

Evolution of the Concept of “Human Capital” in Economic Science

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ABSTRACT

The relevance of the researched problem is determined by transformation of the human capital into the key economic resource of development of the postindustrial society. The purpose of the article is to disclose the content of evolution of the human capital as a scientific concept and phenomenon of the economic life. The leading approach to the studying of the problem of changes in ideas about the human capital is the evolutionary approach that allows us to identify the cause-and-effect relations between definitions of this concept and actual necessities of economic development. The author's hypothesis about the necessity of priority of the human capital and its intellectual component in the study of economic content was proved in the article. It is necessary for the subsequent quantitative analysis of interconnection between the human capital development and structural changes in the economy. In this research the original definition of the concept was formulated. The materials of the article can be useful for development and implementation of the policy of the innovative economic growth in regard to accumulation of the human capital.

KEYWORDS

Income, intellectual potential, skills, capabilities, human capital

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Introduction

Establishing a context

The necessity to maintain economic growth and improve its quality in globalization requires restructuring of the international and national economies that can provide them with greater stability and competitiveness. For this reason, one of the priority lines of the scientific research is the study of causes and consequences of structural changes, which cause transition to a postindustrial stage of development of society and knowledge economy. The

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basis for successful implementation of such transformation can be comprehensive development of the human capital. At the same time, the intensification of its accumulation requires deeper understanding of the essence of the human capital on conceptual level.

The transition from the traditional economy, which is based on productive process, to the knowledge economy, which uses ideas and innovation as driving force, requires to maximize human potential. The objective of maintaining and increasing the standard of well-being depends on intellectual capabilities, multiplied during self-directed continuing education, on readiness of employees to use the accumulated potential in their professional activity. The main problem of the study of the human capital as a phenomenon of the economic life is that on the one side there is the economy, creating external environment and conditions for its reproduction, and on the other side – the human capital with its inherent development motivation. As formation of the human capital occurs at the same time under the influence of external factors (investments, information, education, healthcare, culture) and internal factors of self-development (unique capabilities, creative work, self-education), the research of the human capital gets the interdisciplinary nature by using economic, sociological, managerial and psychological methods, so that the results are often contradictory.

The following part of this article is divided into four sections. The second section describes characteristics of the human capital and provides its detailed definition from the point of view of scientists belonging to the Chicago School of Economics. The third section is devoted to the study of different treatments of the human capital. The fourth section examines its main components and formulate the definition. The last part of the work contains closing remarks.

Literature review

The question of legitimacy of consideration the set of human capabilities as a capital actualized in the Western Science in the 1960s, when after increasing of the standard of well-being, the demand for education services became higher, and the achievements of the USSR in the field of space technology stimulated government investments in science and education. T.W. Schultz (1960) described education not as consumer good, but as an investment in the human capital procurement, comparable with capital goods. Later, T.W. Schultz (1960) claimed that the possession of the human capital exceeds by importance of the possession of the material capital. In times of the energy crisis and declining significance of traditional industrial products, he saw a chance to substitute number into quality through education, as well as to multiply resources due to advancement of knowledge. It is noteworthy that T.W. Schultz (1960) considered costs of obtaining education only if it provides the basis for further professional activity of a person. Any education process, which was not followed by work in specialization, was not regarded by T.W. Schultz (1960) as a contribution to the human capital. Family is able to influence on costs of the human capital, for example, when it is "subsidizing" the cost of children's education, encouraging it to obtain more knowledge. Thus, investments in education of a worker are similar to investments in capital goods, and raising of productivity and profit from education is connected with incurring of significant start-up costs. The term "human capital", formulated by T.W. Schultz (1960) is based on a noun "capital", pointing to its economic content, which is determined by acquired

valuable human qualities, which are able to improve due to appropriate investments. In his interpretation of the term - capital, as a source of satisfaction and earnings in the future, and human, because of it is inseparable from a man.

Another representative of the “Chicago School” - G.S. Becker (1962) also linked emergence of the human capital with investments in education, nutrition and other factors, which influence on physical, financial and emotional well-being, highlighting education as a primary determinant. G.S. Becker & B.R. Chiswick (1966) proceeded from the assumption about decision making with respect to increase in education level due to correlation of related benefits and costs. The optimal level of education is at the point, where demand for funds, which are intended for investments in education, intersects with proposal of these funds. At the same time, demand curve is marginal rate of economic viability from each additional dollar, spent on education, and supply curve shows the marginal interest rate on funds, borrowed for education. Individuals invest in education as long as benefit from increase in the level of education does not cease to exceed costs of its receiving. Thus, investments in education will be carried out until the benefits of receiving education in human representation outweigh costs. In other words, people who anticipated relatively high future returns from their education, invest enough money in it (on the assumption that more educated people have better economic prospects). Such a representation, applied to the level of individuals, was confirmed by later studies (Arellano & Fullerton, 2005; Ashmarina & Khasaev, 2015; Lehrer, 2004; Baldwin & Borrelli, 2008; Zhabin & Morozova, 2012).

G.S. Becker (1993) pointed out inextricable connection with its holder as a distinctive feature of the human capital: "We can not separate an individual from his knowledge, skills, health or values, just as it is possible to relocate financial and real assets apart from their owner." G.S. Becker (1993) also extended the concept of the productive human capital by inclusion of human health and even his behavior: "The concept of the human capital also includes harmful addictions, such as smoking and drug use. The human capital in the form of positive work habits or addictions to alcohol has a significant positive or negative impact on productivity both in the market sector and outside of it » (Becker, 1993).

T.W. Schultz (1960) and G.S. Becker (1962) considered superior in the level of salaries of persons with higher education (for example, doctors, lawyers and engineers who invest money in their own professional development) as returns from investments, made for improvement of the professional status. Reflecting unequal productivity and quality of employees' labor, different salaries include remuneration for performed work and returns from investments in education. It was considered that the greatest level of remuneration usually takes place at the age of 45-54 years, and the maximum level for less-qualified employees is achieved before.

G.S. Becker (1993) studied not only impact of the human capital on incomes and professional status, but impact of its accumulation on the other aspects of life: the structure of the family and its atmosphere (including domestic violence, and other factors of instability); tendency to break the law and commit crimes, change of place of living; interest in cultural and social events; degree of participation in the educational process of children. The scientist assumed that

an increase in the human capital provides both personal and additional public benefits. The result of G.S. Becker's (1993) works is realization of the fact that not only an individual, but also the society (in the form of higher rates of growth of employment and economy in general) benefit from investments in the human capital. In other words, education has significant positive externalities, and it definitely emphasizes necessity of state support of educational sphere.

Subsequently, in 1977 the studies, which were carried out by the representatives of the "Chicago School", allowed H.R. Bowen (1977) to formulate the following detailed definition of the human capital: "The human capital consists of acquired knowledge, skills, motivation and energy, which people have. They can be used for a certain period of time in order to produce goods and services. It is a form of capital, because it is a source of future earnings or future satisfactions, or both together. It is human, because it is a part of a man» (Bowen, 1977). Thus, already in the 1970s the human capital appeared in scientific use as a concept, recognized by a number of scientists.

Establishing a research gap

At the same time, advanced theories of the human capital, which initially received the widest distribution, are mainly different by its sociological orientation. In these theories, not only the relation of costs and income from education influences on the choice of trajectory of professional and personal development, but also other potential benefits, such as favorable work conditions, good relationship with staff and superiors, prestige of profession. These last benefits were in the center of the study; this was the reason why capital treatment became partly non-economic. Awareness of importance of social capital and intersubjective interaction was reflected by the sociologist P. Bourdieu (1986) in allocation of three types of the capital: economic, cultural and social. It would seem, that primacy of the classification should be allocated to the economic capital, which is acquired through the expenditure of social and cultural capital. However, the economic capital is in subordinate position, as it only contributes to development of the human capital (defined by P. Bourdieu (1986), as incorporated cultural capital) providing flow of investments in education: "From the beginning, the definition of the human capital, despite its humanistic connotations, has not progressed further economism and ignored the fact that the result of educational activity depends on cultural capital investments that have been made by family» (Bourdieu, 1986). The cultural capital, according to P. Bourdieu (1986), is a set of knowledge, skills, education, and advantages derived by individual from parents. It is formed in the process of transferring knowledge and relationships, which are necessary for success within modern social systems and obtaining higher social status. By the social capital P. Bourdieu (1986) understood "unit of actual or potential resources associated with owning a strong network of more or less institutionalized relationships of mutual acquaintance and recognition", i.e. a set of relationships with social environment of an individual, which depends on the size of network, which he can create. This example shows that, even now, in many studies the capital, as a profitable value, has not been sufficiently investigated.

Aim of the study

The aim of this research is to disclose the content of evolution of the human capital as a scientific concept and phenomenon of the economic life. Achievement

of this purpose led us to the consistent analysis of judgments of the Western scientists from the time of emergence of the term "human capital" to formation of the necessary theoretical basis, relevant to the concept. It should be considered in the process of the economic policy formation at the macro and micro levels.

Methods

Research methods

The purpose of the study predetermined the applied research methods. The major of them were analytical and historical-evolutional, which allowed to reveal, on the one hand, the existing contradictions in interpretations of the human capital, and on the other hand, to identify the general direction of changes in visions of it.

Experimental research base

It concludes scientific works of the leading Western scientists, and also correlation of analyzing theoretical propositions with realities of the economic life in the most developed economies of the world.

Research stages

The sequence of the research stages was dictated by the chronology of changes in ideas of scientists about the human capital in the process of transition assumptions to the postindustrial economy. In this connection, it is possible to rely on the observed tendency of strengthening the contribution of economics to the knowledge of the phenomenon. The author's position on this issue is expressed in it. In particular, in a number of developed in the 1990s "New growth theories", implementation of the technological progress is determined by investments into the human capital, and a high level of education of the population serves as prerequisite for sustainable economic growth. By including the human capital in the production function of the national economy by N.G. Mankiw, D. Romer & D.N. Weil (1992) put it in dependence not only on factors of labor and capital, but also on increase of workforce quality, achieved through education improvement. Inclusion of the human capital became a substantial development of the model, because its rate of return does not decrease in the course of time. Alongside with that the continuity with the provisions formulated by scientists at earlier stages of studying of the human capital is observed. It is expected that individuals, acting rationally, make positive decisions on investments in their own education as long as the marginal cost of investment do not exceed the rate of return from education. At the same time, investments in education are effective as long as they do not exceed the "absorption capacity" of other production factors (Lisý, 2005).

Results and Discussions

On account of the study of the evolution of interpretations of the human capital the following characteristics were emphasized:

firstly, it represents the heritage of a particular person; it is inseparable from him, and is considered as his property;

secondly, it tends to bring income;

thirdly, it obtains efficiency of functioning, which is expressed in improved productivity, quality and creativity of the provided with labor services;

finally, it has the increasing returns from investments.

This allowed to formulate the author's definition of the human capital at the conceptual level: the human capital expresses economic relations between his owner and a consumer of provided labor services concerning a set of knowledge, skills, abilities, experience, creativity, health and other qualities, applied in the professional activity. It provides the owner of the human capital with productive efficiency and increasing economic viability from investments in it.

The approaches to the study of the human capital supplement each other in describing the components of its competences, both acquired in response to investments in education, and innate skills, developing in the process of socialization of capabilities and experience. However, there is no unity in the interpretation of the human capital among modern researchers. According to A. Hegelheimer (1975), the concept of the human capital is "extraordinarily hardly determinable." "The human capital, as E. Tokarčíková (2010) claims, – is a relatively new production factor. As it is closely related to labor and has some common features with it, the research and analysis of this factor are challenging." M. Häfliger (2000) warns against its unduly and inappropriate use. He speaks out in favor of the definition, which understands the human capital as a set of knowledge and skills of the population (Häfliger, 2000). According To T.A. Stewart (1997), entrepreneurs and inventors carry out the human capital, as decisive innovative impulses come from them. He drew a parallel between an enterprise and a tree, and symbolically compared the human capital with the lifeblood, circulating under the bark and promoting growth (Stewart, 1997). L. Edvinsson (1998) succinctly defined the human capital as the competence and capabilities of employees. Our contemporary, German scientist W. Becker (1999) formulates that it is a sum of capabilities, skills and knowledge, acquired through the formal education. Moreover, use of the term "capital" means that investments in education are the sources of future income, satisfaction of needs and welfare. S. Fisher, R. Dornbush & R. Shmalenzi (1993) focuses on the target function of implementation in his definition: "The human capital is the measure of embodied capability for bringing income. The human capital includes innate capabilities and talent, as well as education and acquired qualification". The extended approach was implemented in the report for 2001 of the Organization for Economic Cooperation and Development. It takes into account personal qualities of a man: the human capital is knowledge, skills, competencies and other properties, embodied in individuals and contributing to creation of personal, social and economic well-being (The Well-being of Nations, 2011). J. Doré & G. Clar (1997) suggested considering this type of the capital as the productive potential, represented in educated and teachable people and based on knowledge and experience. According to J. Koubek (2007), transformation of the sum of innate capabilities, acquired experience, knowledge, skills and behavioral peculiarities into the human capital was caused by their use for the benefit production of goods (Koubek, 2007).

M. Laroche, M. Mérette & G.C. Ruggeri (1999) considers the human capital as a set of innate capabilities (physical, intellectual, psychological capabilities, predetermined by heredity), also knowledge, personal contacts, work

experience, professional training, education and socialization and skills, obtained and developed by people during their life through the transfer of knowledge between generations. The innate capabilities represent inherent human potential for acquisition of skills. It comprises a set of physical, intellectual and psychological capabilities, which are at disposal of an individual from the moment of birth. They are obtained independently from the desires of an individual and are determined by heredity, parental decisions, and also by random factors. This results in differentiation of capabilities of various people. The number of acquired skills partly depends on innate capabilities. Acquired skills are the actualization of this potential through individual efforts, involving certain costs. He highlighted the following specific features of the human capital:

- nontraded goods, embodied in a person;
- relatively less independence in the choice of ways of the human capital accumulation: at an early age, these decisions can be made by parents, educational institutions and the government can exert strong influence on the process of selection;
- division into the general human capital with the usefulness for a wide range of types of activity, and into the specific one that possesses value only for a few activities.

According to the modern view of the components of the human capital, it can include the innate, educational, biological and social human capital. Except for the first one, they are able to increase due to implementation of appropriate investments. Investments in the human capital increase the capabilities of its owner to adapt to changes, using the emerging opportunities better. With long-term returns, such investments are among the most effective, especially if we implement them at the maximum possible early stages of human life. The integral components of any kind of the human capital are knowledge and skills. If you associate accumulation of knowledge the results of long-term investment in education, then the increment of skills is provided mainly by the natural instinct, specialization, repetition, practice. Skills, which are defined by psychologists as implementation of capabilities in a specific kind of activity (Ackerman, 1988; Fleishman, 1982), received the following economic interpretation from D. Acemoglu, S. Autor & D. Skills (2010): "the talents or capabilities of an employee used while fulfilling the variety of tasks", where tasks are "units of the working activity that manufacture products". Consequently, in the process of manufacture the knowledge achieves its potential through the skills. Due to such component interaction of the human capital, the increasing of the Labor's marginal product is achieved. These services fall under purchase and sale, and their market value depends on the marginal product. Its size is determined by the aggregate of work effort and benefits from the use of the human capital. The effect of application of the human capital can not only increase, but also decrease owing to the weak adaptation to the changes caused by the insufficient level of education, or by partial deskilling that occurred during the period of being unemployed.

Despite the diversity of the approaches to considering the human capital, the underestimation of its intellectual component in the scientific literature seems obvious. The human capital occurs in the continuously proceeding process of socialization and learning, based on the possession of the intellectual potential

by individuals in different degrees of manifestation. The latter is commonly understood as intellectual and psychosocial capabilities, talents and opportunities, introduced by a man in the individual and social process of education. The quality and quantity of the human capital, formed in the process of constant changes, depend primarily on the intellectual potential of a subject (in particular, its capabilities to acquisition of knowledge). Its implementation requires a certain duration and intensity of education, work experience, the degree of socialization. Obviously, the capabilities, which form the basis of the human capital, can be varied, but intellectual capacities are considered the dominant among them. This circumstance should be determinative when choosing the aspects of studying of the human capital in order to avoid wage content.

While estimating the value of the human capital, the scientists usually do not differentiate its accumulated stock, owned by the economic entity, and its amount, which is used in the real economic process. The degree of influence of the intellectual and physical components of the human capital on his returns depends on the content of the activity of a person, involved in the production process. Insufficient demand for the creative qualities of the human capital in production eventually leads to its depletion. And intensive exploitation is able to cause its long-term consistent gain. The steady growth of interests in accumulation of the human capital by the majority of economic entities is explained by the increasing returns from investments in the capital. Alongside with that only the potential of knowledge and skills possesses the real economic value. This potential is implemented in a particular production process. The effective use of the human capital requires professional labor services, needed from its owner under the received task. Based on the incidental competencies, the high level of human development should be actualized in the ability to adapt to changes in production, initiating the emergence and hastening the development of the most useful from them. Combining and modifying the existing knowledge in accordance with the current needs of the manufacturing process, the owner of the human capital confirms its existence with the capacity to constant studying and its creative practical application of the results. The given thesis with all its perceived obviousness often remains without consideration of scientists. This leads to arising differences in the understanding of the human capital as a scientific definition and as a phenomenon of the economic life.

Conclusion

On the one hand, the created theory of the human capital should reflect different approaches to the consideration of a man in all the coherent multitude of its properties and qualities. On the other hand, unduly broad interpretation of the human capital leads to insufficient attention of the scientists to the economic content of this notion and phenomena of the economic life. That is the reason why there is no clear understanding of its essential characteristics, despite the variety of the given definitions of the human capital. The specifics of forming of the intellectual components of the human capital as the basis of its functioning remains understudied. It is important to develop estimating procedures of the human capital value and the degree of its impact on the macroeconomic dynamics, suitable for its practical application. The analysis of the impact of investments in the human capital on the structural shifts in the economy is

considered as a progressive one. That is why the development of the mathematical models is important. They allow quantitatively express the reciprocal connection between the human capital development and the structural changes in the economy at the macro- and meso- levels. The models help to reveal the emerging tendencies in the structural transformation and to predict their action in the future.

Disclosure statement

No potential conflict of interest was reported by the authors.

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