

Between Theory and Practice in the Evaluation of the Economic Value of Human Resources

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Abstract

Human resources are an effective critical factor for the success of a business and the achievement of the conditions of efficacy and efficiency of the overall enterprise system, as much as - or even more than - tangible and intangible assets, this paper aims at contributing to the problem of evaluating the economic value of this particular factor of the production both on a stand-alone basis and with respect to the enterprise value as a whole.

The methodologies currently used to evaluate the economic value of human resources of an enterprise swing between the consideration of costs referable - more or less directly - to such resources, which represent a data certainly realised and, therefore, prudent but not always true (method of historical cost, of the cost to replace or reproduce and method of the multiplier, this latter partially based on empirical data), and the evaluation of actual value of the future economic flows that such human resources are theoretically capable to bring to the enterprise (income/financial methods).

Introduction and Objectives

Human resources are an effective critical factor for the success of a business and the achievement of the conditions of efficacy and efficiency of the overall enterprise system, as much as - or even more than - tangible and intangible assets.

Given the importance of human resources for the modern enterprise, in particular with respect to the ability to ensure an effective competitive advantage for the relevant enterprise due to the know-how it has, which is also often incorporated in the product/service sold in the market, this paper aims at contributing to the problem of evaluating the economic value of this particular factor of the production both on a stand-alone basis and with respect to the enterprise value as a whole (Hatch & Dyer, 2004).

Among the methodologies currently used to evaluate the economic value of human resources of an enterprise, the paper will analyze those more suitable to approximate a realistic and adequate value of the factor of production under examination, together with some comments and in-depth studies on the subject- matter.

Methodologies used to evaluate the economic value of human resources

The economic value of human resources of an enterprise must be ideally allocated in a “flow” magnitude, with this meaning time and energies normally spent by employees during their daily working activity, e in a “stock” magnitude, with this meaning the group of abilities and experiences (i.e. “technical culture”) that employees grant to the enterprise together with

their working services (Zanda, Lacchini & Oricchio, 1993; Boone & van Witteloostuijn, 1996).

The methodologies currently used to evaluate the economic value of human resources of an enterprise swing between the consideration of costs referable - more or less directly - to such resources, which represent a data certainly realised and, therefore, prudent but not always true (method of *historical cost*, of the *cost to replace* or *reproduce* and *method of the multiplier*, this latter partially based on empirical data), and the evaluation of actual value of the future economic flows that such human resources are theoretically capable to bring to the enterprise (*income/financial methods*).

Such latter criteria are in theory more suitable to define the effective economic value of human resources because they take into account the future income/financial flows that human resources can ipotetically produce, but in reality they have an uncertain and barely reliable usability due to the high subjectivity of the related decision-processes (Zanda & Lacchini, 1989).

The methods based on costs, instead, approximate the economic value of the human capital of an enterprise by summing up expenses it has beared over time (or that should be beared currently to replace its human resources with others having an absolutely equivalent effectiveness, in the case of the method of “replacement” cost) to acquire, train and update its employees.

In any case, the use of criteria based on costs, and, therefore, on informations having an accountant nature which are certain and (tentially) objective, allows a remarkable simplification of the cognitive process and, at the same time, a reduction of the subjectiveness inevitably linked to the use of income/financial methods, but equally it is characterised by the existence of a mandatory limit which affects its scientific strictness and reliability, due to the inexistence of a stable and demonstrable link between the amount of the costs sustained (or theoretically sustainable) to benefit of the effective availability of certain human resources and its effective economic value, meaning with this its intrinsic capacity to produce actual and future economic utility for its enterprise.

The method of “hystorical” cost

The method of “hystorical” cost approximates the economic value of the human resources of an enterprise by summing up expenses, opportunely deflated, it has beared over time to acquire, train and update its employees (Manzonetto, 1972; Lev & Schwartz, 1972; Veum J.R., 1999). The elements of cost to be considered are only those borne by the enterprise as investment in its human resources, therefore those to create and increase actual and future productivity over time both in terms of quality and quantity, but not also the costs related to the normal remuneration, ordinary and ancillary, of the same resources.

Analytically, regarding the method at stake the elements of cost to be considered are the following:

- 1) Costs sustained by the enterprise to “acquire” its employees, in this respect including both costs for the research of the personnel (advertisements on newspapers, emoluments for headhunters, etc.) and real costs of selection;
- 2) Costs sustained by the enterprise for the “education” of new employees, and so both costs for their formal training (specific courses, master, etc.) and informal costs ideally regarding period of job training. The latter concern not only the wages of teachers/supervisors, but also a quote of the wages of the new employees proportioned to their lower productivity in comparison to the enterprise’s standard, as well as the costs of the productivity losses of employees that during the job training have to interact with the newcomers;

3) Maintenance expenses of the human resources (Bowlus & Robinson, 2012), like costs for periodical updating, costs for specializations, etc.

The method of hystorical cost presents the same mandatory limit of any methodology based on costs (Rupo, 2003), specifically due to the inexistence of a stable and demonstrable link between the amount of the costs sustained to acquire and develop benefit a certain human resources and its effective economic value, meaning with this its intrinsic capacity to produce actual and future economic utility for its enterprise.

In any case, a correct use of the method at stake is quite difficult because of the high subjectiveness that permeates the evaluation procedure, not only with reference to the estimate of the aforementioned “wasted” costs, but also with reference to the need to separate quantitatively the expenses concerning the human resources with long-term utility from the costs without this characteristic (like wages, bonus, etc.). The latter are in fact irrelevant to evaluate the economic value of human resources of an enterprise.

Regarding this aspect some authors (Sangeladji, 1977; Hekimian & Jones, 1967) consider a wrong choice to found the entire evaluation procedure only on the costs sustained by the enterprise to maintain and develop its human resources, and so they want to include in the same procedure also the direct and indirect salaries of the employees (wages, benefits, etc.). Indeed, if an enterprise engages an expert employee, it will pay to him an higher salary than an inexpert employee who must be trained *ex-novo*; at the same time, if an enterprise engages an inexpert employee who must be trained *ex-novo*, it will sustain relevant costs for job-training and for business training courses. At the end of the training period, the productivity and the effectiveness of the two employee are identical but the method of hystorical cost would attribute an higher economic value to human resources of the second enterprise (Moore, 2007; Tang, 2005; Philippon & Reshef, 2012).

Moreover, the version at stake of the method of hystorical cost is burdened by another and more mandatory limit, which affects its scientific strictness and reliability, due to the inexistence of a stable and demonstrable link between the amount of the wages paid to the employees and the effective economic value of their working services. The normal salary's dynamics, indeed, reflect only partially, and however not in a correct way, the effective utilities of the working services given by the human resources: this deficiency must be ascribed both to enterprise's external (Union Contracts, etc.) and internal (for example, firm's policies directed to moderate salary's costs) influences, and to peculiar difficulties that characterized the evaluation procedure.

From the author's point of view, a correct utilization of the method at stake shouldn't consider the wages *tout court*, but it would be preferable to focus only on the differential wage existing between employees who have the same tasks but different skills and trainings *ab origine* (obviously besides the aforementioned costs sustained by the enterprise to acquire, educate and train its employees). Regarding the latter example, it should be considered only the differential wage existent between the first employee, more trained and skilled and so beneficiary of an higher salary, and the second employee, for whom the enterprise has to sustain training costs, but not the entire wages.

In this way, indeed, it would be possible to overcome the aforementioned mandatory limit (i.e. the inadequate evaluation of human resources characterized by different training and skilling levels) and at the same time to avoid to bind the estimation procedure of the economic value of human resources to salary's dynamics often illogic and, however, hardly proportioned to the effective economic value of their working services (Bosma, van Praag, Thurik & de Wit, 2004). Moreover, it's evident that this different approach is very discretionary and its practical utilization quite difficult, specifically due to the practical impossibility of measuring, with acceptable accuracy, the amount of the aforementioned wage differential.

The method of the “replacement” cost

The method of the “replacement” cost (Likert, 1967) takes into account the costs that the enterprise should bear currently to replace its human resources with others having an absolutely equivalent effectiveness (i.e. able to give a contribution in terms of production not lower than that given by the element under evaluation). Such criterion, therefore, is based on the same categories of cost of the historical criterion but similarly it does not limit to consider or re-evaluate historical costs, as it adjusts the evaluation mechanism to the changed features of the reference markets, in order to allow to evaluate immediately human resources different from those under analysis but anyway having the same skills and level of effectiveness.

From the author’s point of view, the aforementioned characteristics allow to overcome some logical limits of the method of historical cost, specifically because the methodology at stake doesn’t consider historical or simply raised data but better adequates the evaluation procedure to the changed characteristics of the reference markets. In this way it’s possible to evaluate with immediacy human resources different from those under evaluation but qualified by the same skills and the same integration grade. Indeed the significance (however only presumed) of the theoretical mutual relation between the cost of a specific input and the correspondent economic value decreases rapidly as time goes by the date of acquisition (Paton, 1969), apart from the realization of a revaluation process of the historical cost.

Moreover with the methodology under examination the evaluation process improves in terms of conceptual validity but loses objectivity. Besides the practical utilization of the method at stake could even overvalue the human resources of an enterprise inefficient in the selection, training and organization of the same human resources (Friedman & Lev, 1974). Indeed the raise of the costs of these operations (if attributable to a clear organizational inefficiency) would involve a contextual raise of the expenses necessary to replace the human resources with others having an absolutely equivalent effectiveness, but it wouldn’t have correspondence in an effective (real) raise of the economic value of the same human resources.

Ad adiuvandum, from the author’s point of view the method under examination seems to be excessively simplifying, not only because it assumes the perfect replaceability of each employee, but also because it assumes that to replace the human resources of an enterprise with others having an absolutely equivalent effectiveness it’s sufficient to consider only costs and expenses related with selection, training and updating procedures regarding the new human resources. The latter aspect, indeed, could be shareable only with reference to less skilled and trained employees since the lack of working experience could be replaced with adequate courses, but it isn’t possible to accept with reference to managers and directors since their experiences and skills, developed after several years of real job training, can’t be reproduced in few time with mere business training courses.

Either way the method of the replacement cost isn’t able to overcome the mandatory limit which affects the method of “historical” cost, i.e. the inexistence of a stable and demonstrable link between the amount of the costs sustained (or theoretically sustainable) to benefit of the effective availability of certain human resources and its effective economic value, meaning with this its intrinsic capacity to produce actual and future economic utility for its enterprise (Combs & Skill, 2003).

The “multiply” methodology

The awareness of mandatory limits that characterize all the methods based on costs, but at the same time the preference granted to the method of the “replacement” cost, have

persuaded some Authors to draw up a development of the latter method with the object of finding in empirical data a partial solace to the inexistence of a stable and demonstrable link between the amount of the costs theoretically sustainable to replace a certain human resources and its effective economic value (Flamholtz, 1971).

The “multiply” methodology approximate the value of human resources of an enterprise by applying a multiplicative parameter, empirically determined, to a typical firm’s value (usually the yearly cost of labour). With specific reference to the value attributable to the multiplicative parameter, Likert asked to thousand managers all over the world the amount of the costs to be sustained for employing and training *ex-novo* the human resources in force in their enterprises: they answered unanimously that the aforementioned amount should be approximately three times the total annual wages, or even more (Likert, 1967).

In such model, the evaluator’s attention moves from the analysis of costs (hystorical or current) relating to acquisition, insertion and maintenance of specific human resources in the enterprise, to the value to be given to the multiplicative parameter. Such value derives from attributing a specific score to certain profiles of the enterprise, which are deemed illustrative of the overall economic value of the enterprise to which the human resources under evaluation belong:

- a) Quality and effectiveness of firm’s R&D activities (i.e. the economic value of human resources increases if the quality and effectiveness of firm’s R&D increases);
- b) Quality of overall firm’s technology (i.e. skills and training of employees, and so their economic value, increase if the firm’s technological complexity increases);
- c) Overall grade of “situational complexity” (i.e. the economic value of human resources depends on the complexity of operational activities that employees have to face);
- d) Overall quality of the direction’s style.

On the basis of the aforementioned remarks the correlations between the qualitative level of several enterprise’s profiles (technics, scientifics and managerialis) and the value of the multiplier, are the following:

<i>Overall firm’s profile</i>	<i>Multiplier</i>
Low	between 0,33 and 0,50
Medium-Low	between 0,51 and 1
Medium	between 1,1 and 1,5
Medium-High	between 1,51 and 2
High	between 2,1 and 2,5

Therefore the value of the multiplier correlates the overall quality of human resources of an enterprise with its quantitative measurement. In other words, the methodology at stake so postulates the existence of a stable link between the quality of the overall firm’s profile di una data azienda and the economic value of its human resources.

The partial anchorage of the “multiply” methodology to empirical data involves a clear simplification of the estimate procedure and, at the same time, the choice of a parameter based on annual labour costs (and not only on selection, training and updating expenses), allow to overcome the difficulties coming from the need to separate quantitatively the aforementioned amount in its pluriennial and current determinants.

Unfortunately, the attitude of the method at stake to measure adequately the economic value of human resources is necessarily subordinated to the existence of a stable and demonstrable link between the amount of wages and salaries paid to employees and the effective economic value of their working services. The normal salary’s dynamics, indeed, reflects only partially, and however not in a correct way, the effective utilities of the working services given by the human resources: this deficiency must be ascribed both to enterprise’s external (Union Contracts, etc.) and internal (for example, firm’s policies directed to moderate

salary's costs) influences, and to peculiar difficulties that characterized the evaluation procedure. Besides the effort to link the economic value of human resources with their qualitative level appears, from the author's point of view, a bit illogical, because of the high subjectivity that permeates both the procedure to estimate the qualitative level of the overall enterprise's profile (to which human resources belong) and the choice of the value attributable to the multiplier.

Just with reference to the first of the aforementioned remarks, the methodology at stake is based on the idea that if the firm's complexity raises the overall quality of human resources raises proportionally. Regarding the latter aspect, it's possible to point out: it's true that an effective activity of R&D can be accomplished only by skilled and well-trained employees (*a*); likewise it's true that skills and training of employees increase if the firm's technological complexity increases (*b*); but from author's point of view it's quite difficult to estimate the quality level of the answers given by the employees to the firm's "situational complexity" (*c*). Indeed the latter deal couldn't be limited to ascertain the financial/revenue outcomes gained by the enterprise in the considered period of time (anyway, they are a fundamental indicator), but rather it would require the evaluation of the economic value of working services of the human resources, without considering that these outcomes could be influenced by external (for example, the overall economic trend) or internal circumstances not depending on management's will.

Besides the overall "fork" of values (0,33-2,5) attributable to the multiplier has been determined empirically in a specific historical period, and so, from the author's point of view, it's necessary to validate periodically these empirical data for a rational employment of the methodology at stake.

Conclusions

On the basis of the aforementioned comments, from the author's point of view any methodology based on costs is suitable to approximate the economic value of the human resources of an enterprise. Indeed, either the method of "hystorical" cost or the method of the "replacement" cost or the "multiply" methodology are characterised by the existence of mandatory limits which affect their scientific strictness and reliability, and so their capacity to evaluate really the effective economic value of the factor of production under examination.

Moreover, if human resources under evaluation belong to enterprises in which the contribution of each employee to the overall firm's performances is absolutely prevailing in comparison with the others factors of production (for example, like professional sport clubs and ICT sector - Morrow, 1996), from the author's point the "multiply" methodology seems to be the methodological approach more suitable to approximate the effective economic value of the aforementioned factor of production.

Indeed, it seems clear that practical informations and empirical data could find concreteness and steadiness after subsequently confirmations, so making their interpretations less doubtful and then allowing to partially reduct two of the most mandatory logical and applicative limits of the aforementioned methodology: on the one hand the lack of a stable and demonstrable link between the amount of wages and salaries paid to employees and the effective economic value of their working services, on the other hand the difficulty and uncertainty associated to the estimation of multiplier's value.

Further research

Additional studies will be required to verify empirically which is/are - among those analysed in this paper, the methodology/ies used (and the relevant frequency) in the Italian and international professional practice.

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