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ENTREPRENEURSHIP AND ECONOMIC GROWTH IN WEST BANK, PALESTINE

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This paper examines the nature of the relationship between entrepreneurship and economic growth in the West Bank of the Palestinian territories that occurred post Oslo Agreement. The paper has two main objectives: first, to examine with empirical evidence the impact of entrepreneurship on economic growth; second, to explore the effect of two control variables on the relationship — checkpoints and international aid — which are unique to this particular study. Using data spanning over a course of sixteen years, various statistical methods were applied to explain the effect of variant levels of entrepreneurial activity on GDP and unemployment. The results show that contrary to a reservoir of research, entrepreneurship appeared to have no significant impact on economic growth. This can be explained by the fact entrepreneurial activity is expected to decrease as a result of growth in the economy as new jobs are created.

Keywords: Entrepreneurship; economic growth; business startup rate; gross domestic product; unemployment; West Bank; Palestine.

1. Introduction

Entrepreneurship, as a factor of production, has been recognized as a viable determinant for achieving growth in contemporary economies. Particularly in the form of SMEs (small- and medium-sized enterprises), entrepreneurship has recently been identified as a major source of economic development through the creation of job opportunities in many countries ([Dejardin, 2000](#); [Carree and Thurik, 2002](#); [Naude, 2008](#)). Although the link between entrepreneurship and economic growth has been examined extensively, most of the available literature focuses on developed countries. The question remains as to whether this relationship exists in or has the same positive effect on developing countries. Therefore, there is a need to unveil the nature of the relationship between entrepreneurship and economic growth in developing countries, not only to understand the contribution of entrepreneurial activity toward economic growth, but also to understand its implications on national policy. Such knowledge would facilitate the formulation of tailored policies, catering to the specific needs of developing countries.

The West Bank, Palestine, a unique case in this respect, has demonstrated a remarkable improvement in building its institutions that allowed for continued growth in its economy. Over the past five years, Palestinian real GDP has risen about a third to almost 8.1 billion US dollars; dependence on international aid has fallen from over 1.8 billion US dollars in 2008 to about 1.1 billion in 2010 (Palestinian Economic Bulletin, 2011). Moreover, the year 2009 marked the launching of the first GEM (Global Entrepreneurship Monitor) Palestine Country Report. The inclusion of the Palestinian territories in this project is considered to be of great importance: first, for the very recognition of the Palestinian territories as a member in this internationally renowned publication, second, for the invaluable information it provides on entrepreneurial activity and finally, for facilitating comparison among member countries. Given the lack of empirical studies regarding the relationship between entrepreneurship and economic growth in developing countries, this study aims to contribute to the literature in this respect by exploring this relationship in the West Bank of the Palestinian territories, a developing economy.

This study is organized into the following sections. The first section presents a review of the literature pertaining to the relationship between entrepreneurship and economic growth. The second section introduces the data and methodology used in this study. The third section presents the results and analysis of the data. The fourth and final section is a discussion of the results within the context of the study followed by a set of recommendations for future research.

2. Entrepreneurship

Despite countless efforts at defining and measuring entrepreneurship, it remains an elusive concept to this day. Most available literature demonstrates the multi-dimensional nature of entrepreneurship. Numerous researchers have brought forth an array of perspectives. There are the broad definitions of entrepreneurship, as well as the more specific; some researchers provide definitions complementary to their counterparts, while others present opposing views. Noted attempts at defining entrepreneurship date back as far as the early 1900s.

Joseph Schumpeter (1911), one of the earliest and most notable contributors to the study of entrepreneurship, defined entrepreneurship as innovative activity; namely, the introduction of a new good, a new method of production and the opening of a new market, among other things. He also introduced the phrase “creative destruction” referring to entrepreneurship as “making current technologies obsolete” by finding “better ways to meet existing demand or create new products” (Schumpeter, 1911, 1942). While both Schumpeter and Schmitz focused on the “process” aspect of entrepreneurship, Schmitz (1989) views entrepreneurship more as imitation than innovation. He defined it as the act of “transferring and implementing a new technology” (Schmitz, 1989) in contrast with innovators who come up with new ideas and implement them toward doing new things.

According to Naude (2008), the word entrepreneur can be defined from an economic standpoint as one who is self employed. In agreement with Naude, Wennekers and Thurik (1999) claimed entrepreneurship can be measured either through the number of those who

are self employed or through the rate of start ups. On the other hand, [Schultz \(1975\)](#) and [Hart \(2003\)](#) argued entrepreneurship did not necessarily mean creating a new business; [Hart \(2003\)](#) contends entrepreneurship is not only starting, but also expanding new businesses. Furthermore, [Hitt et al. \(2001\)](#) suggested entrepreneurship can also be considered as part of the management function of firms already in place, not necessarily something that has to do with an entirely new firm.

Moreover, other attempts at identifying what constitutes entrepreneurship and its impact on society exist. For instance, [Knight \(1921\)](#) sheds light on the element of uncertainty attached to entrepreneurial ventures. [Dejardin \(2000\)](#) distinguished between 'good' and 'bad' entrepreneurship. 'Good' innovative entrepreneurship is that where the entrepreneur's personal interests and those of society go hand in hand. Then there is 'bad' entrepreneurship, otherwise referred to as rent seeking; the "socially costly pursuit of wealth transfers" ([Tollison, 1997](#)). In other words, rent seeking is thought to have a negative impact on society, where "talent goes into activities with the highest private returns, which need not have the highest social returns" ([Murphy et al., 1991](#)).

To sum up, until recently, the attempts at defining entrepreneurship have produced somewhat various results. These results can be viewed as complementary rather than contradictory; a comprehensive and pervasive definition of entrepreneurship has yet to be delineated.

2.1. Entrepreneurship and economic growth

For the most part, entrepreneurship is commonly seen as a contributor to the well-being of an economy. Many studies indicate the relationship between entrepreneurship and economic growth is a positive one by contending that the more entrepreneurs, the greater the economic growth ([Schumpeter, 1911](#); [Kirzner, 1973](#); [Carree and Thurik, 2003](#); [Martinez, 2005](#)). Schumpeter's seminal contribution highlighted the relationship between entrepreneurship and economic growth in saying that transforming new ideas into new products, processes, or services would lead to growth of an economy through increased employment and profit generation for innovative enterprises. Similarly, [Acs \(1992\)](#) argued the role played by small firms in an economy is crucial, acting as agents for change in their ability to actively innovate and generate new jobs. A study of thirteen European countries conducted by [Carree and Thurik \(1998\)](#) concluded that industries that had a greater share of small enterprises had better output growth than the same industries with fewer small enterprises. In another study, [Carree and Thurik \(2002\)](#) state: "entrepreneurial activity hence expands and transforms the productive potential of the national economy by inducing higher productivity and an expansion of new niches and industries." Furthermore, [Naude \(2008\)](#) contended that entrepreneurship has a positive impact on an economy in terms of job creation, ease of fiscal burden and in intensifying competition.

However, there are several arguments stating no relationship or a negative relationship between entrepreneurship and economic growth. According to a study by [Tang and Koveos \(2004\)](#) that examined two different types of entrepreneurship, venture entrepreneurship and innovation entrepreneurship, venture entrepreneurship was found to be

positively correlated with GDP growth, particularly more so in high-income countries than in middle- and low-income countries. On the other hand, innovation entrepreneurship was found to be negatively correlated with economic growth. A more recent study by [Acs \(2006\)](#) concluded high levels of entrepreneurship actually correlate with slow economic growth and lagging development in an economy characterized by intense bureaucracy and lack of employment opportunities. He makes his distinction between a positive and negative relationship based on whether entrepreneurship is driven by “necessity” or “opportunity.” Necessity entrepreneurship is described as engaging in entrepreneurial activity because of a lack of viable alternatives; that is, entrepreneurship out of necessity. On the other hand, opportunity entrepreneurship is engaging in entrepreneurial activity that allows for exploiting perceived market opportunities. Furthermore, Acs inferred that an excess of necessity entrepreneurship could actually have a negative impact on the economic growth of a nation, whereas opportunity entrepreneurship was proven to have a significant, positive effect on economic performance. Similarly, [Fritsch \(2007\)](#) argued that the increased number of new businesses in an economy that would normally require additional capacities (labor) is not always positively associated with job creation. Fritsch’s argument is based on the notion of market selection — survival of the fittest — which suggests businesses with high efficiency will stay in the market because of their ability to produce relatively the same level of output using less resources, ultimately leading to a decline in employment.

A major distinction in studying the relationship between entrepreneurship and economic growth is the level of formal versus informal enterprises in an economy, which sometimes explain the difference in results across various studies. A study by [Acs et al. \(2008\)](#) provides an insightful look into this phenomenon, by comparing measures of entrepreneurship across two different datasets: World Bank Group Entrepreneurship Survey (WBGES) and Global Entrepreneurship Monitor (GEM). On one hand, WBGES considers only the formal economy in its studies of entrepreneurship; a measure of entrepreneurship that includes those new, formally registered businesses. On the other hand, GEM includes entrepreneurship in its early stages, to the degree that those who intend to start new businesses are considered entrepreneurs. Accordingly, almost any existing new firm could count as an entrepreneurial venture, whether it is registered or not. GEM rationalizes that not all firms contributing to society are formally registered, so a newly existing, unregistered firm could qualify for entrepreneurial status. This logic says: just because a business is not registered does not negate the fact it could play a significant role in the economic growth of a society. A case in point would be Palestine, where only three percent of all enterprises have more than ten workers, nearly 40 percent of private enterprises are informal and the level of informal employment is equal to about 30 percent of formal private sector employment. In comparison, Syria, a country that shares similar income levels, has an estimated one percent of all enterprises that have more than 50 employees. Likewise, Lebanon, an economy dominated by small business, where 99 percent of all private enterprises have fewer than 50 workers, over 93 percent have fewer than five workers, and 50 percent of enterprises are informal (GEM-MENA Regional Report, 2009). To this end, the scope of this study focuses on formal enterprises (formally registered businesses).

Yet, another distinction in studying the relationship between entrepreneurship and economic growth is having a well established measure for the variables to be examined. Compared with other factors, entrepreneurship is far more complex to measure and to detect its contribution to economic growth. Measures of entrepreneurship can be grouped within two main categories: dynamic and static measures (Bianchini, 2010; Hartog *et al.*, 2010; Wennekers, 1999; Wennekers *et al.*, 2005). Hartog *et al.* (2010) describes dynamic entrepreneurship as that having to do with new firm start-up rates, while static entrepreneurship is a measure of incumbent entrepreneurship (production of small businesses relative to other businesses). Both Bianchini (2010) and Wennekers *et al.* (2005) view business registration as a dynamic indicator of entrepreneurship and self employment as a static indicator of entrepreneurship. According to Wennekers *et al.* (2005), a distinguishing feature between static and dynamic entrepreneurship is the nature of the measurement in terms of time. In other words, static entrepreneurship is the business ownership rate at a given point in time, while the rate of change in business ownership constitutes dynamic entrepreneurship. Another study by Wennekers (1999) describes the static perspective as that which considers entrepreneurship as an element of the economy at a certain point in time, while the dynamic perspective sees entrepreneurs as “agents of change” doing new things in terms of starting new businesses, using new methods and processes and producing innovative products. According to such criteria, this study follows the dynamic measure of entrepreneurship, in the form of new business start-up rates.

Additionally, several studies have used different measurements of entrepreneurial activity, such as owning and managing an incumbent business (number of self employed or business owners), number of new entrants (new firm startups), the process of starting a new business (activities involved in the pre-start-up phase), and the share of small firms in total value of shipments of an economy (Van Stel, 2006). Obviously, there is little consensus about what actually constitutes entrepreneurship, let alone in developing countries. Desai's (2009) work, which focused on measuring entrepreneurship in developing countries, as well as other studies (Ashcroft *et al.*, 1991; Audretsch and Fritsch, 2002; Wong *et al.*, 2005) have adopted the same measurement used by WBGES- the rate of formal business start-ups. A major advantage of using this particular measure is that it allows for cross country and longitudinal comparisons.

Regarding the measurement of economic performance, several indicators are used depending on their context and scope. For example, Van Stel (2006) argues there are three levels for which different economic performance measures are used: (1) at the individual level, individual earnings generated from a self-owned business; (2) at the business level, business-specific indicators are used, such as employment growth, profitability, productivity, etc.; (3) at the spatial level (country), employment growth as well as GDP are potential measures for economic performance. Given the scope of this study, which examines the relationship at the spatial (national) level, GDP and unemployment are used as measures of economic performance. This study also uses the rate of startups (newly listed businesses as a percentage of the total listed businesses) as a measure of entrepreneurial activity.

A review of the literature regarding the relationship between entrepreneurship and economic development clearly suggests preconceived notions may prove to be precarious

in assuming the actual nature of the relationship. In other words, this relationship should not be expected to be the same in all situations. Several factors play a role in determining the nature of the relationship. Factors such as the stage of economic development (developing versus developed countries), public policy, as well as what actually constitutes entrepreneurship, among other things, will most likely determine whether the relationship is positive or negative.

2.2. Palestine as a case study

The economy of Palestine (West Bank and Gaza Strip) is considered a developing one. The economy took form only after the establishment of the Palestinian Authority as a result of the signing of the Oslo Agreement. Although the economy has been growing over the past few years, this growth is mainly attributed to near-consistent foreign aid. The Palestinian economy has its roots in agriculture and fisheries, services sector (banks and insurance companies), construction sector and secondary industries (mining, water and electricity) (Overview of the Palestinian Economy, 2010).

The Palestinian economy continues to operate much below potential as a result of the ongoing conflict, the Palestinian Authority’s fiscal crisis as well as sporadic donor support. Unemployment has remained stubbornly high, hovering around 26 percent in 2011 (West Bank and Gaza combined). This is exacerbated further by a worrisome four percent decline in labor productivity with wage growth lagging behind inflation. Despite GDP growth in 2011, poverty and food insecurity remain relatively high at around 26 percent, which according to the Palestinian Central Bureau of Statistics (PCBS), poses a serious threat (Performance of the Palestinian Economy, 2012).

According to *Doing Business* (2013), Palestine ranked 135 out of 185 countries in terms of overall ease of doing business; it ranked 179 in terms of starting a new business and 159 in terms of obtaining credit. Furthermore, the report indicates Palestine is weak in strength of legal rights; it scored 1 out of a maximum of 10, as opposed to countries like Latvia and Malaysia, which have a score of 10. This low score goes back to weak legal institutions as well as complex and expensive regulatory processes. In this regard, however, several reform initiatives have been recently instated and are still ongoing.

Table 1. Economic Indicators in Palestine in Years 2010 and 2011.

Economic Indicators — West Bank & Gaza	Year 2010	Year 2011
Estimates of Population (thousands)	4,048.4	4,168.9
Labor Force (thousands)	975.4	1,058.6
Real Gross Domestic Product (GDP) (US\$ millions)	5,754.3	6,323.0
Real GDP per Capita (US\$)	1,509.9	1,609.6
Unemployment Rate (%)	30.0	26.0
Exports FOB (US\$ millions)	1,151.6	1,015.4
Imports FOB (US\$ millions)	4,625.9	4,191.9

Source: The Palestinian Central Bureau of Statistics, 2012.
Performance of the Palestinian Economy, Ramallah.

In light of the relatively difficult conditions, Palestinian entrepreneurs are faced with various social, political and economic challenges. A study by [Elmuti et al. \(2011\)](#) focusing on Palestinian entrepreneurs indicated “personality” was found to be a key factor in determining the success or failure of an entrepreneurial venture. The study also showed that individual qualities, particularly soft skills and temperament, can be more influential than forces found in the external environment. Another study by [Sabri \(2008\)](#) argued that Palestinian entrepreneurs would perform better, given an enabling environment. Table 1 provides a summary of major economic indicators for the West Bank and Gaza Strip for the years 2010 and 2011.

3. Data and Methods

As previously mentioned, this study uses business start-up rates as a measure of entrepreneurial activity and attempts to explore its impact on economic growth, particularly on GDP first, then on unemployment. Another two factors, namely funding and checkpoints, are used as control variables in the analysis. The data and the findings thereafter, represent the West Bank area of Palestine, exclusive of the Gaza Strip for reasons beyond the scope of the study.

Secondary data is used to examine the relationship between entrepreneurship and economic growth at the spatial aggregation (country) level, which is the unit of observation used in this study over a period of sixteen years (1995–2010). The year 1995 (Palestinian Authority was established) marks the first year when such data started to be produced, hence limiting the number of observations that can be included in the study. Given this inherent limitation in terms of the available number of observations, the results of the study thereafter are, at best, indicative of an existing relationship or no relationship between the level of entrepreneurship and economic growth. Also, for the same reason, testing for endogeneity cannot be carried out. However, its existence should not be dismissed. The nature and sources of the data is detailed hereafter.

Business startups. This measure represents the total number of newly registered VAT businesses in each year divided by the total number of VAT registrations at the start of each respective year. This data was supplied by The Union of the Chamber of Commerce as well as the Ministry of Finance. The consistency and general availability of this data source make it the most useful source of data on business formation for the West Bank area as a whole.

Funding. This variable represents a major factor in the economies of developing countries, particularly in Palestine, to the extent that a large part of the Palestinian Authority’s annual budget is dependent on foreign aid. Funding represents the actual amount of foreign aid provided to the Palestinian National Authority by the international community on an annual basis. This information was obtained from the Ministry of Economy. This variable is expressed in thousands of US dollars.

Checkpoints. This variable represents the total number of active checkpoints dispersed throughout the West Bank in each year of the period covered by the study. The inclusion of this variable is based on the fact that checkpoints impose restrictions on movement of

people as well as goods and services, hence influencing the economy of Palestine. The use of this data was made available by ARIJ (Applied Research Institute — Jerusalem). Missing data on the number of checkpoints has been filled in with the help of data from OCHA (UN Office for the Coordination of Humanitarian Affairs.)

GDP growth rates. This variable represents the growth rates of GDP for the West Bank territory on an annual basis throughout the period of the study as reported by the Palestinian Central Bureau of Statistics (PCBS). Note that GDP values are exclusive of funding from the international community.

Unemployment. This variable represents the number of unemployed as a fraction of the total labor force. The labor force consists of employees, self-employed people, unpaid family workers and law enforcement personnel. The main source of this information is the PCBS.

A summary of the annual raw data used in this study spanning over a 16 year period is provided in the Appendix. Two major political events are reflected in the data set. First is in 2000–2001, marked by the start of the Second Intifada, resulting in the deterioration of the political stability in the region. This situation resulted in dire consequences for social, cultural and economic conditions. For instance, shown in the Appendix, a marked decrease in GDP is accompanied by a surge in unemployment and the number of checkpoints. This period also experienced a plunge in the number of newly registered businesses. The second event, which occurred as a result of the 2006 elections, led to a dramatic change in the Palestinian political arena. The appointment of Hamas (Islamic Resistance Movement) as the new governing body of the Palestinian National Authority prompted mixed reactions, nationally and internationally. At a national level, the number of checkpoints increased and the number of newly registered businesses experienced a decline. Meanwhile, the international community, enmeshed with skepticism, withheld their support, both financially and politically. Furthermore, the data reveals that during relatively stable political and economic conditions, the establishment of new businesses tends to be higher (e.g. the number of newly VAT registered businesses in years 1995 and 1996, and in years 2008–2010).

Most of the available empirical research that attempted to study the impact of new business formation on the economic growth of a country use correlations and/or regressions to evaluate the relationship between an indicator of entrepreneurship (e.g., rate of startups) and a measure of economic growth based on unemployment or on GDP (Audretsch and Fritsch, 1996, 2002; Acs and Armington, 2002; Van Stel and Storey, 2004; Fritsch and Mueller, 2004). Accordingly, in its pursuit to answer the main research question as to whether a relationship exists between the level of entrepreneurial activity and economic growth, this study used correlations and regression analysis. The analyses have produced a model consisting of two equations to examine the relationship between the start-up rates and: (a) GDP and (b) unemployment.

Below is the equation for this regression, which explores the relationship between GDP growth and the set of individual predictors:

$$\begin{aligned} \ln(\text{GDP}) = & \beta_0 + \beta_1 (\ln(\text{Start} - \text{up Rate}))_{t-1} + \beta_2 (\ln(\text{level of Funding}))_{t-1} \\ & + \beta_3 (\ln(\text{Number of Checkpoints}))_{t-1} + \beta_3 (\ln(\text{GDP}))_{t-1} \end{aligned} \quad (1)$$

The next equation examines the extent to which unemployment is determined by business start-up rates, funding and checkpoints. If proven statistically significant, this equation can be used to predict the variation in the level of unemployment.

$$\begin{aligned} Ln(\text{Unemployment rate}) = & \beta_0 + \beta_1 (\ln(\text{Start - up Rate}))_{t-1} + \beta_2 (\ln(\text{level of Funding}))_{t-1} \\ & + \beta_3 (\ln(\text{Number of Checkpoints}))_{t-1} \\ & + \beta_3 (\ln(\text{Unemployment rate}))_{t-1} \end{aligned} \tag{2}$$

As shown in equations 1 and 2, all the variables — dependent and independent — are expressed in logarithmic nature and a time lag of one year (expressed in the equation as $t - 1$), thus ensuring reversed causality problems are accounted for. A lagged dependent variable was also included in each of the two equations; this is in line with Granger (1969) statistical framework for determining whether a time series, X, is useful in forecasting another, Y.

4. Results and Analysis

Table 2 provides a summary of various descriptive statistics regarding the variables examined in this study. The data shows that over the period of the study, GDP has a mean value of nearly three billion US dollars for the West Bank of Palestine (excluding Gaza Strip). On the other hand, the mean of the level of funding channeled to the West Bank territory is 374 million US dollars.

Most noteworthy from Table 2 are the relationships between dependent and independent variables. On one hand, rate of startups and GDP growth were found to be positively correlated (0.683) at a 0.001 significance level. This moderately positive relationship indicates an increase in the start-ups rate can be associated with an increase in GDP. On the other hand, a negative correlation between the start-ups rate and the level of unemployment exists (−0.295). However, this proved to be statistically insignificant (0.267). Furthermore, GDP was found to be positively correlated with the control variables (funding and checkpoints) with a significance level of 0.003 and 0.000, respectively. Whereas unemployment had a negative relationship with both control variables and were found to be insignificant.

Table 2. Summary Statistics and Correlations.

Variable	Mean	Std.	Correlation			
			GDP	Sig.	Unemployment	Sig.
GDP Level	2944.00 [†]	659.88 [†]	—	—	−0.232	0.388
Unemployment Rate	18.18%	4.83%	−0.232	0.388	—	—
Startup Rate	1.146	0.549	0.683	0.001*	−0.295	0.267
Funding Level	374.13 [†]	451.91 [†]	0.686	0.003*	0.018	0.947
Number of Checkpoints	311	280	0.774	0.000*	0.287	0.281

[†]These values are expressed in millions of US dollars.

*Correlation is significant at the 0.05 level (2-tailed).

In reference to checkpoints, the table shows a mean value of 311. However, this figure is not representative as a measure of central tendency because the number of checkpoints reported up until the year 2000 was 30 checkpoints for six consecutive years. This, along with the surge in the number of checkpoints after the second Intifada (which started in the second half of year 2000) resulted in an average of 311 checkpoints. This is far below the actual number of checkpoints (nearly 700) reported in the last four years of the study (2007–2010). The variable number of checkpoints is used in this study as a control variable in an attempt to explore the impact of checkpoints on GDP growth. The positive correlation between the number of checkpoints and GDP growth can be explained by the fact the occurrence of checkpoints did not start until after the Palestinian Authority was established, and concurrently, values of GDP levels were starting to be produced on an annual basis. As one would expect, GDP levels would have to increase gradually in a new economy, and this was the case in Palestine after signing the Oslo Agreement. During the late 1990s, the political situation deteriorated, which resulted in the dispersion of new checkpoints throughout the West Bank. In other words, as GDP levels were growing, the number of checkpoints was increasing. It is worth noting that these checkpoints represent potential impediments, which inhibit the Palestinian economy from growing and expanding at a normal pace.

4.1. Applying the multiple regression model

The empirical analysis in this section is divided into two main streams: the effect of the independent and control variables on (a) GDP growth and (b) unemployment level. The analysis concludes with an overview of the different relationships among all variables, dependent and independent.

(a) The effect of the independent and control variables on GDP growth

A preliminary test of how well the variables “fit” together in the study indicates there is a strong, positive, linear relationship among the variables ($R = 0.918$). An R Square of 0.842 indicates that nearly 84 percent of the variance in GDP can be attributed to the independent and control variables (start-up rate, checkpoints and funding). The remaining 16 percent can be explained by factors other than those included in the study. A closer look at the beta coefficients (Table 3) for each independent variable shows that only $GDP_{(t-1)}$

Table 3. Results from the Regression Analysis (GDP Growth).

Multiple Regression Weights		
Independent Variables	Dependent Variable – GDP Growth	
	B	Sig.
Startup Rate _(t-1)	0.066	0.415
Level of Funding _(t-1)	0.043	0.664
Number of Checkpoints _(t-1)	0.026	0.381
GDP _(t-1)	0.747	0.002

has a significant positive linear relationship with GDP levels ($p = 0.002$); in other words, previous growth rates of GDP can explain the future growth rate of GDP (trend analysis). However, it is worth mentioning that the coefficient for start-up rate (0.066) is larger than that of level of funding (0.043), which could indicate business startups have a stronger influence on GDP growth than level of funding. Although, none of the other predictor variables prove to be statistically significant, all the variables used in the study are positively correlated with growth in GDP. Simply put, the relationship between the independent (and control) variables, namely start-up rate, level of funding and number of checkpoints on one hand, and the dependent variable (GDP growth) on the other hand is not strong enough to predict future growth rates in GDP. Nonetheless, these independent variables combined with previous growth rates in GDP as another independent variable would have a higher predicting power. Moreover, the regression diagnostics implemented in the study to predict GDP growth from start-up rate, level of funding and number of checkpoints show a statistical significance at 0.001 [$F(4,10) = 13.369$].

(b) *The effect of the independent and control variables on unemployment rate*

Unlike the model summary for the dependent variable, GDP, the numbers indicate somewhat different results between these variables and unemployment. First of all, the value of R square, 0.509, indicates 51 percent of the variance in unemployment is attributed to the independent variables. This means 49 percent of the variance in unemployment is left to be explained by factors other than those included in this study. Based on the regression analysis and replacing the GDP variable in both sides of the equation with that of the unemployment rate would somehow present an attempt to predict unemployment levels in the West Bank where γ represents unemployment rate.

The multiple regression model attempts to predict unemployment levels from the independent and control variables (start-up rates, level of funding and number of checkpoints). However, the analysis fails to prove a statistically significant relationship between the independent and control variables and the dependent variable, unemployment, with a p value of 0.101 [$F(4,10) = 2.596$]. Given the moderately low correlation between the variables, Table 4 indicates that none of the explanatory variables is shown to be significant at the five percent level. The low R-squared value, combined with low correlation between the variables, indicates the level of unemployment in the West Bank is not only

Table 4. Results from the Regression Analysis (Unemployment).

Multiple Regression Weights		
Independent Variables	Dependent Variable – Unemployment	
	B	Sig.
Startup Rate _(t-1)	0.078	0.700
Level of Funding _(t-1)	-0.327	0.208
Number of Checkpoints _(t-1)	0.072	0.327
Unemployment Rate _(t-1)	0.586	0.080

the result of start-up businesses, funding and checkpoints. It is important to note the coefficient for start-up businesses, although insignificant, is positive, indicating a positive relationship between startups and unemployment. This could mean, while insignificant, that the higher the rate of startups, the lower the level of unemployment.

5. Discussion and Conclusion

According to the analysis, the results from the regression equation (1) confirm that although entrepreneurship (business start-up rate), funding and checkpoints are positively correlated to GDP, their relationship to the independent variable, namely GDP growth, is of no statistical significance. Yet alone, the level of entrepreneurship, as measured by the rate of business startups, has no significant impact on GDP growth. The only variable with a statistical significance and has the power of predicting future growth rates is the lagged GDP growth rates.

As for regression equation (2), the independent variables are incapable of explaining the majority of the variance in unemployment, accounting for only 51 percent. The analysis also showed these variables have no significant correlation with unemployment.

In line with a study by [Van Stel *et al.* \(2005\)](#), the result of this study, based on the regression analysis, indicates entrepreneurship (in the form of business start-up rate) has no significant impact on economic growth. The data clearly shows that West Bank, Palestine has been growing over the past fifteen years, yet the result of this study does not significantly attribute growth in GDP to increased business startups. This outcome of the analysis could have the following possible explanation: (a) there are not enough businesses operating in the West Bank area, pushing entrepreneurs to run their own businesses, while they would be better off as employees; (b) entrepreneurs in developing countries have lower intellectual capital levels compared with their counterparts in developed countries, which suggests these entrepreneurs would be more productive had they chosen to be employed ([Van Stel *et al.*, 2005](#)); (c) the rate of new business startups is not significant enough to prove to be a potential contributor to GDP; (d) only high growth potential entrepreneurship is found to have a significant impact on economic growth ([Wong *et al.*, 2005](#)), which implies entrepreneurship activity in Palestine is mainly characterized by necessity, which has no positive impact on economic growth ([Acs, 2006](#); [Fritsch, 2007](#)); (e) the economy of Palestine is comprised of a high percentage of informal private enterprises (40 percent), which fall outside the scope of this study and could signify that Palestinian entrepreneurs face a complex environment and limited incentives to incorporate ([Acs *et al.*, 2008](#)).

Although a significant link could not be established between economic growth and entrepreneurship, it is not the intent of this study to discourage entrepreneurial activity. Perhaps the difficulty in defining and measuring entrepreneurship contributes, to some degree, to these results, as well as the limited number of observations incorporated in this study because of the fairly new establishment of the Palestinian Authority. Nevertheless, the study of entrepreneurship and its impact on economic growth has been the goal of many research endeavors, notably GEM, which argues entrepreneurship does in fact prove

to be a driver of economic growth. However, this argument does not always hold true because of contextual differences, e.g., the stage of economic development. Entrepreneurial activity, in terms of business start-up rate in the West Bank area has experienced a rise, coinciding with economic growth, as measured in terms of GDP. It is assumed this rise in both GDP and entrepreneurship is a result of a relatively stable, albeit dysfunctional, political situation in the West Bank.

For future research, it is advisable to make a deeper analysis of whether a contribution by entrepreneurship to economic growth presents a structural character or is merely circumstantial. Second, studying the relationship between entrepreneurship and sector growth may bring forth interesting results. Third, better definition of the variables may prove to be of great impact on the results of future studies; hence, it is advised to clearly define and measure the variables used. For example, this study would probably produce different results using self employment instead of start-up rate as a measure of entrepreneurship, and labor force participation rate rather than unemployment.

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Appendix A. Annual Raw Data of the Variables Used in the Study

Year	GDP Growth	Unemployment Rate	New Business Registered (VAT)	Annual Funding (in USD Millions)	Number of Checkpoints
1995	NA*	13.90%	1,245	194	30
1996	2.92%	19.60%	1,055	197	30
1997	14.15%	17.30%	837	217	30
1998	12.25%	11.50%	751	195	30
1999	11.11%	9.50%	807	219	30
2000	-7.28%	12.10%	790	140	35
2001	-11.27%	21.50%	370	158	166
2002	-15.79%	28.80%	299	244	231
2003	9.31%	23.80%	646	222	296
2004	13.54%	22.90%	806	568	353
2005	2.44%	20.30%	935	238	410
2006	3.45%	18.60%	483	196	550
2007	10.80%	17.70%	971	310	650
2008	11.37%	19.00%	1,225	297	742
2009	9.12%	17.80%	1,717	595	668
2010	7.33%	17.00%	2,000	1996	738

Source: Data Analysis.

*The base year for calculating GDP growth was 1995; no accurate data was available for 1994.

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