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*QUAERE*

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# ACADEMIC BUSINESS INCUBATORS AS TOOLS SUPPORTING ECONOMIC GROWTH – THE EXAMPLE OF POLAND

*Bartłomiej Krzeczewski*

## Abstract

The main aim of this essay is to present academic business incubators as tools supporting economic growth. There are presented: short history, general idea and some classifications of business incubators. Moreover, there are mentioned problems with measurement of economic growth and the role of universities in the area of business incubation process. In the essay there are used such analytical methods as trend analysis and Pearson's correlation coefficient calculations. It is proven on the example of Poland that academic business incubators can be portrayed as successful tools supporting economic growth. The tools that can combine traditional role of universities with revisionist one and that can be used to bridge the gap eliminating social and economical exclusion and disparities. That is why they should be taken into consideration as useful tools by every government.

Key words: business incubators, economic growth, academic business incubators

## 1 INTRODUCTION

The role of universities in the 21st century is very complicated. Some believe that universities should be portrayed as a gatekeeper of knowledge whereas others think that these institutions should give their graduates necessary skills, experiences and knowledge which can be applied in social life and work. So, there is a question who is right and which way should be taken to achieve economic growth? Or maybe is it possible to combine these two contradictory points of view for the highest benefits?

In the essay there is discussed the important and complicated role of universities in 21st century. There is shown that it is possible and desired to combine the traditional role of universities with the revisionist one. Academic Business Incubators (ABI), which are becoming more and more popular, seem to be good tools used for linking these two contradictory visions in the case of such institutions as universities. What is more ABI are very important tools as far as financing innovations is considered. They allow students, graduates, scholars and also some other participants to test their business ideas and create their very first business projects which can be really important for economic growth.

The main aim of the essay is to present academic business incubators as successful tools that can have significant contribution to economic growth and reducing the level of social and economical exclusion. The tools that are innovative examples of how to bridge the gap and eliminate disparities in societies and also how to combine academic knowledge with business practice. In the essay there are presented trend analysis as far as ABI in Poland are considered. There is shown the impact of Polish academic business incubators on significant macroeconomic indicators which are the best measures of economic growth and development. The example of Poland can show other countries that it is worth to organize and use such tools as academic business incubators.

## 2 BUSINESS INCUBATORS – GENERAL IDEA AND SHORT HISTORY

The history of concept of business incubation dates back mainly to the 1970's. At first technology industries were the most popular ones in the area of business incubating process.



The concept emerged in the US and Europe. Since then it has become really popular all around the world as a modern business model in variety of industries (Suk and Moewoon, 2006). Today in North America we can find more than 1.400 incubators – 1.115 in the US itself (Moraru and Rusei, 2012) – whereas in Europe there are over 1.000 business incubators (European Commission, 2002; Matusiak, 2010).

Analyzing the topic it is good at first to find out what this concept really mean. One of the very first definitions of business incubator says it is “a place where are concentrated in a limited space newly created companies. Its objective is to increase the chances of development and survival of these firms by providing a modular building that is equipped with the necessary utilities (telephone, fax, computer) and where it is provided managerial and services support. The main aim is to develop the local area and create new jobs” (European Commission, 2002: 4-5). Most definitions are relatively similar to the presented one. However, sometimes definitions describing business incubation stress out that this is a dynamic process of development of a particular entrepreneurship. What is more sometimes there is also stressed out the role of business incubators as generators of jobs and wealth (European Commission, 2002).

Business incubators are created to support small and medium enterprises (SME) at the very first phases of their activity. Starting new business is a difficult time for entrepreneur (Robinson and Stubberud, 2009) as pure desire to start new business is not enough for the company to survive. Very important factors underlying business development are also knowledge and adequate preparation. Also extremely important for the SME companies are costs connected with high prices of production and office space (Moraru and Rusei, 2012). Such costs are particularly severe in these initial phases when companies do not get enough money from their revenues. Business incubators supply new entrepreneurs with necessary amount of advisory services and release newly opened companies from many charges – quite often including taxes and social provisions.

It is worth in here to indicate that it is really profitable to support small and medium enterprises from the point of view of the whole economy as they are said to be the driving force of economic growth and overall economy (Mikołajczyk and Krawczyk, 2007; Tamowicz, 2004). Business incubators can be really helpful in the initial process of starting up new SME companies (Robinson and Stubberud, 2009).

There are at least a few classifications of business incubators. The incubators can be divided according to the institution that is responsible for financing their activity and according to physical existence. In the first case there can be distinguished incubators financed by the state (i.e. state universities, ministries) and by private sector (i.e. private universities, associations). In the second case there can be distinguished virtual (supporting tenant companies only via Internet) and physically existing incubators. Business incubators can be also divided due to the area of their activity (Moraru and Rusei, 2012):

- Traditional business incubators – focused on helping in developing process of companies that might notice a change of production technologies in a short period of time.
- Technological business incubators – aimed at supporting companies that want to produce products or services connected with scientific research.
- Cultural business incubators – aimed at supporting some kinds of cultural activities.
- Social incubators – focused on helping companies engaged in social projects.

- Business incubators in agriculture – aimed at supporting companies operating in agriculture sector.

### 3 THE ROLE OF UNIVERSITIES IN THE AREA OF BUSINESS INCUBATION PROCESS

Universities play worldwide crucial and very important role as operators and promoters of business incubators. Some say that this role is irreplaceable. It is because of universities' functions. As far as traditional functions are considered universities are responsible for teaching, training and R&D processes. So, it gives them very good position to transfer the knowledge and new technologies which is necessary for business incubation process. In this way universities can fulfil their modern role. What is more universities, thanks to their teaching skills, are able to help in training the personnel involved in incubators (Marques, 2009).

The role of universities is very important especially in the light of becoming more and more popular phenomenon of knowledge-based economy which consists of adequate human capital, system of innovations, proper technology, law and system of institutions (Piech, 2009). Generally the process of introducing innovations is a factor responsible for successful knowledge-based economy. This process is mainly dependent on human capital and academic skills (Kasperkiewicz, 2008). Knowledge-based economy is a characteristic feature of most developed countries (OECD, 2008). Universities and research institutes can be an extra source of innovations (Skórska, 2012) especially in the context of such a model of economy.

Academic background can be portrayed as desired environment for incubating process especially because of the fact that universities are continuously developing resources of knowledge and are trying to spread them. The role of universities is not only to teach future personnel but also to develop creativeness in students preparing them for making an effort to create innovative entrepreneurship (Cieřlik, J., Matusiak, K. B., Guliński, J., Skala – Poźniak, A., 2011). That is why academic business incubators are crucial elements in the new model of entrepreneur universities (Matusiak, 2010), which mean universities which are able to combine the traditional role of academic institution with the revisionist one.

However, sometimes the process of preparing universities for this responsible role is not so easy. It is because of traditions and old, inadequate rules of management ever present at universities. That is why it is so important to change attitude of academic authorities towards changes in worldwide economies that are happening now. Nowadays academic environment should pay more attention to take much more care of integration with business practice and economy (Cieřlik, J., Matusiak, K. B., Guliński, J., Skala – Poźniak, A., 2011). Of course in this process universities should not forget about their main, traditional functions like conducting researches and analyzing the results, which is really helpful while building up modern and valuable knowledge (Bokros, 2010).

### 4 ACADEMIC BUSINESS INCUBATORS IN POLAND

Despite the fact that academic business incubators have been operating in Poland for some time their history is relatively short. The exact model of the ABI activity is still under construction. The very first trials to start the ABI institution on Polish market were introduced in 1998, however, the wider interest in the area appeared in 2004. It was due to the cyclical competition called “Akademickie Inkubatory Przedsiębiorczości” (English: “Academic Business Incubators”) organised by the Ministry of Economy and Work. For now the ABI in Poland can be divided into three main categories (Matusiak, 2010):

- ABI ran by foundation called “Fundacja Akademickie Inkubatory Przedsiębiorczości”.
- ABI operating as a part of public universities.
- ABI (responsible for the process of pre-incubation) operating as a part of academic technology parks or different students’ organizations.

The first group is the most significant one. The mentioned foundation signs contracts for operating incubators with academic institutions in Poland. The incubation process lasts until the tenant company achieve maturity but it cannot take longer than 3 years. It is worth to add that the company has to pay fixed part of the profits to the foundation for some time after leaving the ABI. In the second group there can be found incubators which are very often strictly connected with academic centers for technology transfer and careers’ offices. As the main drawback of academic business incubators of this kind there is mentioned academic bureaucracy which is unfortunately ever present amongst Polish universities. In the case of ABI of the third type tenant companies are in a convenient situation as they might start operating activity in the business incubator and then – when they move on to maturity phase – they can use the potential offered by technology parks.

The structure of Polish business incubators is presented below.

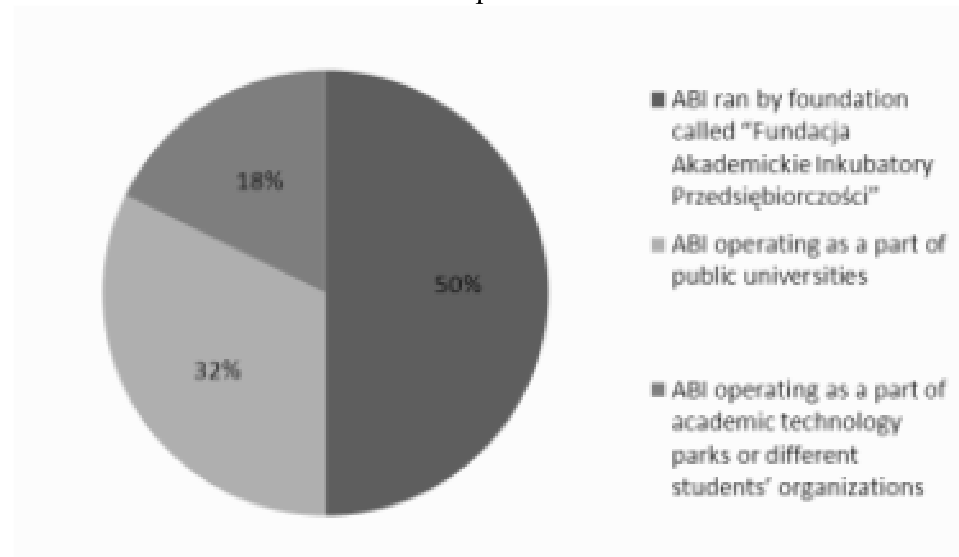


Fig. 1 Structure of ABI in Poland (Own elaboration on the basis of Matusiak, 2010)

Some law regulations introduced by the European Union – applying also to the situation in Poland – are focused on mentioned knowledge-based economy. Enhancing transfer of knowledge from universities to private companies and public institutions is one of the priorities (Kasperkiewicz and Kacprzyk, 2010). Academic business incubators can be really helpful in this matter. Such regulations are introduced mainly to stimulate economic growth and country development.

## 5 PROBLEM OF ECONOMIC GROWTH MEASUREMENT

Keeping economic growth and economic development on desired level is really important as far as situation of every country is considered. For many countries it really difficult now – in the period when economy worldwide has to struggle with the results of economic crisis.

There are many possible ways to measure economic growth and development. This problem is really wide and multidimensional (Piech, 2009). It is worth to add that economic development can be portrayed as a broader concept whereas economic growth as narrower one (Malaga, 2014).

In the context of this essay it is necessary to mention about some problems connected with the measurement of economic growth. Normally it is expressed in categories of growth in yearly production of goods and services in a particular country. The most popular and commonly used measure of economic growth is GDP or GDP per capita. But there is still on-going discussion if this measure is really proper and adequate. There occur some proposals aimed at introducing better measures. For example (Malaga, 2014):

- Green Gross Domestic Product (GGDP) – it measures the impact of economic growth on natural environment.
- Index of Sustainable Economic Welfare (ISEW) – it includes such variables as consumer spending, income distribution, costs of natural environment pollution and also some other economic costs that are normally imperceptible.
- Genuine Progress Indicator (GPI) – it includes both economic and social factors measuring variables from such areas as private consumption, house-works, volunteer works, pollution or criminality.

Sometimes to compare the level of economic growth and development between countries there are also used some other measures including expected life expectancy, illiteracy rate, infant mortality rate, different types of school attendance rate and many others (Piech, 2009). Actually all alternative ways of measurement of economic growth have some drawbacks and that is why they are not fully accepted by everyone (Malaga, 2014). Now it is worth to think what measures should be used as the best ones indicating economic growth in the light of the usage of business incubators. Having in mind general idea and a kind of activity that business incubators offer it seems that good variables presenting their impact on academic growth might be: average salary and unemployment rate – measures indicating the level of wealth in society, number of patent applications per million inhabitants – indicating innovative skills of society – and also mentioned GDP. Underneath there are presented such variables for Poland. What is more they are presented in the context of ABI activity represented by the number of ABI and number of incubated projects.

Tab. 1 Chosen variables from the area of ABI and economic growth measurement (Own elaboration on the basis of: Matusiak, 2010; Eurostat, 2014; Central Statistical Office, 2006, 2008, 2010, 2011; National Bank of Poland, 2014)

Year	Number of ABI	Number of projects incubated in ABIs	GDP (in million \$)	Average salary (\$)	Unemployment rate (%)	Number of patent applications per million inhabitants
2005	18	60	303976.23	735.84	17.8	3,25
2007	49	490	425321.39	972.65	9.6	5,24
2009	51	1632	431091.10	995.75	8.2	6,92
2010	62	2832	469736.81	1069.40	9.6	8

Currency in Poland is Polish zloty, however, some values presented in the foregoing table were calculated into American dollars. It was done with the usage of yearly average currency rates available on the website of the National Bank of Poland.

Due to the fact that history of the analyzed issue in Poland is still pretty short (Matusiak, 2010) it is worth to add in here that from the time series were excluded years 2006 and 2008. It is because data on ABI activity is not gathered on regular yearly basis.

As far as the problem of economic growth in Poland is considered it is necessary to make the remark that Poland belongs to the block of Central and Eastern European (CEE) countries and for a long time because of historical reasons economic growth in here was rather hampered. However, CEE countries could have caught up on the matter especially in the period of transition. Unfortunately worldwide economic crisis that started in 2008 led to slowdown of economic growth pace. The crisis can negatively affect direct foreign investments in the CEE countries and cause problems as far as export activity is considered. All in all it is believed that economic crisis would cause only short and mid-term results and that economy would have chance to bounce up until the year 2030. However, big reforms in the area of academic field are strongly recommended. It is necessary to persuade universities in Poland to get closer to business practice and real sphere of economy (Orłowski, 2010). As it was said earlier academic business incubators seemed to be a perfect tools that can be used as a solution to this problem.

## 6 METHODOLOGY AND RESULTS

It is not easy task to find out the impact of Academic Business Incubators on economic growth. It is especially difficult because of the mentioned problems connected with the measurement of economic growth. In the following analysis there are used variables mentioned earlier in the essay. They are helpful as the measures of effectiveness of the ABI impact on economic growth.

Some dynamic trend analysis in changes of the variables were presented above [Tab. 1]. In here there will be presented the values of Pearson's correlation coefficient between the number of ABI and other mentioned variables. The relations between most variables and economic growth are described above in the essay. However, it is also worth to mention that the number of projects incubated in incubators can have also positive effect on economic growth; as creating new companies have positive impact on for example employment rate and some other measures, too.

Pearson's correlation coefficient show the dependence between analyzed variables. The values of the coefficient are in the range  $<-1,1>$ . The sign indicates direction and the value shows strength of the association between the variables. The closer the coefficient is to either  $-1$  or  $1$ , the stronger linear relationship between the variables is. When the Pearson correlation coefficient is  $+1$  it indicates perfect positive linear relationship, whereas it is  $-1$  it points out a perfect decreasing negative linear relationship (Kader and Franklin, 2008).

In the underneath table there is presented expected sign of coefficient which represents desired direction of variables association. The expected values are then compared with the values achieved.

Tab. 2 Impact of number of ABI on chosen variables (Own elaboration)

Variable	Expected sign of coefficient	Achieved sign of coefficient	Value of coefficient
Number of projects	+	+	0.826858683

incubated in ABIs			
GDP	+	+	0.999549466
Average salary	+	+	0.999513665
Unemployment rate	-	-	0.925328949
Number of patent applications per million inhabitants	+	+	0.942513096

Analyzing the results from the table above it is visible that expected signs of Pearson's correlation coefficient – desired from the point of view of economic growth – are fully correlated with the achieved ones, which is positive situation. Also the values of correlation coefficient are really high. They hesitate more or less between 83 and 100 percent.

Academic business incubators can reduce some social disparities creating new businesses ventures and therefore also new vacancies. The growing number of ABI in Poland has got also positive impact on the growth of salaries. Higher salaries mean the better situation of citizens. What is more the number of academic business incubators is strongly positively correlated with the number of patent applications. Such a fact can lead to new and modern solutions used in business and technology which can also positively influence overall situation of the country. Such results might strongly suggest high effectiveness of Polish ABI when the impact of their growing number on economic growth, measured with proposed standards, is considered.

## 7 CONCLUSIONS

To conclude it is possible to say that academic business incubators are tools that seem to be really effective as far as economic growth is considered. ABI are sometimes even called generators of jobs and wealth. They support the SME companies which can be portrayed as a driving force of economic growth and development.

Their role is becoming more and more important in the light of changes that are necessary to be done in academic area. Transfer of knowledge and technology is emphasized. Such transfer should be done in an innovative way. In the essay there is shown that it is possible and desired to combine the traditional role of universities with the revisionist one and academic business incubators seem to be perfect tools to do so. Allowing students for business practice is extremely important. It can give them necessary practical skills. Such experiences can be beneficial not only for their future careers but also for a whole economy. Starting up new business in a business incubator is much easier and much more comfortable. The growing number of new companies means the higher number of new jobs and vacancies.

The example of Poland show that it is really ,beneficial to create academic business incubators. There are very positive tendencies as far as the influence on economy, measured by correlation coefficient between some variables characterizing economic growth is considered. It should be the topic of the highest priority for every government to analyze the potential pros and cons of ABI institutions. Such tools can be really useful in accelerating economic growth and therefore bridging the gap in societies by reducing the level of social and economical exclusion and disparities.

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