneurial activities. For example, many researchers used a number of startups as a measurement of entrepreneurship (Wennekers and Thurik 1999; Audrtsch and Keilbach 2005; Acs et al., 2008, Audrestsch and Belitski 2013). Another popular measurement was self-employment rate (Braunerhjelm et al., 2009; Z.J. Acs et al., 2011).

Moreover many researchers have used the new venture creation developed by (Gartner 1985) as indicator of the entrepreneurship and linked it to economic growth (Hessels and Stel 2009; Crnogaj et al., 2015; Hafer 2013).

In addition to other measurements of entrepreneurship as firm formation and business ownership as a percentage of labor force (Audrestsch and Belitski 2013, and Block, et al., 2012).

Recently international organizations have developed indictors to capture the entrepreneurial activities and measure potential outcomes. Below are some of the common international entrepreneurship indicators:

Table 1 Different measurements of Entrepreneurship

Index	Organization	Measurement
Kauffman Index (KI)	Kauffman Foundation of the Entrepreneurship in United States	KI: focuses primarily on entrepreneurial outputs such as new companies, business density and growth rates, and consists of three in-depth studies—Startup Activity, Main Street Entrepreneurship and Growth Entrepreneurship.
Timely Indicators of Entrepreneurship Index (ISIC)	Organization for Economic Cooperation and Development (OECD)	ISIC: focuses on timeliness as the indicators are based on monthly and quarterly data on enterprise creations and failures that are available through the internet.
Total Early-Stage Entrepreneurial Activity (TEA) Rate	Global Entrepreneurship Monitor	TEA: the prevalence rate of individuals in the working age population who are actively involved in business start-ups, either in the phase of starting a new firm (nascent entrepreneurs), or in the phase spanning 42 months after the birth of the firm (owner- manager of new firms).
Global Entrepreneurship Index (GEI)	Global Entrepreneurship Development Institute	GEI: is an economic activity index compiled by US-based The Global Entrepreneurship and Development Institute, which looks at how individual countries across the world allocate resources to promoting entrepreneurship, if indeed they do.

For the purpose of this research, new venture creation will be used to measure entrepreneurship activities in Kuwait and examine its effect on the economic growth in terms of GDP growth as discussed in the Empirical Model and Data chapter. Number of new ventures data is extracted from Kuwait Central Statistical Bureau, to cover the period starting 2000 to 2014.

3.4. Measuring Economic Growth

Economic growth is the increase of the size of an economy over time that is in terms of all goods and services produced. Researchers usually operationalize the economic growth using different measures. First famous measure is the changes in Gross Domestic Product (van Stel et al., 2005; Acs et al.,2009; Braunerhjelm et al., 2009; Hessels and van Stel, 2009; Acs et al., 2011; Block et al., 2012; Hojink, 2015). Second measure is changes in employment or number of job creations (Van Stel and Suddle, 2005; Audretsch and Belitski, 2013). Other comprehensive approach is to use the real per capita personal income (Hafer, 2013) studied the effect of entrepreneurial activities on generating growth.

For the purpose of this research, economic growth will be measured using the changes in GDP of Kuwait during the period 2000 to 2014.

4. Theoretical Framework

4.1. The missing link in economic growth models

According to Solow (1956) model of economic growth, knowledge or ‘‘technological progress,’’ was the driving engine of the economic growth. Yet, knowledge was outside the model and reflected in the residual. By contrast, in the endogenous growth models introduced by Romer (1990) and Lucas (1993), knowledge is not only included within the model, but also has a remarkably effective impact on growth, due to its strong tendency to spill over from the firm creating knowledge to other firms transforming the knowledge into business opportunities. Therefore policy recommendation emanated from this theory is to highly invest in human capital specifically on education and R&D to gain the fruits of knowledge spillover. Yet the endogenous theory did not explain how the spillover of knowledge happen, and how it’s converted into economic knowledge that affects the economic growth.

Many researchers have provided an empirical evidence to support the idea that entrepreneurship may be the missing link in the endogens models and transmission medium is needed to convert the knowledge into economic knowledge. For example, Z. J. Acs et al., (2012) identified entrepreneurship as one mechanism to facilitate the spillover of knowledge. Using two least square estimation on panel data of entrepreneurship for 18 OECD countries from 1990 to 1998 provided an empirical evidence that, entrepreneurship along with other factors of production like Research & Development and human capital, has contributed significantly to the economic growth.

Moreover Gonzalez-Pernia et al., (2012) showed a positive relationship between new knowledge generation and growth when controlled for entrepreneurship. Using data for Spain from the period 2000 to 2004, regression results showed that regions with higher rates of new knowledge creation and start-ups have positive effect on market competitiveness. New knowledge generation result in creating new ideas, whereas entrepreneurship is the vehicle of commercialization those new ideas.

Therefore, investing in creation of new knowledge leads to knowledge spillover and thus creating economic opportunities, however these opportunities are rarely present themselves; rather they need to be exploited commercially into new products or services. Such exploitation of economic knowledge is usually presented in entrepreneurial activities like start-ups, self-employments, and SMEs. Moreover, the ability for individuals to seize business opportunities and convert the new knowledge into successful economic knowledge requires certain environmental, personal, skills, and policy support to minimize the obstacles and encourage innovation and entrepreneurship.

4.2. The Knowledge Spillover Theory of Entrepreneurship (KSTE)

The view of entrepreneurship as the channel to commercialize knowledge spillovers outside the source of knowledge creation, paved the way for the emergence of The Knowledge Spillover Theory of Entrepreneurship (KSTE), which considers the role of knowledge as the main source of technological and commercial opportunities and economic growth.

The Knowledge Spillover Theory of Entrepreneurship renovated the classical approach of growth models by keeping the traits of individual's constant and considering entrepreneurship as an endogenous outcome to the partial commercialization of knowledge, paving the way to the missing link in economic growth models. The theory questions two main assumptions of the endogenous growth models.

The First assumption is that knowledge automatically transforms into economic knowledge. Although Romer (1990) model assumes that knowledge spills over automatically, Acs et al. (2004 and 2012), Audretsch et al. (2006), Braunerhjelm et al. (2010), and Z. J. Acs et al. (2012); suggested instead, the spillover of knowledge from its source does not occur automatically. And indeed it faces "The knowledge filter" that prevents it or at least hinders the automatic spillover for innovation and commercialization. So there is a difference between new knowledge created by R&D (inventions) and the knowledge exploited into new business products or services (innovation and commercialization).

The second assumption is that investing in creation of new knowledge alone is likely to spillover business externalities and thus generating large economic growth. Most of the countries responded to the endogenous growth theory by high investments in Research & Development (R&D) and human capital. However, such investments alone have not resulted in satisfying projected positive economic growth in many European countries. These countries have suffered from what is called "the knowledge Paradox'', which refers to the modest growth despite the high levels of investment in R&D and human capital due to low entrepreneurial activities (Audretsch and Keilbach 2008).

Acs et al., (2004) presented a negative correlation between Growth and R&D and positive correlation between Growth and Entrepreneurship using data for (OECD) countries during 1981 to 2002. They claimed that investing in R&D alone is not enough to generate economic growth, and yet a mechanism is needed to spillover the knowledge through Entrepreneurship.

4.3. Testing the theory using data from Kuwait: under the assumption of entrepreneurship is identified as a one mechanism facilitating the spillover of knowledge

The research proposes that the spillover of knowledge may not occur automatically as typically assumed in the endogenous growth model. Instead, entrepreneurship is identified as a one mechanism facilitating the spillover of knowledge, and actually commercializing the new ideas into economic products. Entrepreneurship can be one of the solutions that will help young people in Kuwait to start up their own business, reduce unemployment, create business opportunities, and generate economic growth. Although there shall be huge governmental and institutional efforts to provide a supportive environment like business incubators, professional training, legal advice, and financial support in order to reap the fruits of successful entrepreneurs in the long run.

5. Empirical Framework

5.1. Growth Model

Economic Growth will be measured by Gross Domestic Product growth (GDP_G), creation of knowledge will be presented by Government Expenditures on (1) Education and (2) Research and Development (R&D), the spillover of knowledge will be referred to Entrepreneurship measured by number of establishments, and finally the traditional growth factors: Capital and Labor. Thereby the effect of adding a new component to the Growth Theory, i.e. Knowledge Spillover Theory of Entrepreneurship (KSTE) will be tested through the following growth model:

$$GDP\_G = \beta_0 + \beta_1 ENT\_G + \beta_2 EDU\_G + \beta_3 R\_G + \beta_4 GCF\_G + \beta_5 L\_G + \varepsilon \qquad (1)$$

Where the economic growth (GDP_G) is the dependent (response) variable; the independent (explanatory) variables are: the annual growth rates of the 1) Entrepreneurship (ENT_G), 2) Government Expenditure on Education (EDU_G), 3) Government Expenditure on R&D (R_G), 4) Gross Capital Formation (GCF_G), and 5) Government Expenditure on Labor (L_G); and finally ε is the error term.

The next table summarizes the list of dependent and independent variables used in the empirical model along with description, measurement, and source of each variable. All variables were included in the model as annual growth rates for the series of annual observations; calculated as the change in each figure from year to year ($\Delta Y_t = \frac{Y_t - Y_{t-1}}{Y_{t-1}}$) where ($Y_t$ the observation for year t). Since there are 14 observations starting 2001 to 2014, after calculating the growth rates, the number of observations became 13 observations only.

Table 2 Variables and source of data

Variable	Type	Measure	Description	Source of data
GDP_G	Dependent (Response) variable	Economic Growth	Annual growth rate in Real GDP	World bank
ENT_G	Independent (explanatory) variable	Entrepreneurship	The annual Growth rate of total number of establishments	Kuwait Central Statistical Bureau
EDU_G	Independent (explanatory) variable	Education	The annual Growth rate of Government Expenditure on Education	United Nation - UNESCO
R_G	Independent (explanatory) variable	Research and Development	The annual Growth rate of Government expenditure on Research & Development (R&D)	World bank
GCF_G	Independent (explanatory) variable	Capital	The annual Growth rate of Gross Capital Formation	World Bank

Variable	Type	Measure	Description	Source of data
L_G	Independent (explanatory) variable	Labor	The annual Growth rate of Government Expenditure on Labor	Ministry of Finance (Kuwait)

Below are the hypotheses of this research that will be investigated via the empirical model:

H_1: Entrepreneurship has no effect on the economic growth in Kuwait

H_2: Education has no effect on the economic growth in Kuwait

H_3: R&D has no effect on the economic growth in Kuwait

H_4: Traditional production factors (Capital and Labor) have no effect on the economic growth in Kuwait

6. Empirical results

Before running the regression model, an investigation for stationarity was done using Augmented Dicky Fuller and Philips Person tests. Results from both testes reveled that all variables including the dependent and independent variables are free from the unit root.

The growth model was tested using the Ordinary Least Squares where the dependent variable (GDP_G) is regressed against the independent variables (ENT_G, EDU_G, R_G, GCF_G, and L_G). Multicollinearity is addressed by executing Variance Inflation Factor (VIF) test, where all the variables turned out non collinear. Moreover, heteroscedasticity is addressed by executing White test, where t-statistics is found to be statistically insignificant (p-value is greater than 0.05), therefore we fail to reject the null hypothesis, and conclude that all variables are homoscedastic (equal variances). All of the empirical mentioned tests and OLS regression were conducted on the data set using Stata software (Data Analysis and Statistical Software for Professionals) version 14. Empirical results are presented in the appendix 1

The OLS estimation results showed relatively high R-square (R^2 = 83%) therefore that the model can explain 83% variation of the dependent variable (GDP Growth). The coefficients of the independent variables are found to be positive for measures of entrepreneurship (ENT_G), education (EDU_G), and Gross Capital Formation (GCF_G), whereas negative for R&D (R_G), and Labor (L_G). However, based on the OLS estimation results all the variables are statistically insignificant except Education (EDU_G) with a positive coefficient (0.765).

The results can be justified due to 1) the limited number of observations, 2) the impact of all the variables on GDP is theoretically to be effective on the long run, 3) there are other variables contributing to the GDP of Kuwait, like oil prices and the size of the oil exports.

7. Conclusions and Policy recommendations

Changes in the Entrepreneurship was found to have a positive effective on GDP growth of Kuwait, though it was statistically insignificant and this can be attributed to many explanations. First, Kuwait GDP is heavily dependent on exports of oil. The majority of 90% of revenue comes from oil exports and is consequently affected mainly by fluctuating of oil prices. Second, the lack of data related

to startups and entrepreneurs in Kuwait. The study used the number of establishments since 2001 to capture the number of businesses in Kuwait, however this figure didn't capture all entrepreneurs like those entrepreneurs who are operating from their own homes, or they manage their business through social media or websites. Third, the number of establishments is relatively high but the contribution to GDP is small. According to the World Bank, the contribution of SME's to Kuwait's GDP is almost 3% whereas the world average contribution of SME's to the economic activity reach 40% to 50%. Fourth, although Kuwaiti entrepreneurs are educated and creative, yet many entrepreneurs face challenges when it comes to starting their own business.

In order to understand why some entrepreneurs are not encouraged to start their own business, we shall analyze the business gaps in Kuwait ecosystem. Generally there are some barriers that challenge establishing start-ups, and even made some of the current entrepreneurs relocate their businesses to more "business-friendly" cities like Dubai. First, the bureaucracy of government rules and regulations to establish a business, that an entrepreneur in Kuwait has to deal with 11 government interfaces to start a business, an average of 62 days to start up a business, 49 days to register a property, and 64 days getting electricity for the property. Second, the safety net that hinders innovation and productivity. Although many young Kuwaitis are very creative and innovative, yet some decide to take the easier path in their career life and apply for jobs in public sector due to the granted income, short working hours, and flexibility. Third, limited access to fund. There are only two main sources of funding in Kuwait. Industrial Bank of Kuwait and National Fund for SMEs development. However, contribution of funds provided by the commercial banks is not much compared to the rest of the world due to the fear of high risk default and poor management skills as a reason for avoiding SMEs loans. Fourth, lack of Mentors and entrepreneurial professional skills provider. Despite the emergence of several co-worker venues in the last few years in Kuwait, that offer spaces and access to technology. Nevertheless they do not provide the entrepreneurial skills. Fifth, competition with large firms in the local market. Few well-connected local firms in are legitimate to establish monopoly in some business sectors. Such "rent-seeking" have not only prevented the market competition and productivity, but also stopped many entrepreneurs from taking the risk to establish startups in a market competing against monopolistic companies.

In addition Education was found to have a positive statistically significant effect on economic growth in Kuwait. This finding supports an assumption of this research, which is creation of Knowledge (through Education) can help to spillover the knowledge to nurture entrepreneurship and eventually foster economic growth. Moreover this finding is consistent with the finding of Al-Wugayan, A., & Alshimmiri, T. (2010) in which they investigated the willingness of Kuwait University students to start their own business, in an attempt to measure the creation of business by Kuwaiti Students. The results revealed that highly performing, motivate, and near to graduation, students are more likely to start their own business and involve in SMEs professions after graduation.

Furthermore the negative effect of R&D on GDP growth in Kuwait can be attributed to the minimal size of spending on R&D and the limited number of research institutions in Kuwait. Moreover despite the government spending on R&D and the efforts made by the local research institutions in the creation of knowledge; the knowledge still needs to be spilled-over to create business externalities that result in commercialized goods and services.

Moreover, the negative effect of Labor on GDP growth can be attributed to the huge size of government spending on salaries and social security benefits compared to the minimal real productivity of labor in the public sector. The concealed unemployment in the public sector is considered high. This is due to the commitment of Kuwait government to recruit graduates without a real need for them.

Although the impact of entrepreneurship was not statistically significant on GPD growth of Kuwait, however this can be attributed to the limitations of this study and can be considered as an opportunity to start fostering entrepreneurship in Kuwait.

In order to reap the fruits of entrepreneurship, and learn from the successful stories of entrepreneurship around the world, Kuwait shall create a comprehensive economic ecosystem for entrepreneurship; an integrated policy environment that encourages startups and enables ventures creation to emerge and grow. Diversifying the economy and moving beyond oil based economy is aligned with one pillar of Kuwait development plan (Kuwait 2035), that is to enhance business environment, to nurture innovation and entrepreneurship as tools to create future jobs.

Main recommendations for policy makers are as follows: First, making starting a business easier in Kuwait, through minimizing the government interfaces to startup a business, simplifying procedures by creating a one-stop shop, and making the process faster by implementing new technology and online services, and probably decreasing the number of days in order to register a property, or getting the electricity, and reducing the minimum capital requirements. Moreover, enhancing the business environment throughout healthy market competition, allowing small businesses to startup and grow via granting government subsidies for entrepreneurs, and banning the monopolistic behavior of some companies in Kuwait.

Second, enhancing the role of universities to foster not only creation of new knowledge but also to cultivate creativity and innovation. The future universities will follow the triple model (academic – industry - government) institutions where the "traditional university" transforms from its classic structure that is providing knowledge only, into more "entrepreneurial university" as suggested by Etzkowitz et al. (2000). The main idea of such triple model, is that teaching models will be developed, and R&D priorities will tolerated based on the industrial needs. Therefore creating the innovative environment for students to transform knowledge into commercialized projects, where funds are provided by national fund and/or industry. Some governments encourage this academic transition like UK, Latin America, and Germany where they seize this academic transition as an economic development strategy that will have long term positive effects on the economic growth. Therefore universities in Kuwait can play a fundamental role in delivering "education for entrepreneurship", where they can prepare students to be the entrepreneurs of the future. Through access to research and development, offering professional business-industry trainings, mentoring and advising, facilitating peer effects through networking, establishing linkages with global entrepreneurship, and hosting knowledge spillovers like professional development opportunities.

Third, create effective funding methods for startups. Although Kuwait SME fund provides capital, it's still considered as debit where the entrepreneur shall pay it back. One proposed method is to grant government monthly allowance for Kuwaiti entrepreneurs. As incentive for graduates not to follow the easier approach via working in public sector, and benefit from the government allowance of being self-employed. Therefore government will provide seeds funds for entrepreneurs to encourage

them to start up their own business. Another method would be through stressing private banks in Kuwait to provide loans with low interest rates for entrepreneurs.

8. Limitations

The empirical model the research used measurements to capture traditional and none traditional factors affecting the economic growth of Kuwait, however the result of testing the effect on entrepreneurship on GDP Growth was statistically insignificant, due to the following limitations, which can be used as opportunities for future investigations and further research:

First, the lack of standardized definition of entrepreneurship in Kuwait. The term itself is broad and has different measurements. Therefore is very difficult to capture the actual number of entrepreneurs in Kuwait.

Second, there is no public organization or business entity in Kuwait that keeps track of the entrepreneurial activities. Lack of related statistical data like number of entrepreneurs according their gender, nationality, type of business, geographic locations, industry, etc. Moreover, lack of economic data related to entrepreneurs like income generated from entrepreneurship, and measures of productivity.

Third, the estimation started with 14 observations (years 2001- 2014). The small number of observations (due to unavailability of data on number of establishments) is the main difficulty for the estimation purposes. This constraint reduces the ability to effectively extract information about the relationship between the two variables entrepreneurship and economic growth.

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10. Appendices

10.1. Appendix 1: Empirical results

Table 3 Descriptive statistics

Variable	Mean	St. Dev	Minimum	Maximum
GDP_G	.1305749	.1770235	-.281527	.3593169
ENT_G	-.005302	.024131	-.0888164	.0071031
EDU_G	.0837093	.1494923	-.2710101	.3174498
R_G	.224162	.5521858	-.0662014	2.103472
GCF_G	.0328486	.1840405	-.3956721	.4592908
L_G	.0333173	.2209105	-.3931068	.5857674

Table 4 ADF test results

Variable	ADF t- statistics	MacKinnon P-value	Stationarity Conclusion
GDP_G	-2.913***	0.0439	I(0)
ENT_G	-3.521**	0.0075	I(0)
EDU_G	-3.808*	0.0028	I(0)
R_G	-3.869*	0.0023	I(0)
GCF_G	-3.513**	0.0077	I(0)
L_G	-4.061*	0.0011	I(0)

*Statistically significant at 1%

** Statistically significant at 5%

*** Statistically significant at 10%

Table 5 PP test results

Variable	PP t- statistics	MacKinnon P-value	Stationarity conclusion
GDP_G	-2.877***	0.0480	I(0)
ENT_G	-3.527**	0.0073	I(0)
EDU_G	-4.280*	0.0013	I(0)
R_G	-3.863*	0.0023	I(0)
GCF_G	-3.524**	0.0074	I(0)
L_G	-4.049*	0.0012	I(0)

*Statistically significant at 1%

** Statistically significant at 5%

*** Statistically significant at 10%

Table 6 ANOVA table from the OLS estimation

GDP_G	Coef.	Std. Err.	t	P>|t|
ENT_G	0.1384	1.1137	0.12	0.904
EDU_G	0.7659	0.2415	3.17	0.013
R_G	-0.0186	0.0465	-0.40	0.700
GCF_G	0.2059	0.1615	1.28	0.239
L_G	-0.2940	0.1788	-1.64	0.139
_Cons	0.0744	0.0365	2.04	0.076

Number of Observation	14		Source	SS	df	MS
F (5,8)	8.05		Model	0.3398	5	0.0679
Prob > F	0.0055		Residual	0.0675	8	0.0084
R-squared	0.8342		Total	0.4073	13	0.0313
Adj R-squared	0.7305					
Root MSE	0.09189					

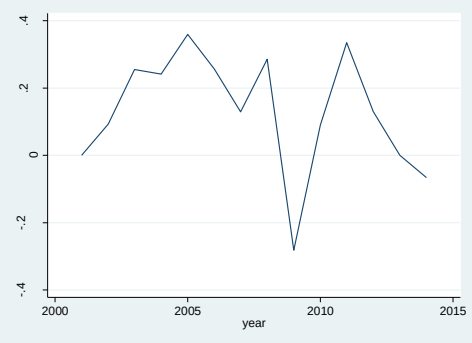
Table 7 VIF results

Variable	VIF	1/VIF
ENT_G	1.11	0.899210
EDU_G	2.01	0.498019
R_G	1.02	0.981560
GCF_G	1.36	0.735058
L_G	2.40	0.415880
Mean VIF	1.58	

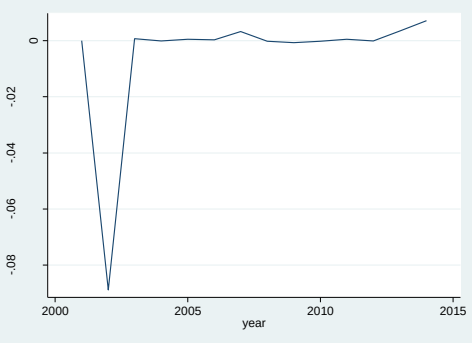
Table 8 White test results

Source	chi^2	df	p
Heteroskedasticity	14.00	13	0.3738
Skewness	6.25	5	0.2826
Kurtosis	0.51	1	0.4731
Total	20.77	19	0.3499
White test results White's test for H_0: homoskedasticity against H_1: unrestricted heteroskedasticity		$chi^2(13)$ = 14.00 Prob > chi^2 = 0.3738 Cameron & Trivedi's decomposition of IM-test	

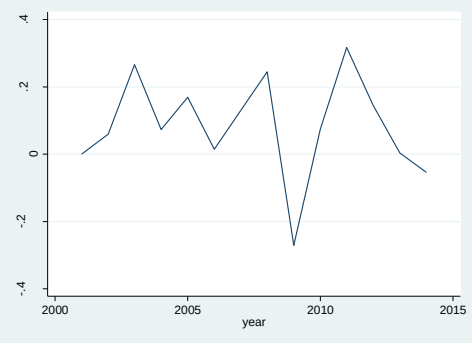
10.1. Appendix 2: Graphs



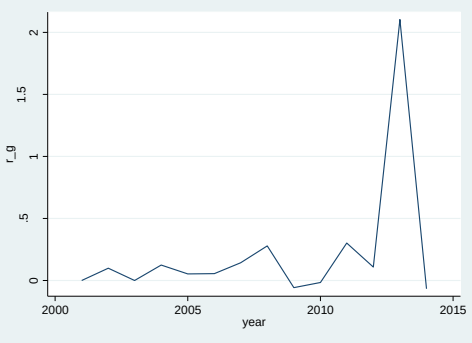
GDP growth rate



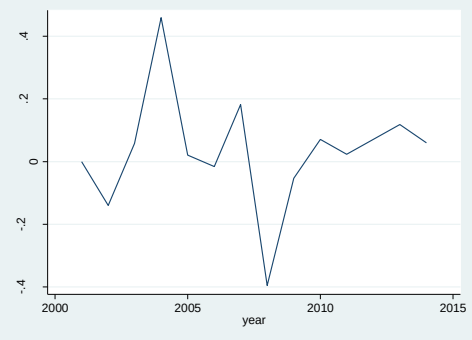
Enterpreunership growth rate



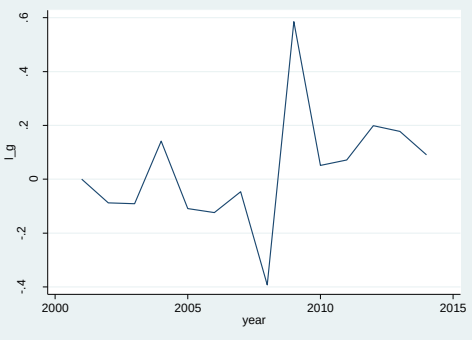
The growth rate of Government Expenditures on Education



The growth rate of Government Expenditures on Research & Development



The growth rate of Gross Capital Formation



The growth rate of Government Expenditures on Labor