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## **The Development of the Classical Theory of Labor Value**

The vast majority of calculations in various fields of the economy is related to calculations of cost indicators. Today valuation of products, goods, material objects and services is measured only by monetary indicators. In economics and finance, the term "value" in the present is understood as an indicator in the form of the amount (number) of money and does not mean other numerical indexes.

However, along with a monetary estimate that has historically been quantitatively calculated, economic science has been focusing for over four centuries on an understanding of value as an indicator measured not by money. Starting from the works of A. Smith, D. Ricardo is the basis of the value of every object made by humans, goods they produce is labor, which is understood as the human effort necessary for the production of this object or thing or service. The labor value, interpreted as the "deposit of labor into goods" and as the evaluate of goods by the human labor, is at the heart of the evaluation of goods and services in the theory, which is referred to as classical political economy. The economic teaching of A. Smith and D. Ricardo became the basis for K. Marx's economic theory. Later in the economic literature, the doctrine of K. Marx and his followers began to be called the theory of labor value.

However, neither A. Smith, nor D. Ricardo, nor K. Marx, and none of their supporters offered an indicator of measuring the amount of labor spent in the form of a numerical indicator. Thus, in the first volume of Capital, K. Marx gives a definition that labor value are measured by the number of hours of working time. And based on the superficial interpretation of the expression — "hours of work," — followers of classical political economy believe that the measurement of the value of labor is

calculated by astronomical hours, that is, those hours, which counting is carried out by the clock. However, the amount of astronomical time during which a worker (employee, manager) works is not an indicator of labor spent. For more details, see [1, 2, 3, 4 and 5]. In fact, other mechanism functions, which give, as a result, a numerical indicator of the amount of labor spent.

Observing the worker during the performance of his work functions provides a number of effective indicators that characterize the amount of work. See more about it [1]. In order to determine the indicator that describes the amount of labor spent, choose one of them, namely, — the frequency of heart rate, or, what is the same, the number of human pulse on the worker during his work over a period of time, as a rule — in one minute. Observations show that the more labor is put into goods (employee, manager), the greater the number of impacts of his pulse. This is directly proportional to the dependence of the number of human pulse on the number of work many times registered, for example [6, 7, and 8].

Specific types of work can be divided into groups depending on the load, using as an indicator of the frequency of pulse. In 1963, Brown and Growden in England investigated the industrial workers associated with the Slough Industrial Health Service and published the following data in Slough Scales: — the pulse (beats per minute) dependence on the workload: light work — 60-100, moderate 100-125, heavy 125-150, very heavy 150-175 beats per minute [6]. A group of scientists from France, Switzerland and Belgium in 1967 published J. Scherer's book "Physiologie du travail (ergonomie)" [7]. In this book, H. Monod and M. Pottier give the following classification of work on the frequency of heart pulse: very light work — up to 75, light 75-100, moderate 100-125, heavy 125-150, very heavy 150-175, extremely hard work — more than 175 beats per minute [7]. In studies of the Soviet period, 1981, in [8] the following data: very light work of 70-80 heart beats per minute, light 80-90, moderate 90-100, average 100-125, severe 125-150.

We choose the unit of labor value light work, which is characterized by 75 pulses per minute. That is, one hour of labor value is 4,500 pulse hit. The figure of 4500 pulse points is calculated as a product of 75 beats per minute for 60 minutes.

So, let's write:

1 hour of labor value = 1 hour of value = 4,500 human pulse beats.

The unit of measurement of labor value chosen by us has the following dimension: 1 hour of cost is equal to a total of 4,500 impacts of an employee's pulse. Then, respectively, 2 hours of cost is equal to 9000 pulses, 3 hours of cost is equal to 13,500 pulses, 8 hours of cost equals 36,000 pulses of the worker. Consequently, having an aggregate amount of human heart pulses per day, for example, 8 hours of work, of a particular worker in total, for example, in the amount of 63000 heart pulse, we have 14 hours of value ( $63000/4500 = 14$ ). This means that during the period of 8 astronomical hours of work, the worker (employee, manager) transferred to the product the labor (to a goods or to service) 14 hours of value or the work of such a worker during 8 astronomical hours creates a value of 14 hours. Such a "discrepancy" between the amount of astronomical hours of work and the number of labor value hours of work is due to the fact that the amount of work of such an employee takes into account its number of heart pulse, which averaged over 130 beats per minute, that is, it was a hard work compared to light in 75 heart pulse per minute, and therefore, such a work has created a higher value compared to light work for the same period of work during one and the same astronomical time. Such indicators have long been used extensively in the measurement of sports work and in the characteristics of the number of work in space medicine [9, 10].

As a result, a new economic indicator is proposed that characterizes the amount of human labor expended, or that it is an indicator of such value that is different from the traditional monetary indicators. Scientists of the Sumy State University (Sumy, Ukraine) have theoretically substantiated and proposed a practical application of a new economic indicator that characterizes and measures quantitatively spent labor during its performance of labor functions, namely, 1 hour of value is equal to 4,500 heart pulse for worker, or that one and the same thing, — a 1 hour of labor value contains 4,500 impacts of the employee's pulse (worker, employee). Briefly, in essence, about the indicator of the labor value, see Authors' certificates No. 69353 of 22.12.2016 [11] and No. 72280 dated June 21, 2017 [12].

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