

The determinants of small firm growth: an empirical study on Egypt

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Abstract

The aim of this paper is to examine the determinants of growth in the Egyptian SMEs. The research question addressed was how and to what extent the exporting and innovation activities of firms impact the growth of small firms. Egypt, one of the Arab spring countries that face many economic challenges will be of great contribution. In spite of the economic crisis that affected the country since 25th January revolution, SMEs were able to grow. The research was quantitative in nature using a rich Egyptian SMEs database. The study draws on data gathered from survey of 406 Egyptian firms across different sectors. Information about their firm's characteristic, growth and owner's characteristics activities were reported to investigate and analyse the characteristics of SMEs during the period 2012-2013. The appropriateness and the support of the determinants that affect SMEs growth were empirically tested. The results of the regression analysis showed similar results conducted in previous studies. However, some factors associated significantly and some factors associated positively but insignificantly with firm growth. The empirical evidence obtained in this study allows us to suggest important measures of economic policy to support SMEs and make suggestions to the owners. In this sense, the findings provide good reference for policy makers and practitioners while contributing to the gap on developing countries.

1. The Introduction

Economic experts, scholars, practitioners, and policy makers have showed interest in small and medium-sized enterprises (SMEs) as they are considered to be the backbone of any economy and the engine for economic and employment growth (Li and Rama, 2015; Love and Roper, 2015; Aceleanu et al., 2014). Their importance could not be neglected and the need to investigate their role in the economy is growing. As a result, studies aiming to investigate the determinants of small firm growth have become increasingly important. Many factors have been found to be associated with small firm growth which are complex (Love and Roper, 2015; Colombelli, 2015; Love et al., 2015; Obeng et al., 2014; Robson et al., 2012; Storey, 1994; Barkham et al., 1996). However, innovation and exporting are perceived as key factors stimulating small firm development and success. An innovative and exporting SMEs sector offers the potential for a country economic development. It is unlikely to achieve economic growth solely from domestic market; however, selling innovative products to overseas markets can lead to the growth of both the firm and the country. In support of this, policy makers and governments in developed countries have endorsed the role of both exporting and innovation in designing policies to foster an entrepreneurial culture.

Recent studies highlighted the importance of the relationship between growth, innovation and exporting (Love and Roper, 2015; Boermans and Roelfsema, 2015); entrepreneurial leaderships, capabilities and growth (Lockett et al., 2013); entrepreneurial characteristics and innovation (Robson et al., 2012); exporting and innovation (Higon and Driffield, 2011; Nguyen et al., 2008; Beveren and Vandebussche, 2010); innovation, growth and performance (Freel and Robson, 2004); firm characteristics and exporting propensity (Lefebvre and Lefebvre, 2001);

human capital and exporting (Ganotakis and Love, 2012); human capital, innovation and growth (McGuirk et al., 2015); entrepreneurship and growth (Wright and Stigliani, 2012); experience, age and exporting performance (Love et al., 2015); human capital and exporting (Robson et al., 2011). However, upon close review most of previous studies tend to focus on developed countries disregarding the importance of growth for developing economies and traditional industries (Veglio and Zucchella, 2015; Zucchella and Siano, 2014; Bell et al., 2003).

Since early 1990's, international entrepreneurship has attracted attention and was important as a mean to enhance performance, growth and productivity of firms (Damijan and Kostevc, 2015; Golovko and Valentini, 2011; Cassiman et al., 2010). Firms engaging in exporting activities were found to grow more than twice as fast as those who are non-exporters (Love and Roper, 2014). However, as the competition increases, innovation becomes a source of competitiveness and essential for the survival of firms (Love and Roper, 2015; Carree et al., 2011). Through innovation, small firms maintain their competitiveness which was found to enhance their exporting activities (Palangkaraya, 2012; Ganotakis and Love, 2011; Roper et al., 2006). However, in most developing countries the exported goods is mainly borne by larger firms. Thus, there is a need to study the exporting and innovation activities as two of the most important strategies for SMEs growth.

Although, the literature on small firm growth in developed countries is increasing and given the vital role that SMEs play in the development of economies, as a source of jobs and engine for growth (Du and Temouri, 2015), we still know little about the phenomenon in Egypt. Egypt, one of the countries that were greatly affected by the so-called 'Arab Spring' that hit the region 2011, will be of great contribution. Egypt's economy was devastated and many Egyptians returned from Libya, Syria and other Gulf countries which increased the unemployment rate in the country. The unemployment rate jumped from 8.9% in 2010 to 12.8% in 2015 (CAPMAS, 2015). Moreover, Egypt is suffering from the so-called 'Missing Middle', which is problematic as medium firms tend to provide better employment growth and productivity. Thus, it becomes clearer that SMEs growth will reduce this problem and improve the Egyptian economy.

Therefore, this study will examine the effect of exporting and innovation activities as two of the most important strategies for firm growth. The lack of research examining the relationship between innovation, exporting and growth in emerging countries is remarkably stark, with Egypt being the focus of research. It is important to study emerging economies as what might be applicable in developed countries might not be applicable in developing and emerging economies.

The remainder of the paper is organised as follows. Section 2 reviews the existing literature. The methodology, data and variables are specified in Section 3. In Section 4, we present the empirical results and Section 5 will present the discussion and conclusion. Section 6 presents limitations and direction for further research.

2. Literature Review

The welfare of the society depends on the growth of its industries through expansion and creation of firms which leads to economic prosperity (Wiklund et al., 2009). Thus, small firm growth research continues to attract scholars to explore and examine factors affecting its performance and growth. The multi-disciplinary nature of the research including economics, strategic management and psychology makes it difficult to have a unique theory on small and medium-sized firms. Thus, it is regarded as a complex and multidimensional construct which depends on the internal resources of firms (Wright and Stigliani, 2012; Wright and Marlow, 2011).

Early growth models including resource-based theory (Penrose, 1959), learning theory (Jovanovic, 1982), stage models and Storey's (1994) determinants of growth were developed to understand the factors affecting the growth of firms. In Penrose (1959) work, the resource-based theory highlights the importance of internal resources in firm growth and considered to be the most influential theory in business strategy and international business research (Newbert, 2007). It focuses on the sustained competitive advantage of the firm as a result of its unique resources and capabilities and considers it as a bundle of heterogeneous resources. It also explains how firm's capitalise on its internal resources by acquiring and developing a unique resource enabling it to compete in international market (Ruzzier et al., 2006). RBV has gained support due to the limitation of stage theories, as traditional internationalisation stages failed to explain the rapid internationalisation activities of small firms. Moreover, the resource-based view was used to highlight the importance of innovation as a source of competitive advantage which facilitates firm's exporting activities. It is an influential theoretical framework for explaining why firms perform differently (Hitt et al., 2001) and highlights the importance of innovative capabilities as a source of a long term competitive advantage for firms operating in international markets (Alvarez, 2004). It indicates that the competitive advantage resulted from the firm's strategic resources which, is related to firm-specific assets, such as technological, organisational and human capital, will affect the exporting behaviour of firms. Therefore, the export success of SMEs comes from their resources and capabilities (Wernerfelt, 1984).

On the other hand, Jovanovic work (1982), learning theory highlights the importance of efficiency in firm growth. Those firms that are efficient will grow while those who are inefficient will fail regardless their size. Moreover, earlier study by Storey (1994) was developed to examine the effect of firm and owner characteristics, and business strategies on firm growth which was adopted later by Barkham et al. (1996) and Bridge et al. (2003) investigating the same factors on firm growth. Storey (1994) framework stressed on the importance of combining those three factors to achieve firm growth as they are not mutually exclusive. Within each component there are set of factors that were found to affect firm growth. Internal determinants such as entrepreneurial characteristics, personal traits, and their background in addition to firm characteristics such as age, size, industry and type of ownership are important determinants of growth.

In summary, there are many factors that affect the growth of SMEs, however, this study with focus on exporting and innovation activities in SMEs as they are considered to be the most important strategies for growth. The next section will discuss the exporting-growth relationship and innovation-growth relationship.

2.1 Exporting and Firm Growth

The relationship between exporting and firm growth was extensively researched under the trade and growth literature. The learning-by-exporting and self-selection effect provided an explanation for the casual relationship between exporting, productivity and growth. The self-selection was based on the heterogeneous firm theory while the learning-by-exporting was rooted in the endogenous growth theory (Grossman and Helpman, 1991 cited in Love and Mansury, 2009). The self-selection argues that only the most productive firms will be able to engage in international market due to their ability to overcome the sunk costs. On the other hand, the learning-by-exporting effect argues that through exporting firms get exposed to new technology which improves their productivity. Studies have attempted to test for both relationships however, they received mixed results. A study done by Pham (2015) on Vietnamese manufacturing firms using a longitudinal study found that exporters tend to have high labour productivity due to their superior efficiency. On the other hand, a study done on

service firms found that productive firms self-select into export markets but once export, productivity does not affect exporting (Love and Mansury, 2009). These results reflect the importance of self-selection and learning-by-exporting phenomena.

In conclusion, exporting has been advocated as a significant means for the transfer of innovation and knowledge which spurs productivity and growth in firms. Moreover, exporters were found to be more productive than non-exporters (Girma et al., 2004; Wagner, 2012; Castellani, 2002). As a result of their importance, most studies focused on the effect of exporting on productivity nexus (Pham, 2015; Yaşar, 2015) however, few studies focused on the effect of exporting on employment growth (Bernard and Jensen, 2004). As Egypt is suffering from the 'missing middle' and economic decline, the need to focus on small firms' growth in terms of employment is important. With these arguments, this study attempt to address the gap by examining the effect of exporting on firm growth focusing on employment growth rather than productivity therefore, the following hypothesis is developed

H1: Exporting activities significantly affect SMEs growth positively.

2.2 Innovation and Firm Growth

In a world of changing needs and demands, innovation is regarded as an important element for competition and a major factor contributing to firm growth and development (Zeng et al., 2010). It is a tool for SMEs to improve their performance in terms of growth (Uriona-Maldonado et al., 2009) as growth expectations have been connected with product innovation (Verhees et al., 2010). It is becoming crucial to recognise that a firm that does not innovate over time will fail. Thus, the challenge is to foster innovativeness to boost the economy especially when the whole world is facing instability and recessions. Therefore, continual acceleration in innovation will sustain revenue growth, which then fuels more innovation.

Innovation is considered to be an important ingredient in today's business world and a cornerstone for firm growth. It is an important vehicle for small firms and those encompass it will excel in the competitive business environment and those who do not embrace it will not survive or grow. Therefore, in order to survive and grow, small firms have to innovate and compete with large firms while exploring more opportunities in foreign markets. Innovation has been considered as a generator of competitiveness enabling firms to perform well and fuels them for future success (Neira et al., 2009) but, it needs a supportive environment for innovative firms to benefit from its returns such as openness to knowledge and networking (Williams and Shaw, 2011). With high unemployment rate and the increase in downsizing of larger firms, SMEs started to play an important role in the economy to absorb unemployment (Feindt et al., 2002). As a result, studying SMEs growth and innovation had attracted many scholars to investigate and examine.

Previous studies highlighted the importance of studying innovation in small firms as most innovative firms outperform those who are not innovative in their performance, growth and profitability (Freel, 2000). In turn, small firms were found to have a high contribution to innovation and technological changes which affect their growth (Freel, 2000). A large number of studies examined the innovation-performance relationship and found that innovation enhance the production, market, innovation and financial performance of firms (Ngugi et al., 2013; Mansury and Love, 2008). Not only innovative firms exert a positive effect on growth, profitability and performance of firms; there is a positive relationship between product innovation and growth in employment (Freel, 2000). Highlighting the importance of innovation on firm growth and employment encourages this research to investigate the effect of innovative firms on the growth of Egyptian SMEs.

In conclusion, “innovation is an essential condition of economic progress and a critical element in the competitive struggle of nation states” (Freeman and Soete, 1997: 1). It is a complex phenomenon which is associated with the degree of novelty (Martinez-Roman and Romero, 2013) and considered as an important internal capability which was rooted in the evolutionary economies. However, the debate on the relationship between innovation and growth has resulted in the need for more studies examining the relationship between innovation and growth (Verhees et al., 2010; Storey, 1994) especially in emerging economies. In this sense, this study aims at examining the effect of innovation on growth in Egyptian SMEs which leads to the development of the following hypothesis:

H2: Innovation activities significantly affect SMEs growth positively.

The stream of literature addressing entrepreneurship internationalisation and innovation issues remains unresolved because of research limitations. While some studies focused on high-technology firms in developed countries (Veglio and Zucchella, 2015; Zahra et al., 2000) few were conducted on developing ones. Furthermore, most studies focused on the relationship between innovation and internationalisation in large or high technological firms (Veglio and Zucchella, 2015) which calls for the need to study traditional firms to bridge the research gap (Zucchella and Siano, 2014; Veglio and Zucchella, 2015). Moreover, scholars have looked to entrepreneurship to gain an understanding of firm internationalisation as its behaviour was found to have a positive effect on firm performance and offers a contribution to the stream of literature to internationalisation theories (Pham, 2015; Oviatt and McDougall, 2005; McDougall and Oviatt, 2000). However, there is a lack of studies on emerging countries and more research is needed to allow for future comparative studies. In summary, despite the importance of SMEs and their role in innovation and exporting activities, there is a lack of studies explaining the relationship between growth, exporting and innovation of SMEs in emerging countries, specifically in Egypt. Hence, an examination of the determinants of firm growth with respect to innovation and exporting activities will provide a significant implication for designing relevant policy. Roper and Hart (2013) suggested that without the intervention of government role in supporting SMEs, this will affect firms’ formation negatively. There is a need to support entrepreneurial culture however, there is a lack of data regarding the determinants of growth in Egypt and how government can intervene to support them.

3. Methodology

3.1 The Data

The data used in this study is drawn randomly from the Industrial Development Authority (IDA) database in Egypt based on cross-sectional data. According to the Social Fund for Development (SFD), small and medium-sized firms are defined under the law 141/2004 as businesses up to 50 employees and in-paid capital less than EGP 1 million. The study used telephone and survey questionnaires and successfully collected data from 406 firms. In particular, the questionnaire was divided into four sections. The first section contained information regarding the age, size and industry of the firm while the second section included innovation profile. The third section included information regarding the exporting activities of SMEs and the final section collected information regarding the owner characteristics. The questionnaire has been sent to two exporting and two non-exporting firms for their feedback, amendments were made before the final distribution to increase the reliability of data gathered.

3.2 The Variables

3.2.1 Dependent variable

The dependent variable is firm growth. Different tools are used to capture growth in firms. They are divided into subjective and objective indicators. The formal indicator identifies the individual's satisfaction as growth outcome which might cause bias; while the latter uses the financial and non-financial indicators. The financial indicators include sales, profit and market share while the non-financial indicator includes employment size (Bridges et al., 2003; Delmar et al., 2003). Although, many authors use the financial indicators to measure firm growth, non-financial indicators were recommended and are commonly used such as employment growth for the ease of collection and reliability (McKelvie and Wiklund, 2010; Blackburn et al., 2009).

3.2.2 Independent variables

Exporting activity: this indicates whether a firm has exported during the considered period and is measured as those firms selling their products or services overseas. If the firm is exporting it takes a value 1 and 0 otherwise.

Innovation activity: in this study innovation is defined following the OECD definitions as those firms providing product, process and marketing innovations. We build a dummy variable by using two dichotomous variables that assume a value of 1 if the firm has produced the corresponding output of innovation and 0 otherwise.

3.2.3 Control variables

Two sets control variables are included, all of which have been shown by previous research (Obeng et al., 2014; Storey, 1994; Barkham et al., 1996) to be able to examine the effect of export and innovation activities on firm growth. Those variables include firm characteristics such as firm age, size and industry and owner characteristics such as owner age, education and experience.

3.2.4 Description of variables

Table 1 presents the description of each variable used in the regression analyses.

Variable Name	Description
<i>Dependent variable</i>	
Growth Rate	Measured as a relative growth. A transformation for the percentage was made using the logarithms 'Ln' to avoid any problem with heteroscedasticity.
<i>Independent variables</i>	
Exporting	Exporting Firms: 1=yes, 0=no
Innovation	Innovating Firms: 1=yes, 0=no
<i>Control variables</i>	
Firm Characteristics	
Firm Age	Firm Age: 1= 5years and less; 2= 6-10 years; 3=11-22 years
Firm Size	Firm Size:1=small (5-14 employees); 2= medium (15-50 employees)
Firm Industry	Firm Industry : 1= low-tech industries (agriculture, furniture, textile/ garment/leather and food sectors) ; 2= high-tech industries (engineering/ electronic/electric, pharmaceuticals/ cosmetics); 3= other (construction/ alloy/ ceramic/ others)
Owner Characteristics	
Owner Age	Owner Age: 1= young (19-29); 2=middle (30-49); 3= old (50+ years)
Owner Education	Owner Education (1=no/min education (secondary/high school education or none); 2= Diploma/institute (diploma, vocational training/institute); 3= higher (university/ postgraduate degree)
Owner Experience	Owner Experience: 0= less than 5 years; 1= 5 years and more.

Table 1: Description of variables

3.2.5 Model

To estimate the empirical evidence of this study, we use the multiple regression analyses presented as follows:

$$\text{Growth} = \beta_0 + \beta_1 \text{Exporting} + \beta_2 \text{Innovation} + \beta_3 \text{Firm characteristics} + \beta_4 \text{Owner characteristics} + \varepsilon$$

In which Growth is measured as a relative growth, the Firm characteristics vector includes (firms size, age and industry), Owner characteristics vector includes (owner age, education and experience) and ε is the error term.

4. Results

To meet the research objective, the analyses used the multiple regression to test the effect of innovation and exporting on firm growth. Table 2 shows the results of the multiple regression models with exporting and innovation activities as independent variables while firm and owner characteristics as control variables. The dependent variable is Growth. Six models are presented to develop the research model. The first model examined the effect of firm characteristics on firm growth while the second model examined the effect of owner characteristics on firm growth. However, in model 3, both the firm and owner characteristics were examined and the improvement in the model is recorded. On the other hand, model 4 includes our research variable, exporting, to the set of control variables to examine its effect on firm growth. Model 5, includes the innovation variable and finally model 6 integrated exporting and innovation activities variables to the model and improvement in the model was identified.

Variable / Model	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
<i>Firm Characteristics</i>						
Firm Age (Young)	0.05		0.051	0.06*	0.07**	0.078**
Firm Age (Middle)	0.09**		0.08**	0.071**	0.093**	0.08**
Firm Size (small)	-0.04		-0.042	-0.016	-0.034	-0.009
Firm Industry (low-tech)	0.07**		0.071**	0.028	0.039	0.000
Firm Industry (high-tech)	0.14***		0.099**	0.049	0.036	-0.007
<i>Owner Characteristics</i>						
Owner Age (young)		0.034	0.027	0.058	0.021	0.05
Owner Age (middle)		0.043**	0.027	0.055	0.042*	0.067**
Owner Education (high)		0.072**	0.037	-0.02**	0.14	-0.039
Owner Education (medium)		-0.045	-0.046	-0.071**	-0.025	-0.05*
Owner experience		0.014	0.010	0.016	-0.009	-0.002
Exporting Activities				0.14***		0.131***
Innovation Activities					0.0171***	0.165***
N	406	406	406	406	406	406
R-square	9.1%	6.7%	11.4%	19%	23.9%	30.4%

Level of significance: ***1%, **5%, *10%

Table 2: The Impact of Exporting and Innovation on SMEs Growth

First, we present the background analysis of the firm characteristics in Model (1). The estimates of the regression show that firm age (middle) and industry (low and high-tech) were found to have a significant statistical association with growth in employment. The model was successful in predicting 9.1% of the variance in the dependent variable. The positive association between age (middle) and growth demonstrates that accumulated age contributes to firm growth. In addition to that, both industries have a significant effect on growth. In Model (2), the owner characteristics explained 6.7% of the variability of the dependent variable. It could be

found that the owner age (middle) and education (high) have a significant positive regression weights. The results highlight the importance of education in firm growth. In Model (3), both the firm and owner characteristics are presented in order to test for their impact on firm growth. When adding both sets of variables, it could be found that firm age (middle) and industry (low- and high-tech) remained significant which highlights their importance in firm growth. On the other hand, the owner age (middle) and education (high) were suppressed and became non-significant when adding the firm characteristics to it. From here it could be suggested that the firm characteristics are more important and play an important role in the growth of firms. Firm age becomes more important than the owner age. In terms of the model, it could be found that the $R^2 = .114$, $p < .001$ thus, the model was successful in predicting 11.4% of variability in the dependent variable. In Model (4), exporting activities was added to the model which have a positive significant effect on firm growth at $p < .001$. The model produced $R^2 = .190$, $p < .001$; thus is successful in predicting 19% of the variability in the dependent variable which supports the first hypothesis. Compared to previous models, the exporting has increased the predicting power by around 8% which concludes the importance of exporting in firm growth. However, when exporting was introduced to the model it suppressed the significance of industries. This effect reveals that it does not matter which industry the firm operates in as long as it is exporting. Firms that understand the international market needs are able to provide products that help them to grow. It could be found that those who export are found in all industries and not focused in only one sector.

On the other hand, owner age (young) became significant which reflects the importance of young aged owners in exploring overseas opportunities. These owners are more likely to grow by seeking opportunities and exploring other markets. Their age enables them to be more flexible and market oriented. Moreover, the owner variables 'education' (high and medium) was found to have a negative significant coefficient at the 5% level. Although literature had found a positive impact of education on firm growth, this does not seem to be the case in Egypt. This could be due to the bad education system in Egypt and what is taught in universities is not applicable in real life. Most of the education is related to theories with no case studies and practical work on real life. Therefore, education does not positively impact the growth of firms. Moreover, the education variable (medium) which represents those who have diploma is negatively significant to growth. This rises the recommendation to policy makers that what people are taught are not linked to real life and market needs therefore, hinders their performance. In light with the results, it is suggested to have vocational training centres to improve the performance of owners and workers.

In Model (5), innovation activities was introduced to the model resulting in $R^2 = .239$, $p < .001$. The model was successful in predicting 23.9% of the variability in growth which is considered to be a good result. Thus, the second hypothesis was supported. This means that innovation had improved the model significantly and that innovation is one of the important variables that affect the growth of firms. This result supports the proposed research on the importance of integrating innovation to the growth model. Moreover, Model (6) was successful in predicting 30.4% of the variability in growth which highlights the importance of both variables in firm growth.

In conclusion, exporting and innovation are found to positively significantly affect the growth of firms, it represent around 30.4% of explained variables. Our findings imply that exporting has a much smaller effect of employment growth than innovation and the proposed hypotheses were supported.

5. Discussion and Conclusion

The world economy is changing rapidly and becoming more integrated, barriers to engage in global market are decreasing resulting in the importance of competitive advantage for the survival of firms. As a result, governments and policy makers' role to promote innovation and export in small firms become more vital. In this paper, we attempted to examine the significant effect of exporting and innovation activities on SMEs growth in Egypt. We found that both exporting and innovation activities had positive impact on firm growth, as measured by employment growth which supports the proposed hypotheses. Interestingly, when we regressed the effects of exporting and innovations simultaneously on firm growth, innovation seems to be a more effective growth strategy. The empirical results highlight that the introduction of innovation and engaging in export activities, are an important drivers of Egyptian SMEs growth. The findings confirm results of earlier studies, suggesting that both strategies are important for firm growth. The implication of the findings is that policies to stimulate innovation and export are essential to stimulate growth. Programmes are needed to support innovation activities in small firms and stimulate exporting.

6. Research limitation and direction for further research

One of the limitation of the research is the use of the cross-sectional approach, thus the need to develop a longitudinal study to capture the effect of exporting and innovation on firm growth is required. Although longitudinal methods have their own limitation such as high cost and time consuming, it would be particularly valuable to conduct longitudinal studies to explore firm growth over extended period. Moreover, another limitation was the use of a single measurement to capture the growth of firms, the need to develop multiple measurements for firm growth is needed. However, this is difficult in the Egyptian context as the majority of firms do not disclose such information.

For further research, qualitative studies such as case studies and in-depth interview might be helpful to support the finding from the quantitative approach. The quantitative approach can be limited by the difficulty of data collection thus qualitative approach is utilised to increase understanding in this research area. Furthermore, more studies are needed on the MENA region to understand the determinants of growth in SMEs compared to developed countries such as UK and USA. In addition to that, there is a need to understand and examine informal sectors and compare against formal sectors in Egyptian economy as they constitute a large percentage.

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