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Research paper

The theory of human capital as the basis of the economy of labor

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Abstract

The aim of this article is to show how well-known and respected economists with different background have perceived capital and economy over the centuries. Particular attention has been paid to the history of economics and the importance of human capital, which should be con-tinuously expanded and deepened in order to develop new skills needed, for example in future work, but also the attention will focus on several formulas which are used to calculate capital.

Keywords: *Capital; Economy; History of Labor; Human Capital; Labor.*

1. Introduction

Capital is an important category for economics and economic sciences. It is referred to as an abstract category defining the ability to do work. However, the concept of capital does not have one specific definition, which can raise a lot of controversy and emotions. Attempts to interpret this concept often caused disputes between supporters of differing philosophical trends, which influenced the multiplicity of this concept. Human capital can be separated from capital, which is a resource of knowledge, skills, health and vital energy contained in every person and in society as a whole, defining the ability to work, adapt to changes in the environment and the possibility of creating new solutions. Self-development is considered to be some kind of investment that will pay off in the future in higher earnings.

2. How capital and capital model are defined

The origin of the word 'capital' is associated with the Latin adjective 'capitale', which is associated with the noun 'caput' meaning 'manager'. Capital is an important concept in economics, as J. Ch. Bliss wrote at the beginning of his book. „When economists reach agreement on the theory of capital they will shortly reach agreement on everything else" (Bliss 1975, p. 7).
Capital can be viewed from a macroeconomic and microeconomic point of view. On the one hand, this is what the company has, on the other hand, these are the sources from which the entity's activities are financed. Some see capital as "(...) abstract ability to perform work (…)" (Dobija 2014, p. 24; Renkas 2012, p. 81-86; Renkas 2014, p. 308-316). However, when we usually use the concept of capital, we mean permanent resources that are used when starting or enriching an existing business. Fixed assets include assets, property and funds. Capital can also be mentioned as one of the key production segments next to land and labor. It should also be mentioned that all these concepts of capital refer to the category of profit with which it has been associated for centuries (Dobija 2010, p. 11-20).
The capital model can be written using the compound interest formula. It has the following formulas (Dobija 2014, p. 25-29; Rekas 2017, p.26-32):

- With periodic capitalization:

$$C_t = C_0(1+r)^t$$

- With continuous capitalization:

$$C_t = C_0e^{rt}$$

- Using the accounting equation and assuming that the increment is calculated all the time, the formula looks like this:

$$C_t = C_0e^{\check{r}t}$$

- And the capital growth model that also takes into account the forces of nature:

$$C_t = C_0e^{rt} = C_0e^{(p-s+m)t} \text{ i } E(s) = p = 0{,}08 \text{ [1/rok]}$$

A combination of compound interest, natural forces and the second law of thermodynamics can be seen here.
Meaning of the symbols:
(C_t) – the value of capital at the time of t,
(C_0) - initial capital,
(t) – the variable of the passage of time,
(r) - interest rate,
(p) - constant of potential growth
(s) - the rate of capital diffusion,
(m) - capital increase.
The economic constant (p) otherwise known as the market premium is determined by fair profits as well as the value of wages and prices. Approximately: 0.08 [1/year].

3. Human capital

Human capital can be separated from capital, whose theoretical outline is already noticeable in the 17th and 18th centuries. It distinguishes two approaches that take into account a human being. William Petty, an economist from the 17th century, claimed that people are capital, and Adam Smith, in turn, believed that acquired knowledge and skills are capital that man possesses. Jean Babtiste Say and Friedrich List thought the same, as they saw the impact of knowledge and skills on the functioning of the economy. Later, Gary Becker and Theodore Schultz took up the concept.
Gary Becker also claimed that self-development in educational and intellectual terms is a kind of investment that will pay off in the future in the form of higher earnings. All we have to sacrifice to achieve this is time. According to the author, the experience gained is also significant in expanding human capital (Becker 1994, p. 29-30).
According to Theodore Schulz, this concept defined the quality of society, and to improve this quality, citizens should devote more attention to personal development. Training, mastering new skills, professional competences, as well as good upbringing and manners. Based on his opinions, these abilities and skills can be innate, but also acquired over time, and also have great importance and impact on the economic level in a given country (Dobija 2014, p. 158). The rightness of these economists' proclaimed was proved in 1979, in which Theodore William Schultz received the Nobel Prize for his contribution to shaping the theory of human capital, and more specifically for proving the rightness of personal development of society, for the economic growth of poor and less developed countries. A dozen or so years later, in 1992, the same prize was awarded to the aforementioned Gary Stanley Becker for conducted research on the behavior of people, household, using the methods of microeconomics (Łukasiewicz 2009, p. 11).
It is also worth adding that human capital explains the relationship between capital, wage and work. By working, man transfers capital into products to which he contributes. A principle is adopted that says that remuneration should be commensurate with the value of work, which in turn is conditioned by the size of intellectual capital of a working man (Renkas & Hołda 2016, p. 337-347). Through human capital, you can understand a set of traits, abilities and skills, motivation, knowledge that a person possesses and can develop and deepen so as to further increase their value. Thanks to this, in the future the employee will benefit from it at work, earning more, because his value in the organization in which he works increases, while the said organization also benefits from it.

4. History of labor economics

Labor economics, otherwise known as laborism, enriches the perception of work and capital in scientific terms, as well as the results of measuring fair remuneration and human capital. Therefore, this involves measuring labor inputs, where the monetary unit is a unit of work and payment fort he work done. Laborism has been noticeable since the beginning of the world, when people began to work together to form organized human teams. Denise Schmandt-Besserat during archaeological research in the Middle East found clay objects, called tokens, which at that time were used as economic accounts, also used for work. It is obvious that work is a transfer of capital, which is why these accounts had to be subject to the principle of double entry. Each employee's commitment was measured so that he could receive a fair salary later (Dobija 2016, p. 25-30).
However, in order to delve into the theory of labor economics, one should first explain what economics is. The name of the discussed area comes from the words from the Greek language: oikos meaning house and nómos meaning law. Oikonomikós, or economics, in turn meant everything that concerned consideration of household rights. A more defined concept can be seen at the turn of the 5th and 4th century BC, in the works of Socrates' students: Plato and Xenophon. Plato in his work focused on the features of the state and ways of its improvement. He argued that there is a social division of labor, in which talented people occupy high positions, less educated people work, among others, in craft or trade, and slaves belong to the last group. Xenofont, in turn, raises issues of farm management. He gives tips on how to manage a farm to get rich. Xenophon already notes the importance of good education and upbringing of future managers, as well as support offered by the country. (Stankiewicz 1998, p. 47-49).
According to Aristotle, to lead to economic growth, attention should be paid to improving the methodology and better organization. It was also Aristotle who noticed that goods that are needed and more useful in life can be bought cheaply, and things that are less useful are available on the market at much more expensive prices.
Thomas Aquinas (1225-1274), a Dominican, and also a 13th-century philosopher, merges the current concept of economics, also modeling on the thoughts of the aforementioned Aristotle. Instead of dualism, he began to proclaim gradualism, saying that the surrounding world was built in a divine order. Aquinas's views focused on the theory of property, as well as on the theory of social relations, which together influenced the theory of fair price, which in turn affected issues such as the theory of pay and profit, as well as interest and money. The theory of pay and profit was influenced by the desire to receive fair pay for work and all services.
The theory of property proclaimed the need, or even the duty, to share with the poorer and those in need, as well as to be guided by justice and prudence. The theory of social relations professed the equality of all people, and the poorer and richer. Both these theories influenced the development of the theory of a fair price, which was popular mainly in the economy of goods and money, as well as among the followers of the Church and workers. Tomasz Aquinas talked about work as an obligation to devote time, physical and mental strength, but which can also be a pleasure. Thanks to work you can maintain yourself, but also find the meaning of life (Stankiewicz 1998, p. 76-80).
William Petty (1623-1687) introduced elements of statistics, i.e. a quantitative method, to economic research. First of all, his views focused on the theory of wealth of nations. He listed work, land, professional competence and resources as factors influencing production efficiency, but also tried to explain the link between work and land. He claimed, for example, that the daily maintenance of a worker is associated

with the value of land and the work needed to produce it. You can also see here the concept of the theory of pay, which in this case is the minimum cost that will allow you to survive and support yourself and your family (Stankiewicz 1998, p. 151-153).

Adam Smith (1723-1790), a philosopher from Scotland, explains in his work An Inquiry into the Nature and Causes of the Wealth of Nations from 1776 market law, and how trade and industry developed in contemporary Europe (Heilbroner 1993, p. 37-47). The main occupation of Adam Smith was analyzing and seeking a way to enrich the nation. One of the sources in his opinion was work, which ensured prosperity of the nation, and in order to enlarge this effect he proposed the exchange and division of labor. The division would not only apply to a specific enterprise, but to all professions, communities and other nations. Smith divided work into two categories, namely non-productive and productive. The first concerned the provision of services which, in his opinion, did not affect the nation's enrichment. However, the second category includes actions which result in material goods. However, not everyone was in favor of this division, as this could mean that service providers could lose their jobs (Stankiewicz 1998, p. 159-160).

Smith's theory of values presents his feelings about exchanging goods, creating value, prices and income. Value can be understood as value in use and exchange value, which influenced the theory of value based mainly on work. The philosopher explains this by the fact that since the dawn of time, work has been a price that had to be paid. From this derives another statement of Adam Smith, namely that it is pay, rent and profit that are the main sources of the nation's enrichment, and the creation of value, apart from work, is also influenced by capital and land. The theory of capital is mainly based on the accumulation of own products, which will later lead to their exchange for other people's products, therefore the requirement is their first saving, which accumulates in capital. It is divided into permanent, i.e. buildings, premises and rotary - money, materials, raw materials (Stakiewicz 1998, p. 160-162).

David Ricardo (1772-1823) also expressed his views on values. The author best known for his work Principles of Political Economy and Taxation from 1817, in which he writes about issues such as land rent, relative wages or work-based value. Ricardo's work usually referred to issues and problems that were important in his time. He often commented on the work of Smith, whom he highly respected, but with the thoughts of which he did not always agree. In his opinion, political economy primarily included the theory of value, which influenced the theory of pay, the theory of profit and the theory of rent - these three theories were referred to as theories of division. It also influenced interest theory, money theory and comparative costs. There were connections between these elements, which together had an impact on economic policy and vice versa. Ricardo tried to answer the question: what affects price changes? He pointed out the importance of distinguishing between exchangeable and useful value. He did not agree with Smith's assertion that the value of the good is conditioned by the amount of work it receives in return. According to him: „The value of a commodity, or the quantity of any other commodity for which it will exchange, depends on the relative quantity of labour which is necessary for its production, and not as the greater or less compensation which is paid for that labour" (Ricardo 1957, p. 8-7). This helps to find a price response - they are affected by changes in the labor costs of the replaced products. It was also difficult for him to determine the value of the goods, because the same amount of time devoted to the production of the product was not enough, but also began to take into account the work efficiency and qualifications of employees (Stakiewicz 1998, p. 165-169).

Ricardo's theory of pay is also important, in which he states that work is a commodity, its price is remuneration, and the labor market determines demand and supply. He wonders what the price for work is mentioned. He agrees with his friend Thomas Robert Malthus, another esteemed economist, that the price of labor is to keep the worker alive. This price, however, increases, due to the need to maintain a society that is gradually growing, i.e. additional funds are required, which requires additional labor and capital.

Professor Arthur Cecil Pigou focused on determining the conditions in which welfare grew. In his works Wealth and Welfare from 1912 and The Economics of Welfare from 1920 he puts forward some ideas on how to improve the welfare invoked. He mentions the possibility of improving the status of the poor by increasing their income while reducing the income of the more affluent layers by using income redistribution. This idea was based on the idea of the usefulness of money. Assuming that it is not characterized by decreasing marginal utility, it would not matter much who ultimately receives this money: people with lower or higher incomes, because social well-being increases in each case (Ratajczak 2014, p. 22-23). Pigou in his Theory of unemployment indicates the possibility of increasing employment while reducing wages. In his opinion, the drop in wages will increase employment in the short term, regardless of the fact that the costs decrease in proportion to the nominal wages (Blaug 2000. P. 616-618, 701).

The impact on labor economics theory can also be seen in the work of John Maynard Keynes, who spoke about work, and in particular unemployment. He disagreed with the idea that there was such a thing as voluntary or temporary unemployment. In his opinion, there was compulsory unemployment, arising in a situation when employment does not change, but the demand for a given production is growing. He disagreed with Pigou, who claimed that the amount of remuneration had an impact on employment and that its reduction would have the effect of reducing unemployment. According to Keynes, the size of employment affects the level of real wages.

5. Conclusion

Labor economics is a subdiscipline, that is a specialty of economics, which has evolved over a fairly long evolutionary process, going through subsequent stages in which both the directions of research on the labor market as well as the nature of this research and the research methods used have changed. The economists mentioned above did not create a coherent concept of labor economics or human capital, but it must be admitted that most of them agreed with the importance of knowledge and skills possessed by man for the development and proper functioning of the economy, and that it is people who are the main element of national capital.

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