EDUCATION IN ECONOMIC THEORY

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SUMMARY

This paper aims to show the evolution of the role and importance of education in economic theory, especially in theoretical approaches to economic development after World War II. In order to find answers and to present a current issue - why and how certain countries have made progress while others have regressed in the development process, many theories and models explaining processes of growth and development have emerged and developed. By applying the method of analysis, synthesis and comparison, and based on earlier works, classification of theories of development has been made to analyze the evolution process of the role and importance of education in the development process. Presentation of the classification theory refers to: theories of economic development (the classical theory and contemporary models of development and underdevelopment) and theories of interdependence of education and development (theory of human capital, human development and approach to the returns on investment in education).This paper presents the basic settings, ideas and thoughts of the key authors of these theories and models and the role of education and human capital in these theoretical approaches. Research has shown that the analysis of interdependence of education and economic development has been the subject of interest of researchers for many decades and that today, taking into account the high degree of development of theoretical approaches, there is no full commitment to the classic theories nor there is a unified approach to endogenous growth, but an approach that promotes the elements of both, considering education as the key factor of development of the 21st century.

***Key words**: education, development, capital*

***JEL:** I25*

1. INTRODUCTION

The period after the Second World War was a turning point in the assertion of economic development as a separate discipline of economic science. The first modern theories and models were a continuation of classical economic theory, where development was equated with growth and industrialization. Today, the modern conception of economic development gives education a central role and believes that long-term and continuous investment in human capital has positive effects on economic and social development. Two ways of the economic contribution of education have been identified:

- Directly through the improvement of current knowledge and the creation of new knowledge and skills leading to more efficient and effective transfer of knowledge from the educational system to the real economy and society as a whole and
- Indirectly by reducing financial allocations for health, judiciary, social protection, etc.

Based on the above we can conclude that education has an economic and social fun-

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ction. The economic function of education refers to the contribution to economic and social development, and the overall well-being of individuals, while social function is related to creating and maintaining social relations, promotion of social values and individual freedom in society.

The aim of this work is to provide an overview of evolution of the role and importance of education in economic theory, and to analyze the central role of education in the development process today. The role and importance of education will be presented through the theories of economic development and theories of interdependence of education and development.

2. EDUCATION IN ECONOMIC THEORY

Theoretical approaches to the study of development of economics are usually divided into: the theories of economic development (classical theory and contemporary models of development and underdevelopment) and theories of interdependence of education and development (human capital theory, theories of human development and approach to the returns on investment in education).

The classification was made based on the methodology in the following works: Hoff & Stiglitz (1999), Todaro & Smith (2006) and Osmanković & Nikolajev (2010).

Figure 1 shows the classification of theoretical approaches in the study of the role of education in economic development. Theories of economic development have been presented through: the classical theory of economic development and contemporary models of development and underdevelop-ment, while the theories of interdependence of education and development presented by the theory of human capital, approach to human development and approach to the returns on investment in education. The above division is considered to be relevant and is used for the purposes of this research.

2.1. Classical theory of economic development

In the first approach to the classical theories of economic development, growth and development were synonymous, and achieving high economic growth rates also meant economic development.

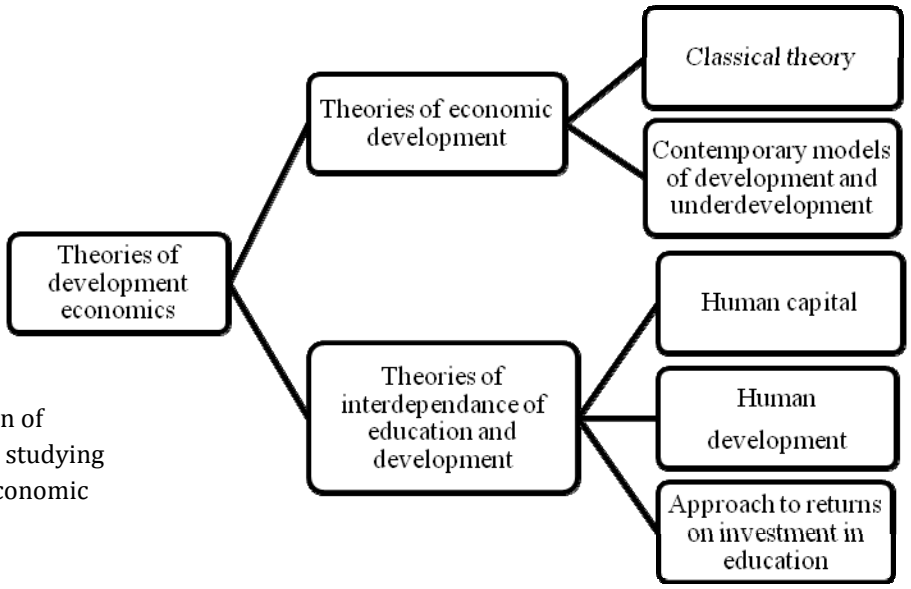

Figure 1: The classification of theoretical approaches in studying the role of education in economic development[1]

However, the development is in contrast to the growth multidimensional process and not solely an economic phenomenon. Particular attention from the very beginning of development of economic theory was given to the role of education, but only from the beginning of the theory of human capital, education was perceived as a development resource. Adam Smith was the first development economists who paid particular attention to education and its position in the socio-political establishment. Since we are talking about a time when development and growth were synonymous, the question of identifying the factors of economic growth was raised. Some of the factors of economic growth are listed below (Samuelson & Nordhaus, 2007:558):

- Human resources (labor supply, education, discipline, motivation),
- Natural resources (land, minerals, fuels, environmental quality),
- Accumulation of capital (machines, factories, roads) and
- Technology (science, engineering, management, entrepreneurship).

In the study of classical theories of economic development, four approaches have been differentiated. Those are: Linear stages of growth model, Theories and Patterns of structural change, International-dependence revolution and Neoclassical, free market counterrevolution. Depending on the dominant approach to development, ways of defining and measuring development and the importance of individual institutions in the theoretical approaches to the study of economic development have changed. Osmanković & Nikolajev (2010:22–51) explain the evolution of theoretical framework for studying development through the development decades of the United Nations as follows:

- Development Decade of the 1950s (industrialization is the driving force of economic development and growth, the industrial sector should have a decisive role in relation to the agricultural sector). Key theories are: Big-push theory, Theory of balanced and unbalanced development and Theory of linear growth stages.
- Development Decade of the 1960s (kept in the center of attention GNP and the importance of industry in relation to agriculture, but on the other hand established the concepts which were based on dualism). Theories and Patterns of structural change were key theories (The Lewis two-sector model and Chenery's Patterns of development).
- Development Decade of the 1970s (the primary development goal should be to increase employment opportunities as well as improving living standards and welfare of all social groups). A significant contribution was given by organizations such as ILO and WB, while the dominant theoretical approach was based on International-dependence revolution.
- Development Decade of the 1980s (orientation towards the outside, through the encouragement of exports and industrialization, strengthening the role of markets and minimizing the role of government in order to achieve competitiveness in developing countries). [2] This decade marked the neoclassical theory and the New growth theory or Endogenous growth.
- Development Decade of the 1990s (active state role in economic development planning). Dominant approaches were:

theory of sustainable development, competitive theories of development and Complete development framework.

- Development Decade of the 21st century (focus on improving the previous concepts). Millennium Development Goals that promote the need for investment in human capital (education and health) are of particular importance.

Linear stages of growth model have appeared during the 1950s and 1960s, when the field of macroeconomics and the analysis of economic growth was getting back to relevance. These theories were explaining the development process as a series of successive phases of economic growth through which all countries must pass. Savings, investment, and foreign assistance are needed to advance in this process. Thus, the development was synonymous with economic growth. Rostow Stages of Growth and Harrod - Domar Model are the most famous representatives of this approach. To invest in the economy, it was necessary to stimulate savings in order to have greater capital accumulation, which led to further increase of GDP. GDP growth would again lead to higher savings and thus the development process continued.

Theories and Patterns of structural change is an approach that developed parallel with the theory of International-dependence revolution in the 1970s. This approach is using modern economic theory and statistical analysis in an attempt to explain the development process of each country. Arthur Lewis two – sector model and Chenery's Patterns of development are well known representatives of these theories.

Arthur Lewis two – sector model explains the transfer of labor between the two sectors in the economy. Lewis in this model assumes a surplus of labor in the traditional (agricultural) sector, which is transferred (without loss) in the modern (urban) sector.[3] The key to economic growth in Lewis model is the modernization of traditional sector, which then leads to the growth of modern sector, and ultimately restructuring the economy. Savings and higher savings rate in this model are seen as the most important drivers of economic growth. According to Boyd (2007), Lewis has identified three main areas of the causes of economic growth: economic activity - the desire to put an effort in order to increase the effect of efforts or invested resources, increasing knowledge and raising capital.

Hollis B. Chenery's Patterns of development explain the development process as a flow that is very similar in most countries. Given that the growth patterns of other approaches in the classical theory of economic development (approach which is related to the structural changes), economists here emphasize the need for changes in the economic structure of the country or transition from traditional to modern economic system. Models that are preceded Chenery's Patterns of development have not taken into account the fact that each economy is a part of the international system that can both positively and negatively affect economic growth, which was also considered as improvement in economic theory and, at the same time, Chenery's contribution to economic science.

International-dependence revolution theory can be considered as a spin-off of Marxist theory and its basic ideas are still promoted by the supporters of the globalist movement. One of the earliest supporters of the theory was Raul Prebisch who has introduced the idea of relations center - periphery. When we talk about the theory of dependence in the context of rich and poor countries and

regions, we cannot resist thinking that actually, in the context of education, young people who leave developing countries in order to complete a certain level of education in developed countries acquire the skills that are not applicable in the countries they come from, and are thus forced to remain in the (developed) countries on the one hand, while on the other, the gap between the two groups of countries increases.

International-dependence revolution theory is considered one of the most controversial schools of development economics today. Prebisch challenged the neoclassical theory, saying that the centers specialize in the production of industrial goods, while the periphery is engaged in the production of primary goods. It dismissed the argument that the international division of labor brings benefits to all parties involved (Herath, 2008:821). If this is applied to relations at the global level, we can say that the dependency is based on the international division of labor that allows a high degree of industrial development in some countries, while at the same time industrial development is limited in a number of other countries and is under the control of the world's centers of power.

The fourth approach or *Neoclassical, free market counterrevolution* in the study of the classical theory of economic growth appeared during the 1980s, stressing the advantages of the developed countries, macroeconomic policies, the need to increase the efficiency of public enterprises through privatization, etc. In the case of developing countries, this approach calls for free markets, the elimination of state intervention in economic policy and state ownership, financial and trade liberalization, etc. The absence of state interference in the functioning of markets and the establishment of private property rights are a key to development in this approach. [4]

The Solow Model[5] is an extended version of Harrod - Domar growth model with labor as an additional factor, and a third independent variable - technology. The model was first introduced in 1956.[6] Long - term development is explained by technological progress in the Solow model and the residual amount is called the Solow residual. Solow and other theorists of growth have exogenously determined the level of residuals. The existence of residuals confirmed the link between economic growth and education, where the growth of total output, or production is a result of progress in knowledge, i.e. the employed labor force in the economy. As well as in the Harrod - Domar Model, capital ratio in the Solow neoclassical growth model was fixed, and there is decrease of returns on labor force and capital, and constant return to both factors together.[7] Output growth will lead to an increase in the quantity and quality of the workforce (through population growth and education), increasing capital (through savings and investment) and improving technology.[8] Solow's approach in explaining differences in levels of development using the residual became the basis for all further research in economic science.

2.2. Contemporary models of development and underdevelopment

After the development theorists have seen the poor results of classical theory of economic development in explaining the development process, new trends in development theory in the form of new theories or theories of endogenous growth appeared. However, unlike Solow growth model, endogenous growth models were explaining technological progress as an endogenous result of public and private investment in human capital and knowledge - intensive industries, stressing the need for this type of investment.

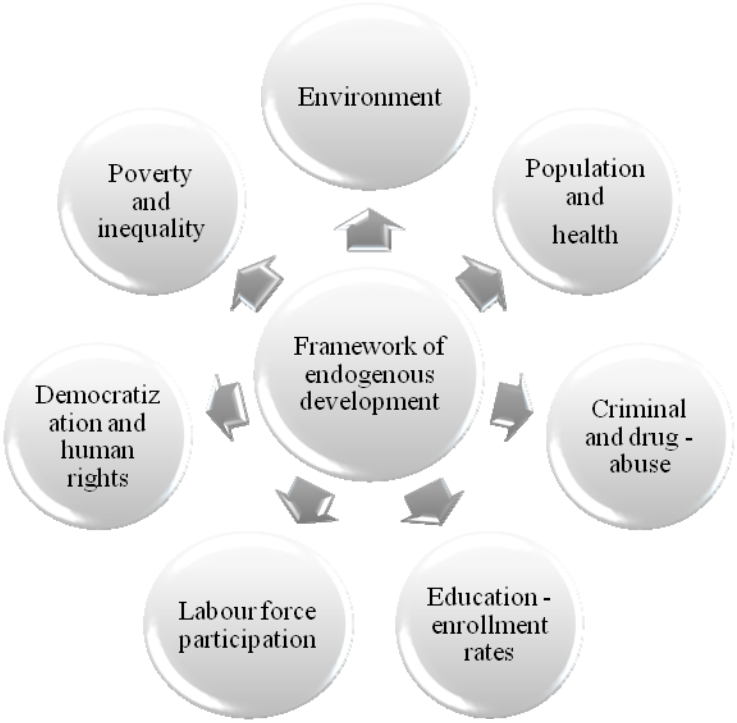

Figure 2: Framework of endogenous development

Source: McMahon, W. (2002) Education and development, Measuring the Social Benefits, Oxford University Press, New York, pg. 11.

Figure 2 shows the framework of endogenous growth illustrating all elements of the socio-economic development of endogenous growth, which economists believed impacts growth process. Some of the most important elements are: population and health, education, poverty, inequality, etc. Endoge-nous models are also promoting active role of the state, including the role of government in education. The most important models of endogenous growth are: Romer's Endogenous Growth Model, Romer's model, Coordination failures, The Big – push theory and O – Ring theory.

Romer's endogenous growth model[9] explains spillover or technological spillovers that may arise in the process of industrialization of society and is considered one of the basic endogenous growth models.[10] Romer believes that the development process begins in the interior of the system, state or in enterprise. It is the overflow or spillover of knowledge cited as the most significant social benefit of investment in education. Romer adopts Arrow's hypotheses (Arrow, 1962) *learning by doing* and in the context of spillover observation adds hypothesis on knowledge spillover. Knowledge spillover implies that simultaneously with the emergence of new knowledge, it becomes widely available. The idea of equal distribution and spillover of knowledge is now considered one of the main disadvantages of Romer's model. We can see that by the emergence of theories and models of endogenous growth, human capital gains importance and investment in human capital becomes a part of the development process.
Coordination failures is a model that explains the underdevelopment as a failure in coordination. Error in coordination is a situation where the inability of agents/ commercial sector to coordinate their behavior (choices)

leads to the results (equilibrium) that leaves all parties in a worse situation than the alternative situation, which is also an equilibrium (Todaro and Smith, 2006:136). Approach advocates a significant role for the state, especially in investing in the education process of workers for employment, and providing the knowledge they need at the labor market. The need for coordination of the labor market (supply and demand) can be explained by this approach.

In many cases, the presence of complementarity creates the classic problem of "chicken and egg." What was first created, knowledge or the demand for skills? Often the answer is that complementary investment must come at the same time, through coordination. This is usually the case given that there is a delay between investments and realizing returns on investment (Adsera and Ray, 1998). The need for coordination and complementarity is also reflected in the fact that returns on certain investments depend on the investments of others.

Kramer's O – Ring theory from 1993[11] contained the basic idea that is related to the idea that manufacturing process requires that the majority of activities are done together, coordinated in order to achieve better performance. He believes that if there is a sufficiently high level of complementarity, equilibrium can be achieved at different levels of human capital. If this would have applied to the case of complementarity of labor market policy and education policy, then from the Kramer's standpoint we can say that if the policies of these two sectors are sufficiently complementary, then the economy /country may reach equilibrium at different levels and at different levels of unemployment or productivity.

Evaluating the classical theories of economic development leads to the conclusion that first theories promoted primarily growth and stable macroeconomic environment as the central economic goals. Theories and models of endogenous growth have begun to emphasize the need for investment in human resources as the basis of the development process, which is kept in our contemporary approaches to the study of development process.

2.3. Theoretical framework of interdependence: education vs. development

The capacity of the workforce determines the country's abilities to generate growth and wealth. In the literature dealing with the theories of economic development in the second half of the 20th century, the change of focus from the accumulation of physical capital to the need for investment in human capital is visible. This indicated the importance of education and various forms of training (additional training, etc.) as a precondition for growth and the problems that they faced then, the economy, such as the brain drain from Third World countries, from private to public sector and many others. One of the first authors who spoke about the importance of human capital was Theodore W. Schultz. [12]

In the context of studying the importance of education for economic development process, concepts of human capital, human development and approach to the returns on investment in education are of particular importance and can serve as a relevant theoretical framework for the study of interdependence of education and development, or in the analysis of the growing importance of education in development process.

2.3.1. Human capital

Human capital is a term that represents the stocks of skills, knowledge, skills and other characteristics that can be used to increase productivity and are part of the workforce and are relevant for economic activity. In other words, human capital represents the efficiency of the unit involved (approximately) in working hours. Given the impact of education, competences, skills and productivity, we assume that individuals will invest in education in the same way that companies invest in their own physical capital (Acemoglu, 2009:85).

The concepts of human capital and investments in education are more than four decades old. In addition to Schultz, other authors such as Becker, Hansen, Mincer, Blauga and others made they mark in this field. The emergence of the theory of human capital was a turning point in researching the importance of education in real economy. However, with works of Amartya Sen, the importance of education as a component of human development was emphasized in the context of production and social change.

Literature dealing with the theory of human capital can be divided into two groups, namely:

1. Literature concerned with measuring human capital and education using the cost approach. This approach has been used in the works by: T.W. Schultz (1961, 1974, and 1992); J.W. Kendrick (1965); R. Eisner (1988).

2. Literature concerned with measuring human capital and education using the revenue approach. This approach was dominant in the works of D.W. Jorgenson and B.M. Fraumeni (1989, 1991, 1992)

Authors Schultz (1992) and Danison (1962) have analyzed the education in the context of Solow's residuals, which was explained as a result of technological advancement, arguing that the inequality in the level of development can be seen from the aspect of human capital in the country. These authors have shown that education directly affects the growth of national income through increased knowledge, skills and overall capacity of the workforce. Human capital according to Schultz is a good whose value depends on the five categories of investment in people:

- Health, including nutrition,
- Migration, which enhance employment opportunities,
- *On the job* training or training at work and
- Formal education and study program for adults.

Schultz (1961) believes that people are national wealth and that investment in human capital is the best explanation for the differences in national outputs. As an argument for sustained and adequate investment in human capital, Schultz says the theory that human capital is wasted due to its overhang (e.g. unemployment). Unemployment among other things happens because of mismatches between supply and demand for labor, which was previously explained through the Coordination failures approach which in this case appears due to lack of coordination between labor market and education policy.

On the other hand, in the works of Becker and Mincer (1974), human capital is analyzed in terms of contributions of education in increase of revenue i.e. increase of opportunities for private gain. Arrow (1962) in his well-known model of *learning by doing*

presents the hypothesis that in the emerging industries, the profitability of any enterprise depends on the accumulated experience in the industry. Such spillover or overflow would mean that market forces will lead to optimal investment.[13] Otherwise, most authors in analysis of the relationship between education and development assume that knowledge is a public good with a large number of important externalities.

While in the Solow model of economic growth technological progress was a source of growth, Lucas indicated that the alternative source of growth is the accumulation of human capital (Lucas, 1988). The two main sources of accumulation of human capital in Lucas's approach are: education and learning by doing.[14] Lucas also stressed the importance of externalities and their significance in education.

The contribution of Nelson and Phelps (1966) to the theory of human capital is reflected in the conclusions that growth is driven by stocks of human capital and that influences the country's ability to innovate and catch up with developed countries. Differences in growth rates were primarily the result of differences in the stock of human capital and the ability of countries to generate technological progress (Aghion and Howitt, 1998:327). They also believe that education helps people understand new products and ideas that are somewhere discovered and presented. In this way, investment in education is gaining importance.

According to Aghion and Howitt (1998), Pack (1994) attempts to identify international sources of differences in productivity. In the analysis, level of education has been identified as one of the most important sources. However, if new knowledge from abroad has been issued or if the productivity of domestic-based R D has not increased significantly, the returns to education would be lower. Indeed, the external effects of higher levels of education as stated by Lucas (1988) occur when new technologies have been rapidly introduced. So, the need for additional training of skilled labor exists.

Many countries have recognized the importance of investment in human capital, particularly in education. According to Becker, investments in education may be as follows (Becker, 1962:10-11. and 25-27):

- On the job education is a process that increases productivity in the future. It differs from education in schools because it represents an investment in the business and not an institution that specializes in the study.

- Schooling is a process involving a school as an institution that specializes in producing training. Some knowledge may better be adopted if parallel practical training exists, while some other requires even longer specialization.

- Other kinds of knowledge - about the economic and social systems and different social arrangements can significantly affect the growth of real income.

The key disadvantage of the Theory of human capital is ignoring the need for empowering people, especially their participation in the development process. Empowering people through the income, education and health were not analyzed in the Theory of human capital, but later became a part of Sen's approach to human development that is presented in the following chapter.

2.3.2. Human development

The founder of the theory of human development is considered to be Amartya Sen[15] who, along with Magbul-ul-Haq made a significant contribution to the popularity of approach to human development, the development of the Human Development Index, which is annually published in Human Development Reports, and generally the popularization of the United Nations Development Program. The core components of human development are defined by the following: equity, sustainability, productivity, empowerment, and multiculturalism. The theory of human development is trying to create a model of optimal combinations of human, institutional, and social capital in order to create the greatest possible benefits for the individual, the welfare state as Sen calls it.

This theory is not only economic theory; it requires an interdisciplinary approach from the standpoint of health, environment, gender issues, social justice, sustainability, etc. The theory of human development is a holistic and puts in the center all aspects of the development process. To measure the levels of human development, taking into account that the concept in the last decade of the twentieth century gained in importance, four indices of development developed, namely:

1. Human Development Index[16],
2. Inequality adjusted Human Development Index,
3. Gender Inequality Index and
4. Multidimensional Poverty Index.

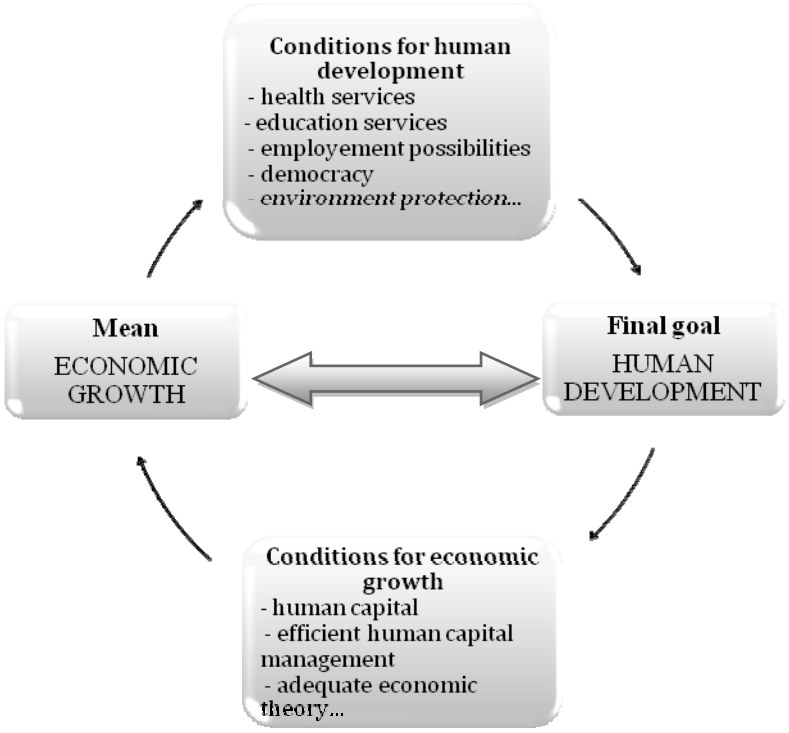

Figure 3: Relations between economic growth and human development

Source: J. Osmanković & A. Nikolajev (2010) Humani razvoj, Ekonomski fakultet, Sarajevo, pg. 67.

Education Index makes a third of the human development index, which indicates the importance of education in the modern conception of development. Education index is calculated as follows:

Education index = 2 / 3 Adult literacy index + 1 / 3 gross index of school enrollment

Table 1 presents a comparative analysis of the role and importance of people in the three major theoretical approaches in the study of economic development today.

Table 1: Overview of major theoretical approaches to development

	Economic growth theory	Human capital theory	Human development approach
Role of people	Production factor	Production and development factor (intellect, health, knowledge); labor is in the centre of concept named knowledge – based economy	Real wealth of nation
Final goal	Improvement of life conditions	Increase of productivity and sustainable economic growth as a result of knowledge and education process of the working age population	Creating an environment in which individuals can develop their potential and creativity to their own interests and needs, increasing choices
Measurement	GDP growth	Returns on investment and efficiency of investment	HDI, IHDI, MPI, GEM

On the basis of the table above we can see how the role of people (human capital) has evolved in theoretical approaches and also how the ways of measurement in various approaches have changed.

2.4. Investment in education: costs, benefits and returns on investment

Education is not a public good (by Stiglitz's definition) but there are spillover effects that bring benefits across society. Externalities of education are high, yet hard to measure. In contemporary theory, in addition to the term knowledge economy, the term *knowledge capitalism* is very often mentioned. The term refers to a large number of positive effects of the dissemination of knowledge on welfare, the overall economic situation, health, etc. The importance of education and educational policy is largely reflected in the fact that education forms the knowledge that is the base for the industrialization process, the introduction of new technologies, innovation, etc. As Romer said, knowledge-based economy will create knowledge, but will also quickly and easily acquire new knowledge and products.The first empirical study on returns on investment in education was published in 1973. A subsequent study in 1981 by the same author was supplemented with the analysis of additional thirteen countries.[17] According to Psacharopoulos (1981), literature that deals with the analysis of return on investment in education can be divided into two waves:

- The first wave: The analysis that began with T.W. Schultz, G.S. Becker during the 1950s and continues to this day. It is more descriptive in character.
- Second Wave: The Analysis based on quantification and measurement of the returns on investments and increased revenues and earnings due to additional

investment in education. The turning point occurred in the early 1970s Mincer's book published by NBER (1973).

Investment in education, like any other investment, carries certain benefits and costs. It is important to use an adequate way to approach the analysis of benefits and costs of education.

important elements are presented in the following figure. According to the OECD, increasing years of schooling does not mean by default an increase in the CSA or in health. It depends on the quality of education, schools, working methods, usefulness of acquired knowledge and skills, etc. We can say with certainty that with the inclusion of social capital, education receives the right com-

Table 2: Costs and benefits of education for individuals and society

	INDIVIDUALS	SOCIETY
COSTS	Direct costs (including tuition fees)	Public subventions
	Lost production (lost revenue or other production)	Spillover effects in work force productivity (when education of one person increases work productivity of work colleagues)
BENEFITS	Increased market productivity (see revenues or other forms of work outputs)	Increased technological possibilities (adaptation or design and application of new knowledge in science, medicine, industry, new discoveries, etc.)
	Private non – market effects (better personal health, increased capacity for enjoyment, relaxation, increased efficiency at work and other personal choices)	Non – market effects for community/society (greater social equity, more cohesion within society, a stronger sense of nationhood, lower population growth, reduced environmental stress, reduced risk of infectious diseases, reducing crime rates)

Note: The dashed lines show that the identified categories of benefits are difficult to separate.

Source: A. Mingat and J. P.Tan (1996) The full social returns to education: estimates based on countries' economic growth performance, pg. 7.

Regardless of whether the costs or benefits are analyzed, both concepts can be seen from the aspect of an individual aspect of society. Table 2 presents the costs and benefits to both aspects, as well as their mutual relationship.

Approach of the OECD is based on the social outcomes of investment in education through health and civic and social engagement. The basics of this approach and the most

ponent. This primarily refers to the absence of positive spillovers of knowledge from the education process due to the undeveloped social capital. Analyses of the OECD are particularly significant for the analysis of the social importance of education, or social returns on investment in education.

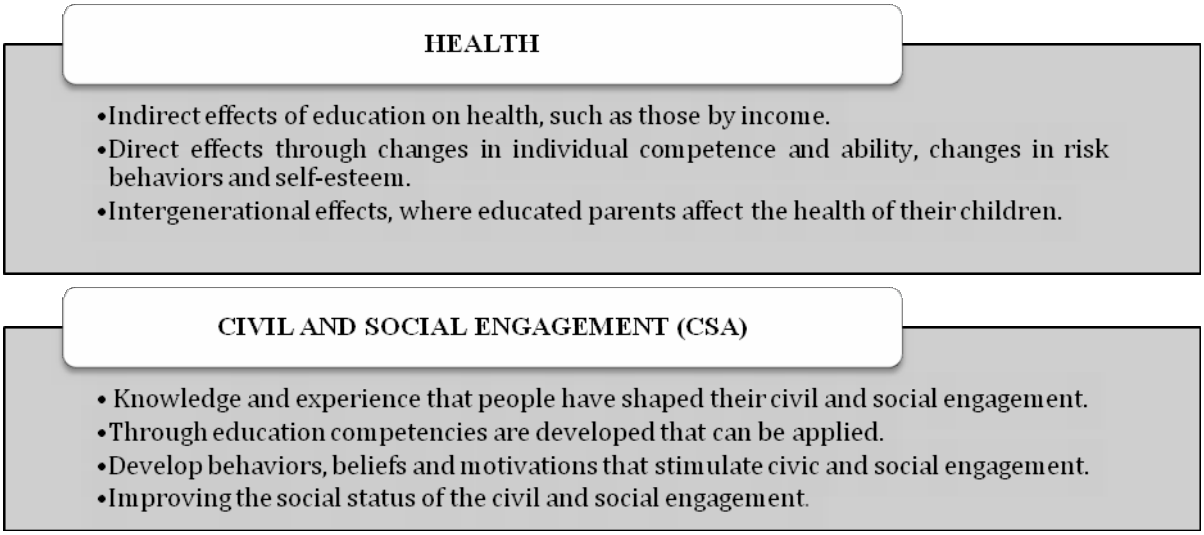

Figure 4: Social outcomes of education

Source: OECD (2007) Understanding the Social Outcomes of Learning, pg. 17-20.

The following are considered to be the most important benefits of education: growth of individual incomes, equality in income distribution (eliminating inequality) and a positive effect on economic growth. Quality and relevance of knowledge acquired in the educational process are questionable in developing countries.

3. CONCLUSION

Since the onset of a period of emergence of first theoretical approaches to economic development today, comprehension and understanding of development and the factors that lead to successful development process have changed. In line with these changes, the role of education in the development process has changed and grown in importance.

Education gets a special significance in the development process in the works of authors who have promoted the endogenous growth theory and later human capital theory and approach to human development. However, evolution of theories of development has led to a logical phenomenon where each subsequent theory and model in a certain way is upgrading the previous one. Today, there are the few economists who strictly kept the basic approach of the 1950s or the endogenous growth approach, but they already advocate in their works a combination of both approaches.

Unlike in previous theories of economic development, education is today considered a key factor of the entire development process. Some issues related to relationship development and education can found (partly) their theoretical foundation in the earlier theories such as:

- the issues of quality and relevance of today's education in International-dependence revolution theory,
- the issues of spillovers and distribution of knowledge in Romer's growth model,
- the issues of relationship of labor market and education in Coordination failures approach and O – Ring Theory,
- the issues of human development and education foundation in Sen's approach based on capabilities,

- the issues of investment in human capital in the work of Becker, Schultz and Arrow, and
- the issue of brain drain in O – Ring theory.

The evolution of theoretical approaches to economic development has now reached the levels where education is considered a key factor of the development process and the process of competitiveness in the international market as well as the element upon which many countries have built their competitive advantage and develop national development strategies. The role and importance of education in economic theory is necessary to understand in order to approach the education as a factor of economic development.

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[1] The figure shows only the theoretical approaches that have had the biggest influence on the development of scientific thought on the role of education in the development process of the economy.

[2] Improving the competitiveness of developing countries, or their products on international markets has required the improvement of existing technology and innovation. However, innovation is not possible without investment in human capital.

[3] For detailed analysis of role of labour force in Lewis two – sector model see Enke (1962).

[4] Within this approach three models appear, namely: Free market approach, Public choice approach and Market-friendly approach.

[5] Trevor Swan, Australian economist in 1956 independently developed a neoclassical growth model. The paper was published 10 months after Solow's "A Contribution to the Theory of Economic Growth." In some of the books the neoclassical model is referred to as the Solow - Swan model, however in most books just as the Solow's growth model. The two most important books in the field of economic growth: Aghion, P. & Howitt, P. (1998) and Barro, JR & Sala i Martin, X. (2004) deal with the Solow - Swan growth model.

[6] Title of paper: "A Contribution to the Theory of Economic Growth." For this work, and overall contribution to the study of economic growth, Solow received the Nobel Prize for Economics in 1987.

[7] This is a feature of Cobb - Douglas production functions: constant returns in relation to both factors of production and decreasing in relation to individual factors of production.

[8] Mankiw, G. N, Romer, D. & Weil N. D. (1992) give the overview of Solow's model by adding human capital accumulation. The authors showed that three variables (savings, education and population growth) explain differences in income per capita.

[9] More on the Model in works from 1986, 1990 and 1994.

[10] Romer states the following as elements of the endogenous growth model: capital - measured in units of consumed goods, work - skills that a healthy human body has, human capital - activities such as formal education and training of employees and the index level of technology. The economy at the same time has three sectors: the research sector, then the sector of production of intermediate capital goods and final goods sector that uses labor, human capital and intermediate capital goods in order to produce final consumer goods.

[11] Kramer's O – Ring Theory is presented in: "The O-Ring Theory of Economic Development", The Quarterly Journal of Economics, Vol. 108, No. 3 (1993), pg. 551-575.

[12] T.W. Schultz's contribution is presented in an understandable way in M. Nerlove (1999).

[13] Knowledge spillover effect has been expleined in detail by Hoff & Stiglitz (1999) "Modern Economic Theory and Development ", World Bank.

[14] Based on Arrow's hypotheses or *On the job training*.

[15] The largest contribution to the theory of human development was given by Amartya Sen in his book *Development as Freedom*, Oxford University Press, 1999. Amartya Sen received the Nobel Prize for economics in 1998.

[16] The value of the Human Development Index can range from 0 to 1. Depending on the value of the HDI, all countries are grouped into three categories: low human development countries (from 0.00 to 0.499), the medium human development (0.50 to 0.799) and high human development countries (from 0.80 to 1, 00).).

[17] Psacharopoulos, 1973.