

CONCEPTUALISATION OF HUMAN CAPITAL AND SUSTAINABLE RURAL DEVELOPMENT

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Abstract

The aim of this paper is to conceptualise the human capital starting from early approaches to the present day. The human capital concept has been a constant in the economic and social thinking and practice even since classical economics, followed by the approaches in the post-war period and those specific to the recent and contemporary period. The intensity of human capital research has fluctuated over time, yet the interest has remained permanent and acquired new dimensions and valences. The present period comes with a series of new challenges and opportunities for the accumulation of human capital. Human capital is an important pillar in economic growth and sustainable rural development. In the current context, characterised by geo-political instability, pressure of climate change, economic instability and technological changes, human capital is subject to pressures that it has to face, both on the labour market and in social life, which presupposes the increase of resilience through the accumulation of new knowledge and skills.

Key words: population health and education, sustainable development

INTRODUCTION

The first approaches to the theory of human capital date back to antiquity, and belong to the philosophers Plato and Aristotle, starting from the knowledge and production capacities of individuals. William Petty continued the approach in 1663 and considered the individuals as fixed capital and their production capacities as circulating capital. He assessed the value of a human life in monetary terms, as the earnings obtained throughout an active life [18]. Adam Smith, in his work "The Wealth of Nations" (1776) [19], had a significant contribution in defining human capital, considering that the division and specialisation of labour could be achieved through adequate training; the capabilities of the individual are elements of a nation's wealth; investments in education are considered future sources of income; knowledge and experience are elements of fixed capital, etc.

The modern theory of human capital was developed in the second half of the 1900s by the exponents of the University of Chicago, the pioneers of the theory being T.W. Shultz, G. Becker and G. Stigler (Nobel Prize winners in

economics). The human capital topic was approached from the point of view of economic growth. For the first time, the components of human capital (educational capital, biological capital respectively) appeared in an incipient form [1].

In the recent/current period, an increased importance is given to theories on human capital, through the impact of innovation, research, education, health or environmental protection on improving the quality of people's lives [14].

In this context, the objectives of the present paper are: identification of the temporal evolution of the concept, the main theories regarding human capital, its component elements and quantification methods.

MATERIALS AND METHODS

Over time, the human capital concept has raised a series of debates on the definition of the notion, quantification and establishment of component elements. The complexity of this issue will generate certain obstacles in encompassing all the facets of the concept, and thus a special attention will be paid to those approaches that treat human capital in terms of

economic growth and sustainable development.

The scientific approach of this paper is based on a summary review of the literature regarding the concept of human capital and the theories related to it, as well as the implications for economic growth and sustainable development.

The course of the research will stop at present, in the Romanian countryside, and the new perspectives and challenges from the perspective of human capital and sustainable rural development will be highlighted, which emerge from the study of the literature and evaluation reports of policies, plans and sectoral action strategies in relation to human capital.

RESULTS AND DISCUSSIONS

Definition of human capital

Adam Smith, long before the conceptualisation of human capital by the representatives of Chicago University, in his book “*The Wealth of Nations*”, viewed the human being as a machine that generated costs, but also with the ability to generate income, yet without offering a method to estimate the value of human capital” [26]. He defined four types of fixed capital: equipment, buildings, land and the acquired and useful abilities of members in the society.

The pioneers of human capital were **Jacob Mincer, Theodore Schultz and Gary Becker** [1]. In the 1960s, they first applied the concept of human capital to economics. In their approach human capital represents means of production, and investments in human capital involves spending on education and professional training, that will generate an increase in productivity.

In the 21st century, capital was defined in the literature, from the economic point of view, as a multidimensional term, consisting of: “organisational capital, intellectual-human capital, relational capital, financial capital, social capital and innovation capital” [4].

According to the **dictionary of economic sciences**, human capital is defined as “the combination of social and juridical characteristics that institutionalise the

participation of individuals in the production of goods and services that are socially evaluated” [2]

Human capital was treated by economists in close relation to education, health and human capacities and abilities, that is those elements that can generate productivity growth [30].

Frank and Bemanke, in the year 2007, defined human capital as an “*amalgam of factors, such as education, experience, training, intelligence, energy, work habits, trustworthiness, and the initiative that affects the value of a worker's marginal product*” [6]. Human capital is defined by **OECD** as the stock of knowledge, abilities, skills and other personal characteristics that generate individual, economic and social well-being [15]. Human capital is also an intangible asset that can support productivity, innovation and employment opportunities [16].

Table 1. Temporal evolution of the definition of human capital

Definition	Author
“as man's productive force that is due to his professional training, educational system and state of health”	Th. Schultz, 1961 [28]
“knowledge and skills form capital and this capital is the product of deliberate investment”	
“the ability, knowledge and capabilities of all that lead to increased labour productivity”	
“includes educational capital, biological capital, migration capital”	G. Becker, 1964 [1]
“stock of knowledge, abilities and skills incorporated into an individual resulting from his genetic inheritance, and subsequently, from investments in education, training and experience”	
“the skills and knowledge of a person that facilitate change in action and economic growth”	James Coleman, 1988 [28]
Fundamental source of productivity	P. Romer 1990 [22]
“the set of productive capacities of an individual, including his/her operational skills in the broadest sense: general or specific knowledge, skills, experience...”	Bernard Grazier, 1992 [28]
“the value of knowledge, skills and experience of the employees of the company”	Leif Edvinsson, 1997 [28]
“individual-specific human capital refers to the knowledge applicable to a wide range of companies and industries, it includes managerial and entrepreneurial experience”	Pennings, Lee&Von Witteloostuijn, 1998 [28]

<p><i>“knowledge, skills competences and other attributes acquired by individuals that are relevant for the economic activity”</i></p> <p><i>“stock of knowledge, abilities, skills and other personal characteristics that facilitate the creation of personal, social and economic well-being.”</i></p> <p><i>“intangible asset with the ability to drive and sustain productivity, innovation and employment”</i></p>	<p>OECD, 1998 [15]</p>	<p>social policies, and training expenses in the workplace [17].</p>
<p><i>“human capital includes the level of academic education and professional training”</i></p>	<p>Hinz&Jung Hauer Gans, 1999 [28]</p>	<p>The human capital theory has been subjected to a series of ideological, pragmatic and technical criticisms. Representative ideas of the human capital critics have been related to the fact that all human capital-related expenditures are treated as investment, even though some of them are consumption expenditures. Another criticism comes from the fact that not all the non-monetary benefits on the workplace are taken into consideration – related to better working conditions, increased job satisfaction – which cannot be reflected in higher incomes, and the rate of return on investment is uncertain [5].</p>
<p><i>“accumulated stock of skills and talents and their manifestation in an educated and qualified workforce in the region”</i></p>	<p>Mathur, 1999 [12]</p>	<p><i>Ideological criticism</i> refers to the excessive use of the term capital, thus giving the impression that people are positioned on the same level with machines, physical capital.</p>
<p><i>Innate abilities and knowledge and skills acquired by individuals throughout their lives</i></p>	<p>Laroche, Merette, and Ruggeri, 1999 [9]</p>	<p>Pragmatic criticisms refer to the fact that the social organization of school (example: educational differences between a bourgeois school and a scientific school) foreshadows the future educational-professional training of individuals.</p>
<p><i>“a hidden concept, a valorisation of the skills of individuals. A simple definition describes it as the value of a person's productive, marketable skills”</i></p> <p><i>know-how, information, relationships and connections, general capabilities that individuals carry on behalf of the firm, as a result of salary relationships</i></p>	<p>Joop Hartog, 2000 [28]</p> <p>Galunic, D. C., & Anderson, E. (2000). [7]</p>	<p><i>Technical criticism</i> refers to the fact that education and training of individuals are not directly conditioned by the level of productivity, but they condition potential productivity of individuals in the future.</p>
<p><i>“... all the intangible assets that people bring to their workplace”</i></p>	<p>Thomas Davenport, 2001 [28]</p>	<p>Human capital in the theory of economic growth</p>
<p><i>Human capital is not limited to formal education, but encompasses experience, practical on-the-job learning, as well as non-traditional training methods that contribute to the development of skills</i></p>	<p>(Davidsson, Honig, 2003). [3]</p>	<p>Education has been perceived as having an impact on economic growth, through the increase of innovation and technological and knowledge diversification. And the improvement of technology and knowledge (skills) translates to increased productivity, which generates economic growth over time [21]. Combining this approach with the educational spending issue leads the scientific approach to two significant theories: the neoclassical theory of economic growth and the new theory of endogenous growth.</p>
<p><i>A set of skills and accumulated experience that result in making employees more productive</i></p>	<p>Joseph Stiglitz (2007) [29]</p>	<p>The neo-classical theory of economic growth</p>
<p><i>“Additional production factor, consisting of the sum of the stock of knowledge, qualifications and experiences acquired both in formal education and in the post-school period during the process of on-the-job learning (“learning by doing”)</i></p>	<p>C. Russu, 2012 [24]</p>	<p>The neo-classical theory was developed by Robert Solow and Trevor Swan, in the year 1959. Robert M. Solow addressed investment in human capital at macro-economic level to stimulate growth and factor productivity, as</p>

Source: author's own selection from the literature [28, 1, 22, 15, 12, 9, 7, 3, 29, 24].

Modern human capital theory – in brief

The human capital theory was developed by the representatives of the Chicago School, and the models dealing with the impact of human capital on economic growth started from the neoliberal ideological framework. The human capital theory targeted several approaches, not only from the economic considerations of the educational process, but also of health, and they consider the development of individuals, but also public spending on health, education,

social policies, and training expenses in the workplace [17].

The human capital theory has been subjected to a series of ideological, pragmatic and technical criticisms. Representative ideas of the human capital critics have been related to the fact that all human capital-related expenditures are treated as investment, even though some of them are consumption expenditures. Another criticism comes from the fact that not all the non-monetary benefits on the workplace are taken into consideration – related to better working conditions, increased job satisfaction – which cannot be reflected in higher incomes, and the rate of return on investment is uncertain [5].

Ideological criticism refers to the excessive use of the term capital, thus giving the impression that people are positioned on the same level with machines, physical capital.

Pragmatic criticisms refer to the fact that the social organization of school (example: educational differences between a bourgeois school and a scientific school) foreshadows the future educational-professional training of individuals.

Technical criticism refers to the fact that education and training of individuals are not directly conditioned by the level of productivity, but they condition potential productivity of individuals in the future.

Human capital in the theory of economic growth

Education has been perceived as having an impact on economic growth, through the increase of innovation and technological and knowledge diversification. And the improvement of technology and knowledge (skills) translates to increased productivity, which generates economic growth over time [21]. Combining this approach with the educational spending issue leads the scientific approach to two significant theories: the neoclassical theory of economic growth and the new theory of endogenous growth.

The neo-classical theory of economic growth

The neo-classical theory was developed by Robert Solow and Trevor Swan, in the year 1959. Robert M. Solow addressed investment in human capital at macro-economic level to stimulate growth and factor productivity, as

well as national wealth. He emphasised the idea that human capital growth is an investment, not a cost [27].

The neo-classical growth model assumes that capital accumulates in the economy, and how people use this capital is a determinant of economic growth. This model emphasises the link between capital and labour, which is reflected in production.

The Solow growth model was initially based on a quantitative approach to human capital – labour factor – based upon the Cobb-Douglas production function, in which the capital and labour factors have an elasticity substitution equal to 1 (to achieve the same volume of production, a 1% reduction in capital must be offset by a 1% increase in labour).

This instrument proved to be insufficient to explain the high economic growth rate in Western countries in the first years after the Second World War and continued in the 1950s. Thus, as an improvement to the model, R. Solow (Nobel Prize in Economic Sciences in 1987) introduced a third factor into the Cobb-Douglas function: the "*residual factor*", represented by technical progress, scientific knowledge, people's creative capacity, etc. [27]. This appears as an "endogenous" factor in relation to the economic growth process, but which incorporates a series of "exogenous" elements capable to increase the effectiveness of production processes. In this way, a qualitative approach to the labour factor was prefigured. Theoretical analyses and empirical studies on technical progress have led to a clarification of the role of human capital in economic growth.

This research highlights the acceleration of technical progress and the increasing complexity of production processes, which creates a new necessity in contemporary economies, i.e. the need to have as many qualified workers as possible. The only modality to increase the qualification level that would increase labour productivity, as well as social welfare, is the large-scale training of workforce. Thus, the emergence of human capital theory is imposed by the economic and social realities of the 21st century world.

The new theory of endogenous growth

The main contributors to the economic endogenous growth theory were P. Romer and R. Lucas (Nobel Prize laureate in Economic Sciences in 1995) [23], [10]. This theory is based on the principle of self-sustaining economic growth, unlike previous theories (R. Solow theory, which explains economic growth through "exogenous" factors); thus, investments in education represent an important accelerator of economic growth, which makes it possible to eliminate the so-called "Solow paradox" (denotes the discrepancy between the evolution of the volume of investments in information technology and GDP evolution).

Romer, P. (1994) and Stonier and Hague (1972) agree with Solow's hypotheses, arguing that technology should be an endogenous rather than exogenous determinant, because investments, research and development, knowledge and capital accumulation are reflected in the long-run economic growth. Investments in physical and human capital generate economic growth, which indicates that in the balanced state, growth derives from the development of human capital [22], [21].

In this regard, a series of recent studies have focused on measuring the stock of human capital from the perspective of economic growth theory, highlighting the mission of human capital in increasing well-being, as well as identifying the most appropriate means to eradicate endemic poverty in the countries with emerging economies. These theories show that starting from minimum investments in the accumulation of human capital, significant increases of production, and improvements of labour productivity can be generated [11].

However, the economic growth rate of a country depends on initial conditions, so that in a country with a low level of physical capital and human capital, the positive effects of education are not strong enough to generate and sustain economic growth. The human capital stock needs to be integrated into a production system capable to use the capabilities of individuals.

A consultation of the websites of organizations such as the World Bank, the Organization for Economic Cooperation and Development (OECD), the United Nations Educational,

Scientific and Cultural Organization (UNESCO) etc. reveals the importance given to theories that analyse the impact of innovation, research, education, healthcare or environmental protection on economic growth and improving the people's quality of life [13].

Components of human capital

There are several approaches to human capital in the scientific research, namely *at macroeconomic level and at microeconomic level*. At the microeconomic level, the approach considers the accumulation of knowledge, skills and abilities by the individuals in order to increase the level of personal or collective well-being (boosting productivity/efficiency at the firm level). The human capital thus accumulated is not transmissible, and the individual is the bearer of such capital, independently of the structures that have formed it; reaching a certain level of human capital can generate well-being, both at micro and macro levels. In this context, according to Becker's theory, the individual might be tempted to invest in personal education and training to reach a higher satisfaction scale [20].

Firm-specific human capital refers to those skills and knowledge that can be used only within the firm that has invested in their creation. In other words, these skills represent a competitive advantage for the firm, but they have a limited impact outside the unit. At the same time, the firm can also invest in the development of non-specific skills, through training and professional development courses, which will also have an effect on increasing firm's competitiveness, as well as on improving overall productivity at society level [20].

Most experts treat **Human Capital** as consisting of **educational capital** (skills acquired by the individual in the formal education process, as well as outside it) and **biological capital** (health status transposed in the physical abilities of individuals) [25].

Educational capital is composed of formal education (institutionalised education and training) and non-formal education. Education can be of several types depending on the type of investment, namely: a) informal parental education (education received from parents);

b) formal education (knowledge received in primary, lower and upper secondary education); c) tertiary education: specific skills acquired in universities); d) formal and informal adult education (skills acquired by adults outside their work environment); e) continuous learning (skills acquired at work).

Biological capital is represented by the physical abilities of individuals, most often summarised by their state of health.

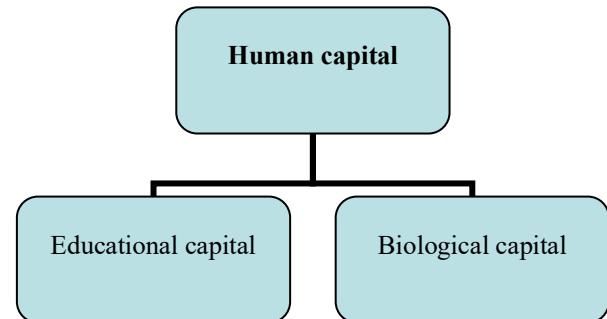


Fig. 1. Componence of Human Capital
Source: author's own conception.

Characteristics of human capital

Human capital is a multi-dimensional and multifactorial concept. It is *multidimensional* because it includes a series of elements such as: knowledge and qualifications; skills and abilities; character traits; personality; reputation and social status; mobility; state of health; level and quality of consumption, etc. Human capital is also *multifactorial*, as a multitude of factors contribute to its formation and development, namely [19]:

- demographic data (population number, structures by genders and age, residence areas)
- economic situation and education level of family, which refer to the investment made by the family for education, nurturing and developing children's talents
- public spending for education and initial and continuous vocational training; healthcare and social assistance; culture; arts; environmental protection; housing etc.;
- public expenditure of economic operators for human resource development;
- personal expenditures made by individuals for their professional development throughout their lives.

Investment in human capital is a long-term investment both in terms of the period when it is made as well as of the period when its effects

are felt for individuals or community to which they belong (family, society). Investment in the production and use of human capital generates comparative and competitive advantages; winners are those individuals, those communities/nations that have in view and act to preserve, protect and develop the human capital stock [19].

As J. S. Mill highlighted in 1848, a fact confirmed by recent history, the speed and capacity with which a country recovers from devastating phenomena (natural disasters), economic disasters (economic crises) and military disasters (riots/wars) is faster the more modest the losses of human capital were.

Measuring human capital

It is quite difficult to measure human capital, given its multidimensional and multifactorial nature. Among the conventional ways to measure human capital, one of the three methods listed below can be used [8]: a) *The evaluation of results* takes into account a series of indicators, including: the enrolment rate in the educational system, the graduation rate of different education cycles, adult literacy and the average number of years of education; b) *The evaluation of costs* takes into account the calculation of educational and training costs; c) *The evaluation of income* takes into account the monetary benefits achieved by each individual following investments in education and vocational training. Regardless of the method chosen, there are a series of limitations deriving from the different way of assessment, evaluation or calculation of certain indicators used by each country.

Brief evolution of rural human capital in Romania

The post-communist period has brought about major changes in the way rural human capital is used on the labour market; thus, several stages can be noticed:

-The first transition period (immediately after the Revolution, 1990-2000): Drastic decrease of the number of rural-urban commuters for work due to the restructuring or bankruptcy of many industrial and production units from towns, which has resulted in non-employed active population in rural areas or underemployed population in subsistence agriculture. This period of transition to market

economy is a period of learning, of accumulation of human capital, yet with losses that are difficult to recover (human capital losses through school dropout, disqualification, poorer health condition, poverty expansion, destrueturing of family institution) [19].

-The second transition period (2000-2006):

Emergence of a flow of urban residents who lost their jobs in industry coming back to rural areas. Unfortunately, the only occupational variant of those who remained in rural areas or who returned to the countryside was agriculture, namely subsistence agriculture due to the process of property restitution and dismantling of the cooperative and state farm system [19].

In the transition period, the processes of human capital growth (professionalisation) coexisted with the processes of human capital loss (de-professionalisation), the latter seeming to prevail. Thus, at least in certain socio-professional segments, we can notice significant losses of components, as well as loss of motivation for continuous learning. And this is taking place at the very moment when continuous lifelong learning becomes the main axis of learning and professional training reforms in the developed countries.

-Migration has intensified – which is also the main cause of human capital losses – mainly international migration as an alternative to subsistence farming, specific to the **Period 3 (after Romania's accession to the EU)**;

Besides the negative effects linked to the displacement of human capital from the Romanian countryside, the massive post-accession migration can also have positive effects in the short term, such as those associated with migrant remittances, capital accumulation, as well as long-term effects related to migrants' return home, which has been a more frequent phenomenon after the pandemic; migrants are coming home with a more developed entrepreneurial spirit, with a new development vision for their native area (**Period 4 – after the pandemic**).

The dynamics of rural area was different, where the lack of employment opportunities led to external migration over time, but also to internal rural-urban migration, generating a

decrease in the stock of human capital in rural areas, with a negative impact on the development of rural communities. The post-accession period has brought many financial resources to rural areas mainly through the rural development programmes implemented in this period, yet nowadays we are facing large development gaps between different rural spaces. Thus, we have peri-urban areas that have been informally assimilated to urban areas - around urban poles, as well as in tourist areas - these draw in human capital, while isolated areas, as well as rural areas located at a greater distance from urban centers, experience losses of human capital.

CONCLUSIONS

Human capital is an important component of economic growth and sustainable development, which must have the necessary knowledge and skills in order to face current and future challenges. Particular attention must be paid to it to reach a certain development level, so as to further contribute to the development of communities to which they belong. The development of human capital can be achieved by ensuring quality lifelong educational and healthcare services.

There is an obvious rural/urban divide in terms of human capital development, but lately, a significant gap has been also noticed between different rural areas. The higher development level of certain rural areas is correlated with obvious advantages that more developed areas benefit from: proximity to urban development poles (which facilitates access to education and healthcare, as well as access to non-agricultural jobs), existence of technical and utility infrastructure, existence of quality public infrastructure and services, relatively short distance (up to 30 km) to larger cities, etc. Thus, at present, there are rural areas where the living standard of the population is close to that in urban areas and poor and isolated rural areas, forgotten by the world. However, one of the EU's mottos is "Nobody will be left behind", which implies a lot of societal responsibility. Romania's sustainable rural development vision should be an integrated vision, taking into consideration that in the absence of

developed human capital (healthy, educated and informed), the solid foundations of development of a community, of society respectively, cannot be laid. Ideally, the rural identity (habits, traditions, crafts) should be preserved, alongside with adaptation to new technological trends.

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