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## LABOR OPPORTUNISM AS A BLOCKING FACTOR FOR THE INNOVATIVE DEVELOPMENT OF INDUSTRIAL ENTERPRISES

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**Abstract.** The innovative way of enterprise development depends on many issues in the framework of legislation, financing, infrastructure, human resources, technological base, information, and other areas. The current study analyzes the factors that determine the manifestations of labor opportunism and its forms based on functional and resource approaches, taking into account institutional and economic constraints among workers in the energy industry. The results of a sociological study on the forms of opportunistic behavior at the enterprises of the energy industry are presented. The results of the study indicate that labor opportunism is one of the significant factors that block the innovative development of an enterprise. It has a major impact on labor relations as long as one of the conditions for the emergence of opportunism is a conflict of interests between the employee and the employer. It occurs when the interests of one economic agent run counter to the interests of another. This is proved by the results of assessing the influence of various factors on the opportunism level of employees of energy enterprises and is based on correlation and regression analysis. In the framework of this study, labor opportunism is understood as a form of selfish behavior of an employee pursuing personal gain as a response to a conflict of interests between economic agents in the course of labor activity. The conclusions reached suggest that labor opportunism should be considered as a blocking factor when designing the innovative development of an industrial enterprise. Measures aimed at overcoming labor opportunism, building trust in the team and raising the level of innovation in enterprises are proposed.

**Keywords:** labor opportunism; innovative development; innovative activity; opportunistic behavior

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## **1. Introduction**

The relevance of studying labor opportunism is determined by its significance as an economic phenomenon characteristic of any economic system which contains labor relations.

The study of labor opportunism as a negative phenomenon that impedes the innovative development of enterprises is becoming an urgent issue in management practice. Many scientists (Belyaev et al., 2013; Bodrov et al., 2014; Ruff, 2014, 2018; Krasikov and Roshchina, 2018; Adams, 2019; Lane, 2017, Rutten and Oerlemans, 2009; Bernardi, 2019) pay attention to various factors determining the manifestations of labor opportunism and its forms based on functional and resource approaches. The institutional and economic constraints of workers are also taken into account.

Labor opportunism has a serious impact on labor relations since one of the conditions for its emergence is a conflict of interests between the employee and the employer, when the interests of one economic agent run counter to the interests of another. The results of assessing the degree of influence of various factors on the level of labor opportunism of energy enterprises' employees based on correlation and regression analysis show that labor activity is often opportunistic in nature. It blocks the innovative development of enterprises and the exercising of the initiative (Bekebayeva et al., 2019; Strunc, 2019; Shatalova et al., 2015; Lateef et al., 2019; Zeibote et al., 2019; Voronkova et al., 2019; Yemelyanov et al., 2018; Magsumov, 2014, 2017; Anamova and Nartova, 2019).

A pilot case study was conducted by a questionnaire survey in order to determine the level of labor opportunism of employees of industrial enterprises in the energy sector. Five hundred employees aged 18 to 65 years old took part in it, out of which 26.2% were from 18 to 29 years old; 20.4% were 30-39 years old; 28.8% were 40-49 years old; 18.4% were 50-59 years old, and 6.2% were over 60 years old. Most of the respondents were men (62.8%). Additionally, 20 managers of different levels were interviewed. More than half of the managers (65%) were in the age group over 50 years old, 35% of managers aged 40 to 49 years.

Object of study: factors that determine the manifestations of labor opportunism and its forms based on functional and resource approaches, taking into account institutional and economic constraints among workers in the energy industry.

The subject of the study is labor opportunism as a factor in blocking the innovative development of enterprises in the energy sector.

Objectives of the study:

1. Conduct a review of scientific research on the issue of labor opportunism.
2. Study the factors that determine the manifestations of labor opportunism and its forms in the energy industry.
3. Analyze and interpret the results of sociological study in order to determine the level of labor opportunism in the energy sector enterprises.
4. Determine the influence of various factors on the level of labor opportunism of employees of energy enterprises based on correlation and regression analysis.
5. Provide conclusions and develop recommendations aimed at leveling the factors of labor opportunism of workers that block the innovative development of enterprises.

The following hypotheses are made:

- labor opportunism is present in any enterprise as a response to the opposition of economic interests of the employee and the employer;

- various factors that affect the labor opportunism of workers and block the innovative development are identified in the practice of enterprise management;
- workers and managers have a different view of labor opportunism;
- labor opportunism has a serious impact on the innovative efficiency of the enterprise.

According to the study results, 72.4% of respondents among employees and 85% of managers noted that employees exhibited opportunistic behavior in the process of working while pursuing their own benefits.

All managers participating in a sociological survey considered labor opportunism a serious threat to the development of the enterprise and to its effective functioning.

The results obtained are of practical importance not only for enterprises of the energy sector but for all industrial enterprises where it is possible to use a scientific-integrative model of anti-opportunistic behavior using managerial mechanisms in the system of social and labor relations of the enterprise, using the model equation obtained by the ordinary least squares (OLS) method.

## 2. Literature review

Innovative efficiency is considered in scientific studies (Arvanitis et al., 2008; Bae and Chang 2012; Lazzarotti et al. 2012; Meissner and Carayannis 2017; Tvaronavičienė, 2017; Hou et al. 2019; Omarova et al., 2018; Radicic et al. 2019; Akhmetshin, 2017; Pavlyshyn et al., 2019; Tarman and Dev, 2018; Saenko et al., 2019; Prodani et al., 2019; El Iysaouy et al, 2019) as a competitive advantage of enterprises that can support their sustainable development. It depends on many factors of both external (legislation, external knowledge, etc.) and internal environment of the company (personnel, information, equipment, etc.).

The key factor influencing the innovative development of the enterprise is the personnel, particularly their knowledge, loyalty to the company and innovative behavior without labor opportunism. A destructive change in work behavior can lead to devastating changes in other economic activities (Arman et al. 2019).

Opportunistic behavior is widespread in various fields like politics, economics, public life, and others. Special attention in the literature has recently been given to the behavior of employees in the course of the working process. Some Russian authors (Bodrov 2008, 2014; Belyaev et al. 2013, 2015, 2017; Ishchenko and Magsumov, 2019; Prokhorova et al., 2016; Dmitrieva et al., 2017; Trofimova et al., 2019; Girenko 2012; Pyatkova 2016) update the problems of research on labor opportunism and forms of its exhibition. Labor relations on a contractual basis imply the emergence of opportunistic behavior on the part of both the employer and the employee. Such kind of behavior causes a decrease in the level of labor productivity in the enterprise (Korableva et al., 2019; Sycheva et al., 2018; Luzina et al., 2019; Prodanova et al., 2019a,b; Ziyadin and Gulmira, 2015; Shrestha, 2019; Tadeu et al., 2019). It also blocks the innovative development of companies and increases transaction costs.

The main forms of opportunistic behavior in industrial enterprises are the opportunism of the employer and the opportunism of the employee.

This problem is covered in studies of foreign authors. The results of a number of studies (Laan et al. 2011; Wang et al. 2011; Belloc, 2012; Marjanovic et al. 2012; Bigliardi and Galati, 2016; Basterretxea et al., 2019; Guerrero et al. 2019; Rizki et al., 2019) show that labor opportunism affects the innovative development of enterprises. For example, scientists analyze the principle of cooperation in introducing innovations “through cooperation and overcoming the risk of opportunistic behavior” (Basterretxea et al., 2019) or its weakening due to the project unification (Laan et al., 2011). Jan-Erik Lane reviews opportunism as fraudulent behavior at the micro-level as one of its forms. Some scientists (Williamson, 1993; Rutten and Oerlemans, 2009) conducted a study of opportunistic behavior through the prism of trust meaning that labor opportunism is absent where the company has a high level of trust in the team.

The most interesting is the view of Bengt-Ke Lundvall (2016). The author draws attention to the fact that opportunistic behavior leads to increased costs when introducing complex product innovations.

Labor opportunism should be understood as a form of selfish behavior of an employee pursuing personal gain as a response to a conflict of interests between economic agents in the course of labor activity.

### **3. Methods**

Labor opportunism was identified among the significant factors blocking the innovative development of the enterprise.

The study of the energy industry enterprises of the Republic of Tatarstan included the following:

1. A questionnaire survey determining the level of labor opportunism in industrial enterprises of the energy sector. Respondents had to answer 20 questions in the questionnaire, which allowed determining the presence of various factors affecting labor opportunism of workers and blocking the innovative development of the enterprise. Employees and managers answered the same questions.

The questionnaire survey was conducted at four energy enterprises of the Republic of Tatarstan with more than 100 employees. Anonymous data collection was carried out from respondents who were ready to answer the questions presented in the questionnaire.

The survey of managers covered all levels of management (20% – top management, 35% – middle management and 45% – lower management).

The collection and analysis of personal data based on the methods of grouping, classification, ranking and comparative analysis made it possible to systematize information and highlight the factors that determine the manifestations of labor opportunism and its forms, including those that block the innovative development of enterprises.

The data obtained is considered representative.

2. Assessment of the degree of influence of various factors on the level of labor opportunism of employees of energy enterprises based on correlation and regression analysis using the Gretl statistical package:

- at the first stage, a selection of factors most closely related to the effective attribute was carried out based on a matrix of paired correlation coefficients;

- at the next stage, the least-squares method was used to construct two models of the level of opportunism dependence on various factors. The first one is based on workers' (n = 500) opinion and the second one is according to the managers' (n = 20) perspective. The level of workers' opportunism (y) was considered to be a dependent variable;

- at the third stage, an analysis of the constructed models of the level of labor opportunism dependence on various factors was carried out and conclusions were made.

### **4. Data Collection**

A secondary analysis of research data on opportunism and labor behavior that affects the innovative development of enterprises, the results of proprietary pilot sociological research and the results of a correlation-regression analysis of the degree of influence of various factors on the level of labor opportunism of energy enterprises employees formed the empirical basis of the study.

A sample selection of a pilot sociological survey conducted by the questionnaire survey method consisted of 500 people at the age of 18 to 65 years, out of which 26.2% were from 18 to 29 years old; 20.4% were 30-39 years; 28.8% were 40-49 years old; 18.4% were 50-59 years old, and 6.2% were over 60 years old. Most of the respondents were men (62.8%). In addition, 20 managers of different levels of government were interviewed.

More than half of the managers (65%) were in the age group of over 50 years old, 35% of managers aged 40 to 49 years.

The results of employees' sociological study revealed factors that affected labor opportunism of workers and blocked the innovative development of the enterprise or (see Table 1).

**Table 1.** The presence of factors affecting labor opportunism of workers and blocking the innovative development of the enterprise (%)

No.	The presence of the factor in the organization	According to employees (n = 500)	According to managers (n = 20)
1.	The company requires working on weekends and holidays	12.2%	10%
2.	The management often asks to stay late after work	12.2%	15%
3.	Functional performance not included in official duties is observed	29.8%	40%
4.	The staff is more often not satisfied with their work	31%	30%
5.	The staff is more often not satisfied with the moral and psychological climate in the team	35%	35%
6.	Dissatisfaction with wages	72%	90%
7.	Lack of correlation between the work done and the wages rate	93%	50%
8.	The wage does not match the amount of work performed	73%	20%
9.	Adverse teamwork between employees	17.4%	25%
10.	Adverse relationship between the supervisor and subordinates	38%	50%
11.	Providing management with an interest in involving staff in the development of recommendations for improving the activities of the unit and innovative ideas for the development of the enterprise	9.2%	30%
12.	Feedback on positive changes in the company	8.2%	30%
13.	Work overload	42.4%	60%
13.	The practice of double standards in the organization	79%	20%
14.	Underutilization of staff	2.6%	45%
15.	Lack of trust in the team	82%	90%

Source: The authors

Thus, according to the results of the study, 15 factors were identified that affect the opportunism of workers and block innovation in the enterprise.

The analysis of Table 1 shows that the most significant factors for the staff are the lack of correlation between the work done and the wages rate (93%), lack of trust in the team (82%) and the practice of double standards (79%).

According to managers, the most significant factors affecting employee opportunism and blocking the innovative development of an enterprise are dissatisfaction with the wages rate (90%) and lack of trust in the team (90%).

**Table 2.** Types and forms of opportunistic behavior

No.	Type (form)	According to employees	According to managers
1.	Employee workplace absence	–	–
2.	Heavy activity imitation	24.2%	40%
3.	Long approval of documents, projects, etc.	22.6%	50%
4.	Delaying accomplishment of work that can be done faster	57%	70%
5.	Gratuitous use of employee personal contacts to solve company problems	38.4%	25%

Source: The authors

The data in Table 2 show that the most common form of opportunistic behavior is delaying the accomplishment of work that can be done faster, indicated by 57% of employees and by 70% of managers.

According to respondents, managers have the following types of opportunism:

- requiring the employees to perform functions not included in the range of official duties – 29.8%;
- requiring to work on weekends and holidays – 12.2%.
- gratuitous use of personal connections of an employee to solve company problems – 38.4%.

## 5. Data Analysis

Correlation and regression analysis were performed in the framework of the current study in order to quantify the influence of the factors presented in Table 1 on the level of labor opportunism at enterprises of the energy sector. At the same time, due to the ease of interpretation, the following form of a linear model of multiple regression was chosen:

$$y = a_0 + a_1x_1 + a_2x_2 + \dots + a_{15}x_{15},$$

where  $y$  is the frequency of cases of opportunism in the organization (effective sign),

$x_1, x_2, \dots, x_{15}$  – values of 15 factors presented in Table 1,

$a_1, a_2, \dots, a_{15}$  – the parameters of the model equation obtained by the ordinary least squares (OLS) method.

At the first stage, factors were selected into the model on the basis of a matrix of paired correlation coefficients. Those were selected out of the  $x_1, x_2, \dots, x_{15}$  factors for which the correlation coefficient is the smallest among the other factors, and at the same time is the largest with the effective attribute  $y$ . This allowed selecting the most significant factors and eliminating multicollinearity, that is, the combined influence of factors on the result that distorts the results of the model. The following factors were selected in the model as a result of the analysis of the pair correlation coefficients matrix:

$x_6$  – degree of dissatisfaction with the wage rate;

$x_7$  – degree of correlation between the work done and the wage rate;

$x_{15}$  – degree of lack of trust in the team.

At the next stage, the following model was obtained (see Table 3) using the least-squares method. Five hundred observations were used ( $n = 500$ ), the level of opportunism of workers ( $y$ ) was viewed as a dependent variable.

**Table 3.** Model 1: Dependence of the level of opportunism on  $x_6$ ,  $x_7$ ,  $x_{15}$  factors (according to employees)

	Coefficient	Std. error	t-statistics	P-value
$x_6$	0.432815	0.0826546	4.5863	0.00002
$x_7$	0.534671	0.0654372	4.2451	0.00001
$x_{15}$	0.456781	0.0789047	2.3710	0.00082

Average variable dependency	0.435467	Statistical deviation of variable dependency	03565746
Sum of squared errors	3.854373	Statistical model error	0.185465
R-squared	0.865457	Corrected R-squared	0.835436
F(3, 497)	2.734647	P-value	2.12e-39
Logical credibility	22.43543	Akaike criterion	-36.36657
Schwartz criterion	-27.5434	Hannan-Quinn criterion	-32.63654

The analysis of the model quality shows that it is high-quality and reliable since the value of the R-square = 0.865 exceeds the threshold value of 0.5 significantly. This means that the constructed regression model accounts for 86.5% of changes in the level of opportunism, and the remaining 13.5% is explained by the influence of other factors that are not included in the model.

The value of the P-value parameter turned out to be 2.12e-39, which is significantly less than the threshold value of 0.05. This means that the model is generally significant.

The “Standard error” parameter estimates sample standard deviations for each coefficient of the regression equation and standard error of the coefficients. In this model, the P-value of all regression coefficients was less than 0.05, so those can be considered statistically significant. For the constructed model, the standard error is much lower than the regression coefficient (R-squared = 0.865), which suggests that the model is also reliable according to this criterion.

In order to assess the impact of each identified factor on the level of labor opportunism of employees in the company, elasticity factors for each of them were calculated. As a result, it was revealed that with an increase in wages by 1%, the level of labor opportunism of employees will decrease by 0.42%. In case the increase in the number of workers who see the connection between the work done and the wages is 1%, the labor opportunism level will decrease by 0.35%. With an increase in the level of trust in the team by 1%, the level of opportunism will decrease by 0.31%.

As a result of the analysis, the regression equation of labor opportunism of employees was constructed based on the obtained regression coefficients, from the point of view of the workers themselves:

$$y = 0.432x_6 + 0.534x_7 + 0.456x_{15}.$$

If the average values of the corresponding variables are placed in this regression equation, then an average quantitative estimate of the level of labor opportunism of employees is obtained:

$$y = 0.432 \cdot 0.39 + 0.534 \cdot 0.42 + 0.456 \cdot 0.32 = 0.483.$$

That means that from the point of view of the workers themselves, 48.3% of their work is opportunistic in nature, which blocks the innovative development of enterprises and the exhibition of the initiative.

A similar regression model of opportunism of workers was built on the basis of a survey of managers. Moreover, the following 4 significant factors were selected based on the matrix of pair correlation coefficients:

$x_6$  – the degree of dissatisfaction with the wage rate;

$x_{10}$  – the level of relationship between the leader and his subordinates;

$x_{13}$  – the level of work overload;

$x_{15}$  – the degree of lack of trust in the team.

The results of the second simulation are presented in Table 4. Twenty observations were used ( $n = 20$ ). The level of opportunism of workers ( $y$ ) was viewed as a dependent variable.

**Table 4.** Model 2: Dependence of opportunism on  $x_6, x_{10}, x_{13}, x_{15}$  factors (according to managers)

	Coefficient	Std. error	t-statistics	P-value
$x_6$	0.4984013	0.110475	4.4670	0.00035
$x_{10}$	0.3829410	0.039484	3.7401	0.00012
$x_{13}$	0.3294871	0.119349	2.5866	0.03739
$x_{15}$	0.4304724	0.135284	3.3848	0.00248

Average variable dependency	0.543375	Statistical deviation of variable dependency	0.036747
Sum of squared errors	0.054636	Statistical model error	0.064636
R-squared	0.954644	Corrected R-squared	0.935476
F(3, 497)	129.4245	P-value	1.18e-12
Logical credibility	22.47654	Akaike criterion	-41.05437
Schwartz criterion	-33.3747	Hannan-Quinn criterion	-37.26453

An analysis of the model 2 quality showed that its reliability was 0.9546, since the value of R-squared = 0.955. That means that this regression model describes 95.5% of the changes in the level of opportunism and only 4.5% falls under the influence of other reasons not included in the model.

The P-value parameter equal to 1.18e-12 turned out to be less than 5%, which confirms the significance of the model as a whole.

The value of the Standard Error parameter turned out to be 0.06, which is lower than the regression coefficient (R-squared = 0.955); therefore, according to this criterion, the model is reliable.

The values of the elasticity coefficients according to this model indicate that with an increase in wages by 1%, the level of labor opportunism of workers will decrease by 0.57%. Further, with an increase in the level of relations between the manager and subordinates by 1%, the opportunism level will decrease by 0.32% and with a decrease in the level of workload, it will decrease by 0.25%. If the level of trust in the team is increased by 1%, the opportunism level decreases by 0.43%.



Based on the regression coefficients obtained as a result of the analysis, the regression equation of labor opportunism of workers was constructed from the managers' point of view:

$$y = 0.498x_6 + 0.383x_{10} + 0.329x_{13} + 0.43x_{15}.$$

By substituting the average values of the corresponding variables in this equation, the average quantitative assessment of the level of labor opportunism of employees of energy enterprises was calculated:

$$y = 0.498 \cdot 0.34 + 0.383 \cdot 0.32 + 0.329 \cdot 0.41 + 0.43 \cdot 0.32 = 0.564.$$

This means that, according to managers, 56.4% of the activities of employees of the energy sector industrial enterprises are opportunistic in nature. Its effect is the lack of initiative on the part of the staff to improve the company and its innovative development.

## 6. Discussion

Innovation can become a restrictive barrier to a destructive economy if an economic entity “can strengthen its comparative advantage based on innovation” (Arman et al., 2019, p. 75). At the same time, researchers note that “innovation and social change have a devastating effect on the world system” (Arman et al., 2019, p. 76). Accordingly, in response to changes and the inability to adapt to them, the opportunistic behavior of personnel may arise in the form of resistance to the introduction of innovations, suppression of ideas, etc.

The conducted analysis made it possible to identify the current level of labor opportunism of workers in the energy sector, which affects the innovative development of the enterprise. On average, it is 48.3% as estimated by the employees themselves and 56.4% as estimated by managers.

In the process of researching forms of opportunistic behavior within the energy sector enterprises, it was revealed that the most common form of it was to drag out time to complete work that could be done faster: 57% of employees and 70% of managers.

Among respondents, 40% of managers and 24.2% of employees believe that the company often imitates heavy activity.

In general, according to the results of the study, various factors affecting labor opportunism of workers are observed at enterprises in the energy sector.

The opinions of staff and managers differ significantly on the following factors that affect labor opportunism of workers and block the innovative development of the enterprise: lack of correlation between the work done and the wages: 93% of employees versus 50% of managers; wages do not correspond to the volume of work performed – 73% versus 20%. Most of the employees surveyed (82%) noted the organization's practice of double standards and only 20% of managers indicated this. The management team of the company (45%) believes that employees are not overloaded with work, while employees themselves almost do not think so (2.6%).

It should be noted that in the opinion of only 9.2% of employees, the management is interested in involving staff in the development of recommendations for improving the activities of the unit and innovative ideas for the development of the enterprise. Among the managers' answers, the value of this indicator is 3.26 times higher.

Despite the differences in assessments of various factors of opportunism, both workers and managers agree that there are two factors significantly affecting the level of labor opportunism and blocking the innovative development of enterprises: dissatisfaction with the wage rates and lack of trust in the team (Kononov et al., 2017; Sharafutdinov et al., 2017).

Williamson (1993) in his economic theory of transaction costs regarded trust as the absence of opportunistic behavior (Williamson, 1993).

A 1% reduction in dissatisfaction with wages will lower the level of opportunism of workers by an average of 0.42% according to the workers themselves and by 0.56% according to the managers. An increase in the level of trust in the team by 1% can reduce the level of opportunism by an average of 0.57% according to workers and by 0.43% according to managers. Therefore, it is recommended that priority be given to these two factors.

Thus, there is ambiguity and differences in the responses of respondents from the group of employees and the group of managers regarding some factors that affect labor opportunism and block the innovative development of enterprises.

## **Conclusions**

The following conclusions can be drawn based on the results of the study. Those can become the basis for a program to minimize the influence of factors that determine labor opportunism and block innovative development of an enterprise:

- labor opportunism is a factor of blocking the innovative development of enterprises;
- it is impossible to completely eliminate opportunistic behavior in the process of labor activity due to the objective opposition of the economic interests of the employee and the employer.

According to the results of a sociological study of workers in energy enterprises in the Republic of Tatarstan, the hypotheses were confirmed that labor opportunism is present in any enterprise due to the different economic interests of the employee and the employer. The most significant factors that affect the level of labor opportunism and block innovative development of the enterprise were identified.

The hypothesis of various ideas on labor opportunism among workers and managers of energy industry enterprises has also found confirmation.

The hypothesis of the influence of the identified factors on the labor opportunism level and the innovative development of enterprises was confirmed by the results of correlation and regression analysis. It was based on calculations of the corresponding elasticity coefficients using the Gretl statistical package.

The managers are offered the following recommendations in order to level the factors of labor opportunism of workers that block the innovative development of the enterprise:

1. Review the content of job descriptions for their compliance with the actual work performed.
2. Develop objective criteria for assessing the quality of labor in the context of each position.
3. Revise the organizational system of communications in order to ensure that the staff receives access to the necessary information for quality work.
4. Establish regular feedback from staff, broadcast positive changes to the team and the corresponding role of employees.
5. Arrange a study of the working time. Determine the standards for the performance of a particular operation.
6. Develop recommendations on the involvement of personnel in the processes of continuous improvement of the company.

7. Develop an action plan for team building and the formation of trusting relationships that contribute to the exhibition of the initiative on the part of the staff.
8. Constantly train employees in problem areas of knowledge.
9. Review communication channels for transparency of information.
10. Organize the collection of ideas and opinions from employees: how to improve their work to improve the efficiency of the company and its innovative development.

Prospective research can be aimed at developing a model for the formation of anti-opportunistic behavior that impedes blocking the enterprise innovative development due to the human factor.

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