J. Appl. Environ. Biol. Sci., 6(6S)72-77, 2016

ISSN: 2090-4274
Journal of Applied Environmental and Biological Sciences
www.textroad.com

A New Method of Reward Payment to Human Resources in Order to Improve the Organizational Quality

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Received: March 4, 2016
Accepted: May 11, 2016

ABSTRACT

If we think of human resources as a human capital, we can use the role of this capital to fix organization promoting in the best way. Knowing motivations and giving value to it results in reaching goals of the organization. Payment systems of reward usually is set by job standard methods, that is to determine necessary criteria for specific operation amount and effort and the employee can be rewarded by operating more than it is expected. It is tried in this research that by providing a mathematical suggested model for calculation of reward according to product's quality improvement, employees' skill improvement, increase in safety rate and growth of creativity, organization faces quality improvement.
KEYWORDS: reward, compensation payment, human capital, organization quality improvement.

1. INTRODUCTION

In today's competitive market, the need of organizations to maintain expert human resources is more obvious than before and giving rewards is a functional approach in this way [1]. Reward includes: positive valuable consequences of job for individuals [2], reward is a pleasant consequence for a good behavior of individual in order to increase its possibility of repetition [3]. A reward can be effective if it is given for performing toward the organizational objects and increases the motivation of employees [4]. Obviously, those organizations whose workers have low operation will experience damages. Therefore, organizations must try to recognize their employees with a planning and provide a reward system for them [5, 6]. One of the greatest challenges for today's management is to recognize those people who must be rewarded for their high operation [7]. Although employees operation depends on different factors including ability, competitiveness etc., if this issues is not paid attention and the employees don't be rewarded according to their competency, they will lose motivation [8]. Payment by working system has other titles including Incentive payment, Payment by Results, Variable payment or Reward system. In this system, the payment is connected directly to operation, in other words in reward payment, payment is a function of operation or working results.

2. REVIEW OF LITERATURE

Employees' involvement is something which cause compatibility of environmental factors and payment strategies. Therefore, in order to recognize the reward-worthy behaviors and setting reward plan in line with targets, involvement is needed. Therefore, when it is determined that working quantity is bolder than its quality, the reward must be set according to the number of produced units [9].

Hashemizadeh et al. [10] believed that one of the problems of agricultural companies is the shortage of controlling and management systems in comparison with the industrial companies. They suggested an important management subject that is evaluation of operation and reward calculation of production according to the special situation of the considered organization. It is important to note that one of the most significant factors which must be considered in calculation is non-damaging and Earth protection and the other important thing is that operation evaluations systems must calculate not only short time operation but also long time operation in order to help organization to survive.

Dardashti[11]in a research suggested that using proper methods in human resource management increases the employees' fidelity to organization and their well-being which results in better services and more profits. One of the works of human resource management was the motivating plans in organization. After the creation of basic systems of payment and salary, the organizations provide motivating payment plans for workers, employees and managers. The aim of these plans is to supply additional reward for the employees which play a great role on reaching organizational goals. That research worked on rewarding plan and its effects on the Isfahan Medical University doctors.

As it is mentioned, we can feel the shortage of quality, safety and creativeness in reward determination. When these factors are considered in reward determination, organization and employees' working quality will increase. This is the base of our suggested model.

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3. PROBLEM STATEMENT

As it is stated in the previous sections, reward payment is one of the ways to increase motivation of human resources. Human resources is one of the most important capitals of an organization. In the previous systems, reward was based more on operating time in comparison with standard operating time, increase of operation from the introduced minimum operation or saved time. But now in the following standard models, by indexes such as standard operating time, saved amount of time, high quality product number, saved costs by reducing accidents a model is tried to be suggested which not only efforts in having a fair and accurate evaluation but also considers the quality factor in a way that brings organization's quality improvement which results in continuous refinement of the considered organization.
Four main views which make the spirit of this model include quality improvement, productivity growth, creativity growth and safety improvement.
The essence of previous and present reward calculations is reduction of production time and increase of number of products in the same time interval but number of products is evaluated according to the quality. In other words, increase of production will be evaluated in terms of quality. It is obvious that sometimes production increases but wastes and defective products increase as well; in this way quality sacrifices itself in favor of quantity. Therefore, not only organization's productivity won't increase, but the organization also must have pay a high cost.
In some cases when the target for the employees is to increase production and they try to gain higher production by the previous index that is high-quality production, they change production method which will be dangerous and cause damages. Obviously not regarding safety issues, the organization must pay high costs of production delay, cure, losing workers, lost production, etc. therefore, if high quality production don't regard safety issues, it will result in paying high costs which are in some cases irrecoverable.
The other factor which is among employees' operation and rewarding factors is the method of using the facilities of operation. That person must use these facilities including environment, working place etc. in a way that it needs the minimum cost.
Interacting with costumers, supervisors and co-workers and all the organization personnel increases productivity, therefore, interaction of servant in inside and outside environment of the organization can be one of the variables of reward payment.

Trying to create creativity in operating and increasing self-skill improves productivity and refines organization. Therefore, it can be considered as the next factor.

x_{1o}: individual's salary
x_{2o}: individual's educational degree
x_{3o}: safety cost of each individual
x_{4o}: individual's years of experience
x_{5o}: individual's training time
y_{1o} : saved time for considered operation
y_{2o} : number of high quality products
y_{3o} : amount of saved cost by decreasing accidents
y_{4o} : cost of maintaining and fixing facilities by employee's training
y_{5o}: number of effective suggestions to co − workers and managemenet
y_{6o}: amount of satisfaction of costumers, co − workers and management of individual
θ_i : Operation of individual number i
M: total considered award
γ_i: award of individual number i

- individual's educational degree: (less than diploma=20) (diploma and technician=40),(more than diploma=100)
- amount of satisfaction: (low=20), (medium=60), (high=100)

$$Max\ \theta_i = \alpha_1 y_{1o} + \alpha_2 y_{2o} + \ \ldots + \alpha_s y_{so}$$

S.T

$$v_1 x_{1o} + v_2 x_{2o} + \cdots + v_m x_{mo} = 1$$
$$\alpha_1 y_{1j} + \alpha_2 y_{2j} + \ \ldots + \alpha_s y_{sj} \ \leq v_1 x_{1j} + v_2 x_{2j} + \cdots + v_m x_{mj}$$
$$v_1, v_2, \ldots, v_m \geq 0$$
$$\alpha_1, \alpha_2, \ldots, \alpha_s \geq 0$$

i=1,…,n j=1,…,m

$$\gamma_i = M \times \frac{\theta_i}{\sum_i \theta_i}$$

4. NUMERICAL EXAMPLE

There are three workers with the following features in workshop assembly section:

Table 1. working features of each individual

	1	*2*	*3*
x_{1o}: individual's salary	*80*	*90*	***74***
x_{2o}: individual's educational degree	*40*	*40*	***20***
x_{3o}: safety cost of each individual	*58*	*65*	***70***
x_{4o}: individual's years of experience	*12*	*14*	***10***
x_{5o}: individual's training time	*20*	*18*	***24***
y_{1o} : saved time for considered operation	*2*	*4*	***3***
y_{2o} : number of high quality products	*85*	*98*	***69***
y_{3o} : amount of saved cost by decreasing accidents	*40*	*55*	***30***
y_{4o} : cost of maintaining and fixing facilities by employee's training	*32*	*40*	***39***
y_{5o}: number of effective suggestions ro co − workers and managemenet	*4*	*10*	***8***
y_{6o}: amount of satisfaction of costumers, co − workers and management of individual	*60*	*60*	***20***

So, the operation of each individual is calculated as follows:

Worker 1:

```
max=2*y1+85*y2+40*y3+32*y4+4*y5+60*y6;
80*x1+40*x2+58*x3+12*x4+20*x5=1;
2*y1+85*y2+40*y3+32*y4+4*y5+60*y6<=80*x1+40*x2+58*x3+12*x4+20*x5;
4*y1+98*y2+55*y3+40*y4+10*y5+60*y6<=90*x1+40*x2+65*x3+14*x4+18*x5;
3*y1+69*y2+30*y3+39*y4+8*y5+20*y6<=74*x1+20*x2+70*x3+10*x4+24*x5;
y1>=0;
y2>=0;
y3>=0;
y4>=0;
y5>=0;
y6>=0;
x1>=0;
x2>=0;
x3>=0;
x4>=0;
x5>=0;
end
```

```
 Global optimal solution found.
 Objective value:                1.000000
 Infeasibilities:                0.000000
 Total solver iterations:                4
```

Variable	Value	Reduced Cost
Y1	0.000000	0.000000
Y2	0.000000	0.000000
Y3	0.000000	0.000000
Y4	0.000000	0.000000
Y5	0.000000	0.000000
Y6	0.1666667E-01	0.000000
X1	0.000000	0.000000
X2	0.000000	0.000000
X3	0.000000	0.000000
X4	0.8333333E-01	0.000000
X5	0.000000	0.000000

Row	Slack or Surplus	Dual Price
1	1.000000	1.000000
2	0.000000	1.000000
3	0.000000	1.000000
4	0.1666667	0.000000
5	0.5000000	0.000000
6	0.000000	0.000000
7	0.000000	0.000000
8	0.000000	0.000000
9	0.000000	0.000000
10	0.000000	0.000000
11	0.1666667E-01	0.000000
12	0.000000	0.000000
13	0.000000	0.000000
14	0.000000	0.000000
15	0.8333333E-01	0.000000
16	0.000000	0.000000

Worker 2:

```
max=4*y1+98*y2+55*y3+40*y4+10*y5+60*y6;
90*x1+40*x2+65*x3+14*x4+18*x5=1;
2*y1+85*y2+40*y3+32*y4+4*y5+60*y6<=80*x1+40*x2+58*x3+12*x4+20*x5;
4*y1+98*y2+55*y3+40*y4+10*y5+60*y6<=90*x1+40*x2+65*x3+14*x4+18*x5;
3*y1+69*y2+30*y3+39*y4+8*y5+20*y6<=74*x1+20*x2+70*x3+10*x4+24*x5;
y1>=0;
y2>=0;
y3>=0;
y4>=0;
y5>=0;
y6>=0;
x1>=0;
x2>=0;
x3>=0;
x4>=0;
x5>=0;
end
```

Global optimal solution found.
Objective value: 1.000000
Infeasibilities: 0.000000
Total solver iterations: 4

Variable	Value	Reduced Cost
Y1	0.000000	0.000000
Y2	0.000000	0.000000
Y3	0.000000	0.000000
Y4	0.000000	0.000000
Y5	0.2380952E-01	0.000000
Y6	0.1269841E-01	0.000000
X1	0.000000	0.000000
X2	0.000000	0.000000
X3	0.000000	0.000000
X4	0.7142857E-01	0.000000
X5	0.000000	0.000000

Row	Slack or Surplus	Dual Price
1	1.000000	1.000000
2	0.000000	1.000000
3	0.000000	0.000000
4	0.000000	1.000000
5	0.2698413	0.000000
6	0.000000	0.000000

7	0.000000	0.000000
8	0.000000	0.000000
9	0.000000	0.000000
10	0.2380952E-01	0.000000
11	0.1269841E-01	0.000000
12	0.000000	0.000000
13	0.000000	0.000000
14	0.000000	0.000000
15	0.7142857E-01	0.000000
16	0.000000	0.000000

Worker 3:

```
max=3*y1+69*y2+30*y3+39*y4+8*y5+20*y6;
74*x1+20*x2+70*x3+10*x4+24*x5=1;
2*y1+85*y2+40*y3+32*y4+4*y5+60*y6<=80*x1+40*x2+58*x3+12*x4+20*x5;
4*y1+98*y2+55*y3+40*y4+10*y5+60*y6<=90*x1+40*x2+65*x3+14*x4+18*x5;
3*y1+69*y2+30*y3+39*y4+8*y5+20*y6<=74*x1+20*x2+70*x3+10*x4+24*x5;
y1>=0;
y2>=0;
y3>=0;
y4>=0;
y5>=0;
y6>=0;
x1>=0;
x2>=0;
x3>=0;
x4>=0;
x5>=0;
end
```

Global optimal solution found.

Objective value:	1.000000
Infeasibilities:	0.000000
Total solver iterations:	4

Variable	Value	Reduced Cost
Y1	0.000000	0.000000
Y2	0.000000	0.000000
Y3	0.000000	0.000000
Y4	0.2564103E-01	0.000000
Y5	0.000000	0.000000
Y6	0.000000	0.000000
X1	0.000000	0.000000
X2	0.1102564E-01	0.000000
X3	0.000000	0.000000
X4	0.000000	0.000000
X5	0.3247863E-01	0.000000

Row	Slack or Surplus	Dual Price
1	1.000000	1.000000
2	0.000000	1.000000
3	0.2700855	0.000000
4	0.000000	0.000000
5	0.000000	1.000000
6	0.000000	0.000000
7	0.000000	0.000000
8	0.000000	0.000000
9	0.2564103E-01	0.000000
10	0.000000	0.000000
11	0.000000	0.000000
12	0.000000	0.000000
13	0.1102564E-01	0.000000
14	0.000000	0.000000
15	0.000000	0.000000
16	0.3247863E-01	0.000000

So:

$$\theta_1 = \theta_2 = \theta_3 = 1$$

If the reward payment is considered as 6 million Toman by management, each individual's reward will be as follows:

$$2\gamma_1 = \gamma_2 = \gamma_3 =$$

Each worker will be paid two million Toman (Iran's Currency).

5. CONCLUSION

The presented model according to quality, productivity improvement, creating creativity and team work considering safety behavior at work factor, evaluates employees and their operation and calculates their fair and accurate reward. The other advantage of the suggested model is that other employees will be compared with the best servant and their weaknesses and strengths will be reviled and refined.

Using the considered factors and variables, the employed individual tries to target high quality and safe production and improves one's function which improves one's skills and as a result the team work and organization.

The cause and effect relation of this model introduces the best employee fairly and accurately and also motivates others to have a better operation and reduces their weak points by recognizing and introducing them which results in a better organizational and team work.

Many factors exist which the management thinks that they can play a role in evaluation essence. Therefore, these criteria are more judgmental and make better evaluation of quality. One of the advantages of this model is that it contains judgmental criteria and evaluates employees by means of it.

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