Education Policy in the Context of Economic Sciences – Human Capital in the Process of Production and Consumption

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***Abstract* – In economic relations, man acts both as creator and consumer of values. As a creator he applies his human capital in them. The aim of the study is to contribute to clarifying these starting points from the aspect of economic theory. The first chapter is devoted to man and his education in the process of value production. W. Petty viewed man directly as (human) capital; A. Smith viewed man as the bearer of this capital; but in the latter case it can be assumed that part of the investment in education is consumed. The second chapter is devoted to a man in the process of consumption of the goods of education. Man as a consumer of the values (goods) of education can be seen in terms of cardinalist or ordinalist theory. The result of the study is a better understanding of these theoretical underpinnings of economic science, allowing practical questions about the financing of education to be addressed with greater competence.**

***Keywords* – education policy, human capital, economic sciences.**

1. Introduction

The relationship between education policy and the economy is a fairly common topic, especially in political debates, though it is usually reduced to the question of education funding. Economic debates are a little broader, often seeking answers to questions about the efficiency of spending on education, or the return on resources, and etc. The focus here is on investing in human capital as a factor of economic growth.

If we understand economics as the study of the scarce resources in which man converts into means by which he satisfies his needs, then we can easily understand the tradition that also classifies economics as a behavioural science, that is, a science of human behaviour. Economics is also ultimately a science of man, even if the influence and importance of this factor is abstracted in numerous economic theories, in many major publications and in the work of a number of the greats of economic theory.

Man, on the other hand, has been regarded as homo economicus at least since the time of John Stuart Mills, as he satisfies his needs through all his activities, trying to make rational use of the available resources [13]. In the process of satisfying his needs, man creates certain values and produces these values, contained in certain goods, and consumes them. Here man acts as a producer, a producer of goods. However, man also enters into the production and, in particular, the distribution of services, where his connection with services provided is even stronger – services are inseparable from their provider. We could split this whole article up in terms of whether we consider the goods of education to be goods or services, but for the context of education policy we will allow ourselves to abstract from this important (especially in terms of economic theory) distinction.

Production and consumption are two key phases of the reproduction process, but man acts differently in them: man acts as a producer in the labour market as one of the markets for factors of production – and he acts as a consumer in the market for products and services also in his segment of educational services. Man purchases services in the education services market, their value then appreciating (directly or indirectly, partially or even completely) through his work in the labour market.

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It is not our ambition here to present a comprehensive overview of the perspectives of all relevant authors, but rather to selectively draw attention to certain ideas that can provide inspiration, within the rich body of knowledge from the entire history of economic theories, for searching for our views on education policy in the context of the economic sciences. Neither is our ambition to introduce a new classification of economic theories, but it is nevertheless possible to find some continuity in the views of the classics of economic theory that are meaningful from the aspect of the economics of education.

Indeed, we can also look at education economically from the point of view of man as a producer and man as a consumer. Education in terms of education policy in an economic context can be analytically viewed in several interrelated ways:

- Education in the context of the creation of value (and the production of goods), where we can distinguish a certain part of education that gains value in this process and co-creates human capital (the term "capital" usually referring in economic sciences to assets from which income will flow). Here it can be studied in terms of labour skills, in terms of (work and other) competences, in terms of remuneration for work, but also in terms of investing in human capital, etc.;
- Education in the context of value consumption, where we can examine it as a commodity: we can examine the questions of its consumption; the supply and demand for education; the costs and benefits of education; the question of the price of education, etc.;
- Education (knowledge) as an independent factor of production, profiling a learning society, a learning region, a learning organisation, a knowledge economy, etc.

In our opinion, analyzing these three perspectives relatively separately allows for a better understanding of the economic nature and economic context of education and training. Only by synthesizing these three perspectives we can see the true meaning and grasp the various economic contexts of education and training.

The various aspects of education are intertwined in the process of market functioning; on the one hand, education enters as a component of labour through the market of factors of production into the production process, from which it emerges incorporated into various goods and services, and through the price of these products the price of labour is also formed as a cost item, in which the qualification of labour and thus the value of education is expressed in a differentiated degree, and without which the cost of labour would be different. Likewise, education, understood as a set of knowledge, know-how, information, etc., used, enters the process of production of various goods and services (as the knowledge needed to produce them) and is valued through the price of these products.

On the other hand, education is itself a commodity, the purchase of which gives the household (the individual) a value that can be translated back into the price of its labour. Despite this mutual looping, the role of education in a market economy can be examined relatively separately in each of these aspects.

2. Man and his Education in the Process of the Production of Values

The interest of the economic sciences in man dates back to the beginnings of modern economic theory in the late 18th and during the 19th century, to the names of William Petty and Adam Smith, who (like D. Riccardo and K. Marx) emphasized the importance of man in the creation of value.

But there are already some differences in the views of these two classics, which give rise to two conceptually distinct lines in the view of economic theory on man as a producer (but also as a consumer), and these lines can be characterized as:

- A line that viewed man directly as capital (based on the ideas of W. Petty) and which eventually led to the theory of marginal utility and moved to the understanding of man as a consumer;
- A line that viewed man as the bearer of capital (based on the ideas of A. Smith) and which eventually led directly to the theory of human capital. It is precisely the distinction between whether a person is viewed directly as capital or as "merely" its bearer that is crucial in terms of finding the sources of the concept of human capital and also in understanding it. Referring to G. Becker, who is considered to be the founder of the theory of human capital, J. Kameníček also writes that "human capital cannot (unlike tangible capital) be separated from a particular person" [5].

In reality, then, there was some difference between Petty and Smith in their understanding of this issue, and clarifying the question of how one actually enters into the process of value creation was not entirely straightforward [7], [18].

Man as Capital

For several authors, a man initially appeared as a direct part of capital – one of the factors of production. The idea of a man as capital can be found, for example, in the work of William Petty (1623 – 1687), who viewed man (people) as part of fixed capital, working from the idea that capital, like man, needs to be invested in, on the basis of which it can provide services that pay for the investment with a profit [10]. He even quantified the value of each inhabitant and put the population of a country in direct relation to its wealth. This is identifiable, for example, in his labour theory of value, of which he is considered the founder. He worked from the idea that labour is a value-creating factor (labour is the father of value and land is its mother) and that its value is also reflected in the exchange relationship: different goods are exchanged in the proportion in which labour has been expended in their production – although he attributed the actual creation of value primarily to labour in the mining and processing of precious metals, which for him was the measure of the value of all other products. In doing so, however, he – as the originator of the idea of the three basic factors of production labour, land, and capital – pushed aside the market as the source of wealth and replaced it with labour and the factors affecting its efficiency, including skill, but he also noted man's satisfaction through labour, his ambition, his sense of his own worth, the satisfaction of his desires and the improvement of his social status [17].

Johann Heinrich von Thűnen (1783-1850) also considered man as capital and "considered the use of the proceeds of land rent to increase the welfare of the people to be identical with its use for the appreciation of other goods", although he pointed out that this did not degrade or infringe on man's liberty [24]. What is relatively little known about this author, however, is that in his work he not only established the foundations of economic spatial theory, but also addressed the impact of education on labour productivity, from which his place among the founders of human capital theory is sometimes inferred [6], although Thűnen's understanding of man was nonetheless different.

Man (more precisely: population) as capital was also accepted later by some representatives of the Manchester School, e.g. Nassau William Senior (1790 – 1864), author of the work Sketch of the Science of Political Economy [20], [21] in which one of the theoretical foundations of his work was the assumption that man in his activity has to take into account the growth of population and therefore work more efficiently, as was also noted by J. St. Mill [14]. Senior, however, considered utility and scarcity as the basis of the theory of value, the magnitude of which, however, depends on supply and demand, which also made him one of the founders of the marginal utility school.

Later we see a continuation of this line of understanding of man as capital in, for example, the founder of the Cambridge School of economics, Alfred Marshall (1842-1924), who in his Foundations of Economics also admitted the idea that "the educated worker contributes to the greater efficiency of the use of the machine" [11], thus partly approaching the precursors of the theory of human capital in the second of the lines of the economic view of man. While he acknowledged the theoretical usefulness of the concept of human capital value assessment, he nevertheless rejected it on pragmatic grounds, since it was not sufficiently tied to economic practice (the market mechanism) [8]. It is something of a paradox that although Marshall rejected the idea of human capital in principle, Gary S. Becker, as one of the founders of this theory, used as the motto of the first chapter of his foundational work on human capital the very quote from Marshall's Principles of Economics: "The most valuable of all capitals is that which is invested in people" [1]. Marshall also addressed issues of education in society, noting that wealthy families set aside monetary resources for the education of their children, while the less affluent did not [23]. In doing so, Marshall is seen as advocating the trade-off that "while people are undoubtedly capital from an abstract and mathematical perspective, it would not be correct to consider them as capital in practical analyses as well. Hence, investment in people has rarely been included in formal economic theories [11].

Petty, more than Smith's concept, was eventually followed by Joseph Shield Nicholson, who published The Living Capital from the United Kingdom in 1891, in which he characterized "living, i.e. human, capital as capital contained and embodied in men, as distinguished from land, buildings, machinery, and other kinds of material assets" [15].

Approaches based on a human-as-capital approach allow human resource investment to be thought of as a full-fledged capital investment, where the measure of the utility or efficiency of the investment is related to the full amount of the investment. Both parameters then tend to show relatively lower values and human capital investment appears less efficient.

Man as the Bearer of Capital

In contrast, Adam Smith (1723-1790), while sharing Petty's view that human labour is the source of the growth of wealth (and the accumulation of capital the basis of its increase), differed from him in his understanding of man and (separately!) "The fixed capital contained in him": in The Wealth of Nations, Smith writes:

"The Second of the three portions into which the general stock of the society divides itself, is the fixed capital; of which the characteristic is, that it affords a revenue or profit without circulating or changing masters. It consists … the acquired and useful abilities of all the inhabitants or members of the society. The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person. Those talents, they make a part of his fortune, so they do likewise of that of the society to which he belongs" [22].

In our view, however, Smith's view cannot be taken to imply that humans are capital like any other, which is characteristic of the Pettian line of thought outlined above. Smith, rather, considered education as investing in people [23], which only then made him the founder of a line of thought eventuating in the theory of human capital.

Jean-Baptiste Say (1767-1832) sought to combine Smith's views, in particular, but also Petty's, including, on the one hand, acquired knowledge in the wealth of society (as Smith did), yet on the other hand. In his Letters to Mr. Malthus, he narrowed the understanding of capital to only the material results of human labour and distinguished them from intangible factors:

"It is not the enterpriser's capital which forms the workman's revenue, as M. Sismondi pretends. It is in the workshops, and not in the workman's dwelling, that the enterpriser's capital is consumed. The value consumed at the workman's house has another source; it is the produce of his industrious powers. The enterpriser devotes a part of his capital to the purchase of this labor. Having bought it, he consumes it; and the workman on his part consumes the value he has obtained in exchange for his labor. Wherever there is an exchange, there are two values created and bartered; and wherever two values are created, there can be and there is in fact two consumptions" [19].

Only through man's work and not just through man's mere existence (understood as fixed capital) the education invested in man is appreciated.

This line (but more Sayan than Smithian) was continued by Friedrich List (1789-1846), who argued that the accumulation of skills and abilities is a part of the capital stock [23], but in this case intangible capital, thus actually rejecting the Smithian narrow understanding of productive labour [17].

For the continuation of the line started by A. Smith, we can consider John Stuart Mill (1806 – 1873), who "considered education as one of the basic forms of raising the level of workers" [13]. Compulsory free education in primary schools was, in his view, a priority, and he saw the cost of education as part of the cost of productive labour creating material value in the future.

Among the more recent followers of this line and the more immediate predecessors of the theory of human capital (which will be discussed in more detail below), let us at least mention John Raymond Walsh, who already in 1935 published a stimulating study on the application of the concept of capital to man [26]. Another line of interest in the human in the labour process is represented by the Human Relations stream, which since the 1920s and 1930s has expressed interest in the human agent of production, especially at the corporate micro-level.

Although there are numerous overlaps between the two streams (and if we were to take note of other aspects of the theoretical approaches of the above authors, we would arrive at a quite different breakdown – for example, in value theory, A. Marshall links to A. Smith and through Henry Sidgwick again J. St. Mill), nevertheless, distinguishing between them allows us to better understand not only the emergence of the theory of human capital, but also the broader context of economic perspectives on man, as a prerequisite for better understanding the economic context of education policy.

Approaches based on an understanding of man as the bearer of capital allow us to think of investing in human resources as an investment where only part of the investment is capitalized and yields future returns. A part of the invested resources is consumed in a non-capitalized way, so that the measure of utility or efficiency of the investment cannot be applied to the entire investment. Both parameters then tend to show relatively higher values than in the previous case and investment in human capital appears to be more efficient.

However, this reasoning has to also take into account the way in which consumption decisions are made, since the decision on the proportion of the investment capitalized and consumed is not random.

3. Man in the Process of Consumption of Education Goods

While goods are useful, their production represents only one aspect of economic reproduction. The other, equally important, is their consumption – and here, too, man as consumer behaves according to his preferences, which are the result of the intersection of his needs and his possibilities. Satisfying his needs is always a process of achieving a combination of consumption of different goods that would rationally satisfy his needs. This orientation, which came the so-called marginalist revolution in the second half of the 19th century, marked a departure from classical economic theory, which tended to look at the supply side of the market (and within it, from our point of view, man as a producer) to the demand side.

If we view education as a process of satisfying needs, then from an economic point of view this is the context of the issues traditionally addressed by economic utility theory.

Economic utility theory (sometimes directly referred to as consumer theory) is based on the idea that the consumer creates an individual mix in consumption patterns based not only on his (limited) resources but also on his preferences, and that the aggregate consumption is ultimately limited by the resources that he or she can spend on covering this consumption.

On the other hand, depending on the structure of consumption (even with the same resources), different levels of need satisfaction may be achieved. Here, utility theory speaks of differences which, in general, the individual utility of consuming a given good decreases as the satiation of the need increases. Further accumulation of a generally useful good does not bring further utility in a particular case.

This theory is then followed by the marginal utility theory, whose founders include W. S. Jevons and A. Marshall, belonging to the Cambridge school of neoclassical economics, whose concepts were further developed by the Lausanne (V. Pareto, L. Walras) and Austrian (C. Menger) schools: unlike classical economics, in these approaches the value of a good is not based on the size of the cost of production, but on the subjective feeling of satisfaction with the last unit of the stock of a certain good.

Consumption of Education in the Cardinalist Approach

However, the theory of marginal utility is primarily associated with the name of Hermann Heinrich Gossen (1810-1848) and the laws he formulated: (1) the rate of utility decreases: the more goods there are, the less valuable they are – by gradually satisfying a need, their intensity decreases; (2) the satisfaction of needs is governed by their urgency and the attempt to achieve approximately equal intensity of their satisfaction, which prevents over-satisfaction – the highest satisfaction of needs in a case of limited possibilities is achieved when all satisfaction of needs is interrupted at the moment of equilibrium of their satisfaction; (3) one seeks to maximise total utility by balancing the marginal utility of the goods obtained through labour against the marginal "disutility" of one's labour (as in Jevons' "pleasures and sorrows" – see below) [2].

Although Gossen published his work The Development of the Laws of Human Intercourse and the Resulting Rules of Human Action in 1854, it remained long forgotten, and owes its rediscovery to Léon Walras (whose Principles of Pure Political Economy appeared in 1874 and 1877), one of the earliest proponents of the cardinalist approach in utility theory: Walras also derived the demand and supply functions in an "exchange" economy from marginal utility [25].

In this line we can include also William Stanley Jevons (1835-1882), author of The Theory of Political Economy. He built his concept in a straightforwardly hedonistic way, where the annoyance of having to work is compensated for by the consequent satisfaction of a wage. The inconvenience of accepting work increases in proportion to amount of time worked, while the utility, expressed in terms of wages, decreases. Jevons writes:

"The whole amount of pleasure that a man gains by a day's labour hardly enters into the question; it is when a man is doubtful whether to increase his hours of labour or not, that we discover equality between the pain of that extension and the pleasure of the increase of possessions derived from it. The produce of the same number of hours he can satisfy his desires more completely; and if the irksomeness of labour has reached at all a high point, he may gain more pleasure by relaxing that labour than by consuming more products. The question thus depends upon the direction in which the balance between the utility of further commodity and the painfulness of prolonged labour turns" [4].

Jevons is considered another of the forerunners of marginal utility theory, but the focus of his thinking remained on the supply side of the market in terms of understanding the place of the individual in it.

In 1871 not only did W. S. Jevons publish his foundational works, but also another of the founders of the theory of marginal utility, Carl Menger, the last of the important supporters of the cardinalist approach in this theory, according to which utility is directly measurable and man as a consumer is able to assign a specific utility value to each good, and thus also to compare the value of goods against one another. The value of the goods thus appears as a utility, evaluated subjectively in terms of the consumer's individual need. Menger distinguished between first-level goods, valued by an economically (rationally) thinking person according to the principle of marginal utility, and goods of other levels, into which the value of first-level goods, which are involved in their creation must be projected (Menger's scale). Menger writes:

"The value (of goods) is therefore not something fixed to them, it is not a property of them, but it is something that exists in them as a somewhat independent thing. Hence the decision that economically minded people make the importance of disposable goods for the preservation of their lives and their well-being is likewise not outside their consciousness" [12].

In the cardinalist approach, the value of both is used to decide the proportion of the consumed and capitalised portions, which is a rather problematic task because the value of the capitalised portion is the value of future utility, while the value of the consumed portion reflects immediate utility.

Consumption of Education in the Ordinalist Approach

In contrast, the ordinalist approach of marginal utility theory assumes that utility is not directly measurable, but a person as a consumer can only rank goods according to his own preferences in a certain order. Vilfredo Pareto (1848 – 1923), a representative of the Lausanne school of neoclassical economics, is considered to be the founder of this approach, who assumed that goods are not independent from the consumer's point of view, but act as substitutes or complements to one other, and the consumer compares them against one other, arriving at the construction of the so-called indifference curves, which are only ordinal in nature, i.e. they only express the order in which the needs are satisfied. Pareto explains it as follows:

"A man who buys a certain food for the first time may buy more of it than is necessary to satisfy his tastes, price taken into account. But in a second purchase he will correct his error, in part at least, and thus, little by little, will end up by procuring exactly what he needs. We will examine this action at the time when he has reached this state. Similarly, if at first he makes a mistake in his reasoning about what he desires, he will rectify it in repeating the reasoning and will end up by making it completely logical" [16].

Thus, this approach assumes an individualistic principle; it does not require interpersonal comparison or summation of individual satisfactions: it is actually a set of individual optima of individuals, and there may be several such optima [9].

If it has been argued in relation to Pareto that his approach entailed a rejection of the cardinalist and the adoption of an ordinalist approach, then the culmination of this approach is considered to be the work of John Richard Hicks (1904-1989), who rejected the principle of marginal utility altogether and replaced it with the notion of a marginal rate of substitution, where it is already possible to measure how much of one good one can give up to obtain an additional unit of another good, i.e., as Hicks writes: "the quantity of good Y which would just compensate him for the loss of a marginal unit of X" [3]. This eventually became the basis of modern demand theory.

In the ordinalist approach, the decision on the share of the consumed and capitalised part is based on the current preferences of both, or on their mutual substitutability. The sacrifice of short-term utilities, which seems already at the moment of decision-making preferable in favour of long-term capitalised utilities, is decision-making not on the basis of the price of education, but on the basis of a preference for long-term or short-term utilities – in other words, also capitalised or consumed investments.

The economic analysis of investing in education is therefore a much more complex process than simply comparing the costs of education and its benefits in terms of the income of an individual who also earns more income as a result of higher education.

4. Conclusion

In the process of satisfying his needs, man in various ways acquires and thereby also purchases and consumes specific goods which are of an educational nature. His decision-making and behaviour can also be analyzed in the context of the above-mentioned consumer theory approaches.

Particularly with regard to the economic context of education policy, we often encounter one-sided inaccuracies. Investing in education is sometimes understood as investing in people in the sense of the original Petty concept, which sometimes leads to the idea that such investment can be evaluated in a similar way to investing in other forms of capital, and that human capital can also be expected to deliver a full return on investment.

It is more accurate to build on the original Smithian concept and see investment in human capital as "just" a quality that one possesses. In this concept, part of the investment in education is indeed capitalised, but part is consumed by the person as the bearer of human capital. A simple example is the cost of a doctor's education: part of this cost is capitalised in the doctor's medical practice, but part is consumed by the doctor in the way he or she manages him or her and thus consumes in his or her private life the knowledge of how to live a healthy (own) life. More similar examples can be given.

In the case of the consumption of the goods of education (simplified: deciding on the appropriateness of the price of the education provided), specifically featuring for example in decisions on additional costs even where education is publicly funded, an ordinalist approach, consisting in a comparison of preferences in the spirit of, for example, Hicks's marginal rate of substitution, turns out to be more relevant. However, the consumer also takes into account the conditions under which the production of the good he is now going to consume took place. In other words, he considers what part of the invested costs will be capitalised and what part will be consumed, which may differ significantly from one profession to another.

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