ISMGE 2020
II International Scientific and Practical Conference "Individual and Society in the Modern Geopolitical Environment"

HUMAN CAPITAL AS A FACTOR IN THE GROWTH OF REGIONAL ENTERPRISES' EFFICIENCY

Vladimir Sinyavin (a), Svetlana Taktarova (a), Saniyat Agamagomedova (a), Galina Tuguskina (b)*
*Corresponding author

(a) Penza State University, Krasnaya st., Penza, 40, Russian Federation
(b) Penza State University, Krasnaya st., Penza, 40, Russian Federation, galina066@mail.ru

Abstract

The article contains the results of studying the managing development factors practice and investment attractiveness of regional enterprises. The authors formed a sample of regional enterprises, developed the appropriate tools (questionnaire and expert inquirer) and conducted a questionnaire and expert survey. All of the above allowed to obtain data on the level of use and importance of development factors and investment attractiveness. This, in turn, formed the basis for calculating the indicators of the efficiency of using the factors performed using the author's technique. The obtained values of the efficiency of using factors were subjected to correlation and regression analysis. Based on its results, there was established the presence of dependencies between them, as well as indicators characterizing the intermediate and final results of the work of the enterprises under study. As an example, the authors cite the identified relationships between factors that characterize the level of human capital management and the intermediate and final results of the activities of enterprises in the sample. The regression models obtained by the authors made it possible to predict the results of the studied economic entities' performance in the context of increasing the efficiency of the initial development factors managing.

1. Introduction

The practice of managing federal states indicates that the decisive condition for the development of their economic system as a whole is the steady investment growth of individual territorially organized economic systems (Akindinova et al, 2017). It can be said that an effective local investment policy, which involves achieving a high level of investment attractiveness and attracting the necessary amount of investment resources, is the key to the successful development of the national economy (Sinyavin & Isachenko, 2016).

2. Problem Statement

Statistics show that for many Russian regions and business entities operating on their territory, the issues of degradation of the socio-economic system, a high level of depreciation of fixed assets, and a drop in labor productivity are quite acute (Sinyavin et al., 2019; Suzdalova et al., 2017).

At the same time, the leaders of many regional enterprises do not have enough investment funds necessary for the development and are investment unattractive. Moreover, they are not able to engage and fully use the hidden potential, which (with proper management) can serve as the basis for the growth of economic efficiency and investment attractiveness (Davis et al., 2017; Ergunova et al., 2017; Kelchevskaya et al., 2017).

3. Research Questions

In the course of our study, a sample of regional business entities operating in Penza region was formed and a factor analysis was carried out. This made it possible to identify relationships between groups of development factors and factors of investment attractiveness and the final economic results. Revealed relationships can be considered crucial in terms of the perspective of potential investors. The study covered a period of three years - from 2016 to 2018.

4. Purpose of the Study

The study is aimed at studying the managing development factors practice and investment attractiveness of regional enterprises.

5. Research Methods

The use of the tools we developed — questionnaire and an expert inquirer— made it possible to obtain baseline information regarding the level of development and the importance of factors (points). These factors, in turn, were the basis for calculating the indicators of the actual and maximum possible efficiency of using factors. All calculations were made according to the original methodology, which represents the result of our own developments.

The implementation of the correlation and regression analysis revealed the dependence of the final results of the enterprises' performance on the indicators of the actual effectiveness of the factors' usage.

6. Findings

According to the results of correlation and regression analysis, two groups of factors were identified. In the first group - factors, the level of actual efficiency of use of which affects the efficiency of use of factors that should be considered factors of a higher order, a kind of intermediate results of the enterprises' performance in the sample. The second group consists of factors that affect the indicators of profitability, labor productivity, turnover ratio of working capital, the volume of services rendered, capital ratio.

The first group (let's call it the group of primary factors) is formed by factors of the internal organizational environment, represented by the correspondence of the services offered to the level and structure of demand, the amount of wages, moral and psychological incentives, the authority of a formal leader, the availability of legal preparedness for managers and specialists, the presence of economic preparedness of managers and specialists, the availability of the required number of labor resources, the availability of technological readiness of employees, the availability of the scientific organization of labor (SOL) at the enterprise, as well as variables of environment, which act by means of taking into account the specifics of the social environment and relations with local governments (Demenko et al., 2017).

The second group (in our study, secondary factors) is formed by factors that also characterize the internal environment: the correspondence of the organizational structure to the goals and objectives of the enterprise, the correspondence of the management style to the characteristics of the labor collective, the presence of an internal company information system, the correspondence of the marketing strategy to the level of the resource base of the enterprise, timely identification of new market opportunities, monitoring the activities of competitors, the quality of services offered, matching the breadth of the offered services assortment to the organization's goals, flexible pricing policy, organization of effective service promotion, a sound positioning strategy, psychological cohesion of the work collective members, employee loyalty, as well as external one – the only factor of external environment is represented by the purchasing power of the population.

As an example, let us consider the dependence of factors characterizing the level of human capital management at the enterprises of the sample.

The relationship between the indicators of the effectiveness of the factor "Salary value" usage and the indicators of the effectiveness of the factor "Loyalty of employees of the organization" usage is established. Dependence - within a year. The correlation coefficient and the t-criterion of 2016 are 0.97 and 6.15, ones of 2017 are 0.98 and 6.67, ones of 2018 are 0.95 and 4.49 respectively (the t-test in each case exceeds the table value, indicating the validity of the correlation.).

The 2018 dependency model takes the following form (1):

$$Y = -0.0517 + 0.4828 \cdot X, \tag{1}$$

where: X – the effectiveness of the factor "Salary value" usage, Y – the effectiveness of the factor "Loyalty of employees of the organization" usage.

Further, we found the impact of the effectiveness indicator of the factor "Loyalty of employees of the organization" usage on profitability. Dependence - within a year and with a delay of two years (impact on the results of 2018 - according to the results of work in 2016).

The correlation coefficient of the studied indicators in 2016 is 0.99, the t-criterion is 2.62 (exceeding the table value indicates the significance of the correlation).

The correlation coefficient of 2017 is 0.98, the t-criterion is 2.62 (exceeding the table value also indicates the significance of the correlation).

The correlation coefficient of 2018 is 0.98, the t-criterion is 2.78 (also confirms the reliability of the found correlation coefficient).

The dependency model within 2016 has the form (2):

$$Y = 13.0385 + 6.1538 \cdot X, \tag{2}$$

where: Y – profitability within 2016, X – actual effectiveness of the factor "Loyalty of employees of the organization" usage within 2016.

The correlation coefficient between the profitability of 2018 and the indicators of the effectiveness of using the factor "Loyalty of employees of the organization" of 2016 is 0.97, the t-criterion is 4.68 (the correlation is reliable).

The relationship between the profitability of 2018 and the indicators that characterize the efficiency of using the factor "Loyalty of employees of the organization" in 2016 is represented by the model (3):

$$Y = 17.4615 + 4.6154 \cdot X, \tag{3}$$

where: Y – profitability within 2018, X – actual effectiveness of the factor "Loyalty of employees of the organization" usage within 2016.

Using the method of correlation and regression analysis, the efficiency of using the factor "Moral-psychological incentives" indicators' effect on the efficiency of using the factor of psychological cohesion of members of the work collective was also confirmed. Dependence again - within a year.

The correlation coefficient between the 2016 indicators is 0.98, the t-criterion is 7.51 (the value is higher than the table).

The correlation coefficient in 2017 is 0.99, the t-criterion is 9.81 (also above the tabulated value - the correlation is reliable).

The correlation coefficient in 2018 is 0.98, the t-criterion is 7.51 (exceeds the table indicator).

The dependency model (4):

$$Y = -2.47 + 1.3 \cdot X, \tag{4}$$

where: X – the effectiveness of the factor "Moral-psychological incentives" usage,

Y – the effectiveness of the factor "Psychological cohesion of members of the work collective" usage.

The effectiveness indicators of using the factor "Psychological cohesion of members of the work collective", in turn, according to the results of the correlation and regression analysis, have an impact on the profitability of sample enterprises. Dependence - within a year.

The correlation coefficient between the indicators of 2016 is 0.99, between the indicators of 2017 - 0.99 and between the indicators of 2018 - 0.98. t-criterion - 3.10, 2.65 and 3.8 respectively (for each of the dependencies it exceeds the tabular value, proving the reliability of the found correlation coefficient).

The 2018 dependence is represented by the model (5):

$$Y = 16.3 + 7 \cdot X, \tag{5}$$

where: Y – profitability within 2012,

X – actual effectiveness of the factor "Psychological cohesion of members of the work collective" usage within 2012.

The development and implementation of significant, often innovative, nature of projects that are possible under the unanimous support of a psychologically cohesive team lead to cost savings, increased profits and, as a consequence, increased profitability (Lizunkov et al., 2020).

7. Conclusion

The obtained regression models make it possible to predict the dynamics of the intermediate and final results of the enterprises of the sample in the context of the implementation of measures of managerial impact aimed at improving the efficiency of using the source of influence factors.

The efficiency of using the factor "Salary value", that is necessary to achieve the maximum possible efficiency of using staff loyalty, is calculated using the model (6):

$$x = \frac{3,3 - (0,05)}{0,49}, \tag{6}$$

where 3.3 – the maximum possible efficiency of using the factor "Loyalty of the employees"; x – the efficiency of using the factor "Salary value".

From the calculations it follows - x is equal to 6.8, which is higher than all the actual values of the sampled organizations calculated during the study.

The predicted value of profitability, expected within a year under the conditions of the maximum possible efficiency of using the factor "Loyalty of the employees", is established using the model (7):

$$Y = 13.0385 + 6.1538 \cdot 3.3, \tag{7}$$

where Y –profitability; 3.3 – the maximum possible efficiency of using the factor "Loyalty of the employees".

From the calculations it follows: profitability will be 32.7%, which exceeds the actual figures.

The possible profitability, achieved with a delay of two years under conditions of growth to the maximum value of the initial influence factor, we obtain on the basis of model (8):

$$Y = 17.4615 + 4.6154 \cdot 3.2, \tag{8}$$

where Y –profitability; 3.3 – the maximum possible efficiency of using the factor "Loyalty of the employees".

According to calculations, profitability will reach 33.2%.

In order to increase the indicators characterizing the efficiency of using the factor of wages, we recommend increasing the bonus part in wages up to 50%. To date, the basis of accrual of the enterprises workers' wages in the sample is a quantitative accounting of labor results. In our opinion, such a "quantitative part" should be reduced to 50%. The calculation of the premium part, according to our statement, should include an assessment of the quality of work - the presence of complaints/gratitude

from consumers of forms, participation in training seminars, professional skills contests, making rationalization proposals, etc.

Increasing the dependence of workers' incomes on the quality of their labor will strengthen its motivational foundations (Tuguskina et al., 2019). The management of organizations is recommended to develop a system of indicators that lead (if they are met) to remuneration with reference to an accurate quantitative assessment.

Let us turn to the calculations of the efficiency of using the factor "Moral-psychological incentives", which is necessary for enterprises of the sample to achieve the maximum possible effect of psychological cohesion of the work collective members (9):

$$x = \frac{6,0 - (-2,47)}{1,3}$$

(9)

where: 6.0 – the maximum possible effectiveness of the factor "Psychological cohesion of members of the work collective" usage; x – the effectiveness of the factor "Moral-psychological incentives" usage.

According to calculations, x is equal to 6.5, which exceeds the actual efficiency of using the factor by all the organizations studied.

The profitability possible when organizations of the sample achieve the maximum possible efficiency of using the factor "Psychological cohesion of members of the work collective" is established using the model of regression dependence (10):

$$Y = 16.3 + 7 \cdot 6.1,$$

(10)

where Y –profitability; 6.1 – the maximum possible effectiveness of the factor "Psychological cohesion of members of the work collective" usage.

Calculations show that profitability will reach 59%, which is significantly higher than the maximum indicator (29% - Penza region) and at times exceeds the indicators of organizations in other regions.

The recommendations that we proposed in order to increase the effectiveness of the initial factor of influence - "Moral-psychological incentives" – can be applied to the activities of small group managers. In respect of those who skilfully use the satisfaction of employees with moral and psychological incentives, that is, develop and implement programs important from the organizational standpoint, it is proposed to carry out bonuses in the amount in accordance with the magnitude of the positive effect.

To preserve the motivational foundations of labor, work collectives themselves are also offered to reward. A similar bonus system for employees of the organization should be established in labor or collective contracts, agreements, local regulatory acts of the organization. Its main task is to promote the formation of material interest of workers in the growth of indicators that are not provided for by the main wage (Romanova, 2017).

The introduction of such a system of bonus payments will serve as a significant method of staff incentives and, in the context of the statistically confirmed indirect influence of the studied factor on the final indicators, will have a beneficial effect on labor efficiency. The heads of enterprises that have developed and implemented similar bonus payments will lay the foundations for the development of

employees' conscious desire for the best results and, therefore, to achieve corporate goals (Yemelyanov & Khachaturian, 2019).

The bonus payments recommended by us should not be considered in the system of remuneration of labor - in respect of them, one should adhere to a one-time nature - they will not be charged for fulfilling predetermined indicators and conditions, but on the basis of an overall assessment of the work of this employee or unit. They can be defined as one-time, aimed at encouraging achievements in the production process:

- for ensuring the growth of labor productivity;
- for the best performance indicators;
- for the successful completion of the assignment, classified as important and urgent (Mudretsov & Prudnikova, 2018).

The decision to reward the head of distinguished divisions should be based on the processing of data from questionnaires that allow the management of organizations to evaluate the activities of the leaders of small groups regarding the use of moral and psychological incentives in working with staff. These questionnaires will enable the head of the organization to establish a connection between the performance of a particular unit and employee satisfaction with moral and psychological incentives.

We believe that the practical implementation of the proposed recommendations will significantly increase the level of management of the studied factors that determine the state of human capital in the enterprises of the sample and indirectly ensure the growth of productivity and investment attractiveness of economic entities (Tarakanov et al., 2019).

It is likely that deviations of unstable factors of the external organizational environment, possible in future periods, will lead to the fact that the recommended indicators of the effectiveness of the use of the studied factors and will not be fully achieved in practice. However, in any case, they will be clear guidelines for managing business entities in the development and implementation of appropriate decisions in the field of human capital management and indirectly in activities aimed at ensuring the growth of intermediate and final results and investment attractiveness of sample enterprises.

We believe that the identified system of dependencies may be the basis for the development of a universal model of investment policy of business entities applicable in the field of managing the parameters that determine their investment attractiveness, regardless of industry sector and scale of activity. Various ways proposed by modern authors to solve the problem of increasing the investment attractiveness of Russian enterprises are, as a rule, narrow in nature and are limited by either industry or territorial affiliation. The universal system of actions built taking into account objective Russian realities, which could be applicable by any market participant, has not yet been proposed by investment theorists and practitioners.

The results of further studies on the practical implementation of the above measures will be reported in subsequent publications.

References

Akindinova, N. V., Chekina, K. S., & Yarkin, A. M. (2017). Measuring the Contribution of Demographic Change and Human Capital to Economic Growth in Russia. *HSE Economic Journal, 4*, 533–561. https://ej.hse.ru/en/2017-21-4/213423352.html

Davis, N., Ergunova, O., Lizunkov, V., & Malushko, E. (2017). Phenomenon of migration and its manifestations in the modern world. *European Proceedings of Social and Behavioural Sciences, 26*, 550-556

Demenko, O. G., Makarova, I. G., & Konysheva, M. V. (2017). The origin and development of municipal self-government in Russia. *Man in India, 97*(20), 381-390.

Ergunova, O., Lizunkov, V. G., Malushko, E. Yu., Marchuk, V. I., & Ignatenko, A. Yu. (2017) Forming system of strategic innovation management at high-tech engineering enterprises, *IOP Conference Series-Materials Science and Engineering, 177.*

Kelchevskaya, N. R., Chernenko, I. M., & Popova, E. V. (2017). The Impact of Corporate Social Responsibility on the Investment Attractiveness of the Russian Companies. *Economy of the region, 13*, 157-169. https://doaj.org/article/caf8bc0387ed4d4c94976c9d62d153e6

Lizunkov, V, Politsinskaya, E., Malushko, E, & Pavlov, A. (2020). Modelling as the Basis for Building a Competency Model of a Specialist Demanded by Industrial Enterprises in Priority Social and Economic Development Area (PSEDA). *International journal of emerging technologies in learning, 15*(13), 321-326.

Mudretsov, A., & Prudnikova, A. (2018). Prospects for the innovative development of the Russian economy. *Problems of management theory and practice, 4*, 63-70. https://www.elibrary.ru/item.asp?id=35001110

Romanova, O. A. (2017). Industrial Policy Priorities of Russia in the Context of Challenges of the Fourth Industrial Revolution. *Part 1 Economy of the region, 13*, 276-282. https://www.economyofregion.com/archive/2018/69/3036/

Sinyavin, V., & Isachenko, S. N. (2016). Stimulating the increase of investment attractiveness of agricultural production and labor. *Rationing and remuneration in agriculture, 5*, 3-17. https://www.elibrary.ru/item.asp?id=36982905

Sinyavin, V., Yanina, T., & Podrezov, A. (2019). Conceptual bases for the formation of an effective investment policy of business entities in the agricultural business of Russia. *IOP Conf. Series: Earth and Environmental Science, 274,* 012041. https://iopscience.iop.org/article/10.1088/1755-1315/274/1/012041

Suzdalova, M. A., Lizunkov, V. G., Malushko, E. Yu., Sytina, N. A., & Medvedev, V. E. (2017). Innovative Forms of Partnership in Development and Implementation of University-Business Cooperation. *The European Proceedings of Social and Behavioural Sciences EpSBS, XIX*, 450-455.

Tarakanov, V. V., Inshakova, A. O., & Dolinskaya, V. V. (2019). Information society, digital economy and law. *Ubiquitous Computing and the Internet of Things: Prerequisites for the Development of ICT, Studies in Computational Intelligence, 826*, 3-15.

Tuguskina, G. N., Rozhkova, L. V., Salnikova, O. V., Vlazneva, S. A., & Taktarova, S. V. (2019). Human resources development as the basis of Russian technological breakthrough. *IOP Conf. Series: Materials Science and Engineering (Volgograd: Volgograd State University), 483*, 20-21. https://iopscience.iop.org/article/10.1088/1757-899X/483/1/012094

Yemelyanov, Y., & Khachaturian, A. (2019). Innovation as a key element in the sustainable development of the national economy. *Problems of management theory and practice, 2*, 108-219. https://www.elibrary.ru/item.asp?id=37253311