Monitoring the Effects of the Supply Chain Management in South Russia Spatial Socio-Economic System

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***Abstract*-The article considers the genesis of monitoring supply chain management effects and describes its types and content, such as socio-economic monitoring, credit monitoring, financial monitoring, taxpayer monitoring and banking monitoring. The monitoring tasks that need to be achieved in order to achieve the goal are defined: continuous monitoring of the state of business processes and obtaining operational information about them; combining information flows generated by different departments of the monitoring enterprise; timely identification of the changes taking place within the process and the factors that caused them; prevention of negative trends; short-term forecasting of the development of critical processes in the enterprise; assessment for the situation for timely decision-making on the planning and implementation of effective activities. The authors proposed and justified a system of indicators, which allows assessing and analyzing the degree of efficiency of development of enterprises of light industry. It included several groups of indicators combined in overall content. On the basis of the available accounting data and additional primary information obtained directly from ten light industry enterprises of the Southern Federal District, a monitoring study of their activities was carried out.**

Keywords; *indicator system, supply chain management, monitoring, enterprises, light industry, region, socio-economic systems.*

1. Introduction

In the past decades, the world economy has been profoundly transformed by the increasing spread of supply chain management. The concept of «monitoring» was officially introduced into science at the UN Stockholm Conference on the Environment [1-6]. In two years, the first intergovernmental meeting on monitoring was held in the capital of Kenya, Nairobi. The meeting agreed to prioritize OS pollution monitoring at three levels - local, regional and global. Since 1974, the concept of «monitoring» has been introduced into Russian literature by Y.A. Israel.

This article provides an inventory of the research carried out on decent work in supply chain management between 2014 and 2019 and helps to identify the challenges and remaining gaps in terms of research. The origin of the word «monitoring» is generally attributed to English monitoring from the Latin word monitor – «supervisory». «Monitor» means «observe at arm's length», remind, «supervise», mentor, «advise» or «monitor and verify». The Great Economic Dictionary defines monitoring as observation, assessment and prediction of the state of any phenomenon or process, analysis of their activities as an integral part of management. Monitoring is used to analyze and study the development of foreign economic relations, types of activities, training of managers and specialists in a certain field [1]. In economics, monitoring is also applied to various economic facilities (Table 1).

Table 1. Types of economic monitoring [2]

Type of monitoring	Contents
Social and economic monitoring	Method of scientific and practical activity, the purpose of which is to obtain and process proactive information on the state of the system and its development trends
Financial monitoring	Regulatory and legal set of preventive measures aimed at preventing the use of the financial system for legalization (laundering) of shadow income and capital
Monitoring of taxpayers	System of observation of financial and economic activities of taxpayers in order to determine their real taxable base and to carry out analysis of validity of formation of cost of goods (works, services), compliance with financial, currency legislation and applied market prices
Credit monitoring	Quality control system of the loan portfolio, independent examination, timely detection of deviations from accepted standards and

	objectives of the bank 's credit policy; Of the repayment of the loan and the payment of interest thereon
Bank monitoring	System implemented by the Central Bank of the Russian Federation with the participation of its territorial subdivisions, allowing to give analysis and forecast of the most important trends in the development of the economy of the region taking into account the financial situation of enterprises

Different researchers, depending on the tasks they solve in a particular area of knowledge, highlight different aspects of monitoring. Thus, in [2] understands by monitoring «continuous control». The development of the use of monitoring is reflected by [3]: «The name» monitoring «came to sociology from the technique in which it was used to indicate the control of the consequences of human activity. The main purpose of monitoring is to prevent the accumulation of a critical mass of phenomena that negatively affect the natural environment» [3]. In [4] understands monitoring as a system of measures that allow continuous monitoring of the state of a certain object, recording its most important characteristics, assessing them, quickly detecting the results of the impact on the object of various processes and factors. The authors of the «Banking Portfolio» define monitoring as «observation, assessment, forecast of the state of any phenomenon or process, is carried out when investigating the environmental situation in a certain territory. It is designed to prevent unwanted changes in the environment» [5].

In [6] describe monitoring as systematic collection and analysis of information received at the hierarchical level in order to identify the trend of development of the economic entity. At the same time, the following monitoring stages are identified: global, intersectoral, regional, (in terms of subjects of the Russian Federation), local.

In [7], defining the essence of all monitoring, notes that monitoring is a single scientific complex of tracking, control, management and forecasting of objects, into which a set of narrow-profile traditional methods has been transformed.

In our view, those authors who, when defining monitoring as the first element, call the collection of actual material, the purpose of which is to obtain certain information about the monitoring object necessary for the implementation of its further elements, are right. The use of surveillance is not excluded in monitoring studies at all, but is not designated as a mandatory element. Typically, this method element is used in conjunction with other elements. In particular, it is impossible to explore the financial and economic activities of an economic entity exclusively through observation. Observation in economic monitoring is one of several methods of research that does not claim the quality of the initial and the rest.

The literature generally agrees on supply chain management increasing complexity but also on their relatively limited scope in total value added. In the most general way, monitoring can be defined as a type of practical activity, a management tool that provides collection, assessment, control of the facts of economic activity in order to make optimal management decisions.

Such an interpretation can form the basis of the concept of «economic monitoring of an enterprise», taking into account the necessary adjustment of the range of attribution characteristics (purpose, object, subject of monitoring). The purpose of enterprise monitoring is to collect, study and prepare information for management decision-making and analysis. This leads to two features that should be met by monitoring as a system of information collection and processing: the targeted direction of information processes and the maximum objectivity of the findings at each stage of data processing. In order to achieve the objective of monitoring, the following objectives are being achieved:

- Continuous monitoring of the state of business processes and obtaining operational information about them;
- Integration of information flows formed by different departments of the monitoring enterprise;
- Timely identification of the changes taking place within the situation and the factors that caused them;
- Prevention of negative trends;
- Short-term forecasting of the development of the most important processes in the enterprise;
- Assessment of the situation for timely decision-making on the planning and implementation of effective measures.

Approach to a concept of monitoring of methodology of COSO [8] in which are allocated the current and periodic monitoring of system effectiveness of internal control (SVK) of economic entities is similar.

So, in the most general way, monitoring can be defined as a type of practical activity, a management tool that provides collection, assessment, control of the facts of economic activity in order to make optimal management decisions.

Belonging of enterprises to a certain industry defines key potential-forming elements, which are the core of monitoring and around them synthesize auxiliary ones. When monitoring the food industry, they can include fixed assets, as the recruitment of labor and material resources, attraction of working capital is carried out on the basis of normative support of production by fixed assets. It should be noted that the analysis of the use of fixed assets is particularly important in terms of assessing investments in technological re-equipment of production, renovation of equipment and reconstruction in general.

Monitoring should be based on the system classification of socio-economic processes as a framework for identification. However, since the composition and

nominal characteristics of socio-economic processes, monitoring provides an opportunity to accumulate data to revise and correct the structural scheme of such processes itself:

- Analysis of relationships of observed and non-observed processes and identification of a range of controlled factors determining the course of one of them. Dynamic processes tend to be characterized not only by quantifiably variable outputs and inputs, but also by an available list of factors. This makes it extremely difficult to manage in transition periods.

- Short-term forecasting of the observed process.

In order to fully reflect the essence of socio-economic processes, it is necessary to combine both quantitative and qualitative characteristics of them. To this end, based on the peculiarities of the object of observation, a number of fundamental principles are laid down in the monitoring organization: focus, complexity of assessment, principle of identity, principle of systemicity, principle of representativeness, principle of economy, principle of maximum informatively of results.

As part of the monitoring of socio-economic processes, the traditional functions of collecting, processing and analyzing information will change in some way.

Monitoring of social and economic processes will differ from the domestic analytical school of analysis of economic activity by the object, purpose and methods of study. For economic analysis, these are the economic and financial aspects of the operation of the facility, while in monitoring socio-economic processes, the review covers social processes as well as the relationship between socio-economic and psychological processes.

The monitoring of socio-economic processes is aimed at decision-making. If the classic domestic analysis of economic activity served as a basis for planning, the monitoring of socio-economic processes should be oriented to a wide class of decision-making of a management nature. The monitoring of socio-economic processes acts as a tool for harmonizing interests in the implementation of the regional development strategy and is a condition and basis.

The Socio-Economic Monitoring Information Fund should be a systematic multi-year data on the economic and social situation, for example, the main areas of monitoring, normative reference materials, statistical registers and databases.

The instability of the world economic system due to recurrent crises and internal problems make it clear that it is necessary to use effective tools for making competent management decisions in the field of policy, regional development, support for sectors of the national economy, and the elaboration of a unified strategy for the development of the country.

To date, monitoring analysis is an information basis for socio-economic management of the enterprise. In each individual case, the manager is obliged to analyze a large number of objective and subjective factors, take into account various specific conditions of operation of the enterprise, determine criteria for decision selection. In order to facilitate this task, it is useful for each organization to establish its own fund of management methods, which includes those that best meet the conditions and factors of its functioning and development and, on the other hand, take into account the specific problems that must be addressed.

Socio-economic monitoring is a rather new method of scientific and practical activity, the purpose of which is to obtain and process proactive information on the state of the system and its development trends.

An important problem addressed in socio-economic monitoring is the consistency of information from different sources (levels of management). The indicators from the expert survey and other «soft» indicators are compared, complemented and compared with the approved reporting forms. This makes it possible to obtain a complete picture of socio-economic processes in the enterprise and compare them with the level of solidity in the regional and sectoral aspects.

When monitoring supply chain enterprises, the quality of data collected is important. The completeness and size of the database depends directly on how information is collected. This raises the issue of access to data, which can be linked to refinancing activities of the Central Bank or organized on the basis of voluntary participation of firms. Another problem is that monitoring, which aims to cover the entire real sector, presents considerable difficulties in standardizing and differentiating forms of balance sheet reporting.

Abroad, the Committee of Sponsoring Organizations of the Treadway (COSO) has received universal recognition for its «Conceptual Framework for Internal Control». Briefly referred to as the COSO model, it answers the question of what the organization's internal control system should be. COSO methodology is becoming increasingly common among Russian scientists and practitioners thanks to the work on the Russian market of large foreign audit and consulting companies using it as the main one. Significant changes in the definitions and classifications that make up internal control systems, which are familiar to Russian auditors and scientists, are due to the dissemination of International Auditing Standards (ISA) in the Russian Federation. The Russian branch of the International Institute of Internal Auditors makes a significant contribution to the dissemination of this methodology.

Unfortunately, the methodology for evaluating the effectiveness of monitoring has not been sufficiently developed. In general, evaluating the effectiveness of control is a complex fundamental problem of modern control theory [8, 9].

In general terms, the evaluation of monitoring must be guided by the principle of effectiveness, i.e., to compare

the cost of organizing it with the benefits derived from it.

On the basis of the above, it can be concluded that monitoring is a system not only of continuous collection, but also of study and assessment of economic information of the economic entity. Economic monitoring allows you to measure the degree of implementation of a particular direction (financial, production, marketing, etc.) in percentage terms and its contribution to the success of the implementation of the strategy of the whole enterprise. This assessment can be carried out by calculating an integral measure of the success of the strategy [10-13].

2. Results

While supply chain management has been an engine of growth and, to some extent,a driver of job creation, questions have been raised as to whether integration in GSCs will remain a viable strategy for development and decent work in the future. The use of monitoring allows for a balanced approach to economic and social problems, which will eventually ensure the long-term existence of the economic system.

The economy of the Southern Federal District is based on basic industries, especially the heavy industry, which is based on the use of rich local raw materials and energy resources. The most important industries are extractive, metallurgical, machine-building, chemical, food and light industries, as well as productive agriculture, which specializes in grain and technical crops cultivation, sheep farming and meat-and-dairy husbandry [10].

We have proposed and justified a system of indicators that allows to assess and analyze the degree of efficiency of development of enterprises of light industry. It included several groups of indicators combined in overall content. Based on the available accounting data and additional primary information obtained directly from the light industry enterprises of the Southern Federal District, we will carry out a monitoring study of their activities [12].

At present, ten main enterprises of this industry are represented in the market of light industry products of the southern federal district:

- Kamyshin cotton plant (Volgograd region);
- Uryupinsk knitwear (Volgograd region);
- Lnokod (Republic of Adygea);
- Don-Teks (Rostov region);
- Gloria Jeans (Rostov region);
- Donetsk manufactory M (Rostov region);
- Elista knitwear (Republic Elista);
- Slavyanskaya garment factory (Krasnodar Krai);
- Alexandria (Krasnodar Krai);
- Astrakhan grid factory (Astrakhan region).

3. Analysis of financial development

I. Profitability of sales - characterizes profitability of products and shows how much profit is per 1 rubles of sold products.

The calculated rate of growth of profitability factors is presented in Table 2.

Table 2. Dynamics of profitability factors of light industry enterprises of the Southern Federal District based on the supply chain

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	6,5	-0,5	(-)	3,1	(+)	7,8	(+)
Uryupinsk knitwear	1,1	0,1	(-)	0,1	(+)	-9,3	(-)
Lnokod	4,6	-2,9	(-)	-6,2	(-)	-4,4	(-)
Don-Teks	6,4	-3,8	(-)	-16,0	(-)	0,0	(-)
Elista knitwear	2,5	-1,8	(-)	5,1	(+)	1,8	(-)
Gloria Jeans	2,1	2,7	(+)	2,1	(-)	2,5	(+)
Slavyanskaya garment factory	5,5	0,61	(-)	2,0	(+)	3,5	(+)
Donetsk manufactory M	6,6	8,0	(+)	7,1	(-)	11,9	(+)
Alexandria	8,4	6,6	(-)	7,8	(+)	10,1	(+)
Astrakhan grid factory	8,3	6,8	(-)	5,6	(-)	0,0	(-)
Average by enterprise	5,2	1,6	(-)	1,07	(-)	2,39	(+)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

The obtained profitability indicators for most of the enterprises are rather low and averaged only 1.07% (or 0.007) in 2018, i.e. from 1 ruble of sold products received only 0.7 cop. profit. The growth rate of profitability ratios in most enterprises and in the industry as a whole in 2017-2018 had a steady tendency to fall sharply. At the same time, according to the results of work for the 1st half of 2019 enterprises of light industry of the Southern Federal District managed to achieve some improvement of profitability of their activities. On average, the profitability in the industry increased 2.23 times, mainly due to the improvement of the performance of Donetsk factory M (Rostov region) and Alexandria (Krasnodar Krai).

II. Capital turnover - reflects the efficiency of using all available property regardless of its sources of education and shows the amount of sold products per 1 rubles of funds invested in the activity of the enterprise. Calculated values of indicators of advance capital intensity are given in Table 3.

The recommended value for this indicator is $Rc \geq 2.5$ [11].

Table 3. Dynamics of the ratio of turnover of advanced capital of enterprises of light industry of the Southern Federal District, %

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	2,5	1,2	(-)	1,7	(+)	1,3	(-)
Uryupinsk knitwear	1,9	3,1	(+)	2,1	(-)	1,1	(-)
Lnokod	2,7	3,1	(+)	3,4	(+)	1,4	(-)
Don-Teks	5,7	0,5	(-)	0,3	(-)	0,2	(-)
Elista knitwear	1,6	1,6	(+)	2,1	(+)	1,4	(-)
Gloria Jeans	7,5	5,9	(-)	7,3	(+)	5,3	(-)
Slavyanskaya garment factory	3,6	2,1	(-)	1,3	(-)	1,9	(+)
Donetsk manufactory M	5,0	5,4	(+)	6,6	(+)	2,5	(-)
Alexandria	2,9	3,2	(+)	4,0	(+)	1,7	(-)
Astrakhan grid factory	4,9	4,2	(-)	6,1	(+)	3,3	(-)
Average by enterprise	3,8	3,0	(-)	3,5	(-)	2,0	(-)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

The data in Table 3 show that only 70% of industry enterprises use their advanced capital quite efficiently by supply chain and have a high degree of business activity. Turnover indicators of the remaining part of enterprises (for example, Kamyshinsky Cotton plant (Volgograd region), Don-Teks (Rostov region), Sewing Factory Slavyanskaya (Krasnodar krai) do not correspond to the recommended values. In 2018, it was possible to achieve some increase in the asset turnover intensity factor in 2018 (by 16.7%).

I. Liquidity of assets (ratio of coverage) - reflects the ability of an enterprise to pay short-term debt with its easy-to-repay funds (liquidity of the balance sheet).

Values of coverage factors for 2017-2018 and the 1st half of 2019 are presented in Table 4.

Table 4. Dynamics of current liquidity ratios of light industry enterprises of the Southern Federal District

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	0,63	0,50	(-)	0,70	(+)	1,30	(+)
Uryupinsk knitwear	1,45	1,50	(+)	1,60	(+)	1,30	(-)
Lnokod	0,53	0,50	(-)	0,30	(-)	0,30	
Don-Teks	1,13	0,70	(-)	0.20	(-)	0,15	(-)
Elista knitwear	0,94	0,80	(-)	0,80		0,90	(+)
Gloria Jeans	1,34	1,40	(+)	1,10	(-)	1,10	(+)
Slavyanskaya garment factory	2,07	1,30	(-)	1,40	(+)	1,90	(+)
Donetsk manufactory M	2,76	2,10	(-)	3,30	(+)	3,20	(-)
Alexandria	0,30	0,40	(+)	3,70	(+)	3,80	(+)
Astrakhan grid factory	2,91	1,90	(-)	1,90	(+)	1,70	(-)
Average by enterprise	1,41	1,11	(-)	1,50	(+)	3,54	(+)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

On the basis of the obtained indicators it can be said that only two enterprises of the industry: Alexandria (Krasnodar Krai) and Donetsk manufactory M (Rostov Region) - in recent years had the possibility to cover existing short-term liabilities with their fast-realizable assets. It is considered that if the current liquidity ratio is less than 2, the enterprise is insolvent. Thus, in the 1st half of 2019 80% of enterprises of light industry of UFO could not cover current debts at the expense of money and forthcoming revenues from their activities. This highlights once again the need to improve the management of industry enterprises through monitoring and preventive measures to increase their sustainability.

In order to increase the coverage ratio, it is necessary to replenish the real equity of the enterprise and to reasonably contain the growth of receivables.

IV. provision of own funds - characterizes the availability of own funds of the enterprise necessary for its stable operation.

The recommended value is $K0 \geq 0.1$ [11].

Calculated ratios of self-supply of enterprises of light industry of UFO are given in Table 5.

Table 5. Dynamics of in-house supply of light industry enterprises of the Southern Federal District

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	0,2	-0,5	(-)	-0,3	(+)	-0,4	(-)
Uryupinsk knitwear	0,4	0,3	(-)	0,3	(+)	0,2	(-)
Lnokod	0,3	0,2	(-)	-2,7	(-)	-2,1	(-)
Don-Teks	0,4	0,2	(-)	0,1	(-)	0,1	(+)
Elista knitwear	0,1	-0,3	(-)	-0,3	(-)	-0,1	(-)
Gloria Jeans	0,2	0,3	(+)	0,1	(-)	0,1	(+)
Slavyanskaya garment factory	0,3	0,1	(-)	0,01	(-)	0,2	(+)
Donetsk manufactory	0,4	0,5	(+)	0,4	(-)	0,7	(+)

M							
Alexandria	0,5	0,6	(+)	0,7	(+)	0,7	(+)
Astrakhan grid factory	0,6	0,5	(-)	0,5	(+)	0,4	(-)
Average by enterprise	0,34	0,19	(-)	0,34	(+)	0,19	(-)
* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one							

The following can be inferred from Table 5. In 2018, among the enterprises of the light industry of the UFO, only about 60% were provided with their own funds. Thus, the remainder of the enterprises did not have sufficient in-house resources to ensure sustainability. Draws special attention to the sharp drop in the value of this indicator in the 1st half of 2019.

V. Growth rate of income tax and other financial results received in the regional budget.

Table 6. Dynamics of the amount of taxes listed in the budget by enterprises of light industry of the Southern Federal District, thousand rubles

Name of the enterprise	2016, %	2017		2018	
		value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	0	0	(-)	275	(+)
Uryupinsk knitwear	104	314	(+)	198	(-)
Lnokod	308	0	(-)	0	(-)
Don-Teks	127	0	(-)	0	(-)
Elista knitwear	270	0	(-)	146	(+)
Gloria Jeans	1813	809	(-)	864	(+)
Slavyanskaya garment factory	506	141	(-)	121	(-)
Donetsk manufactory M	541	269	(-)	346	(+)
Alexandria	1041	1056	(+)	1522	(+)
Astrakhan grid factory	632	142	(-)	269	(+)
Average by enterprise	534	273	(-)	374	(+)
* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one					

The calculated indicators of efficiency of light industry enterprises show the unstable dynamics of the benefits received by the State from the activities of State enterprises in the industry of the UFO under consideration. Some of the enterprises not only do not increase revenues from their work, but in recent years they have not brought them (Lnokod (Republic of Kalmykia), Don-Teks (Rostov region)), which once again confirms the relevance of improving their management by the relevant state bodies.

Calculation of structural characteristics of dynamics of financial condition of enterprises by supply chain of light industry of UFO is given in Table 7.

Table 7. Calculation of structural characteristics of financial state dynamics of light industry enterprises of the Southern Federal District

Name of the enterprise	Indicators					d Δ+
	1	2	3	4	5	
2017						
Kamyshin cotton plant	(-)	(-)	(-)	(-)	(-)	0,00
Uryupinsk knitwear	(-)	(+)	(+)	(-)	(+)	0,60
Lnokod	(-)	(+)	(-)	(-)	(-)	0,20
Don-Teks	(-)	(-)	(-)	(-)	(-)	0,00
Elista knitwear	(-)	(+)	(-)	(-)	(-)	0,20
Gloria Jeans	(+)	(-)	(+)	(+)	(-)	0,60
Slavyanskaya garment factory	(-)	(-)	(-)	(-)	(-)	0,00
Donetsk manufactory M	(+)	(+)	(-)	(+)	(-)	0,60
Alexandria	(-)	(+)	(+)	(+)	(+)	0,80
Astrakhan grid factory	(-)	(-)	(-)	(-)	(-)	0,00
2018						
Kamyshin cotton plant	(+)	(+)	(+)	(+)	(+)	1,00
Uryupinsk knitwear	(+)	(-)	(+)	(+)	(-)	0,60
Lnokod	(-)	(+)	(-)	(-)	(-)	0,20
Don-Teks	(-)	(-)	(-)	(-)	(-)	0,00
Elista knitwear	(+)	(+)		(-)	(+)	0,80
Gloria Jeans	(-)	(+)	(-)	(-)	(+)	0,40
Slavyanskaya garment factory	(+)	(-)	(+)	(-)	(-)	0,40
Donetsk manufactory M	(-)	(+)	(+)	(-)	(+)	0,60
Alexandria	(+)	(+)	(+)	(+)	(+)	1,00
Astrakhan grid factory	(-)	(+)	(+)	(+)	(+)	0,80

3.1 Analysis of production potential

I. Suitability factor of fixed assets - characterizes the unenforceable part of fixed assets, i.e. the share of their value, which has not yet been transferred to the created products.

Table 8. Dynamics of validity factors of the main production assets of enterprises of light industry of the Southern Federal District, %

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	48,4	43,9	(-)	42,0	(-)	41,7	(-)
Uryupinsk knitwear	43,8	41,9	(-)	38,4	(-)	36,9	(-)
Lnokod	51,0	50,7	(-)	48,2	(-)	47,6	(-)
Don-Teks	25,0	27,4	(+)	23,8	(-)	21,4	(-)
Elista knitwear	42,4	40,5	(-)	30,3	(-)	29,7	(-)
Gloria Jeans	48,3	46,8	(-)	46,7	(-)	47,3	(+)
Slavyanskaya garment factory	44,4	43,8	(-)	42,3	(-)	40,8	(-)

Donetsk manufactory M	49,3	51,6	(+)	47,9	(-)	46,2	(-)
Alexandria	58,3	60,1	(+)	58,3	(-)	57,1	(-)
Astrakhan grid factory	26,1	22,2	(-)	19,2	(-)	18,6	(-)
Average by enterprise	43,7	42,9	(-)	39,7	(-)	38,7	(-)
* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one							

Thus, the technical base of production of enterprises of light industry has a high degree of wear - on average in the industry 60%. In addition, most enterprises have morally obsolete basic technological equipment, the basic scheme of operation of which was developed in the 1940s, and, accordingly, its energy capacity is 15-25% higher than that of the currently produced equipment. And in a competitive market, the superiority of the technical base of production is one of the decisive factors in the competitiveness of enterprises.

Therefore, there is a need to consider whether obsolete equipment should be used or whether new fixed assets should be acquired in order to improve efficiency.

II. Growth rate of fixed assets of the enterprise - shows how many times during the reporting period the value of the part of assets of the enterprise that creates the technical basis of the production process has increased. The growth of fixed assets is shown in table 9.

Table 9. Dynamics of the value of fixed assets of light industry enterprises of the Southern Federal District, thousand rubles

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	21097	21048	(-)	21707	(+)	21924	(+)
Uryupinsk knitwear	1610	1568	(-)	1440	(-)	1390	(-)
Lnokod	5979	6073	(+)	6009	(-)	5926	(-)
Don-Teks	1308	1347	(+)	1225	(-)	1184	(-)
Elista knitwear	4871	4977	(+)	4088	(-)	4054	(-)
Gloria Jeans	12806	13342	(+)	13220	(-)	12964	(-)
Slavyanskaya garment factory	4887	5040	(+)	4707	(-)	4209	(-)
Donetsk manufactory M	5791	6584	(+)	6588	(+)	6521	(-)
Alexandria	21011	23432	(+)	24654	(+)	23489	(-)
Astrakhan grid factory	2047	2041	(-)	2044	(+)	1.94S	(-)
Average by enterprise	7995, 8	8404, 0	(+)	8438, 6	(+)	8235, 8	(-)
* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one							

According to table 9, there is no replenishment of fixed assets in the industry, on the contrary, there is a steady trend towards their elimination.

I. The growth rate of the fixed asset renewal ratio - characterizes the change in the share of new fixed assets in their total volume in the reporting period compared to the previous one.

Table 10. Dynamics of fixed asset renewal rates by light industry enterprises of the Southern Federal District, %

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	11,8	2,0	(-)	4,1	(+)	0,01	(+)
Uryupinsk knitwear	3,2	1,7	(-)	1,2	(-)	0,0	(-)
Lnokod	0,0	2,4	(+)	0,3	(-)	0,0	(-)
Don-Teks	13,0	6,1	(-)	0,0	(-)	0,0	(-)
Elista knitwear	3,5	2,3	(-)	0,4	(-)	0,0	(-)
Gloria Jeans	4,3	4,4	(+)	7,2	(+)	0,0	(-)
Slavyanskaya garment factory	0,3	3,6	(+)	0,0	(-)	0,0	(-)
Donetsk manufactory M	8,5	15,5	(+)	2,9	(-)	0,02	(+)
Alexandria	8,1	12,8	(+)	6,3	(-)	0,02	(+)
Astrakhan grid factory	18,9	1,9	(-)	1,9	(+)	0,0	(-)
Average by enterprise	7,2	5,3	(+)	2,43	(-)	0,00	(-)
* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one							

Another looming threat to supply chain strategy is related to the growing uncertainty with regard to international trade. Thus, in the industry as a whole, the problem of renewal of the active part of the main production funds, the condition of which is characterized by too high a degree of wear and tear, and in the conditions of a competitive market, is thus a significant deterrent to the development of enterprises.

IV. Growth rate of industrial products - characterizes how many times in the current period the cost of industrial products has increased.

Table 11. Dynamics of industrial output of light industry enterprises of the Southern Federal District, thousand rubles

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	69550	65525	(-)	66888	(+)	39464	(-)
Uryupinsk knitwear	5102	4957	(-)	2536	(-)	980	(-)
Lnokod	12663	16455	(+)	13919	(-)	6240	(-)
Don-Teks	5154	4464	(-)	4230	(-)	213	(-)
Elista knitwear	8022	8759	(+)	10038	(+)	6245	(+)
Gloria Jeans	57200	65973	(+)	88696	(+)	48317	(-)
Slavyanskaya garment factory	8582	6795	(-)	7300	(+)	3038	(-)
Donetsk manufactory M	24664	30307	(+)	40618	(+)	17491	(-)
Alexandria	55701	65120	(+)	89305	(+)	35725	(+)
Astrakhan grid factory	10689	11310	(+)	15569	(+)	7014	(-)
Average by enterprise	25733	27967	(+)	25733	(-)	16473	(-)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

The data of Table 11 show that the enterprises of light industry of UFO not only failed to achieve growth of their industrial products in 2018, but, on the contrary (note, even in value terms), reduced production by 8% in 2018.

V. Growth rate of investments in fixed assets - reflects the dynamics of financial investments of enterprises in the creation of new, as well as reconstruction, expansion and technical re-equipment of existing fixed assets. It largely determines the rate of production, increase its efficiency, and increase its productivity.

Table 12. Dynamics of investments in fixed assets of light industry enterprises of the Southern Federal District, thousand rubles

Name of the enterprise	2016, %	2017		2018	
		value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	8565	4587	(-)	1624	(-)
Uryupinsk knitwear	0	0	(-)	0	(-)
Lnokod	0	0	(-)	0	(-)
Don-Teks	113	0	(-)	0	(-)
Elista knitwear	160	112	(-)	20	(-)
Gloria Jeans	494	467	(-)	815	(+)
Slavyanskaya garment factory	100	176	(+)	0	(-)
Donetsk manufactory M	457	895	(+)	193	(+)
Alexandria	2589	102	(-)	1964	(+)
Astrakhan grid factory	0	0	(-)	0	(-)
Average by enterprise	1248	634	(-)	462	(-)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

The data of Table 12 show extremely low investment activity of state enterprises of light industry of UFO, 50% of which do not carry out these investments at all.

VI. Growth rate of funds recovery - reflects the dynamics of efficiency of fixed assets use and shows how the ratio of the volume of issued products to the value of fixed assets in the reporting period changes compared to the base period.

Table 13. Dynamics of funds production indicators of light industry enterprises of the Southern Federal District, rubles

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019	
		value, %	assessment *	value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	3,30	3,11	(-)	3,08	(-)	1,80	3,30
Uryupinsk knitwear	3,17	3,16	(-)	1,76	(-)	0,71	3,17
Lnokod	2,12	2,71	(+)	2,72	(+)	1,05	2,12
Don-Teks	3,94	3,31	(-)	3,45	(+)	0,18	3,94
Elista knitwear	1,65	1,76	(+)	2,46	(+)	1,54	1,65
Gloria Jeans	4,47	4,94	(+)	6,71	(+)	3,73	4,47
Slavyanskaya garment factory	1,76	1,35	(-)	1,55	(+)	0,72	1,76
Donetsk manufactory M	4,26	4,60	(+)	6,17	(+)	2,68	4,26
Alexandria	2,65	2,78	(+)	3,62	(+)	1,52	2,65
Astrakhan grid factory	5,22	5,54	(+)	7,62	(+)	3,60	5,22
Average by enterprise	3,25	3,33	(+)	3,91	(+)	1,75	3,25

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

Analyzing the data of Table 13, it is possible to note a positive trend in the average change in the efficiency of fixed assets use by enterprises of the light industry of the UFO: in 2017 the fund yield increased by 2%, in 2018 - by 16% compared to the previous period.

The calculation of structural characteristics of dynamics of production potential of enterprises of light industry of UFO is given in Table 14.

Table 14. Calculation of structural characteristics of financial state dynamics of light industry enterprises of the Southern Federal District

Name of the enterprise	Indicators						d Δ+
	1	2	3	4	5	6	
2017							
Kamyshin cotton plant	(-)	(-)	(-)	(-)	(-)	(-)	0,00
Uryupinsk knitwear	(-)	(-)	(-)	(-)	(-)	(-)	0,00
Lnokod	(-)	(+)	(+)	(+)	(-)	(+)	0,67
Don-Teks	(+)	(+)	(-)	(-)	(-)	(-)	0,33
Elista knitwear	(-)	(+)	(-)	(+)	(-)	(+)	0,50
Gloria Jeans	(-)	(+)	(+)	(+)	(-)	(+)	0,67
Slavyanskaya garment factory	(-)	(+)	(+)	(-)	(+)	(-)	0,50
Donetsk manufactory M	(+)	(+)	(+)	(+)	(+)	(+)	1,00
Alexandria	(+)	(+)	(+)	(+)	(-)	(+)	0,83
Astrakhan grid factory	(-)	(-)	(-)	(+)	(-)	(+)	0,33
2018							
Kamyshin cotton plant	(-)	(+)	(+)	(+)	(-)	(-)	0,50
Uryupinsk knitwear	(-)	(-)	(-)	(-)	(-)	(-)	0,00
Lnokod	(-)	(-)	(-)	(-)	(-)	(+)	0,17
Don-Teks	(-)	(-)	(-)	(-)	(-)	(+)	0,17
Elista knitwear	(-)	(-)	(-)	(+)	(-)	(+)	0,33
Gloria Jeans	(-)	(-)	(+)	(+)	(+)	(+)	0,67
Slavyanskaya garment factory	(-)	(-)	(-)	(+)	(-)	(+)	0,33
Donetsk manufactory M	(-)	(+)	(-)	(+)	(+)	(+)	0,67
Alexandria	(-)	(+)	(-)	(+)	(+)	(+)	0,67
Astrakhan grid factory	(-)	(+)	(+)	(+)	(-)	(+)	0,67

3.2 Analysis of social dynamics

I. The growth rate of average wages in the enterprise - characterizes the increase in wages of employees of enterprises in the reporting period compared to the previous one.

Table 15. Dynamics of average wages of employees of light industry enterprises of the Southern Federal District, rubles

Name of the enterprise	2016, %	2017		2018	
		value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	3281	2865	(-)	3663	(+)
Uryupinsk knitwear	1924	2419	(+)	2945	(+)
Lnokod	2098	3111	(+)	3000	(-)
Don-Teks	1880	1822	(-)	1972	(+)
Elista knitwear	1444	1685	(+)	2189	(+)
Gloria Jeans	4781	5572	(+)	7385	(+)
Slavyanskaya garment factory	1609	1976	(+)	2134	(+)
Donetsk manufactory M	3459	4047	(+)	5086	(+)
Alexandria	4393	5008	(+)	6057	(+)
Astrakhan grid factory	3093	3301	(+)	4440	(+)
Average by enterprise	2796	3181	(+)	3887	(+)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

The data of Table 15 show that all the enterprises of light industry of the UFO are gradually indexing the wages of employees (except Kamyshin cotton plant (Volgograd Region) and Don-Teks (Rostov Region) - in 2017, Lnokod (Republic of Adygea) - in 2018).

II. Growth rate of the number of employees - shows the change in the number of employees of the enterprise in the reporting period compared to the previous one. The calculated values of this indicator are given in Table 16.

Table 16. Dynamics of personnel numbers in light industry enterprises of the Southern Federal District, people

Name of the enterprise	2016, %	2017		2018	
		value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	396	371	(-)	237	(-)
Uryupinsk knitwear	59	61	(+)	57	(-)
Lnokod	108	111	(+)	86	(-)
Don-Teks	50	51	(+)	46	(-)
Elista knitwear	109	101	(-)	87	(-)
Gloria Jeans	320	322	(+)	319	(-)
Slavyanskaya garment factory	104	102	(-)	91	(-)
Donetsk manufactory M	95	108	(+)	110	(+)
Alexandria	224	226	(+)	223	(-)
Astrakhan grid factory	66	70	(+)	68	(-)
Average by enterprise	153	152	(-)	132	(-)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

Analyzing the dynamics of the number of personnel, it can be seen that in recent years there has been a steady trend in the number of jobs (in 2 years by 13.7%) in almost all enterprises of the industry. This is particularly true in enterprises with lower wage dynamics. This situation should be of serious concern to the authorities, as the volatility of staff and the trend of annual dismissal of employees clearly have a negative impact on the development opportunities of the enterprise.

III. The growth rate of the wage ratio - characterizes the change in the purchasing power of the average wage of employees of the enterprise (expressed in its ratio to the subsistence minimum established for the working-age population).

Table 17. Dynamics of Wage Factors of Employees of Light Industry Enterprises of the Southern Federal District

Name of the enterprise	2016, %	2017		2018	
		value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	1,81	1,36	(-)	1,54	(+)
Uryupinsk knitwear	1,06	1,15	(+)	1,24	(+)
Lnokod	1,16	1,47	(+)	1,26	(-)
Don-Teks	1,04	0,86	(-)	0,83	(-)
Elista knitwear	0,80	0,80	(+)	0,92	(+)
Gloria Jeans	2,64	2,64	(+)	3,11	(+)
Slavyanskaya garment factory	0,89	0,94	(+)	0,90	(-)
Donetsk manufactory M	1,91	1,92	(+)	2,14	(+)
Alexandria	2,43	2,37	(-)	2,55	(+)
Astrakhan grid factory	1,71	1,56	(-)	1,87	(+)
Average by enterprise	1,55	1,51	(-)	1,64	(+)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

These factors indicate a low purchasing power of wages of employees of enterprises: its ratio to the subsistence minimum is on average only 1.64:1, i.e. employees are able to meet almost only their primary needs.

IV. The growth rate of the wage ratio - reflects the dynamics of the ratio of average wages in the enterprise under consideration and in industry as a whole. The calculated figures for this indicator are shown in table 18.

Table 18. Dynamics of wage ratios of employees of light industry enterprises of the Southern Federal District, rubles

Name of the enterprise	2016, %	2017		2018	
		value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	0,75	0,52	(-)	0,54	(+)
Uryupinsk knitwear	0,44	0,44	(+)	0,43	(-)
Lnokod	0,48	0,57	(+)	0,44	(-)
Don-Teks	0,43	0,33	(-)	0,29	(-)
Elista knitwear	0,33	0,31	(-)	0,32	(+)
Gloria Jeans	1,10	1,01	(-)	1,09	(+)
Slavyanskaya garment factory	0,37	0,36	(-)	0,32	(-)
Donetsk manufactory M	0,79	0,74	(-)	0,75	(+)
Alexandria	1,01	0,91	(-)	0,90	(-)
Astrakhan grid factory	0,71	0,60	(-)	0,66	(+)
Average by enterprise	0,64	0,58	(-)	0,57	(-)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

Based on the analysis of the calculated indicators, it can be concluded that the wages of 80% of light industry enterprises do not fulfil the functions assigned to them in the market economy: reproduction, stimulating, social. Its size allows to satisfy only the most primary needs of employees. In many ways, this, in our opinion, explains the decline in the number of employees of enterprises, their outflow to other spheres of activity, the decrease in professional level, the decline in labor productivity.

V. Productivity growth rate - reflects the ratio of average wages in the enterprise and in industry as a whole. The calculated figures for this indicator are shown in table 19.

Table 19. Dynamics of labor productivity of employees of light industry enterprises of the Southern Federal District, rubles

Name of the enterprise	2016, %	2017		2018	
		value, %	assessment *	value, %	assessment *
Kamyshin cotton plant	175,63	176,62	(+)	282,23	(+)
Uryupinsk knitwear	86,47	81,26	(-)	44,49	(-)
Lnokod	117,25	148,24	(+)	161,85	(+)
Don-Teks	103,08	87,53	(-)	91,96	(+)
Elista knitwear	73,60	86,72	(+)	115,38	(+)
Gloria Jeans	178,75	204,89	(+)	278,04	(+)
Slavyanskaya garment factory	82,52	66,62	(-)	80,22	(+)
Donetsk manufactory M	259,62	280,62	(+)	369,25	(+)
Alexandria	248,07	288,14	(+)	400,47	(+)
Astrakhan grid factory	161,95	161,57	(-)	228,96	(+)
Average by enterprise	148.75	158,22	(+)	205,28	(+)

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

The dynamics of average labour efficiency indicators by enterprises of the light industry of the UFO shows its growth both in 2017 (by 6.4%) and in 2018 (by 29.7%).

The values of the remaining indicators of the third group (social dynamics), namely the coefficient of use of equity for social purposes and the proportion of employees of the enterprise with higher education, could not be calculated due to the lack of this information.

The calculation of structural characteristics of social dynamics of enterprises of light industry of UFO is summarized in Table 20.

Table 20. Calculation of structural characteristics of social dynamics of light industry enterprises of the Southern Federal District

Name of the enterprise	Indicators					d Δ+
	1	2	3	4	5	
2017						
Kamyshin cotton plant	(-)	(-)	(-)	(-)	(+)	0,20

Uryupinsk knitwear	(+)	(+)	(+)	(+)	(-)	0,80
Lnokod	(+)	(+)	(+)	(+)	(+)	1,00
Don-Teks	(-)	(+)	(-)	(-)	(-)	0,20
Elista knitwear	(+)	(-)	(+)	(-)	(+)	0,60
Gloria Jeans	(+)	(+)	(+)	(-)	(+)	0,80
Slavyanskaya garment factory	(+)	(-)	(+)	(-)	(-)	0,20
Donetsk manufactory M	(+)	(+)	(+)	(-)	(+)	0,80
Alexandria	(+)	(+)	(-)	(-)	(+)	0,60
Astrakhan grid factory	(+)	(+)	(-)	(-)	(-)	0,40
2018						
Kamyshin cotton plant	(+)	(-)	(+)	(+)	(+)	0,80
Uryupinsk knitwear	(+)	(-)	(+)	(-)	(-)	0,40
Lnokod	(-)	(-)	(-)	(-)	(+)	0,00
Don-Teks	(+)	(-)	(-)	(-)	(+)	0,40
Elista knitwear	(+)	(-)	(+)	(+)	(+)	0,80
Gloria Jeans	(+)	(-)	(+)	(+)	(+)	0,80
Slavyanskaya garment factory	(+)	(-)	(-)	(-)	(+)	0,40
Donetsk manufactory M	(+)	(+)	(+)	(+)	(+)	1,00
Alexandria	(+)	(-)	(+)	(-)	(+)	0,60
Astrakhan grid factory	(+)	(-)	(+)	(+)	(+)	0,80

3.3 Market performance analysis

I. The growth rate of sales volume - characterizes not only the growth of production capabilities of the enterprise to produce the corresponding products, but also the efficiency of its marketing strategy.

Calculated indicators of sales volume are presented in Table 21.

Table 21. Dynamics of sales volume of light-industry enterprises of the Southern Federal District

Name of the enterprise	2016, %	2017		2018		The 1st half-year 2019
		value, %	assessment *	value, %	assessment *	value, %
Kamyshin cotton plant	80469	67487	(-)	67277	(-)	35147
Uryupinsk knitwear	5962	6160	(+)	3342	(-)	1365
Lnokod	14209	18065	(+)	16327	(-)	7230
Don-Teks	5133	4454	(-)	4231	(-)	256
Elista knitwear	11401	11691	(+)	14071	(+)	10458
Gloria Jeans	93805	107858	(+)	141640	(+)	67029
Slavyanskaya garment factory	13131	13271	(+)	14060	(+)	6298
Donetsk manufactory M	25564	31217	(+)	41735	(+)	19843
Alexandria	56112	65202	(+)	89242	(+)	41684
Astrakhan grid factory	10689	11651	(+)	15935	(+)	7176
Average by enterprise	31648	33706	(+)	40786	(+)	19649

* Sign (-) corresponds to the downward trend, sign (+) characterizes the positive dynamics (i.e. growth rate) of the indicator on the reporting period compared to the previous one

Based on the data of Table 21, it can be concluded that the downward trend occurred in 2017 in only two enterprises of the industry, and in 2018 - already in three.

II. The share of the enterprise in the commodity market of the respective region - currently the State Property Management Committee is not analyzed, therefore it is not possible to assess its dynamics during the period under review.

On the basis of the obtained private indicators (growth rate) of performance of enterprises of light industry of USF we will determine structural characteristics of development dynamics. Their calculation is given in Tables 7, 14, 20.

Table 22 summarizes the values of this indicator.

Table 22. Values of structural characteristics of the dynamics of light industry enterprises of the Southern Federal District

Name of the enterprise	Value of an indicator	
	2017	2018
Kamyshin cotton plant	0,07	0,07
Uryupinsk knitwear	0,47	0,47
Lnokod	0,62	0,62
Don-Teks	0,18	0,18
Elista knitwear	0,43	0,43
Gloria Jeans	0,69	0,69
Slavyanskaya garment factory	0,23	0,23
Donetsk manufactory M	0,80	0,80
Alexandria	0,74	0,74
Astrakhan grid factory	0,24	0,24
Average by enterprise	0,45	0,45

These table 22 allows enterprises to be grouped in terms of progress in key performance indicators. Thus, the group of dynamically developing enterprises in 2017 were Lnokod (Republic of Adygea), Gloria Jeans (Rostov region), Donetsk manufactory M (Rostov region) and Alexandria (Krasnodar Krai). In 2018, this group could include Kamyshin cotton plant (Volgograd region), Elista knitwear (Republic of Kalmykia), Gloria Jeans (Rostov region), Donetsk manufactory M (Rostov region), Alexandria (Krasnodar Krai) Most of their performance indicators tended to increase.

In developing a methodology for assessing the performance of light industry enterprises, we have justified two regression models, which express the dependence of the growth rate of industrial production in stock-consuming and non-oil-consuming industries depending on various production, economic and social factors. In order to confirm the validity of the results of the calculation and argue the possibility of their practical application, we will build a similar model for enterprises of light industry of the Southern Federal District.

Since the industry we are considering is non-financial,

factors such as the rate of growth of profitability of sales, the number of industrial and industrial personnel and the wage ratio have been selected for this group. We will find a quantitative expression of the connection between the growth rate of industrial products and the specified indicators. The information for the construction of the regression model for the combination of light industry enterprises is given in Table 23.

Table 23. Data for calculation of regression model parameters for light industry enterprises of the Southern Federal District

Year	Enterprise	Growth rate of industrial production	Growth rate of profitability	Staff growth rate	Rate of growth of the wage level of the population
		y	x1	x2	x3
2018	1	1,3444	0,7778	0,9907	1,1783
	2	1,3714	1,1818	0,9887	1,075
	3	1,2069	0,8182	0,9143	1,051
	4	1,3766	0,8235	0,9714	1,1958
	5	1,3402	0,8875	1,0185	1,0417
	6	1,0743	3,3333	0,8922	0,9597
	7	1,3708	0,9111	1,0252	1,0016
	8	0,8774	0,5526	1,0031	1,1255
	9	1,0569	0,8571	1,0275	1,1614
	10	1,0737	0,6515	1,1019	1,104
2017	1	1,1534	1,2857	1,0063	0,9976
	2	1,1691	0,7857	1,0089	0,976
	3	1,2825	2,3023	1,0043	0,976
	4	1,0581	0,8193	1,0606	0,9135
	5	1,2288	1,2121	1,1368	0,9482
	6	0,7918	0,1091	0,9808	1,0514
	7	1,0563	0,6429	0,9711	1,0175
	8	0,9748	0,9222	1,0313	1,1179
	9	0,9725	0,4925	0,9794	1,1661
	10	0,7779	0,8594	0,9905	0,9183

Calculations in Microsoft Excel resulted in the following dependency: $y = 0.12 * 1.14^{x1} * 3.81^{x2} - 1.95^{x3}$.

Thus, when comparing models built on enterprises of light industry of UFO and in general on the group of non-conventional industries, it is necessary to note not only unity of direction of influence of factors included in them, but also quite complete coincidence of all regression coefficients.

In other words, the theoretical premise adopted by us on the possibility of extending the proposed approach from the macro level to the level of certain industries of the region has been confirmed by the positive results of its practical testing on the example of data on the work of enterprises of a specific industry of the UFO.

Based on the regression model $y = 0.12 * 1.14^{x1} * 3.81^{x2} - 1.95^{x3}$, we will calculate the growth rates of industrial products for enterprises of light industry of the region and make a conclusion on their performance (Table 24).

Table 24. Southern Federal District Light Industry Performance Assessment Using Regression Model

Name of the enterprise	2017		2018	
	Actual value of volume growth rate productions	Design value of volume growth rate productions	Actual value of volume growth rate productions	Design value of volume growth rate productions
Kamyshin cotton plant	0,9	0,7	1,0	1,5
Uryupinsk knitwear	1,0	1,0	0,5	1,0
Lnokod	1,3	1,1	0,9	0,6
Don-Teks	0,9	0,8	1,0	0,8
Elista knitwear	1,1	0,8	1,2	2,0
Gloria Jeans	1,2	1,1	1,3	1,1
Slavyanskaya garment factory	0,8	0,9	1,1	1,2
Donetsk manufactory M	1,3	1,3	1,3	1,1
Alexandria	1,2	1,0	1,4	1,1
Astrakhan grid factory	1,1	1,0	1,4	1,1

Analysis of Table 24 allows to draw the following conclusion: in 2017 the activity of such enterprises of the industry as Kamyshin cotton plant (Volgograd Region), Lnokod (Republic of Adygea), Don-Teks (Rostov Region Elista knitwear (Republic of Kalmykia), Gloria Jeans, In 2018 - Lnokod (Republic of Adygea), Don-Teks (Rostov region), Gloria Jeans (Rostov region), Alexandria (Krasnodar Krai), Astrakhan grid factory (Astrakhan region) and Donetsk Manufactury M (Rostov Region). Their management, in the face of a decline in the number of personnel, an increase in the wear and tear of fixed assets, was able to slow down the rate of decline in the volume of output, in other words, some stabilization of the main factors of activity.

4. Discussion

For a summary analysis of the performance of light industry enterprises UFO will build a summary table showing the results of calculation and average characteristics of development dynamics and growth rate of output volume obtained according to supply chain management.

Table 25. Summary Analysis of Performance of Light Industry Enterprises of the Southern Federal District

Name of the enterprise	2017			2018		
	Regression model analysis results	results of the analysis d Δ+	group of social and economic dynamics	Regression model analysis results	results of the analysis d Δ+	group of social and economic dynamics
Kamyshin cotton plant	yfact >ysetl	0,07	it is not defined	yfact <ysetl	0,77	it is not defined
Uryupinsk knitwear	yfact =ysetl	0,47	it is not defined	yfact <ysetl	0,33	3
Lnokod	yfact >ysetl	0,62	2	yfact >ysetl	0,12	it is not defined
Don-Teks	yfact >ysetl	0,18	it is not defined	yfact >ysetl	0,19	it is not defined
Elista knitwear	yfact >ysetl	0,43	it is not defined	yfact <ysetl	0,64	it is not defined
Gloria Jeans	yfact >ysetl	0,69	2	yfact >ysetl	0,62	2
Slavyanskaya garment factory	yfact <ysetl	0,23	3	yfact <ysetl	0,38	3
Donetsk manufactory M	yfact=ysetl	0,80	2	yfact >ysetl	0,76	2
Alexandria	yfact >ysetl	0,74	2	yfact >ysetl	0,76	2
Astrakhan grid factory	yfact >ysetl	0,24	it is not defined	yfact >ysetl	0,76	2

Thus, according to the developed method, the group of stable operating enterprises (II) in 2017 and 2018 can be classified as Gloria Jeans, Donetsk Factory M and Alexandria, the group of stagnant (III) - Slavyanskaya garment factory. In 2017 Linokod also worked steadily, in 2018 - Astrakhan grid factory.

The activities of Kamyshin cotton plant, Don-Teks and Elista Knitwear in 2017 were characterized by losses, as evidenced by negative values of profitability indicators. Therefore, while there has been an increase in individual performance characteristics, their performance needs to be recognized as unsatisfactory and enterprises should be classified as crisis groups.

The actual growth rate of the volume of output of industrial products Uryupinsk knitwear corresponds to the calculated value according to the regression model, however, in 2017 there was a decrease in all the main final indicators of performance (growth rate of production volume, funds production, labor productivity), so its work cannot be recognized as neither dynamic nor stable, and therefore, the enterprise should be classified as a group of stagnation.

In 2017, the Astrakhan grid factory managed to exceed the actual growth rate of production volume over the one calculated according to the regression model. However, a small proportion of its performance indicators have improved (24% of the total), with a decline in all major indicators of financial development, productive and social (including total productivity) capacity. In this regard, the activities of the Astrakhan network factory should be recognized as stagnant.

In 2018 Don-Teks and Lnokod were characterized by losses (negative values of profitability indicators were obtained during calculations). Therefore, while there has been an increase in individual performance characteristics, their performance needs to be recognized as unsatisfactory and enterprises should be classified as crisis groups.

Kamyshin cotton plant in 2018 left the loss zone (the profitability indicator was 3.1%), and also achieved though insignificant (2%), but the increase in output (mainly due to the increase in labor productivity - 1.6 times). In addition, a large proportion of performance indicators (77%) tended to increase. On the basis of this Kamyshin cotton plant in 2018 was classified as a group of stable working enterprises.

Analysis of private performance indicators at Elista knitwear for 2018 allows to draw the following conclusions. The company managed to get out of the loss zone (profitability indicator increased from 1.8 to 5.1%), significantly increase industrial output (by 20%), improve performance and productivity indicators, as well as most other performance indicators (64% of factors had an increase in 2018 compared to 2017). Therefore, in 2018 the work of Elista knitwear was recognized as successful, and the enterprise was classified as a group of dynamically developing.

Table 26. Grouping of state light industry enterprises of the Southern Federal District according to performance trends

Name of the socio-social group to economic dynamics	Name of the enterprise	
	2017	2018
Steadily working enterprises	Gloria Jeans Donetsk Factory M Lnokod Alexandria	Gloria Jeans Donetsk Factory M Alexandria Astrakhan grid factory Kamyshin cotton plant Elista knitwear
The stagnating enterprises	Astrakhan grid factory Uryupinsk knitwear Slavyanskaya garment factory	Uryupinsk knitwear Slavyanskaya garment factory
Crisis enterprises	Kamyshin cotton plant Elista knitwear Don-Teks	Lnokod Don-Teks

So, the developed system of monitoring indicators allows to carry out a comprehensive assessment of the performance of enterprises of light industry.

5. Conclusion

The monitoring of the supply chain activities of the largest enterprises of light industry of the Southern Federal District reveals the following trends of development of enterprises of this industry. None of the enterprises can be classified as dynamic. In 2017, only 40% of them could be considered stable. The rest of the businesses either did not make a profit or had a steady drop in core performance indicators. In 2018, the situation improved slightly: the number of stable enterprises increased to 60%. Nevertheless, those who are unable to emerge from crisis or stagnation continue to be among them, indicating a lack of effective management of their activities.

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