International Journal of u- and e- Service, Science and Technology
Vol.9, No. 11 (2016), pp.143-152
http://dx.doi.org/10.14257/ijunesst.2016.9.11.13

The Role of University-Based Incubators in Developing Economies: Empirical Evidence from Pakistan

Nasir Mahmood[1*], Cai Jianfeng[1], Hina Munir[1], Farhan Jamil[2] and Anum Nusrat[1]

[1]*School of Management, Northwestern Polytechnical University, Xi'an, 710072 Shannxi, P.R. China*
[2]*Department of Management, Universiti Teknologi Malaysia, 81310, Malaysia*
[*]*nasirmahmood@mail.nwpu.edu.cn*

Abstract

Business incubators are an attractive tool for the economic development and support to nascent business in critical stages of their business life cycle. UBIs have a main featured to facilitate business tangible & intangible services such as access to research labs, office and network pool of different firms to build up nascent business. The aim of this paper, define the important role of UBIs have ability to support developing economies by providing talent from inside the university. UBIs also generate new resources and opportunities for innovation of products, creation of employment and leadership that play a key role in developing economies. In this paper the questionnaire survey used to know about the detailed information about the UBI. The results of this study give help to decision makers in university, industry and government for the growth of economy.

Keywords*: University business incubators, nascent business, entrepreneurship, developing economies, economic development*

Introduction

Business incubators are platforms which provide prolific environments for new startups organization that would be take part in the country economic system (Bosma *et. al.,* 2008; Isenberg, 2010). In eco system business incubators use as a value added programme which enhance the ability of its tenants to survive and growing business. The term value added refers to the major groups: technical, business and social inputs. Business incubators develop complex networks with wide range of actors that renders financial, human and social capital. These networks of incubator subsequently add value by developing institutionalized structure for transfer of knowledge and resource that help to the new startups (Hansen *et. al.*, 2000, N Mahmood *et. al.*, 2015). Most of business incubators around the globe are working on nonprofit basis to overcome the failure of new business. Most of nonprofit business incubators known as University Business Incubators (hereafter called UBIs); those provide a unique opportunity to new startups to provide resources and facilities that are available inside university. The UBIs designed an innovation system that provides assistance to entrepreneurs especially field of technology. Business incubators are usually incorporated with the anticipation of economic growth of a particular area, however, they can only contributes toward the economic development of a particular areas if they become successful to provide essential supports for the starts up of new firm. UBIs have always been a source of promotion of technology, business, economic and social prospects in their respective areas. University business incubators are playing his role to support the economy by creating jobs & wealth. In many

[*]Corresponding Author

ISSN: 2005-4246 IJUNESST

developing countries especially Pakistan rapid progress in UBIs to support the economic system by using new technology introduced by university. The study audits the extent literature examine the important role that UBIs can play in developing economies. It also distinguishes major research agenda/trends in developing economies and discusses implications for policy makers. The objective of this study is to gauge the importance of UBIs in perspective of developing countries.

Business Incubators and Economic Development

Business incubators are the setups which continuously and actively support the establishment of the new firms. Different government have been vigorously supporting these incubators for the prosperity of economic sector in past. (Jamil,F 2015,Adkins, 2002; EC2002). BIs provide support to newly established firms and companies in the form of immense services such as infrastructure, business support and networks (NBIA2007, UKBI2007). NBIA define business incubation as follows:

> *"Business incubation is a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by incubator management and offered both in the business incubator and through its network of contacts. A business incubator's main goal is to produce successful firms that will leave the program financially viable and freestanding."*

Now a days, it is assessed that there are approximately 7000 incubators all over world, Out of these, approximately 1600 are in North America (1250 in United States, 191 in Mexico and 120 in Canada), 1000 in Europe (including 470 in Germany), 700 in China, 400 in Brazil, 355 in Korea, 265 in Japan, and 220 in UK. The other is in different parts of the world, improving at rate of 30%. Approximately fifty percent are in the developed countries, mainly in the USA, Canada and Western Europe, and other fifty percent are in the developing countries mainly in China, South Korea and India. However, the growth rate in the developed countries is 10% and 50% for the developing countries (NBIA, 2014, N,Mahmood 2015, Lalkaka, 2004). It is also revealed that university incubators represent 30% of the all incubators with the figure of 1500 on the globe.

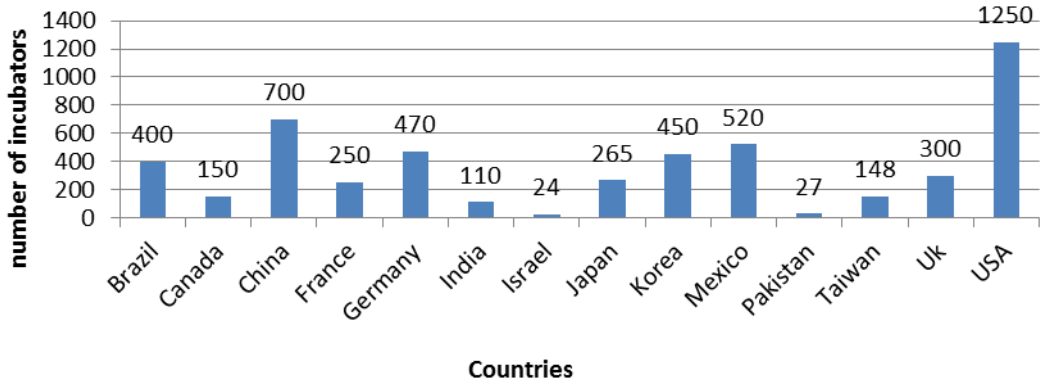

Figure 1.

Despite the these extraordinary figures, certain questions prevail among the scholars and practitioners about the contribution of incubators in general and university incubators in particulars,

- Technology transfer and commercialization
- Regional economic development.

Commercialization is a structural process to transform the knowledge into commodities, services and institutes by having competitive advantage to attain the regional economic growth (Mueller2005). Researchers and scholars have a point of view

that the incubators influence and gear up the commercialization. (Al-Mubaraki and Busler, 2010; Chandra *et. al.*, 2012; Tamásy, 2007) in the form of spin offs (Lee and Osteryoung, 2004; Mian, 1996; Palumbo and Dominici, 2013). OECD (2010) also furnished the argument that involvement of university and industry to increase from the platform of incubators.

According to P.A. Abetti, it is not appropriate to transform technology in the form of reports and papers. The best way to transfer technology is the personal interaction. Modern means of communication have reduced difference and communication barriers; however, it is more effective to have a personal contact between parties concerns, before, positive learning on modern communication (F,Jamil 2015). Similarly, it is quite obvious that in the history of science of technology practical precede the theory. Similarly in the case of embodied technology is easer to transfer than disembodied technology. It can also be referred that tacit knowledge and disembodied technology in the form of patents, technical reports posses less productive information as compared to products in the form of commercial products and operating process.

Role of University-Based Incubators in Developing Economies

Prime goal of universities is education; they can still make a substantial contribution to local, regional & national economies through innovative research & technology transfer to industry [V,Chiesa& A.Piccaluga 2000, A.Verga 1999, F.Schutte,1999]. There are certain universities based incubators functioning within Pakistan; these incubators support their students & industries with new innovations. Incubators operating in the universities have the same operational mechanism like other common incubators but at the same moment they also have certain unique traits like; employment opportunities for their own students, facilitation to private sectors & regular monitoring till firm graduation [S.Mian, 1996]. Normally in Developed countries most of the universities have their own business incubators and provide necessary help to students starting technology transfer and new ventures .On the other hand, Universities have another prime function to perform which is about the synchronization of industry with education sector so that their faculty can have better research facilities and student can get appropriate employment opportunities [D.huffman& J.M Quigley,2002]. Moreover, UBIs helps industries to introduce new products but they also decrease the level other associated risk factors. It is important to note that university incubators have become more popular in a short span of time. Hence universities have become an integral part of the incubators functioning. Incubators services help the universities research achievement commercialization and the entrepreneurial firm establishment; it is considered prime force for the economic progress of the developed and developing economies of the world [AS Miner, DT Eesely and M.DeVaughan, 2000]. UBIs are actually cultivating the seeds of economic development, employment opportunities, modern technology, innovation and the enhancement of the profit and investment opportunities. University business incubators are formulated for the purpose of support of newly established business enterprises same like the other conventional incubators. However, the prime function of the UBIs is to materialize the scientific and technological knowledge from universities to business enterprises (Grimaldi & Grandi, 2005.In addition to this, university based incubators also try to commercialize the research conducted in universities. Furthermore, universities posses the expensive resources which are not accessible to small business and enterprises. Similarly, universities based incubators keeps the technolog, capital, and primary knowledge about business which can be exploited by newly established business for their rapid growth. In such scenarios, newly established business learns new knowledge and absorptive capacity. Consequently, they overcome the emerging challenges of newness and smallness.

UBIs renders two kinds of services to their client's one is incubation related and second is university related (Mian, 1996). Universities provide values by offering

combined services like common office, photocopies and reception services to clients. Clients also give importance to rent breaks and business advice provided by Universities. Among the university-related service, student employees, consultant facilities, library /library information database, labs/networks and complex equipment and technology sharing programmes are used more by clients and perceived an additional values to their partnerships. For the purpose of study, we can take the example of Pakistan, which is considered a developing economy. The incubation process is at it beginning stage but fastly growing.

Survey of Business Incubators in Pakistan

A survey of university business incubators in Pakistan was undertaken with a view to ascertaining the performance and service of UBIs. The information and data collected from field survey provided the background material for the research findings & recommendation in this study. In undertaking the survey the methodology adopted included a combination of the following:

I. Physical inspection of sites and facilities to observe the status of each incubator on the ground.

II. Structured questionnaire with the incubators managers of the centres to obtain information on all areas of interest to the study

The survey revealed that there are at present major fifteen business incubators operating in Pakistan. The detailed information of these UBIs is summarized in Table I.

Table 1.

University	Location	University	location
University of Agriculture	Faisalabad	COMSATS	Islamabad
University of Engineering & technology	Lahore	Malakinda University	Swat
University of Veterinary and Animal Sciences	Lahore	Quaid I azam University	Islamabad
Lahore university of management sciences	Lahore	Punjab University	Lahore
Institute of Business Administration, sukkar	Sukkar	Institute of space & technology	Islamabad
University of Engineering & Technology	Peshawar	University of Karachi	Karachi
Institute of Business Administration,	Karachi	Government college university Faisalabad	Faisalabad
National university of science & technology	Islamabad		

Source: NBIA & HEC

Basic Information About UBIs

Variable	Frequency	Percentage (%)
Area size of incubator		
1000-2000	6	40.0
2001-3000	4	26.7
3001-4000	0	0
4001-5000	5	33.3
5001 or above	0	0
Total	15	100
BGI 1.1		
1-20	9	60
21-40	3	20
N/A	3	20
TOTAL	15	100
BGI 1.2		
1-9	13	86.7
10-19	2	13.3
Total	15	100
BGI 1.3		
1-20	8	53.3
21-40	3	20.0
N/A	4	26.7
Total	15	100.0
BGI 1.4		
1-9	9	60
10-19	6	40
Total	15	100.0
BGI 1.4A		
1-9	9	60
10-19	6	40
Total	15	100.0
BGI 1.5		
Yes	3	20
No	12	80
Total	15	100.0
BGI 1.5a		
6-10	3	20
N/A	12	80
Total	15	100.0

The analysis in this section is related to the basic data providing information about the number of University business incubators assisted since operation started by UBIs.

In the above table the first section describes the area size of the incubator which shows that most of the incubator has area size in 1000-2000 categories as it shows the highest percentage which is 40. The second section BG1.1 is about the businesses incubator assisted since it started business and from the above result it can be concluded from the above percentage that most of the incubator assisted 1-20 businesses as Figure 2, also explained it. Section BGI 1.2 describes how many firms subsequently went out from the incubator and the above result shows mostly 1-9 firms subsequently went out of the incubator. Section BGI 1.3 is about how many firms graduated from the incubator since it

started its business and from the above percentage 53.3% it is clear that most of the graduated firms in the incubator are in 1-20 categories which is also clear from the Figure 3. BGI 1.4 question is about how many tenant businesses is the incubator currently assisted and the above percentage shows that mostly lies in the category 1-9 which shows highest percentage which is 60 %. BGI 1.4A shows the outreach clients outside the facility from the incubator 1-9 outreach clients are outside from the incubator and its percentage is 60%. BGI 1.5 is about the incubator to reach the break- even point and the result 80% shows that most of the incubator purpose is not to reach break -even point Figure 4, explained this as well.

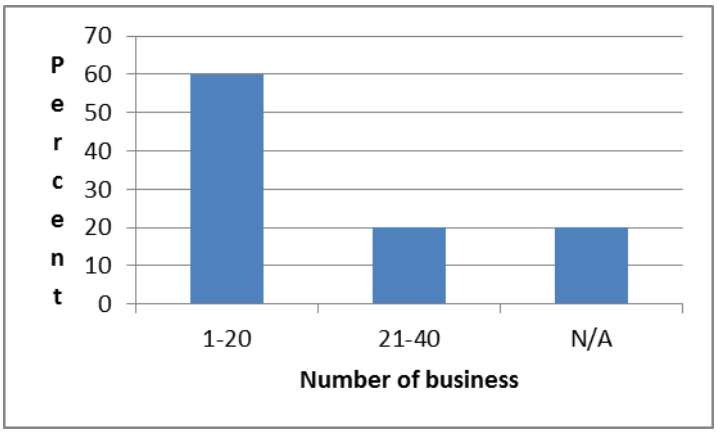

Figure 2.

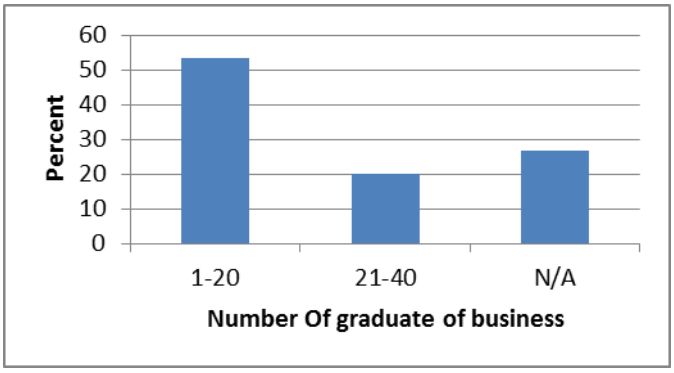

Figure 3.

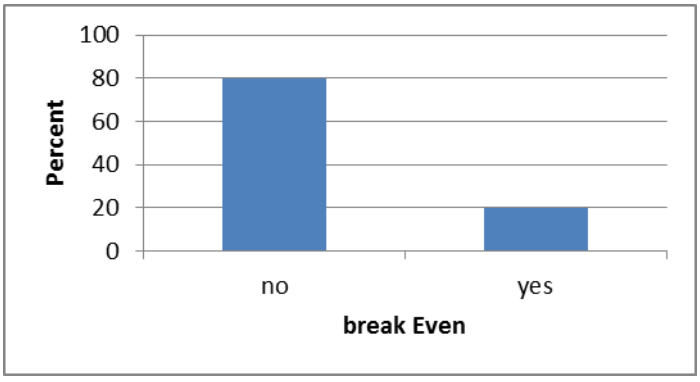

Figure 4.

Need Assessment of Business Incubators in Pakistan

Based on the survey of University business incubators in Pakistan as highlighted above and on the structured questionnaire used with the key stakeholders interested in the programme, a number of needs have to be addressed urgently before the incubators can contributes towards the desired impact in promoting entrepreneurship development and technological innovation.

Inadequacy of Numbers

The first and most important observation is about the insufficient number of university business incubators in Pakistan. However, such a limited number of incubators are unable to meet the requirement for small and medium scale entrepreneurs. Therefore, it is important to establish more incubators in Pakistan.

Improper Government Policies and Inadequate Funding of the Incubators Programs

In the last two decades government policies have been a major cause of inadequate number of business incubators along with poor financing. Similarly, no concrete steps were taken to establish industrial incubators for SMEs, with the supporting infrastructure and facilities.

Failure to Set Challenging, but Attainable Goals

Clarity of objectives is the prime goal for success of business incubator in future, similarly, feasible plans with limited recourses ranging from three to five years seems to be good. Such planning should be backed with the proper project studies, balance operational and implementation strategies with evaluation process. Additionally, all spheres of government should work together to implement the plans. It means that three spheres of government local, provincial and federal governments should work hard to attain the level of success and prosperity.

Policy Issues and Recommendations

Linkage with Industrial Estates

Physical location has a significant effect on the development of incubator. Incubator centers should be established near or within industrial estate/ universities to reduce the start-up cost.

Management Team of Incubators

According to [Grimaldi & Grandi, 2005] private incubators management team invests from their own pocket to establish new ventures and then focus all their struggles to make it successful whereas public incubators management acts as intermediaries. In addition it should be kept in mind that key to success of the incubator is the incubator manager. Manager will be responsible for its day to day management, long-term development & viability.

Admission and Exit of Tenant Firms

Incubator must lay down selection process through which it evaluates recommends and selects tenant firms [Allen & Rahaman 1985, Smilor 1987b]. Different types of incubators have different purposes. Normally private incubators emphasize on investment potential, real estate development and technology transfer while pub; like incubator facilitate job creation and economic development. Exit criteria are not as complicated as entry criteria. Successful tenants move from the incubator itself.

Conclusion

We have rendered an overview of university based incubation system and how they are playing role in the development of developing economies The above brief study clearly reflects that the business incubation system that there are numerous opportunities for the university based incubation system in innovation,employment opportunities and consequent economic growth. So, exploitation of appropriate areas and products with the perspective socio economic perspective has prime importance while considering about the university based business incubators. Hence, upcoming research in the future can consider areas of high productivity and can easily point out the areas of high productivity among countries.

Acknowledgement

The authors are thankful to Northwestern Polytechnical University, NPU, Xi'an, and National Natural Science Foundation of China under Grant No. 2014JM9368.

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