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EVALUATION OF HUMAN RECOURSES IN THE CONTEXT OF KNOWLEDGE ECONOMY

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Abstract

Knowledge undoubtedly makes essential impact to the processes of development. While creating and adapting knowledge new public and economic phenomena are being formed. There are a lot of discussions about coherence between human recourses and knowledge economy. Scientists, politicians, public figures almost unanimously acknowledge that in nowadays the speed of economic growth, social welfare of the people, sustainable economic development is more and more dependent, and will be even more dependent in future from the creation of a new knowledge and its practical appliance in the management of processes.

Human capital plays an important role in economic growth theory, because economic and social development of the state is closely connected with investments into human capital. Formerly economic efficiency was measured only according to the criteria of physical capital. Scientists – economists of latter century pay great attention to the human capital, its importance and necessity to the modern state and economic growth. The scientists propose that the welfare of a state and an individual is impossible without investments into human being. It is even possible to define education as one of the crucial factors of economic growth.

Human capital is a broad concept, which covers plenty of components. But the most important component is description of workforce quality. Any action, that increases the productivity of labour market, may be considered as the investment into human capital.

Whereas great recourses (in the long run) are targeted to the resolution of these questions, in respect of all the parties concerned, the results of such evaluation would enable to balance the policy implemented in the areas of education and rise of qualification. Therefore it is very important to evaluate the efficiency of these investments. But while analyzing, by what means investments into education are evaluated, it is necessary to take into account the social aspects.

Keywords: knowledge economy, human capital/resources, knowledge society.
JEL Classification: I21, I25, J24.

Introduction

Knowledge was always important to the economy, but recently increased demand of the creation, dissemination and usage of knowledge determined that knowledge adaptability in the economy becomes the most important factor of economic growth. Information technologies not only accelerate the dissemination of knowledge but also offer additional opportunities to the management of business and state.

In the knowledge economy, company, which uses knowledge and creates new knowledge, lifelong learning is natural part of business cycle. Knowledge economy may only exist provided that society members learn constantly, show interest in the new created knowledge in the world, and create as well as disseminate new knowledge to others. Lifelong learning is integral part of knowledge company, which not only uses knowledge received from outside, but also transfers it from generation to generation. Consequently we can state that a member of knowledge society is the individual, who seeks the best education, accepts new knowledge, is able to use it in his/her own activities, and doesn't forget to learn all lifelong, therefore under the different circumstances he/she is able to change the speciality and to compete further in the market. Thus while creating knowledge society it is very important to make sure that a person has possibility to get education and constantly improve knowledge and skills. Moreover, it is important to point out that members of knowledge society have to seek to gain not only specific, professional, for their work needed knowledge, but also to spare time for update of knowledge of general character (e.g. history, politics, literature, culture and other news).

Knowledge-based economy – it is a new phenomenon of junction of XX and XXI century, which appeared from the transformations of economy because of changing market situation, changes in human needs, and changes in the character of forces of the development of human capital and production factors. The changes were influenced by technological and social changes, development of innovations, increasing flow in information etc. Because of the innovative applications of information communication and technology, the knowledge instead of the land and capital has become the major driver for a country's competitiveness in the past decades. Notably, after the United States created the longest economic expansion

in the 1990s, called the new economy paradigm, many countries have drafted the various knowledge-based Economy development plans to enhance the country's competitiveness (Chen, 2008). However the new economic phenomenon is still in process of development. Therefore neither its name, nor methods those help to understand its expression or to evaluate its importance, have not been set yet. Frequently such categories as knowledge economy, information society or knowledge society are even identified (Daugėlienė, 2002). Appearance of new phenomena in economy motivates the scientists and practicians to try to evaluate and interpret present situation more precisely, to find the right terms. Scientists and practicians often differently interpret the new stage of economic development. Among the interpretations there are such – new dangerous society (Toffler, 1990), knowledge society (Masuda, 1980, Naisbitt, 1998) etc. Despite different terms, which define the conditions of the rise and existence of contemporary economy, the coming of a new economic paradigm is acknowledged with one voice. Many scientists name it as knowledge-based economy. Sveiby (1999) introduced the conception of knowledge paradigm, when the processes runnig in the economy are evaluated from the perspective of knowledge. The importance of knowledge to the economic development is also analyzed by such scientists as B.A. Lundvall (1999), A. Bardige (1998), M.H. Boisot (1998) and in the works of many others. Other scientists name the new phenomenon as „knowledge economy", where a lot of attention is given to the „learning organization" and human resources. The economic conditions and prospects of economic development in the time of globalization and knowledge based society creation are getting more heavily dependent on the ability to initiate, disseminate and implement innovations in all spheres of life. This factor is of particular importance for the development and expansions of the European Union because activation of innovations is considered to be a significant problem associated with social and economic development and the advance of science and technology in the European Union (Melnikas, 2008).

Economic growth plays the most important role in the macroeconomic theory. In the contemporary knowledge-based economy the general key feature of researches of factors which stimulate economic growth is this that human capital is separated from physical capital. Scientific researches and education acquired by individuals is very significant to the economic growth. All this comprises human capital. This problem is not new. The models of Smith (1776) and Ricardo (1951 – 1973) are different from neoclassical ones. In the knowledge economy, knowledge is treated as a capital, and information as a product. In the contemporary changeable economy it gains the form of value and reflects economic development and competitiveness in the global environment (Rudytė, 2006). Human resources as well as material resources stimulate economic growth. Economic growth is not possible without human resources (Appleton, Teal, 1998). Return of investment into human capital has direct and indirect effect to the economy; therefore evaluation of human resources can be made in micro and macro levels. Human capital or social capital is defined by three main dimensions: trust, social norms and social network (Jankauskas, Šeputienė, 2007).

Many foreign scientists study impact of human capital to the economic growth; their works prove the importance of investments into education, as the factor of rise of economic growth and competitiveness. It is widely argued, that human, not physical capital is the main factor of differences between countries (Gižienė, Vasiliauskaitė, 2007). Accumulative human capital is particularly topical factor of individual incomes and employment perspectives, and is quite important in setting the level and distribution of incomes in the society.

During Lithuania's integration into the European Union, evaluation of human recourses and formation of knowledge society in the context of knowledge economy is becoming one of the most important economic tasks. Consequently, the development of organization and management of human resources and knowledge society formation processes is topical and important *scientific and practical problem*.

Aim of the article: to analyse economic evaluation methods of human resources, particularity of these methods in the context of knowledge economy.

Research object – human recourses in the context of knowledge economy.

Research methods used in the article – systematic analysis and summing-up of scientific literature and statistical data.

Importance of human recourses in the context of knowledge economy

In the today's life, in the century of information and globalization, some of the most widely used terms in the scientific literature are "knowledge and knowledge society", "knowledge management" and the like. Those are the terms, which are bound up with each other and have one uniting feature – knowledge dimension.

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Nowadays specialists, representatives, employees of any area, observing what is going on around them and seeking to compete more effectively, react to arising innovations, examine how do they function, try to use them in their own work. That way they renew their knowledge. However, renewal of knowledge is not everything. Companies seek that their products and services would be more attractive than products and services of their competitors. Therefore the companies attempt to improve or to change their activity to be more superior. Then new technologies are created, discoveries are made – in other words, a new knowledge is created.

The formation of knowledge society covers these main processes:

1) creation of a new knowledge and its use in economic and social life;
2) knowledge acquirement (learning) process;
3) new knowledge dissemination and accessibility process.

Hence we can state, that the speed of economic growth, social welfare of the people, sustainable economic development is more and more dependent from the creation of a new knowledge and its practical appliance, i.e. from the formation of knowledge society. After summing up in the scientific literature presented terms of knowledge society, we can state, that knowledge society – it is a society, that constantly gathers information in all branches of science and industry, later by processing this information constantly learns and creates a new knowledge as well as apply this knowledge in its life and work activity. The main activity area of knowledge society – it is economic activity, therefore by forming knowledge society the main attention is paid to the evolution of knowledge-based economy. In the modern conditions the impact of knowledge to the development processes is very big. While creating and adapting knowledge new public and economic phenomena are being formed. Much attention is given to the reciprocity between human recourses and knowledge-based economy.

Development of knowledge society and competitive economy is closely connected, because the welfare of the people of a state is being achieved by strengthening competitiveness of economy. Therefore, scientific research institutions have closely to collaborate with educational and economic systems (see Figure 1):

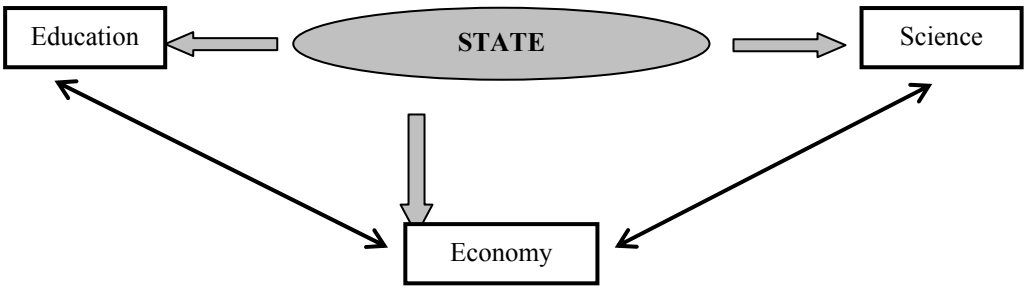

Figure1. Model of interaction system of economy, education and science
Source: concluded on the basis Bakanauskas & other, 2008

1. Interaction between *science and economy* is characterized by this that knowledge given from science is applied in the business companies and helps to solve their problems and to introduce innovations, that way competitiveness of business companies is raised in the market. From the other side, business has to pay back for the knowledge received from science and in this way science is supplied with financial resources for further researches. Consequently, interaction between science and economy strengthens economic competitiveness of state.
2. Interaction between *science and education* is evidenced by this that the results of scientific researches are used in the education system, and the education system prepares scientists by giving them the newest knowledge. Therefore, in the interaction between science and education, society is complemented by competitive scientists.
3. Interaction between *education and economy* is characterized by this that the education system prepares specialists, that business needs. Thus, the result of interaction between education and economy is well prepared specialists, declined unemployment and competitive economy of state (Bakanauskas & other, 2008).

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Only sustainable development of all these systems may warrant the competitiveness of economic, education and science systems, and stimulate inter-collaboration between science and business in the area of knowledge economy.

Attention should be fixed on the fact that in all times the engine of economic growth was knowledge, still not all communities wanted or were able to use it in raising the welfare of the people. In the scientific literature accentuated the main difference between market and knowledge-based economy – is knowledge commercialization. The aims, character and factors stimulating the development of market and knowledge-based economy have similarities and differences, but the main difference – the knowledge application to practice. Transferring from market economy to knowledge-based economy and forming knowledge society in a state, it is not possible to manage without stimulation and support from the state. Often the state stimulates cooperation between science and business institutions for this purpose as well:

- allows to create and use knowledge;
- stimulates investments into human capital;
- stimulates changes in business companies etc.

It is the most efficient to apply all these means together, because it could be that emphasizing only one of them, the desired effect will not be achieved (see Figure 2).

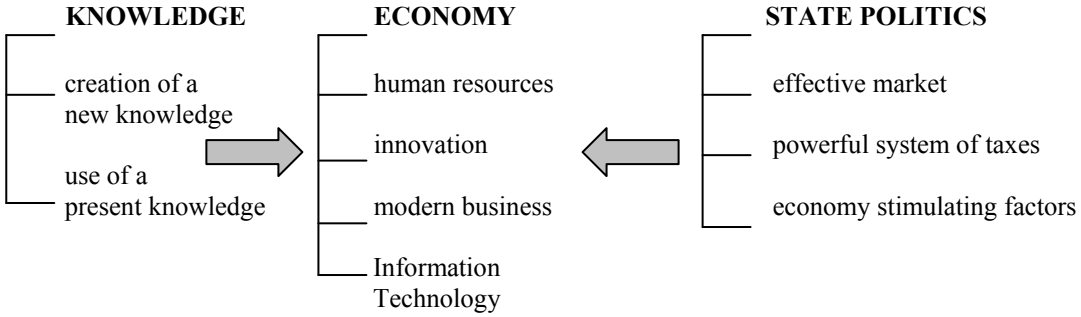

Figure2. The knowledge-based economy means of expression
Source: Karazijienė, Sabonienė, 2010

Hence knowledge-based economy – it is harmonized system of juridical and economic premises, managerial and economic mechanisms, modern technologies and human resources, the system which originates from the progress of market economy and various technologies, especially information technology (Kriščiūnas & Daugėlienė, 2006). Furthermore, transferring from market economy, where the most important macroeconomic indicator – GDP growth and state's financial resources, to the knowledge-based economy , much attention should be given to such problems as demographic situation, accessibility to education, efficiency of social policy, accessibility to information systems and stimulation of innovations.

In the scientific literature three knowledge accumulation levels are distinguished – individual level (micro), companies' level (mezzo) and state's level (macro). Individual knowledge – it is accumulated scientific experience, acquired abilities and intuition. These abilities of individual are valuated as competence, which is applied in work activity and which helps to create companies' knowledge. Later individual and companies' knowledge enlarges and is applied in state management, thus it helps to form state's knowledge. In today's world, the word "competence" is widely used in human resource management. Individual's work results and finally business success depend on his/her knowledge and skills i.e. competence (Savanevičienė, Stukaitė & Šilingienė, 2008). Consequently, we can make the conclusion that the base of utmost is peoples' individual abilities or shorter – human resources. Relevant inhabitants' education, peoples' ability to evaluate promptly the changes, to realize the concept of lifelong learning, good commercial and financial conditions of state enable states to take part in the competitive knowledge-based economy. Therefore further in this article the main attention will be given to the human resources.

J. Mincer, G. Becker and T.W. Schultz are the pioneers of human capital theory. To the most of people the capital means concrete things, such as deposit in bank, shares, bonds, real estate etc. These are different forms of capital that make returns in the long run. Not all forms of capital are tangible. Acquired education, courses taken, rise of qualification, honesty, punctuality, responsibility is a capital as well. An individual, who wants to raise the salary, has to take care of his/her health, to acquire the speciality, to learn during all the period of work life. The economists consider that the costs taken for the acquisition of education, for the

refresher courses, for health etc. are the investments into human capital. The knowledge and abilities acquired by an individual, his/her health can not be separated from his/her financial and physical capital, because it is human capital.

Nowadays, knowledge management is one of the most important component of success in life and qualitative performance of all persons and organizations (Valackienė & Dėmenienė, 2007). Education, lifelong learning, health are very important investments into human capital. The researches, carried out by foreign scientists, show that acquired education contributes to the raise of individual's incomes. The return on investments into human capital is positive even after assessing direct and indirect costs. Incomes of educated individuals are higher than average. Thus economic value is created by the human capital, which is grounded on knowledge and abilities.

One of the main factors, which determine long-term growth of knowledge-based economy, is human resources. Human resources may be regarded as rare resources, because the employees with naturally strong cognitive abilities, which already as a rule are rare, create the biggest value in the organization (Kazlauskaitė, Bučiūnienė, 2008). Additionally, continuous learning is the key competency required by any organization that wants to survive and thrive in the new-knowledge economy. Market champions keep asking learning questions, keep learning how to do things better, and keep spreading that knowledge throughout their organization. Knowledge organizations obtain competitive advantage from continuous learning, both individual and collective (Markovic, 2008). Economic welfare of every country depends from the incomes of its inhabitants, i.e. what are family incomes, what are the priorities of the inhabitants of certain country, as well as from the talents of individuals. Individual's chances to achieve something in life depends from the economic conditions of his/her family. Individuals born in rich families have more opportunities than those born in poor families. The latter ones felt deprivation already in the beginning of their life: worse food, worse medical treatment, unstressed importance of education etc.

Kumpikaitė (2007) states, that training of human resources is one of strategic goals of organization seeking to create the system, which would develop the capacities of employees, in respect of company's requirements and employees' aims. It has to be build the opportunities for an employee to develop his/her competences, ability to adapt to changes, skills and experience, to correct made mistakes. Learning and all knowledge is achieved and possessed by individuals. On the contrary, the use of (productive) knowledge to create values is a collective process. So the primary focus in organizational learning has to be paid on transformation of individual knowledge into information, which could be used by other members of the organization in order to be more productive than they otherwise could be alone (Liepė & Sakalas, 2008). Today organization is the constantly changing, flexible, entrepreneur or similarly titled organization having the peculiar feature – the constant learning in individual, group or organizational level. Constant learning changes not only the enterprise but the employee and the staff as well. The employee should be acknowledged with the philosophical provisions of learning and the enterprise must ensure its staff suitable communication, self-realization and motivation system (Sakalas & Venskus, 2007).

Human capital is very important to the economic growth; therefore evaluating human capital early investments into it have to be evaluated as well. Barro and Lee (2001) begin the evaluation of human capital from the time when an individual starts school.

Evaluation of human resources by income based and cost based measurement methods

The main object of discussion evaluating human capital is how to calculate it, how to measure its value. According to A. Smith, the creation of specialized workforce requires unique input, i.e. education, acquisition of knowledge. This statement about education stimulated to investigate acquired education and its benefit to the economic growth.

It is not possible to take and evaluate human resources directly, because they are not material and tangible. It could be stated that it is not possible to buy knowledge, because it is not being sold, goods and services are being sold. Knowledge, unlike other resources, is inexhaustible worth. Information and knowledge may constantly growth. Excess of knowledge requires the demonstration of competences in the creation of added value in professional activity. Nowadays people receive huge flow of information, evaluating the economic value of human resources, it is important to differentiate what is knowledge and what is simply information. Knowledge is what we can use practically. Knowledge is acquired in the process of learning.

In this article the stress is put upon the human capital with reference to income based and cost based measurement methods. The core of these methods is acquired education, experience, capabilities. Using

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these methods it is possible to measure monetary value of an individual and all general economy of a state, and to compare it with physical capital. Earnings are considered to be human capital, which consists of the competence of an individual to work efficiently and to create a new product (Bowles, 2001). The value of human capital of every individual is calculated as incomes received participating in labour market.

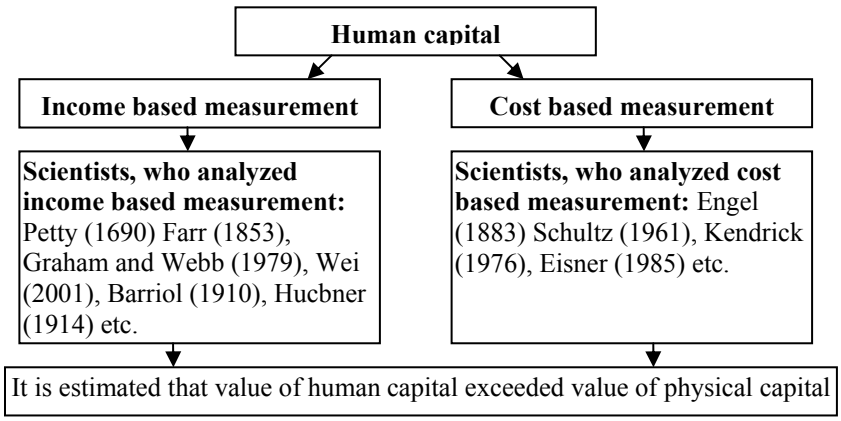

Figure 3. Human capital measurement models
Source: developed by the authors

Cost based measurement method. Engel (1883) was the initiator of this method. The measurement of human capital refers to the calculation of parents' costs, how much do parents invest into their children. According to Engel, the costs devoted to the raising of an individual, are calculated till 25 years, up to the time the individual manages to take care fully of him/herself, becomes employable. Thus investments into an individual are made till 25 years, then x<26.

$$c_i(x) = c_{0i} + c_{0i}\left[x + 1/2 k_i x(x+1)\right] = c_{0i}\left[1 + x + 1/2\, k_i x(x+1)\right] \qquad (1)$$

where:
i = 1,2,3.... class (from the lower, middle and upper class respectively);
c_{0i} – cost at birth;
$c_{0i} + xc_{0i}k_i$ – annual cost of a year;
$k_i = k = 0{,}1$;
x – person age (x<26).

This method does not evaluate money depreciation in time and all other social investments that are invested into an individual.

Income based measurement method. Petty (1690) was the initiator of this method. He measured human capital in England describing it as the difference between national incomes and property (of land and returns), applying 5% interest rate. Petty's method was too simple and imprecise. Kiker (1966) was the first one, who attempted to measure scientifically the value of human capital. He followed the method of Farr (1853): individual's expected future earnings, present earnings, living expenses are measured. The present value of these money flows is calculated. The principal assumption of this model is that the value of human capital for an individual covers all individual's incomes earned in the labour market over lifetime. Dublin and Lotka (1930) devised a formula for estimating human capital of an individual at birth.

$$V_0 = \sum_{x=0}^{\infty} \frac{P_{ox}\left(y_x E_x - c_x\right)}{\left(1+i\right)^x} \qquad (2)$$

where:
i – interest rate;

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V_0 – value of human capital from birth;
x – years;
P_{0x} – probability at birth of an individual surviving to age x;
y_x – annual earnings per individual from age x to x+1;
E_x – annual employment rate at age x;
c_x – the cost of living for an individual from age x to age x+1.

$$C_a = \sum_{x=0}^{a-1} \frac{P_{ax}\left(c_x - y_x E_x\right)}{\left(1+i\right)^{x-a}} \tag{3}$$

C_a – net cost of rearing a person up to age a.

After transforming the formulas (2, 3), we get such simplified formulas:

$$V_a = \frac{\left(1+i\right)^a}{P_{0a}} V_0 + C_a; \tag{4}$$

$$C_a = V_a - \frac{\left(1+i\right)^a}{P_{0a}} V_0 \tag{5}$$

The cost of producing an individual up to age a is equal to the difference between his value at age a and the present value, at age a, of his value at birth, adjusted for his survival probability to age a.

Income based measurement method allows to measure human capital by discounting expected money flows annually and summing them. The value of human capital depends on individual's acquired education, knowledge, abilities, lifelong learning. There is no need to include specially the depreciation into this method, because it is already included in the model. This method allows getting fairly exact results, when it is possible to get the data needed for the calculation. The data from web pages of statistics department are used.

This model has shortcomings as well. It refers to the assumption that differences between earnings directly influence productivity. Income based measurement of human resource depends on discount rate, and also on individuals' retirement age. The comparison of the results, received in different countries, has to be very careful, being confident that the same parameters were used.

Foreign scientists raised the question whether received relief has to be deducted from the incomes (rise of earnings). De Foville (1905), Eisner (1988) criticized income based measurement method for this reason.

The rise of individual's incomes depends on the education, abilities, and acquired experience. Experience is directly connected to individual's age. Graham and Webb (1979) included the economic growth into the measurement of human capital.

$$PV^i_x = \sum_{x=a}^{75} \frac{Y^i_x W^i_x P^i_{xt}\left(1+g^i_k\right)}{\left(1+r^i_k\right)^{x-a}} \tag{6}$$

where:
PV^i_x – present value;
k – year of life;
r – interest rate;
x – individual age;
i – individuals;
Y_x – average earnings at age x;
W_x – employment rate at age x;
g – growth rate in earnings;
a – person age.

Applying this model Graham and Webb (1979) found out that education positively affects individual's earnings, irrespective of individual's age. Despite acquired education the curve of growth of individual's earnings has the form of concave down parabola. In the beginning of individual's employable life the earnings raise, in some period of life they are stable, and later they start to decrease, in the retirement age earnings approach zero (if we presume that an individual doesn't work anymore after retirement).

Subject to the level of acquired education, various utility of human capital is received. For example, the acquirement of Bachelor's degree gives some utility of human capital, Master's degree – different one. Obviously, it is not possible to state it unambiguously, because the utility received, as it was mentioned earlier, is closely connected to individual's ability to adapt in the labour market, his/her capabilities and skills. Calculating the utility of education in different countries, the particularity and economy of a country has to be evaluated. Extra year of studies produces different utility in different countries (Woßmann, 2002). It is also not possible to state unambiguously, that only acquired (formal: university, non-university) education influences the economy. Graduates of universities and colleges are not one hundred percent prepared to participate in the labour market. The employer after accepting new graduate to work, instructs the person, sends to the refresher courses, which provide additional knowledge to occupy particular work position. Lifelong learning, acquired experience also makes impact to the economic growth. J. Mincer proposes that the utility of such lifelong learning makes about 2 per cent of gross domestic product (GDP).

Evaluation of human recourses in Lithuania in the context of knowledge economy

Political, economic and social reforms, that started in Lithuania in the beginning of 1990's, determined changes in all areas of public life, in the sphere of business and paid work as well: the decline of production conditioned the decrease of workers' number and the increase of unemployment level; as the result of the processes of privatisation and economy modernization was the change in the structure of inhabitants' employment, the new personnel groups according to economic status emerged: employers, hiring employees and independent contractors. The demand of the qualified specialists started to grow. In the consequence of changes that occurred, the requirements for employees' qualification and competence changed as well, this motivated persons to make decisions concerning investments into education.

Workforce always was an important integrate part of economic activity, and in future due to proceeding reorganization process, which is strongly effected by globalization, its importance may increase even more. Globalization emphasizes innovations and knowledge, the growth of industry based upon scientific researches; for all this the bigger number of employees, who have more capabilities, is needed. As world practice shows, the value of educated, easy adapting and learning employees is rising up, because the possession of such employees is the key economic advantage of a region. The state has to use effectively the potential of education, intending to warrant economic and social stability (Grundey, Sarvutytė, 2007).

To adjust studied theoretical models, statistical data are needed; therefore statistical data analysis will be done in this article. Human resources are one of the main factors conditioning long-lasting economic growth. The state intending to have growing state economy has to finance scientific researches, education. One of the principal characteristics of comparison is the expression of funding extent in percentage of gross domestic product (GDP). The percentage of GDP per inhabitant characterizes the potential of state economy, and the percentage of GDP allocated to various areas of social, cultural and economic life reflects the priorities of state policy.

As we see in Figure 4, the proportion of expenditure on research and development and GDP rose every year, and this means that Lithuanian government allocated increasingly more funding to science and innovation.

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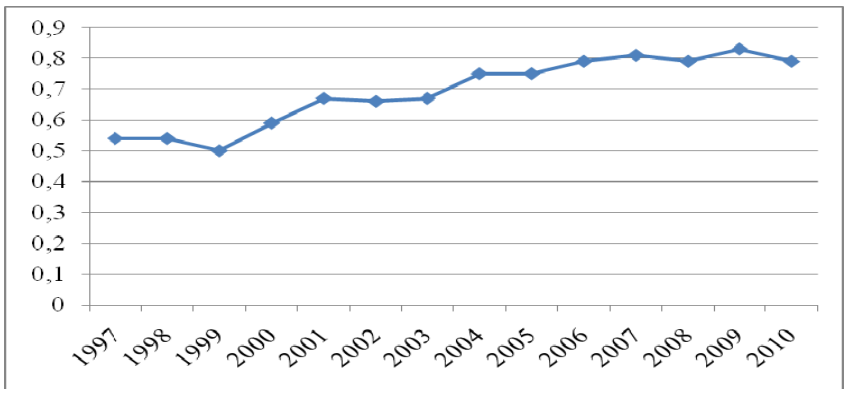

Figure 4. Expenditure on R&D as a percentage of gross domestic product (GDP)
Source: SL Department of Statistics to the Government of the Republic of Lithuania

In Figure 5 we see that funding rose for both basic and applied research and for experimental development as well. From 1997 to 2008 funding allocated to research and development grew 4.09 times. Funding allocated to R&D rose approximately by 17 per cent annually. The economic crisis impacted the reduction of funds (finances) and on 2009 funding allocated to R&D started decrease.

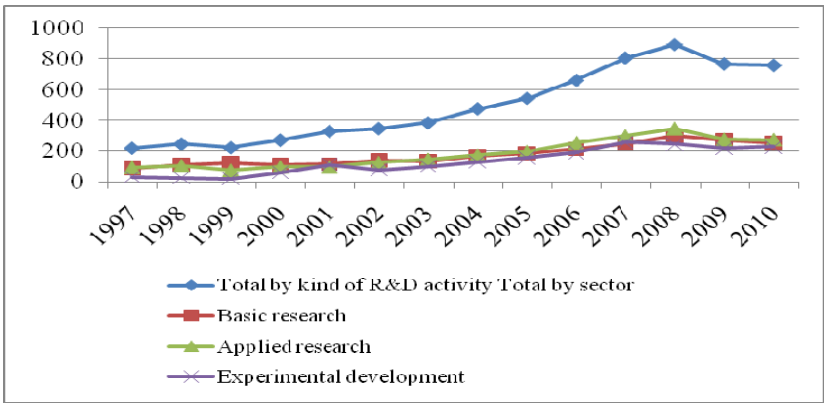

Figure 5. Expenditure on R&D (research and development)
Source: SL Department of Statistics to the Government of the Republic of Lithuania

Turnover of research and development personnel was not very high in 1997 – 2010. The number of personnel of this area changed very little from 1997 to 2001, in 2002 declined, in 2003 personnel number began to grow in comparison to the year 2002. In 2008 the number of research and development personnel was the highest one over all considered years (see Figure 6).

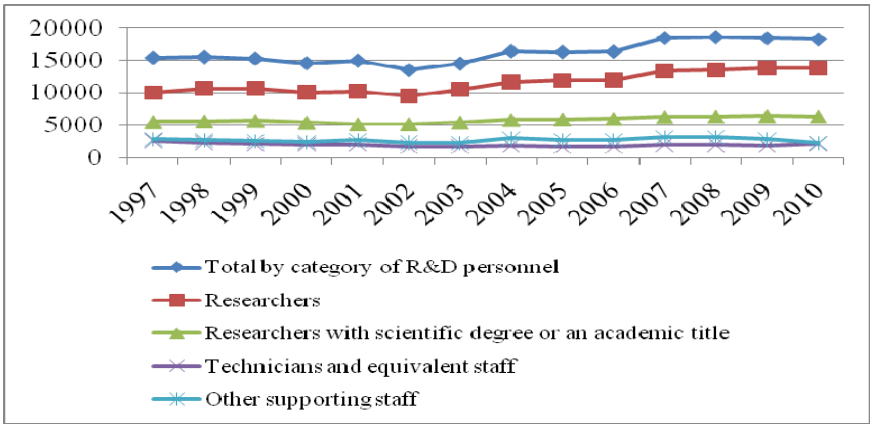

Figure 6. Research and development personnel, in thousands
Source: SL Department of Statistics to the Government of the Republic of Lithuania

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The data presented in Figure 7 and Figure 8 is of earlier years because Department of Statistics Lithuania does not provide the newest data concerning the analyzed issue. Lithuanian state, as we see in Figure 7, allocates increasingly more money both to scientific researches, and to education as well. Comparing the year 2000 to 2008, we see that expenditure on education rose by 117 per cent. Expenditure on education rose gradually.

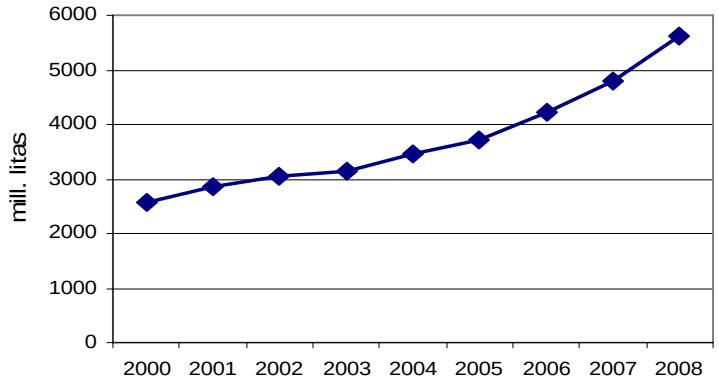

Figure 7. State and municipal budgets expenditure on education, LTL million
Source: SL Department of Statistics to the Government of the Republic of Lithuania

In 2004 – 2008 the highest activity of the population was among individuals aged 24-54, in 2008 it reached 86 per cent. Individuals aged 15-24 are the least active; their activity level was 27.4 per cent in 2008. The individuals, who acquired higher education, form the biggest part of employed population. As it was already written in theoretical researches, success of an individual in labour market is determined not only by acquired education, but also by individual abilities: capabilities, experience, knowledge and ability to adapt it in particular situation.

Having to measure the utility of human capital to the economy, we have to evaluate the increase of earnings depending on acquired education. As we see in Figure 8, the highest level of earnings is paid to individuals with higher education; the lowest level of earnings is paid to individuals with secondary and special secondary education.

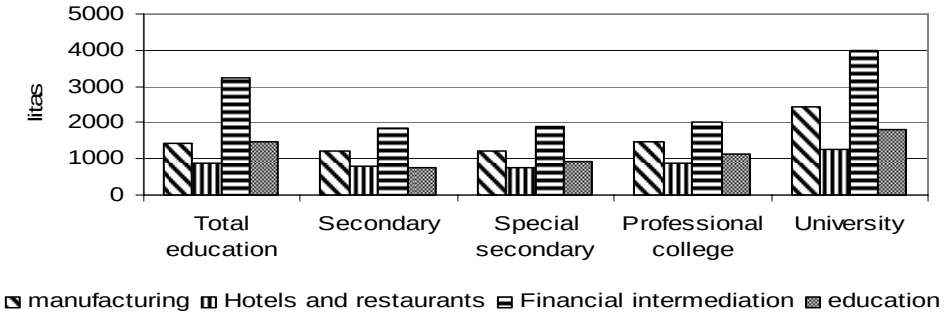

Figure 8. Average gross monthly earnings by education in 2006, LTL
Source: SL Department of Statistics to the Government of the Republic of Lithuania

The difference in earnings of individuals with only secondary education and individuals with higher education is approximately 41 per cent (depending on economic sector). It proves that education provides utility to the individual personally and to the state economy at the same time. Thus summarizing the thoughts laid out above it is possible to state that the key factors enabling to compete in labour market are education, professional qualification, additional professional abilities (good knowledge of foreign languages, computer literacy, entrepreneurial skills, communicativeness, willingness to work). After assessing these factors, it is possible to make a premise that the competitiveness of an individual in labour market and the chance to get a job directly depends on the level of education.

Conclusions

- In the knowledge economy company, which uses knowledge and creates new knowledge in its activity, lifelong learning is natural part of business cycle. Knowledge economy may only exist provided that society members learn constantly, show interest in the new created knowledge in the world, and create as well as disseminate new knowledge to others. Lifelong learning is integral part of knowledge company, which not only uses knowledge received from outside, but also transfers it from generation to generation.
- Education is one of the principal factors of the development of modern knowledge economy. Successful economic development is more and more dependant on future investments into people and the rise and development of intellectual potential. These investments stimulate the growth of labour market as well as economic growth, because the more individuals acquire higher education, the more labour productivity and efficiency rises, technological changes (new technologies) are mastered faster. In the state with higher investment level into human capital, the percentage of gross domestic product per inhabitant grows more intensive.
- After doing statistical analysis, it is possible to state, that the research of efficiency of investments into education is a topical question, because such strong disposition of inhabitants to study will shortly change the structure of labour market – the number of people with higher education will significantly grow, however the number of workplaces will not grow at such rapid rate. Thus potential students will start to motivate their decision to study more by economic reason, not by psychological incentives, such as prestige and self-realization.
- With reference to the performed researches, analyzing the efficiency of investments into education, it is possible to forecast already today, what expectations towards investments into education and earnings individuals have. It is important to investigate, whether education and increase of earnings are interdependent, whether they correlate. Such type researches are relevant in the university as well, while analyzing market, students' attitude towards education, disposition and possibilities to allocate certain part of financial resources to the education.
- The difference in earnings of individuals with only secondary education and individuals with higher education is approximately 41 per cent (depending on economic sector). It proves that education provides utility to the individual personally and to the state economy at the same time.
- During Lithuania's integration into the European Union, evaluation of human recourses and formation of knowledge society in the context of knowledge economy is becoming one of the most important economic tasks. However, the development of knowledge-based economy is not so efficient in Lithuania, in comparison with the old EU member states and USA. There are a lot of bureaucratic constraints, information technologies are used not enough efficiently, not enough of funs are allocated for researches, the potential of human resources is big, but it is used inefficiently, what results in emigration of many specialists to other countries. Consequently, moving towards knowledge-based economy, it is essential to choose properly the means for the realization of human recourses potential in the country.

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