

An Empirical Study of Technology Business Incubation on Economic Growth of Pakistan

Dr. Ijaz A. Qureshi^{1*} Sara Qaisar² Dr. Mike Whitty³

1. Professor and Dean, Faculty of Management Sciences, University of Lahore, 56400, Pakistan
2. MS Scholar, Department of Technology Management, International Islamic University Islamabad, Pakistan
3. Professor of Business and Technology, College of Business, University of San Francisco, California

Abstract

Technology Business Incubators (TBIs) are seen as a mechanism that could create supportive and entrepreneurial environments for technology-based start-ups, helping them to increase their survival rates. TBIs are designed to offer start-ups the technological support and services and a solution in bridging the knowledge gap to help them develop their own viable businesses, by providing are source-based necessary for supporting their development in early and critical stage. Many TBIs have been established in hoping to promote national economic growth. To promote the success of TBIs in emerging markets, it is therefore important for the incubator management team or policy makers to understand the necessary resource required to support the development of their start-ups in order to help them to become viable businesses. The purpose of this paper is to determine enabling factors influencing the success of technology business incubators (TBIs) with respect to existing and acquired resources, and describe how these enabling factors have been implemented in practice to increase the economic growth of Pakistan.

Keywords: Technology, business Incubators, Entrepreneurship, Innovation

1. Introduction

Technology business incubators contribute and encourage in innovation. It seeks to integrate technology, skills, knowledge and resources to speed up the development of business, to improve entrepreneurial talent and thus accelerate the commercialization of technology (Hackett & Dilts, 2004). Technology business incubators aim is to provide a promotion of technology based business, innovation is brought to the market creating new products and services for the technology industry (Audretsch, 2007; Ratinho et al. 2009). Business incubators are the tool for the entrepreneurs to provide the facilities to achieve business opportunities. Most researchers agree that business incubation program provide intensive support to the new ventures or start-up companies and also provides assistance to start and accelerate their development; it is an economic and social program (Udell, 1990). The main goal of business incubators is to establish successful start-up ventures by given that financial support and self-supporting services. Therefore, business incubators helps in commercialization of new technologies and reduce the unemployment rate, helps in technology transfer and increase the growth of economies by creating wealth. (Al-Mubarak & Busler, 2013). In recent years the increasing interest of business incubators has been growing as a tool to prevent business failures, to promote creation of new business and establish effective entrepreneurship sector in developing and less developing countries. (Aerts et al. 2007, Bruneel et al. 2012, Bergek & Norrman 2008, Schwartz & Gothner 2009, Allen & Rahman 1985, Scillitoe & Chakrabarti 2010). Entrepreneurship is defined as a concept of creative destruction involving carrying out new products and services in to the market, the discovery of new markets and resources, new methods for foundation of new industrial organization (Schumpeter, 1950; Schumpeter, 1934). Entrepreneurship is the new methods of bringing and transfer the knowledge in to the markets (Audretsch & Keilbach, 2007). The entrepreneurship process is defined as the creation of new venture by entrepreneur that depends on the identification and evaluation of the opportunity, determination and management of resources. Business Incubators are defined as by facilitating and supporting the entrepreneur to influence their business opportunities. The concept of innovation in entrepreneurship has been broadly recognized as a source of business success and played an important role in economic development (Gribaldi & Grandi 2005). A wide collection of tools have been promoted for innovative entrepreneurship. These tools integrate the business incubators and enterprise support systems for promotion of economic development in developing and less developing countries (Ratinho et al. 2010). The importance of business incubators is to support entrepreneurs during new start-up period that reduce the failure rate of new start-up by providing the guidance throughout the entrepreneurship process (Pease & Rowe, 2003). With respect to this, business incubator plans gives upper advantages to the entrepreneurs for the assurance of value creation and success of new business (Peter et al., 2004) According to economic research, developing countries make up of 92% of businesses is just because of small and medium enterprises and hiring 80% of workforce. Therefore there is significant need for the development of business leaders, entrepreneurs and visionaries to attain maintainable economic evolution and progression (Pease & Rowe, 2003).

In Pakistan, incubators are practically applied only in hospital but now the tendency of change supports the development of incubators for providing tools and means for the success of business. A technology

business incubator is platform that offers wide range of business services, space, technology, and financial support to the new and emerging firms. These wide range of services are under one umbrella program that is designed to enhance the success of new enterprise and growth rates of entrepreneurship have a positive effects on economic growth. (Duff, 1998). Entrepreneurship plays an important role in reduction of poverty, creation of new start up and employment opportunities (Stokes & Wilson 2010). It is improving the well-being of the society and general living standards that will help in increasing the economic development. Pakistan government has lack of this strategy; government policies are not good for business incubators to achieve maximum benefits. Therefore, for the development and accomplishment of competitive environment, it is important to established successful technology business incubators at the national regional and international levels. This study aim at addressing the following questions the effect of technology business incubators on economic growth and how business incubator designed to enhance the success and growth rates of new enterprises.

2. Technology Business Incubators

For the development of Commercialization and for the increase in employment rate the incubation model has been an asset for the community (Berger, 1999). For this reasons technology business incubators provide a platform to the new young entrepreneurs to grow and survive with the new technological innovation and business services (Campbell, 1989; Petree & Petkov, 1997) such as

- Technology Business Incubators provide office equipment's, space on affordable price as compared to market price for this reasons technology business incubators carefully selecting the firms after ensuring their market growth and impact with innovation (Veruma).
- Technology Business Incubators offers the monetary services in the form of financial resources with the help of companies and capitalist (Von, 2003), they will provide the services of training, presentation skills which helps to attract customers and investors (Al-Mubarak & Busler, 2011), assistance, research and development and enterprise counselling.
- During the beginning of the business, risk level high and sustainability level is low, for that reason incubation offers financial assistance till the financial sustainability to the newly enterprises to survive into the market.

2.1 Types of Business Incubators in Pakistan

There are three types of business incubators in Pakistan

2.1.1 University Based Incubators (UBIs)

Through Innovative research and technology transfer Universities and Research Centres in Pakistan make a significant contribution to the national economies (Chiesa & Piccaluga, 2000; Schutte, 1999). Some universities based incubators are working in Pakistan that provides the support to the young entrepreneurs and the student and bring the innovation in the industries. Incubators in universities functioning in the same way as the other incubator are working but universities based incubators provide the unique characteristics like reduction in the unemployment rate by providing the opportunities to the students and facilitate the private sectors (Mian, 1996). In developing countries, universities have their own business incubators to facilitate their students while providing the skills, training and help for starting the new businesses and technology transfer. But university incubators centre provide benefits in terms of enhancement of research skills of faculty members and synchronization with the industry so that students can get employment opportunities (Huffman & Quigley, 2002). University Incubator Centres are considered to be the prime factor for the economic growth of developing economies (Miner et al., 2001).

2.1.2 Technology Business Incubators (TBIs)

Technology Business incubators deliver the technology, training, knowledge of entrepreneurial practices and resources to speed up the development of business and accelerate the commercialization of technology (Hackett & Dilts, 2004). It stimulates the innovation by creating the new products and services, providing the platform for the technology based businesses (Ratinho et al., 2009; Audretsch, 2007).

2.1.3 Industrial Business Incubators (IBIs)

Industrial Business Incubators are the initial platform for the new ventures for its creation. Its main aim is the emergence of industrial era at different levels and no limitation with respect to procedures. In Pakistan there are industrial incubators that are under the control of Governments, their main aim is to provide the knowledge to Government about the industries that which industry need financial resources, which need economic development and how to solve the industries problems.

2.2 Business Incubators in Pakistan

As there are several business incubators in Pakistan, some of the well-established business incubators are

- Institute of Business Administration, Sukkar
- University of Agriculture, Faisalabad

- Quaid-e-Azam, University, Islamabad
- University of Engineering & Technology, Peshawar
- LUMS Centre for Entrepreneurship, Lahore
- Comsats Institutes of Information Technology, Islamabad
- Plan 9 Technology Incubator, Lahore
- Institute of Space Technology, Islamabad
- NUST, Islamabad
- Small & Medium Enterprise Development Authority, Lahore
- National Industrial Parks Development & Management Company, Karachi
- PCSIR Laboratories Complex, Karachi

2.3 Value-added contributions in the Technology Entrepreneurship

Technology Business incubators provide services and facilities to the new start-ups in order to reduce initial cost. Technology Business Incubators offers office equipment's, space on affordable price as compared to market price for this reasons business incubators carefully selecting the firms after ensuring their market growth and impact with innovation (Al-Mubarak & Wong, 2011). Office equipment's usually charged at low cost as compared to market price and these incubators are flexible in terms of leasing. As with the services related facilities like conference and meeting rooms, security and other services which are not affordable for new start-ups that will help in reduce cost and save time for entrepreneurs for immediate start-up. In this way it will add value in the technology entrepreneurship by direct and indirect support to the new businesses.

2.4 Technology Business Incubators and Economic Development

The technology business incubation involves the business strategic policy that is implemented by policy makers to ensure the development of economic growth. Development of economy is dependent on the creation of new ventures. Over the past decades, technology business incubators have played a major role in the development of economy and attract many research studies in developing and developed countries. Many successful technology business incubator in different countries provide a supportive environment for the potential growth of economy and creation of new ventures and give access to the wide range of resources and services to the new entrepreneurs. Technology Business Incubator services are divided into four type such as (Al-Mubarak & Busler, 2013)

- Creation of new ventures, consultancy and business planning
- Consultancy in business development and growth
- Provide Financial Assistance
- Training and Networking (InfoDev, 2009).

Technology Business incubators have a significant effect on the economic development by using the technology transfer initiatives (Pappas, 2003) and research innovation techniques within the country.

Incubation platform is the most important and energetic platform that support the new commercial businesses and helps in their development. Most of the new business start-ups failed because of lack of resources and skills. Incubation program guide entrepreneurs and provide the financial assistance to the new businesses to reduce the failure rate that has a significant effect on the economic growth (Pappas, 2003).

Moreover technology business incubators offers hands on training, management practices, technical skills and experience of business strategies for critical thinking and business success.

Technology business incubators establishment depends on different objectives, according to the Lalkaka (2002) objectives includes the acceleration of new businesses, empowerment, creation of new employment opportunities and models for entrepreneurial culture.

The most important role in economic growth of any country depend on the government policies. If government initiate business incubators to promote technological entrepreneurship in the country that will help in the economic growth (Al-Mubarak & Busler, 2011). Government policies are different for different regions, communities, development for the entire nation or to enhance the growth of specific region. Technology Business incubators mostly maintain local and state economic development (Wagner, 2006).

One of the world larges leading organization that provide support of technology business incubator and entrepreneurship is The National Business Incubator Association that ensure the implementation of economic development and growth programs (NBIA, 2006). Professional entrepreneurs of NBIA with the skills and knowledge, education, resource mobilization strategies to help in start-up the new ventures in an effective and efficient manner (InfoDev., 2009). The NBIA association escalates that technology business incubator is the most operative tool for entrepreneurship that accelerates the economic development across the world (Molnar et. al., 1997). Technology business incubators increase the entrepreneurship level in to the market that lead to the job creation and total number of jobs creation effect on the economic development (Al-Mubarak & Busler,

2013). According to the Sherman and Chappell (1998), Technology business incubator is a tool of economic development. The NBIA in 2007 devises that business incubators strengthen the communities and national economies (Al-Mubarak. et. al., 2010). Business incubators creates a link between the entrepreneurs and the technology that commercialize the product and services (Smilor & Gill, 1986)

2.5 Essential Needs of Technology Business Incubators in Pakistan

Essential requirements of technology business incubators are necessary that will helps business incubators to contribute in promoting entrepreneurship development and technological innovation (Lalkaka, 2006) lead towards economic growth of Pakistan.

- Insufficient numbers of business incubators in Pakistan, such numbers of business incubator cannot contribute into the economic development of Pakistan (Nasir et al., 2015).
- All business incubators in Pakistan is under the control of the government, therefore lack of private sector participation in the development of business incubators. There is need to launch private business incubators to establish private sector industries.
- All operational business incubators are weak in management. They operate as a part time which is unhealthy for the incubation system. There should a manager that manages all activities on time to achieve the long term success.
- In Pakistan all business incubators operates under the government. But government policies are inadequate that are unable to provide financing, infrastructure and facilities to the incubators. There should be refinement of government policies.
- Unclear objective criteria for the selection of the tenant. Some companies which have been selected by business incubators is just because of the political association. No proper procedure is to be followed by business incubators that have ultimate negative effect on the success of business.

2.6 Theoretical Framework

2.6.1 Impact of Business Incubators on Economic Growth

Business incubators programs helps to promote job creation, increase wealth and support different economies (Peters, Rice, & Sundararajan, 2004). According to the National Business Incubation Association (NBIA), entrepreneurs promote their ideas into sustainable business by taking supports from the business incubation program. These programs support entrepreneurs by guiding them, by providing financial assistance, networks, tools and training to grow their businesses till sustainable condition (Ratinho et al., 2009).

2.6.2 Incubators Tenants

Business Incubator is the main instrument in the creation of new enterprises and contributes in the high tech start-ups (Lalkaka, 2006). Business incubators tenants contribute in economic development of a country through job creation, establishment of industry structure, job employment and technology transfer initiative owned by universities, industries and government. In knowledge based economies business incubator is the key factor in internationally comparative advantage in industry (Al-Mubarak. et. al., 2010).

2.6.3 Technology Commercialization

Technology commercialization is the process to convert the knowledge into product and services. Commercialization is the most effective way to transfer the technologies. Commercialization success is depends on the four factors, technology development, financial development, Market development, Regulatory clearance (Hackett & Dilts, 2004). Business incubators programs support the new commercialization application and their development that will ultimately effects the economic growth. Business incubators creates a strong link between the entrepreneurs and the technology that commercialize the product and services (Smilor & Gill, 1986)

2.6.4 Government Policies

Government policies played a major role in the development of technology entrepreneurship and business incubators (Al-Mubarak & Busler, 2013). The most important role in economic growth of any country depend on the government policies. There is a strong relationship between government policies and economic growth. If government initiate business incubators to promote technological entrepreneurship in the country that will help in the economic growth (Al-Mubarak & Busler, 2011). Government policies are different for different regions, communities, development for the entire nation or to enhance the growth of specific region.

2.6.5 Stages of Business Incubation

There are four stages of business incubation

- Pre Incubator Phase:
 - Pre Incubator phase includes all the activities related to the development of business idea, business model and business plan to support entrepreneurs (Al-Mubarak, H. & Busler, M. 2013).
- Incubator Phase
 - Incubator Phase Includes all the activities related to the entrepreneurship supported by incubators, new

start-up companies that promotes entrepreneurship and job creation through the development of entrepreneurship (Al-Mubarak, H. & Busler, M. 2013)..

- Post incubator Phase
 - Post incubator Phase includes all the activities related to the graduate companies after getting sustainable growth with the help of business incubators and job creation through the development of graduate companies. Business incubators reduce the unemployment rate (Audretsch, 2007).
- Extension Phase
 - Phase includes all the activities related to the company that reached the maturity phase. Maturity phase is defined as the company is enough mature to walk on its own feet (Al-Mubarak, H. & Busler, M. 2013). It leave the hands of incubators. Activities related to the entrepreneurship, graduate companies and job creation analysed in this phase. All these factors lead towards the development of economic growth.

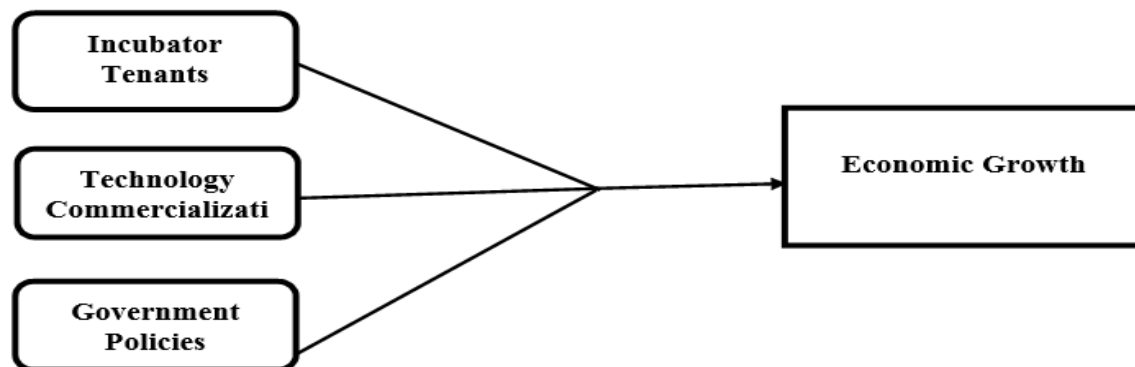


Figure 1: A Conceptual Model of Technology Business Incubation

3. Methodology

This research is based on the secondary data taken from the previous studies literature that is used to find out the impact of business incubator on economic growth of Pakistan. Secondary data is based on the work that is already done in the previous researches (Bishop, 2007). Several previous studies literature find out the relationship among the business incubators and its effect on the economic growth is very strong and positively link to each other. Research proves that Economic Growth is totally dependent on the three variables listed as Government Policies, Technology Commercialization and Incubator Tenants. Government policies create an environment for businesses to start and grow, technology commercialization helps the businesses generate revenue from the inventions and incubator tenant comes up with state of the art products that is taken to the end users and is the cause of all wealth generation process.

4. Conclusion

Business incubators are the tool for the entrepreneurs to provide the facilities to achieve business opportunities. Most researchers agree that business incubation program provide intensive support to the new ventures or start-up companies and also provide assistance to start and accelerate their development; it is an economic and social program. A technology business incubator contributes and encourages in innovation. It seeks to integrate technology, skills, knowledge and resources to speed up the development of business, to improve entrepreneurial talent and thus accelerate the commercialization of technology. Entrepreneurship plays an important role in reduction of poverty, creation of new start up and employment opportunities. It is improving the general living standards and well-being of the society that will help in increasing the economic development. This strategy should apply by the government for attaining sustainable economic growth and development. It is also important for the development and achievement of competitive economies in the national and international levels. The most important role in economic growth of any country depends on the government policies. Government should provide the facilities, infrastructure to the business incubators to increase the entrepreneurship level. Business incubator is the most effective tool for entrepreneurship that facilitates the economic development across the world. Business incubators increase the entrepreneurship level in to the market that lead to the job creation and total number of jobs creation effect on the economic development.

This paper define the business incubator initiative to support the entrepreneurs to ensure the creation of jobs, reduce the employment rate and explore the employment opportunities and the end result is to build the wealth and add value creation. Business Incubators initiatives support the commercialization of technology transfer. Commercialization of technology transfer initiative supports the economic development. Business incubators include the universities, industries and technology incubators provide the entrepreneurs financial services and all other necessary requirements for start up the new business. In context to the Pakistan, there are

less numbers of business incubators and all are functioning under the government and government is not providing the facilities and infrastructure, management of these business incubators are weak, no criteria for selection of tenants and no private sectors incubators are functioning in the Pakistan. These all factors weaken the strength of the business incubators and cause zero effects on the growth of Pakistan. Therefore, to increase the economic growth of Pakistan, all these factors should be removed to gain the benefits from business incubators. That will ultimately increase the entrepreneurship in Pakistan.

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