



## HOW DOES BUSINESS INCUBATION AFFECT GROWTH OF FIRMS? EVIDENCE FROM ETHIOPIA

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### ABSTRACT

Business incubators are typically considered as providers of resources and services to entrepreneurs so as to promote the creation and growth of ventures. This paper is, therefore, dealing with two difficulties: Does business incubation has an impact on the growth of firms? If it is the case, to what extent does the support given by incubators determine the likelihood of growth of firms? To realize this, a survey data were collected from one hundred thirteen tenant companies. The result of this study shows that there exists a very low, positive but not significant relationship between Business Incubation and growth of firms in Ethiopia. Moreover, the survey result shows that the dimensions of business incubation (physical resource, business support, and networking) do not have a significant impact on the growth of the Ethiopian firms

**KEYWORDS** : Business Incubation, Growth, tenant firms, Ethiopia

### 1. Introduction

Small and Medium sized businesses across Africa face many and varied barriers to their growth and operations. The major barriers are a lack of appropriate infrastructure, lack of appropriate support services and problems related to professional networking (InfoDev, 2009).

According to O'Neal (2005, as cited by Yasin and Ömer, 2013), the success or failure of a new business is often dependent on overcoming these potential barriers. Hence in order to increase the success rate of these enterprises, policymakers concentrated their efforts to make the conditions more conducive for entrepreneurs. To realize this aim various mechanisms have been developed all over the world. Among a broad array of mechanisms, programs, and incentives, Business Incubation programs, which are being applied not only by developing or poor countries but also industrialized countries (Gupta 2004) has been receiving considerable attention from the policy makers (Grimaldia & Grandi 2005). Business incubations have been emerged worldwide as highly successful methods for new business formation, of preventing business failures, and establishing a vibrant entrepreneurship (Bergek & Norrman 2008, Scillitoe & Chakrabarti 2010, Bruneel et al. 2012, Schwartz & Gothner 2009, Aerts et al. 2007, Grimaldia & Grandi 2005, Ratinho et al. 2010) based on the notion that grouping a number of companies in one location, providing them access to infrastructure, business services and sources of capital, under the guidance of an experienced incubator manager will result in the development of successful companies (Infosys, 2015).

Many governments have been devoting a considerable amount of resources to establish and operate business incubators. Local governments and policymakers support business incubation because they assume incubators can generate employment, innovation, and growth by helping new businesses avoid failure (Hackett & Dilts, 2004). Thus, the number of Business Incubators has been rising rapidly around the world as an evidence of the importance attributed to the Business Incubators (Ratinho, 2011; Ratinho & Henriques 2010; EC 2002; Schwartz & Gothner 2009).

Ethiopia, a country that has a greatest need to develop ICT entrepreneurship as well as rectifying the existing weak entrepreneurship culture and climate by solving the tenacious problems of shortage of skilled ICT entrepreneurs had invested a lot of resources in establishing ICT Business Incubation Centers in different places of the country (Infosys, 2015). These Business Incubators are intended to help start-ups and entrepreneurs in ICT related businesses to transform their potentially valuable ideas into

marketable products, applications, and services, so as to contribute to the economic development of the country (EICTDA-ICTAD, 2010). Incubations can have a positive impact on tenant firms' growth and to assure this can also provide a start-up with life support, extending the time to the business. Incubators influence new firms growth by lending credibility through association; through access to professional facilities; offering business support and coaching; investing in a skilled and creative workforce, and using research and university funding, and planning policy, to encourage strong and wide-ranging networks between researchers and businesses that encourage the flow of knowledge and information (Nicola J. et al, 2011).

Moreover, research tends to indicate that business incubators can play a vital role in connecting entrepreneurs - with the three primary categories of stakeholders (investors, key people, and the public) who are linked with the incubators - particularly in helping to raise levels of social capital by plugging them into valuable networks with the three stakeholders which intern can help entrepreneurs to improve their firms' growth (Brock Starnes, 2013). However, there is limited empirical research to help illustrate to what extent the business incubation contribute to the enhancement of firms' growth. Thus, this big deal draws the researchers to find out if the business incubators are really contributing to the growth of their affiliated firms and consequently if the positive impact is there to show the extents to which the business incubators are contributing to the growth of Ethiopian firms.

### 2. Review of Literature

#### 2.1. Business Incubation

The term business incubation gained popularity in the media between 1999 and 2001; but the business incubation model traces its beginnings to the late 1950s in the Batavia Industrial Centre located in Batavia, New York (NBIA, 2009).

The ICT Business Incubation Center in Ethiopia was primarily established in Mekelle in January 2008 with 5 starts - up companies. The experience of Mekelle ICT BIC opened rooms for the renaissance of other three centers in Bahirdar (October 2009), Adama (May 2009) and Hawassa (June 2009). Currently, the government-funded incubators working in Ethiopia are getting diverse to privately funded incubators. As a result, this time more than sixteen BIC (public and private sector operated business incubators) operating at different stages of development exist in Ethiopia geographically scattered in 5 regions and two Administrative states (Addis Ababa City administration and Dire Dawa city council) of the country. Many of these incubators are only recently established moderate toddlers

and they are in planning phases and some of the pioneers are doing well but some are struggling for survival.

It's very important to understand that it's impossible to have one common definition of this concept due to several reasons: (1) it's constantly evolving, (2) different countries, economies and societies understand this concept differently (3) among practitioners and academics there is interchangeability between the terms of business incubation and business incubator, despite the fact that one provides another which creates certain level of incomprehension, (4) depending on the point of view, typologies and taxonomies, goals, expectations the term could be defined in many ways (Vasily, 2012).

The appropriate definition that we have used in this research is derived from the European Commission (EC, 2002). A business incubator is an organization designed to accelerate the growth and success of entrepreneurial companies by providing them with a comprehensive and integrated range of support, including Incubator space, business support services, and clustering and networking opportunities.

### Dimensions of Business Incubation

Business incubation operates along three dimensions: infrastructure, business support and access to networks (e.g. Barrow, 2001; Smilor & Gill, 1986).

#### a. Infrastructure

Infrastructure refers to localities such as office facilities and administrative services (Bollingtoft and Ulhoi, 2005; Chan and Lau, 2005) Business incubators offered affordable office space and shared resources (Barrow, 2001) including reception, clerical services, meeting rooms, conference rooms or car parking (EC, 2002). More specialized resources, such as laboratories and research equipment, can also be placed under infrastructure (Grimaldi & Grandi, 2005).

#### b. Business support service

Business support is associated with those training activities that are undertaken by incubators to help incubatees develop. They typically include entrepreneurial training and business development advice, coaching or mentoring, consultancy and other services concerned with general business and legal matters, marketing issues such as advertising and financial assistance (Bollingtoft and Ulhoi 2005; Chan and Lau 2005; Bergek and Norrman).

#### c. Access to networks

An incubator has a bridging function; an important incubator role consequently is to act as an intermediary or mediator between incubatees and relevant innovation systems (Merrifield 1987; Peters et al. 2004). The Business incubator therefore creates a network of individuals and organizations including the Business incubator manager and staff, Business incubator advisory board, among incubatee companies and employees, local universities and university community members, industry contacts, and professional services providers such as lawyers, accountants, consultants, marketing specialists, venture capitalists, angel investors, and volunteers (Hackett and Dilts 2004b).

### 2.2. Growth of firms

According to Penrose (2006 cited in Hilka, 2016), growth is the product of an internal process in the development of an enterprise and an increase in quality and/or expansion. Growth is defined as a change in size during a determined time span (Dobbs & Hamilton, 2007). According to Janssen (2009a), a company's growth is essentially the result of the expansion of demands for products or services. Achtenhagen et al. (2010) researched entrepreneurs' ideas on growth and listed the following indicators of firms' growth: increase in sales, increase in the number of employees, increase in profit, increase in assets, increase in the firm's value and internal

development. Increase the number of employees also considered as a sign of firm growth by Moses (2015).

### 2.3. Business Incubation and Growth of firms

Historically, the focus of Business incubation was on small businesses that failed rather than those which have thrived. While small businesses have been susceptible to high failure rates, there exists resurgence in the survivability of small businesses. Small businesses are now succeeding at unprecedented rates. One of the reasons for this paradigm shift can be attributed to the advent of business incubators. Business incubators, when adequately utilized, have attributed to managers and owners of small businesses acquiring managerial skills that are necessary for survival in a competitive environment. While all incubator programs have not received the same level of success, business incubators have been instrumental in the continual rising of small businesses survival rates (Wilber and Dixon, 2003).

Choto (2015) argues that the role and objective of business incubators are to promote the creation and growth of the entrepreneurial venture. Business incubators are mostly regarded as providers of resources and services to entrepreneurs, including working, technical expertise, management mentoring, business administration, shared administrative services, networking and access to new markets (Al-Mubarak, & Busler, 2010; Hutabarat, & Pandin, 2014). Business incubators offer targeted business support and technical support services to accelerate the growth of emerging and small start-up business enterprises into financially and operationally independent enterprises (Mukhove and Christian, 2014). Business incubators are therefore considered as a growth engine of the prosperity in both advanced and emerging society for the promotion of small-medium enterprises (SMEs) (Mahmood et al., 2016). A study conducted by Wilber and Dixon (2003) also shows strong evidence of how business incubators are helping firms in fostering their growth.

Many previous researchers have agreed on the positive impact of business incubation in nurturing the growth of firms in both developed and developing countries. As a result, the above theoretical frameworks help us to develop a hypothesis for this research as follows:

Ho: Ha: Business incubation will not significantly explain the variation in the growth of Ethiopian firm.

### 3. Methodology

The independent variable business incubation is measured in this study based on the three dimensions of incubation –appropriate office space and infrastructure service, business support service, and access to networks. The base for the construction of the measuring instrument of the respondent's attitude towards their incubation center is adopted from Totterman and Sten (2005) 9 items and Chow and Chan (2008) 3 items. Moreover, the researchers modified these 12 items and added another 15 items by classifying into office space and infrastructure service, business support service, and access to networks unlike that of the measuring instrument adopted by Totterman, Sten, Chow, and Chan.

The dependent variable in this study is firm growth. The term firm growth is used to refer to various things, such as an increase in total sales volume, increase in production capacity, increase in employment, increase in production volume, increase in the use of raw material and power. These factors indicate growth, but do not provide a specific meaning of growth. Business growth is typically defined and measured using absolute or relative changes in sales, assets, employment, productivity, profits and profit margins (Moses, 2015).

Owner/managers were asked to indicate their perception on whether their firm was a high, medium, low or no growth enterprise. The base for this subjective measure was the growth indicators developed by Lee and Tsang (2001); Zhou and Wit (2009). The

rationalization for the subjective firms' growth measure employed is a lack of data - lack of appropriate record keeping – and for some unavailable of necessary data at the time of the survey and unwilling to disclose the absolute amount of their firms' sales, assets, employment, productivity, profits and profit margins etc.

**4. Results**

**Correlation between Business Incubation and firms' growth**

**Table 1: The relationship between Business Incubation and firms' growth**

		physical	business support	Networking	Overall business incubation	growth
Physical	Correlation Sig. (2-tailed)	1				
business support	Correlation Sig. (2-tailed)	.034 .719	1			
networking	Correlation Sig. (2-tailed)	.109 .250	-.076 .423	1		
Overall business incubation	Correlation Sig. (2-tailed)	.591** .000	.484** .000	.681** .000	1	
Growth	Correlation Sig. (2-tailed)	.105 .270	.060 .529	.034 .721	.044 .643	1

**\*\*.** Correlation is significant at the 0.01 level (2-tailed)

**Source:** Developed for this study, 2017

The table 1 above indicates the Pearson's Product Moment Correlation coefficient for the association between the dimensions of business incubation and growth of firms. Though, a Very low positive relationship was found between the three dimensions of business incubation (physical, business support and networking) and growth of firms ( $r = 0.105, p > 0.01, r = 0.060, p > 0.05; r = 0.034, p > 0.05$  respectively), none of them were statistically significant even at the 95% confidence level. The result on table 1 above further indicates that there is very low positive, but not statistically significant relationship between the overall business incubation and innovation of firms ( $r = 0.044, p > 0.05$ ).

**Regress Growth of Firms on Business Incubation**

**Hypothesis**

Ho: Business incubation will not significantly explain the variation in the growth of Ethiopian firm.

Ha: Business incubation will significantly explain the variation in the growth of Ethiopian firm.

For the purposes of determining the amount to which the three dimensions of business incubation (physical resource, business support, and networking) explain the variance in the growth of firms, multiple regression analysis was performed. The results of the multiple regression analysis, Regress Growth of firms on Business Incubation are presented in Table 2 below. It shows that the multiple correlations between the three dimensions of business incubation (physical resource, business support, and networking) and growth of firms as indicated by multiple R is .124. This result shows as there exist a very low relationship between the dimensions of business incubation and growth of firms. Besides to this, the multiple coefficients of determination which is denoted by R-square ( $R^2 = .015$ ) can be interpreted as the proportion of the variability in the growth of firms (dependent variable) that can be explained by the dimensions of business incubation (independent variables). Hence, when multiplied by 100, it can be interpreted as only 1.5% of the variability in growth of firms is explained by the dimensions of

business incubation (physical resource, business support, and networking). However, 98.5% of the variability in growth of firms is explained by other predictors which are not included in this study.

**Table 2: Regress Growth of Firms on Business Incubation**

Multiple R	.124				
R Square	.015				
Adjusted R square	-.012				
Standard Error	.23297				
Degree of Freedom					
Regression	3				
Residual	109				
F	.564				
Sig	.640				
Variable	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	3.628	.358		10.141	.000
Physical Resource	.090	.082	.105	1.095	.276
Business support	.052	.079	.062	.651	.516
Networking	.011	.062	.018	.186	.853

**Source:** Developed by this Research, 2017

The researchers used F test (test for overall significance) to determine whether a significant relationship exists between the dependent variable (growth of firms) and the set of all the independent variables (physical resource, business support, and networking). Accordingly, the F statistics ( $F = .564, sig = .64$ ) which is not statistically significant shows that, the null hypothesis may be accepted; hence, the dimensions of business incubation (physical resource, business support, and networking) do not have significant impact on the growth of firms even at the 95% confidence interval. The unstandardized regression coefficients between the focal independent variables (dimensions of business incubation) and the dependent variable (growth of firms) are explained in the form of the following equation.

$$\text{Growth of firms} = 3.628 + .090 (\text{physical resource}) + .052 (\text{business support}) + .011 (\text{networking})$$

The equation indicates that:

- .090 units is an estimate of the expected increase in growth of firms corresponding to an increase of one unit in the physical resource when all other independent variables are held constant.
- .052 units is an estimate of the expected increase in growth of firms corresponding to an increase of one unit in the business support when all other independent variables are held constant.
- .011 units is an estimate of the expected increase in growth of firms corresponding to an increase of one unit in the networking when all other independent variables are held constant.
- 3.628 is the intercept term- it can be interpreted as the average value of growth of firms when the stated independent variables (dimensions of business incubation: physical resource, business support, and networking) are set equal to zero.

As indicated in table 2 above, the highest Beta-value was computed for variable physical resource (0.090), followed by the Beta-value calculated for business support (0.052), while the lowest value was obtained for networking (0.011). The t-test (a test for individual

significance) is used to determine whether each of the individual independent variables is significant or not. A separate t-test is conducted for each of the independent variables (physical resource, business support, and networking) in the model. Accordingly, none of the independent variables are statistically significant at the 95% confidence interval.

## 5. Conclusion

This study examined the relationship between business incubation and growth and also the extent to which the supports given by incubator centers to their affiliated firms accelerate the growth of firms in Ethiopia. The result of the study indicates that none of the dimensions of business incubation (physical resource, business support, and networking) has a significant relationship with growth. Consequently, there exist a very low positive, but not statistically significant relationship between the overall business incubation and growth of firms. Moreover, the dimensions of business incubation (physical resource, business support, and networking) failed to show significant impact on the growth of firms.

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