

The Measurement of Human Capital as a Method of Improving the Remuneration System of the Organization

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ABSTRACT

Contemporary science and business practice in the field of remuneration management includes many concepts and models of the remuneration systems and many definitions of the salary components. Despite this rich achievement, many basic concepts related to salaries are not clearly defined, therefore organizational payroll systems arise as a result of the compromise. Most often it is a compromise between the expectations of employees and the financial capacity of the employer or as a result of interaction between the market forces, supply and demand. Depending on the circumstances, there is a risk of distortions resulting in low or high salaries or an incorrect pay relationship in the organization. As a result, the welfare of the employees is reduced or the employer's financial balance is damaged.

The aim of the article is to present the method of human capital measurement as a tool to improve the remuneration system in the organization in the context of empirical research. This method allows an objective measurement in monetary units the necessary qualifications of the employees to perform work on most traditional jobs. As a result, it is possible to provide a pay standard for such a job. The supplement to the considerations is to provide an example application of the described model to several selected workplaces and a comparison with the existing solution in the company.

OUTLINE OF CONTEMPORARY REMUNERATION SYSTEMS

The functioning of the remuneration system is a consequence of the implementation of the reward management process. Reward management deals with the strategies, policies and processes required to ensure that the contribution of people to the organization is recognized by both financial and non-financial means. It is about the design, implementation and maintenance of reward systems (reward processes, practices and procedures), which aim to meet the needs of both the organization and its stakeholders.

The overall objective is to reward people fairly, equitably and consistently in accordance with their value to the organization in order to further the achievement of the organization's strategic goals [1].

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Every organization should have such individual system of remuneration that would meet all specific conditions in which an organization works: the needs of both organization and individual needs of its employees. Remuneration system consists of strategies, policies, practices, processes and procedures.

According to E. Jaques, the purpose of job evaluation is to provide data for development of “equitable pay” by using fair, sound and consistent judgements to develop and maintain an internally equitable grade and pay structure [2]. The purpose of this approach is to achieve the pay's compliance with the value of the work performed. In turn, Gupta and Jenkins believe that when valuing work one should take into account the fact that “certain jobs contribute more to organizational effectiveness and success than others, are worth more than others and should be paid more than others”. This statement limits the internal comparability of jobs [3].

Job evaluation aims to:

- establish the relative value or size of jobs, ie. internal relativities based on fair, sound and consistent judgements;
- produce the information required to design and maintain equitable and defensible grade and pay structures;
- provide as objective as possible a basis for grading jobs within a grade structure,
- thus enabling consistent decisions to be made about job grading; enable sound market comparisons with jobs or roles of equivalent complexity and size;
- be transparent – the basis upon which grades are defined and jobs graded should be clear;
- ensure that the organization meets equal-pay-for-work-of-equal-value obligations [2].

Emerson [4] states that job evaluation using the point methods (eg Hay Guide Chart) allows for creation of occupational rankings. Unfortunately these are illusory due to the lack of real measurement tools. They only allow comparisons of job value but do not define absolute value. In turn, R.J. Plachy claims that “Job evaluation is not a scientific system, it is human system. People make mistakes. They lose their objectivity and consistency, no matter hard they try, no matter how great their integrity” [5].

As one can see, the job evaluation raises many doubts. The most frequently raised setbacks are being time consuming and irrelevant when comparing the market hierarchy of job value and the hierarchy functioning in the organization. However, despite these objections, job evaluation seems to be an necessary and widely practiced element of the remuneration system. This is due to the search for ways to implement the social and motivational function of wages.

Several models of job evaluation are distinguished in the practice of enterprises. The most common is the analytical job evaluation, which is based on the identification of factors affecting the value of job and determination of the scale of measuring the intensity of a given factor in the analyzed job position. As a result, it allows for determination of the value of each job in relation to value of other jobs. In turn, the non-analytical method determines the hierarchy of jobs by comparing them with one another or with a model for a given category. The individual elements appearing on the job are not examined. The market pricing method is another practiced method. It is based on the valuation of job adequately to the market rates of an analyzed or similar

job. Unlike the previous two types, the market pricing method is an external benchmark [6].

The model of measuring human capital, proposed in the further part of the paper, does not fully solve all problems and doubts related to the problem of job evaluation. It allows to determine the value of human capital necessary for performing given job. The model makes it possible to meet the theoretical condition stating that systemic remuneration solutions should lead to fair and equitable remuneration.

MODEL OF HUMAN CAPITAL MEASUREMENT

The starting point for formulating a proper theory of capital (and then human capital) is the statement that capital—unlike specific and heterogeneous assets—is abstract, aggregated and homogenous in character [7]. This differentiation is reflected in the 5-century-old accounting principle of asset-capital dualism. Capital defined as the ability to perform work is represented by resources, while capital concentration in a given facility determines its value.

Capital is a dynamic category, and its understanding requires identifying the factors which have an impact on changes to its value, especially the time factor. A dynamic model of capital changes is presented by formula [8]:

$$C_t = C_0 e^{rt} = C_0 e^{(p-s+m)t} \quad (1)$$

Capital is subject to three key environmental factors: natural capital flow subdued to spontaneous diffusion (s), factors diminishing the impact of destructive forces as a result of work and management (m), and an 8% natural potential growth (p). The level of 8% economic constant of potential growth is confirmed by a number of research studies, especially in the area of rates of return in capital markets where it is reflected in risk premiums in the analysis of rates of return on human capital and agricultural products [9]. These factors can increase the initial value of capital (C_0) or lead to its dispersion. Another important implication of the presented model is the fact that capital does not originate from “nothing”—it originates from initial capital (C_0).

Human capital is based on capitalized resources necessary to build the economic potential to perform work by humans. In the first place, it includes the costs of professional education increased by the costs of living. It is necessary to incur the costs of living to prepare the physical carrier of human capital—the human body. Costs are incurred in time (t), which is necessary to prepare people to perform a given profession—from the time of birth to the moment of starting a professional career. If the human body is well prepared and a young person completes his/her education as planned, it indicates that capital diffusion (s) is compensated for by parents’ efforts (parameter m). A formula of capital can be developed for employee (H_t), where initial outlays are represented by (H_0), constant economic value (p) and capitalization time (t) [8]:

$$H_t = H_0 e^{pt} \quad (2)$$

This human capital model can be further extended to represent capital as the sum of capitalized costs of living (K) and education expenditures (E). These outlays lead to the ability to perform work, and this ability increases in the course of gaining

experience. The supplementary formulas represent the development of human capital based on the costs of living K and education costs E :

$$H(T) = (K + E) \cdot (1 + Q(T)) \quad (3)$$

In the case of annual capitalization the particular human capital components can be presented in the following way:

$$K = k \cdot 12 \frac{e^{pt} - 1}{p} \quad E = e \cdot 12 \frac{e^{pt} - 1}{p} \quad (4)$$

where: k – monthly costs of living, e – monthly education costs and the remaining values as presented above.

The process of gaining work experience can be graphically presented as a learning curve. This concept assumes a slower pace of an increase in the work potential in the course of subsequent work cycles (repetitions). It can be assumed that an employee performs a given task in the following year with greater efficiency (%), but efficiency increases slower in the course of time. The adjustment of the learning curve to the needs of the human capital model facilitates estimation of increased human capital in the course of work (gaining experience). This additional value of human capital is subject to valuation and is integrated into the human capital structure as capital combined with experience. Experience factor ($Q(T)$) is expressed by the function of years:

$$Q(T) = 1 - T \frac{\ln(1-w)}{\ln 2} \quad (5)$$

where: w = learning factor, T = years of work experience $T > 1$

The ability of assets to perform work is a prerequisite for their existence. Retaining the value of capital embedded in assets requires taking action counteracting destructive forces (s). This statement refers particularly to human capital. Human capital is subject to natural dispersion and this fact is the basis of fair compensation theory. Research indicates that fair compensation must balance human capital dispersion, it need income determined by mentioned above 8-percent economic constant of potential growth and human capital value of worker. Fair compensation theory is one of the factors which make the alternative human capital research programme different from the programme undertaken by T. Shultz and G. Becker. A carrier of capital, including human capital, is affected by the capital dispersion process expressed in the general model as e^{-st} . Human capital retention is conditioned by an appropriate flow of income which compensates for human capital dispersion. In the case of humans, losses result from the nature of life. Retaining the value of human capital requires incurring compensation costs resulting from preparing future generations to perform work of the same value. In other words, fair compensation should maintain the ability to perform short- and long-term work. The loss rate expressed by random variable s is at average level $p = E(s) = 0.08/\text{year}$. Simultaneously, it represents the constant economic value indicating the level of fair compensation (W) [10, 11]:

$$W = H(T) \cdot p \quad (6)$$

Lower compensation levels decrease human capital value. In practice, it manifests itself in the parents' difficulties in ensuring the same level of education for their children. A compensation system based on human capital measurement requires individualized knowledge about employees' competences. Information on education and experience is essential in setting the level of fixed compensation components. Human capital measurement is a key component of compensation systems.

A slightly different point of view on the relationship between qualifications and remuneration is given in A. Suleman, F. Suleman and E. Reis research [12]. The authors' research shows that the remuneration depends to the greatest extent on the employee qualifications. This discovery is firmly convergent with the given model of human capital. In addition, research shows that enterprises apply a policy of optimizing the structure of human capital in order to improve the organizational performance [13, 14].

PROPOSAL FOR USING THE MODEL OF HUMAN CAPITAL MEASUREMENT IN IMPROVING REMUNERATION SYSTEMS

As mentioned, one of the most important elements of the reward management policy is determining the amount of wages. The proposed improvement of the remuneration system is based on the introduction of a job evaluation procedure based on the measurement of human capital. Human capital incorporates in the necessary qualifications of the employees to perform work on most typical (traditional) jobs. Therefore, there is the possibility of systematic, consistent and reliable measurement in monetary units.

Table 1 presents the results of accountants job evaluation using the model of human capital assessment presented above. According to the methodology adopted in the paper, the ability to perform a given job requires appropriate qualifications, which according to the concept of human capital, can be precisely and reliably valued in monetary units. Thus, the value of the work is dependent on the value of human capital necessary to perform this work.

The job position of an accountant in the analyzed company requires the completion of 3-year professional (undergraduate) studies in the field of accounting and finance. In addition, the position under study requires knowledge of the international accounting standards, as the employer is an entity listed on public stock exchanges and is required to apply international accounting standards (IAS/IFRS).

The calculation assumed that the monthly cost of living in Poland in 2018 is PLN 910, which is capitalized for 22 years, that is from birth until the completion of the necessary studies. As a result, using the formula (4), it is possible to calculate the component of human capital based on maintenance costs (K) equal to 605587 PLN. Capital based on education costs (E) was calculated using the same formula, assuming that the duration of studies is 3 years, and monthly education costs 400 PLN. The value of human capital based on education costs (E) is PLN 15583. Thus, the normative value of human capital of a 3-year undergraduate accounting studies graduate is PLN 621170.

An additional requirement of the analyzed job position is 2 years of professional experience as an accountant. According to the formula (5), human capital accumulated from experience was equal to PLN 95532, assuming that the learning rate (w) equals 0.1. In turn, the completion of specialized postgraduate studies increases the value of

human capital by PLN 9,250, which is the capitalized cost of completing this study. Ultimately, the value of human capital is PLN 725952.

Table 1. Exemplary job description card: accountant.

Competence requirements		Human capital value derived from acquired competences	Remuneration of individual components of human capital (1)
Level of education (specialization)	Bachelor's degree in accounting and finance	621 170 PLN	3396 PLN
Knowledge of foreign languages	English – intermediate	Acquired during studies	
Training	No		
Specialist knowledge	Post-graduate or equivalent studies in IAS/IFRS	9 250 PLN	51 PLN
Experience	2 years in similiar job	95 532 PLN	522 PLN
Sum of human capital value		725 952 PLN	3969 PLN
Monthly base salary (8%/12 months of HC)		4 840 PLN	
Gross base salary (polish standard)		3 969 PLN	

Source: own calculation in Polish currency (PLN).

(1) Monthly salary, derived from human capital value, converted to polish standard

The value of human capital determines the value of the work performed, and thus the value of the appropriate remuneration. As mentioned above, this remuneration is a derivative of the 8% risk premium and the value of the employee's human capital. In the analyzed case, the annual salary is PLN 58080, or PLN 4,840 per month. However, the salary understood in this way is the total cost of human capital, therefore it is the remuneration paid to the employee, increased by taxes and social charges (social insurance) paid for him. For example, Polish legal regulations impose an obligation on the employer to pay social security in the amount of 18% of the remuneration specified in the contract. In this case, in order for the cost of labor to be equal to the cost of human capital, which is the monthly amount of PLN 4840, gross (contractual) remuneration should be PLN 3969. The remuneration calculated in this way should be understood as the sum of fixed components of remuneration. In addition, the right column of Table 1 presents the remuneration for individual components of human capital in the analyzed job position.

It should also be remembered that the case study presents the value of work on the one particular examined position. This value does not have to be consistent with the value of the human capital of the employee hired on that position. For example, an employee may have higher qualifications that affect the value of his human capital, but will not be used on a given position.

CONCLUSIONS

The model of measuring human capital proposed in this paper does not fully solve all the problems and doubts related to the problem of job evaluation. Still, it allows to determine the value of human capital necessary to perform a given job. Work is the transfer of human capital to the object-of-work, therefore the value of human capital determines the value of the work performed. The labor value derived in this way is an external benchmark, based on objective, market-specific and capitalized costs of achieving of individual components of human capital. It allows to create the basis for a reliable payroll hierarchy, referring to market realities.

The job evaluation process carried out in this way also allows for a direct connection of the results of job evaluation with base salary, defined as sum of constant components of salaries.

The limitation of presented method of job evaluation is the inability to use the model for evaluating work at highly specialized job positions with a large amount of creative activities

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