PRODUCTIVITY AND MOTIVATION IN ROMANIAN ENTERPRISES

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Abstract:
The present paper aims to present a short analysis of the relevance that labor productivity manifest both upon human resource performance and upon HR management in general and the case study illustrates a correlation between the level of motivation and the level of performance, in the purpose of determining the strength of the bond between them. Human resource performance has faced a series of challenges in the past years, due to many external influences. Performance, on one hand, and also labor productivity growth, have become the most important targets of an enterprise, but motivating the staff deserves just as much attention as these first aspects.

Key words: *productivity, human resources, motivation, enterprise*

JED Classification: M52, M54

HYPOTHESIS AND THEORETICAL INTRODUCTION

During the past decades, in literature there have emerged a number of motivational theories of which the main purpose was to try to capture the main issues regarding the stimulation of human resources (Stefan et al, 2003). They have brought together the essential concerns of managers, sociologists or psychologists on the issues mentioned above.

Literature remembers the "tools" (Currie, 2009) specifically intended to surprise and trigger the motivation of individuals, depending on the objectives intended to be achieved. With this in mind, managers can turn to a number of motivational strategies, applying several different approaches, including fostering a constructive competition among employees, with the purpose of increasing individual performance.

But generally accepted hypothesis is limited to the idea that motivations differ from one individual to another, even existing different perceptions of the same problem, when the individuals manifest differently in relation to a certain situation (Nicolescu, 2004).

Starting with the theories elaborated by Taylor (Druta, 1999), regarding stimulation through wage, and the one written by Mayo (Mayo, 1998) (motivation using the diversity of work), we observe that one of the most complex theories is the one that addresses the motivation of human resources through the method of comparison X,Y,Z, initiated by Douglas McGregor.

Beyond these classical theories, however, there were elaborated some modern theories regarding motivation (Druta, 1999). Most have as a starting point the idea of needs, the most famous of these remaining the theory proposed by Abraham Maslow,

based on the hierarchy of needs, which assumes that people act in accordance with the types of needs identified at some point, according to a pyramid hierarchical scheme.

Expectations theory developed by Victor Vroom, aims to identify the factors that determine motivation, but also the underlying performance (Vroom, 1964). Literature states that motivations are driven by "expectations and valences" expectations designating "the probability that a behavioral act will bring some desired result", this confidence being placed on a scale with values in the range [0,1]. He dismisses such expectations as "effort - performance" or "performance - reward" (Vroom, 1964). In the first case, an individual is convinced that effort will lead to performance to match, while the second case is based on the belief that high performance will lead to a similar reward.

MATERIALS AND METHOD

In order to analyze the relationship between motivation and productivity at microeconomic level, we must consider labor productivity as an indicator of human resource efficiency.

Labor productivity can be defined in several ways (Buglea, Lala-Popa, 2009), but the main idea needed to be clarified is that it represents a relationship between the effect of the exploitation process, and the effort provided, for the first aspect being used indicators as the physical quantities, the quantities destined for sale, the value of turnover or the value added.

$$W = \frac{Q_{phisical}\,;\, Q_{value}\,;\, Q_{production}\;;\, Q_{destined\;\;for\;sale}\,;\, turnover, VA}{N_{p,}N_m, N_h, N_z}$$

The objective of any organization, from this perspective, would be to increase productivity and streamline business activity (Buglea, Lala-Popa, 2009). An enterprise development is possible only through continued growth of this indicator. When referring to the analysis of the level and dynamics of labor productivity, this can be determined in several forms, as follows.

1.

$$W = \frac{Q}{N_s}$$

Annual productivity:

Where
Q - production, turnover or the value added Ns - number of employees
W - production obtained on average per employee in a given period

$$Wz = \frac{Q}{N_z}$$

2. *Daily Productivity*:

Nz - working time expressed in man - days
WZ - average production in a day's work in a given period

$$Wh = \frac{Q}{N_h}$$

3. *Hourly productivity*:

Nh - working time expressed in man - hours
Wh - production in an average hour of work in a given period

Comparing the three indicators in dynamics, there can be identified the following correlations (Lala-Popa, Miculeac, 2012):

$I_{Wz} > I_W$, the daily productivity index is greater than the annual productivity index, determining the daily productivity by eliminating waste of time for days

$I_{Wh} > I$, hourly productivity index productivity index is higher than daily index, because hourly productivity is determined at the actual time used.

The labor productivity is mainly influenced by:

- Technological and technical level of the company - The organization operating
- The quality of the human factor.

The case study elaborated consists in determining the bond between three indicators, namely the profitability of the enterprise, the turnover and the labor productivity, respectively. For this, we have selected a number of 20 enterprises in the city of Resita, for which we illustrated the values of the above mentioned indicators in the table bellow:

Table No 1

The profitability, turnover and labor productivity for the sample of companies

obs	RETURN	TURNOVER	W_LPROD
1	150405	4353830	94648.5
2	612	4730891	84480.2
3	270775	2973185	228707
4	937034	12119108	216413
5	337800	2833723	97714.6
6	776360	4861746	303859
7	1481	762362	42353.4
8	44078	7575051	145674
9	1137530	34134403	310313
10	132682	337969	112656
11	10380	790650	131775
12	46605	126432	63216
13	173285	22660023	276342
14	20502	121382	60691
15	4218	1116745	1116745
16	351776	15757296	1313108
17	4532	246690	61672.5
18	279023	79328305	1101782
19	80869	1388173	198310
20	189871	6079067	506589

(Source: Balance sheets published on the official web-platform of the Ministry of Finance)

The data was selected from the online web-platform of the Ministry of Finance (for the first two indicators), while the values representing the labor productivity were calculated individually by the authors. Using the EViews 7 software, we tried to determine the nature of linkage between the three indicators in the case of the 20 companies selected. All of these are active at present and obtained a positive return according to the balance sheet available for the year 2013. It is also important to mention that all of them are enterprises that operate in the field of food production or processing.

DISCUSSIONS AND RESULTS

We further analyzed through Eviews 7, the influence of the labor productivity and turnover upon the result obtained by an enterprise. The enterprises selected were not only SME's but also big enterprises, with more than 250 employees.

The variables considered were the thus the turnover and the labor productivity as independent variables and also the variable profit, the latter being a dependent variable.

The relationship between the three variables can be illustrated by the following regression line:

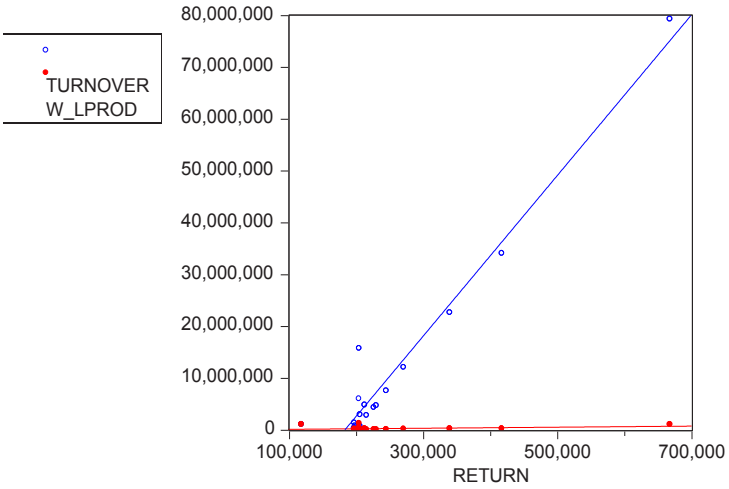

Figure no 1 – linear regression for the above listed variables
(Source: Eviews 7 processing data provided by the online web-platform of the Ministry of Finance)

Table No 2
The relationship between profitability, turnover and labor productivity for the sample of companies

Dependent Variable: RETURN
Method: Least Squares
Date: 04/12/15 Time: 22:50
Sample: 1 20
Included observations: 20
RETURN=C(1)+C(2)*TURNOVER+C(3)*W_LPROD

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	203661.9	96337.71	2.114041	0.0496
C(2)	0.007006	0.004741	1.477831	0.1577
C(3)	-0.083609	0.226644	-0.368900	0.7168

R-squared	0.124228	Mean dependent var	247490.9
Adjusted R-squared	0.021196	S.D. dependent var	328974.8
S.E. of regression	325469.6	Akaike info criterion	28.36141
Sum squared resid	1.80E+12	Schwarz criterion	28.51077
Log likelihood	-280.6141	Hannan-Quinn criter.	28.39056
F-statistic	1.205727	Durbin-Watson stat	1.857817
Prob(F-statistic)	0.323834		

(Source: Eviews 7 processing data provided by the online web platform of the Ministry of Finance)

According to data obtained in Eviews, the value of the Student test (t-statistic) to C (1) is 2.114041, C(2) is 1.477831 and C(3) is -0,368900. Following these calculations, and based on the values of the coefficient, the equation will be:

RETURN=203661.9 + 0.007006*turnover + (-0.083609)*W_LPROD

We observe that the value for C(2) and C(3) respectively are different. While the first one is higher than 0, indicating a direct relationship between the turnover and profitabilitaty, this linkage is still a weak one, the coefficient tending to 0. At the same time, the C(3) coefficient gains a negative value, of -0,083609, which indicates a weak and indirect linkage between the labor productivity and profitability.

The tabular value of the standard variable (T critical) is determined from the table of the Student distribution, according to v=n-1 degrees of freedom and the probability □*/2*. In our case, v=20-1=19 degrees of freedom and probability 0.05/2=0.025. According to the Student repartition quintiles, the tabular tcritic value corresponding to the error 0.025 of degrees and 19 degrees of freedom is 2,093< tc (1), 2,093 > tc (2), tc(3). The three parameters, c (1), c(2) and c (3) are significantly different from 0, the model is therefore statistically correct, rejecting the null hypothesis.

According to available data, the value of Durbin Watson test (Durbin Watson stat) is 1.857817. We determine two tabular values, one lower and one upper, depending on the level of significance of the test □□□□□□□□□□the number of observations (20) and the number of k factorial variables (in our case 2, since this a multiple factor regression model). Values are tabulated dL=1.10 and du=1,54. In this case, d=1.857817 >dL and >du, which means that the random variable autocorrelation hypothesis is based on indecision, being suggested the acceptance of positive correlation.

According to data obtained in Eviews, Fisher test value (Fstatistic) is Fc=1.205727. Table or critical value chosen from the table distribution Fisher - Snedecor according to the levels of significance (0.05) and the number of degrees of freedom (19) is Ft = 4.38. By comparing the calculated value Fc to the tabular value Ft results that Fc< Ft, and the null hypothesis is rejected with probability *p = 1 –* □□= 0.95%, which means that the model needs to be revised in order to draw a pertinent conclusion regarding the influence of a variable upon the other.

R-squared regression coefficient in calculations acquires the value of 0.124228, value> 0, demonstrating a direct but weak linkage.

CONCLUSIONS

The main conclusion driven by the above study is that there are certain connections between the three indicators mentioned, but also limitations, consisting briefly in the following aspects:

- The study was conducted on a sample of 20 companies, but these were not only small or medium sized enterprises, but also big companies, which immediately imposes limits for the study, considering that each of the categories has its own specific characteristics;
- As a general proposal, it is indicated to develop a similar study, but taking into consideration each category of enterprises on its own;
- The starting point for this future study would be the indication of a scale for motivation rates, and developing a study of the influence that motivation manifest upon the productivity growth.
- According to previous studies and conclusions, developed both by the authors of this paper and by official reports, the main element of motivation indicated by employees is wage, idea which drives us to the fact that productivity in a company is directly linked to the level of wages.

However, we can state that the factors acting upon productivity exercise the following influences:

- The average number of hours worked by an employee directly determines the change in the level of labor productivity in proportion to the level of the base period hourly labor productivity.
- The variation of the average working day determines productivity change through the influence upon the average hours worked by an employee in direct proportion to the corresponding levels of the base period average number of days worked per employee and hourly labor productivity.
- Average number of days worked per employee affects the change through the influence of the change in the average number of hours worked by an employee in direct proportion to the level of the base period hourly labor productivity and the duration of the current period average working day.
- Changing hourly labor productivity directly affects labor productivity change in proportion to the current period average number of hours worked by an employee.
- Changes in production structure affects labor productivity change through the influence of hourly labor productivity change in the same direction and proportional to the current period, the average number of hours worked per employee.
- Changes in hourly productivity product generates productivity change through the influence of hourly labor productivity change in direct proportion to the current period , the average number of hours worked per employee.

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