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Incentive Pay System and Economy Condition

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***Abstract*—**This paper aims to initiate an analytical account of the issues of compliance with economy condition for incentive pay system application in an enterprise. Economy is considered one of the conditions for effective incentive pay system application another condition being the achievement of desired efficiency level of the incentive pay system application. Bonus pay system is discussed as an example**.**

***Keywords*—**Cost analysis, economy, incentive pay system**.**

I. Introduction

THIS paper aims to present an analytical approach to the assessment of compliance with the economy criterion in the application of incentive pay system in an enterprise.

The economy of enterprise activities is regarded as one of the components of economically effective behaviour of enterprise the other being efficiency of the activities [5]. The economy criterion will be constructed and analyzed on the cost (wage costs) basis [3, 4]. Without the detailed knowledge of the company cost, no company will be able to define and implement right decisions to ensure its business growth, sufficient income and cash flow for its operation[8].

II. Description of the Topic

If we want to achieve effectiveness of the incentive pay system applied in an enterprise the system should be structured so that it essentially meets two conditions: condition of economy and condition of efficiency, both relating to its application [1].

The economy condition as a component of economic effectiveness will be structured using criteria on wage costs basis. This implies the actual wage costs of, for example, execution of the analyzed production process in the enterprise must be lower than (or equal to) the projected (planned) level.

The efficiency condition, as far as the criteria are concerned, requires structuring based on efficient definition of the incentive pay system ensuring it initiates staff activity aimed to accomplish the enterprise objective(s).

The meeting of the above mentioned conditions requires streamlined structuring of the incentive pay system and definition of the system criteria as well as provision of input data at desired quality level which is important in both the pay system development stage and in the stage at which the staff entitlements to the payment of plus rates under the incentive pay system are assessed. In practice, a variable pay or incentive plans of employees' reward very often consists of three categories of variable pay – individual, group/team and organizational incentives. Individual incentives are given to reward the effort and performance of individuals. Group/team incentives provide rewards to teams or groups of employees doing similar work connected with the performance of a team or a group. Organizational incentives reward people according to performance results of the entire organization [9].

This paper will handle the incentive pay system based on bonuses. The analytical assessment of bonus pay system effectiveness based on the effectiveness conditions specified above (economy and efficiency) will be built on the following criteria:

a) Structure of performance indicators determining the bonus payment.
b) Selection of staff remunerated under the bonus pay system.
c) Bonus level linked to the actual value of performance indicators so that its application meets the economy condition.
d) Bonus security (bonus payment to those being entitled to it).
e) Bonus payment interval.

When it comes to the assessment of level of compliance with the bonus pay system efficiency condition based on criteria, the criteria under points a), b), d) and e) above cab be used in the analysis.

The selection of performance indicators determining the bonus payment must reflect the strategic or situation objectives in corporate processes, i.e. structured general corporate objectives. In the period within which the objectives are to be achieved there is a potential (of probability character) of occurrence of circumstances endangering the achievement of the objectives as a result of effects of various types of failures (adverse effects). If the elimination of undesirable deviations in the pursue of the objectives is connected with intensification of working activities carried out by the staff then it is efficient to apply the bonus pay system. For the sake of efficiency the performance indicators determining the bonus payment must be applied only to those members of the staff whose work influences the achieved value of the indicators and/or whose work enables to eliminate any undesirable deviations within the required date (using the criterion under point e) above). In this context also circumstances at which it is desirable to reach a positive deviation of the achieved value of the indicators through intensification of the working activities carried out by the staff can be considered. This would require the application of not only the basic bonus but also the incentive bonus. The

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structure of performance indicators determining the bonus payment should be set based on analyses made in order to set the structure of internal and general corporate objectives and problem analyses made in order to find the way out of situations where the achievement of the objectives is endangered.

This means the bonus pay system linked to certain indicator structure can be efficient only if it is applied to those staff members whose work influences the achieved value of the respective indicator(s).

The following must obviously be determined before introducing any bonus pay system (e.g. as a complement to the fixed wage):

- What results (which objectives) are to be achieved by the bonus pay system application and how are the results to be measured (definition of indicators – specification of objectives and information flow necessary for efficient application of the bonus pay system)
- Selection (based on processes or criteria) of staff remunerated under the bonus pay system.
- Share of the bonus in an employee's wage in case the projected (planned) goals are met.
- Bonus level relative to the actual level of the achieved results (level of compliance with the objectives) so that the bonus is stimulating for the employee and, on the other hand, the bonus pay system application meets the economy condition contributing to the effective behaviour of enterprise.

If the bonus pay system is to be effective and stimulating it must naturally be beneficial both to the staff (enhancing the expected satisfaction of their needs) and the enterprise (improving the effectiveness of its entrepreneurial behaviour). This implies the bonus pay system application must not lead to, among other things, circumstances where the economic behaviour of the enterprise does not meet the economy condition which results in ineffectiveness. The economy should be considered in data handling and analysing as well. It is effective to use appropriate software which is able to analyze a huge amount of data in a short time [7].

The economy condition will be defined based on wage costs in the form of projected costs and actual costs.

III. Definition of Criteria for Economy Condition

As indicated above, the economy condition for the bonus pay system applied to staff involved in production process in an enterprise will be defined based on wage costs of the process. The wage costs will be structured as follows:

- Average basic wages (e.g. in case of time wages at the level of average shift wage rate).
- Incentive component of wages in the form of bonuses with the incentive system consisting of basic bonus and incentive bonus.

Both the basic bonus and the incentive bonus will be applied depending on the actual level of compliance with the target (projected) task represented by production volume as an output of the production process with the costs for bonuses projected only on the basis of application of the basic bonus. This creates conditions for generation of the projected volume (amount) of production (reaching of the target production amount) in the required quality for the respective period. The incentive bonus for exceeded production volume target in terms of criteria (modelling) will be considered in relation to the simulation of actual production amount and cost. This is associated with the model assumption that the actual market demand for production will be higher than the original projected production amount which will require reinforcing the incentives for the staff involved in production process in order to make them intensify their working activities so that their shift-based work productivity increases.

In the light of the reasoning above and in relation to the described bonus pay system and the defined character of the economy condition, this condition can be presented as a criterion using the following formula:

$$n_s(Q_s) \le n_p(Q_p) \tag{1}$$

where:

$n_s(Q_s)$ expresses a model of actual wage costs for, for example, the analyzed production process in CZK/unit/period;

$n_p(Q_p)$ expresses a model of projected (planned) wage costs for the production process in CZK/unit/period.

The dependence of the modelled projected wage costs (given the wage costs structure specified above) on the production amount $[n_p(Q_p)]$ can be described using the following formula:

$$n_p(Q_p) = \frac{PMT}{P_{SN}} + \frac{PMT.Z\%s}{Q_p.100} \tag{2}$$

The dependence of the modelled actual wage costs (given the wage costs structure specified above) on the production amount $[n_s(Q_s)]$ can be described using the following formula:

$$n_s(Q_s) = \frac{PMT}{P_{SN}} + \frac{PMTZ\%s}{Q_s.100} + \frac{PMTZ\%s.(\frac{Q_s}{Q_p} - 1).100}{Q_s.100} \tag{3}$$

If the following relation applies:

$$(\frac{Q_s}{Q_p} - 1).100 = \Delta Q\% \tag{4}$$

then formula (3) can be modified as follows:

$$n_s(Q_s) = \frac{PMT}{P_{SN}} + \frac{PMT.Z\%.s}{Q_s.100} + \frac{PMT.z\%.s.\Delta Q\%}{Q_s.100} \quad (5)$$

The variables in formulae (2), (3) and (5) above employed to model the wage costs for the respective process have the following meaning:

PMT - average shift wage rate for basic wage per shift according to wage rate classification in CZK / shift

P_{SN} - average, e.g. standardized, shift-based work productivity of employee for defined period in number of units / shift

s - number of shifts worked by employees for defined period (exclusive of overtime work)

Q_p - projected production volume (amount) in units / defined period

Q_s - modelled production volume (amount) in units / defined period

Z% - basic bonus rate (amount) in per cent fixed on bonus basis represented by PMT and paid if $Q_s = Q_p$

z % - incentive bonus rate (amount) in per cent for each 1 % by which the actual production amount exceeds the projected production amount, i.e. incentive bonus rate (amount) fixed on bonus basis represented by PMT and paid if $Q_s > Q_p$.

Next steps will be:

- substitution of s/Q_p ratio by $1/P_{sp}$ ratio in formula (2) P_{sp} being average projected shift-based work productivity of employee for the defined period and
- substitution of s/Q_s ratio by $1/P_{ss}$ ratio in formula (5) P_{ss} being average actual (simulated) shift-based work productivity of employee for the defined period.

If formulae (2) and (5) modified by the substitutions above are introduced into formula (1) the following economy criterion is obtained:

$$\frac{PMT}{P_{SN}} + \frac{PMT.Z\%.}{P_{ss}.100} + \frac{PMT.z\%.\Delta Q\%}{P_{ss}.100} \le \frac{PMT}{P_{SN}} + \frac{PMT.Z\%}{P_{sp}.100} \quad (6)$$

A simplification of formula (5) results in the following expression of formula (6):

$$\frac{z\%}{Z\%}.100.\Delta Q\% \le (\frac{P_{ss}}{P_{sp}} - 1).100 \quad (7)$$

and if introducing the substitution of

$$\frac{z\%}{Z\%}.100 = K \quad (8)$$

and the substitution of

$$(\frac{P_{ss}}{P_{sp}} - 1).100 = \Delta P_s\% \quad (9)$$

into formula (7) the following formula is obtained:

$$K.\Delta Q\% \le \Delta P_s\% \quad (10)$$

Relation (10) is the final criterion for the assessment of economy of bonus-based incentive pay system application.

This relation implies that if the economy condition for the incentive pay system application is to be met in case the projected production amount is exceeded it is required that, for example, the analyzed production process shows shift-based work productivity $\Delta P_s\%$ higher than the average. This shift-based work productivity increase must be higher than or equal to K times the percentage of actual production volume (amount) in excess of the projected level.

The process management must provide operating conditions under which the actual average shift-based work productivity for the respective period is $\Delta P_s\%$ higher than the projected level. In the event the required process performance cannot be ensured the process cannot meet the economy condition which is one of the conditions for effective incentive pay system application.

At such circumstances certain modifications (reductions) of the levels of performance indicators determining the bonus payment must be implemented affecting the staff stimulation to work. Alternatively, unreasonable reduction (underestimation) of the projected average shift-based work productivity level would have to be made affecting the enterprise performance management level.

An important role is played also by the production volume (amount) as a parameter for the entitlement to bonus. It is necessary to verify the adequacy of the projected production amount (in the analyzed production process) for the respective period and the probability of it being exceeded.

It should be noted the techniques discussed in this paper can be applied by analogy to other processes with different inputs.

IV. Summary

The analysis of the topic of this paper has accomplished the aim set at the beginning. A modelled definition of economy condition incentive pay system application was constructed enabling its modelled extension and adjustment as necessary in practice. Basic relations underpinning the compliance with the economy condition in the application of the presented incentive pay system are also outlined in terms of structure.

To cover all options it is necessary to take into account also the circumstances at which the economy criterion is not met (due to exceeded projected wage costs).

The exceeded projected wage costs as a result of, for instance, increase in production volume (as considered in this paper) can, however, be set off by reduction of other costs achieved by virtue of, for instance, higher utilization of fixed costs. This can also bear on the achieved level of total cost-covering contribution of production, etc.

The issue handled in this paper can thus be analyzed using

various criteria. An optimum decision leading to the growth of enterprise performance is to be found.

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