

AMURCON 2021
AmurCon 2021: International Scientific Conference**FEATURES AND RESULTS OF MATERIAL RESOURCES
MANAGEMENT IN THE NON-PRODUCTION SPHERE**

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Abstract

The paper deals with theoretical research on material resources in the non-productive sphere; examines the current state of things and the further growth of the national economy infrastructure complex. The purpose of the study is to analyse practical approaches and develop scientific principles to manage the non-productive sphere of the economy. It is the material resources that represent the main element and the most important factor for public productive infrastructure effective functioning. At the same time, logistics plays a crucial role in ensuring maximum coordination of the production of goods of industrial and technical purpose with its consumption in material production and non-productive activities. The main task of economic entities of logistics systems is to perform the leading profiling function with minimal socially necessary costs to ensure the continuous development of logistics systems. Material and technical supply in the non-productive sphere retains its infrastructural orientation and implementation forms. Although, economic content somewhat changes. These issues are connected with the specific nature of the economic relations of the non-productive sphere alongside with economic essence of the consumption process of material resources in the non-productive sphere. The principles and significance of these problems determined the subject of this study.

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Keywords: Material resources, management, non-production sphere

1. Introduction

First of all, it should be noted that from an economic point of view, the material resources of the non-productive sphere cannot be considered as means of production. From the economic point of view, they are only a material condition for creating a product of the non-productive activity, which here usually appears to be as a beneficial effect (service) (Fatikhova, 2017). In material production, the means and objects of labour collectively form the means of production. In the non-productive sphere, despite economic relations, there can be no means of production.

The combination of material resources of the non-productive sphere is formed with the help of products created in material production and intended for the provision of services and the development of the material database of industries (Volkova et al., 2017). These products are used within non-productive activities as current material costs and fixed non-productive funds. At the same time, it should be borne in mind that a part of the material and technical means of the non-productive sphere is consumed in material production (Tretyak & Shchukovskaya, 2008).

As a modern trend, the increase in equipment costs for non-manufacturing industries should be considered both in absolute and relative expression. These are due to the increased importance of the principal non-productive funds as a leading factor in the service design. The service productivity of labour is growing. At the same time, the capital equipment of employees and the capital equipment of institutions naturally increase; the volume and share of the active part of fixed assets of non-productive industries increase. It is also important to note that the extension of the passive bulk of fixed assets has objectively determined limits. Therefore, it is natural that the development of the material and technical base of the non-productive sphere in the future will be evaluated prevailing by the need for equipment (Tretyak & Shchukovskaya, 2008).

Specific issues of the material intensity of individual branches of the non-productive sphere are reflected in the economic literature. However, the prevailing number of authors limits themselves to quantifying non-productive material costs without comparing them with the volume and quality of services. The issues of specific material consumption are considered an integral part of the cost analysis of non-productive services. The expenditure level of material resources is calculated based on the costs related to the general expenses of an organization. The fundamental difference between types of services, based on their materiality, is not often taken into account. This approach significantly distorts the overall picture of resource consumption because it does not consider the factors influencing the level formation of specific material costs by type of resources referring to certain consumer groups (Kutsak et al., 2019).

The material costs of a non-production organization of the same industry are not identical: with some factors influencing them. The level of the development of the material and technical base stands as one of the most fundamental factors (Staroverov & Staroverova, 2018). Therefore, in our opinion, it is possible to analyse the trends in material consumption of non-productive industries only from the standpoint of studying the specific indicators of material costs in this field of activity based on the so-called "representative characteristics" of the branches of this complex of the national economy. The "unit of

services" should serve as a representative characteristic for non-productive activities (Gorokhova, 2013). However, an activity is recognized as a service for economic purposes, the results of which have no material expression, are realized and consumed while carrying out this activity (Clause 5 of Article 38 of the Tax Code of the Russian Federation). In this regard, the service has no quantitative expression; consequently, it cannot be evaluated by particular units of measurement for accounting and economic calculations. At the same time, it is known that the objective, universally recognized characteristic of the service is the inseparability, the continuity of the process of rendering, and consumption of services **as services are provided and consumed simultaneously**. Thus, the amount of work spent on providing a particular service can be linked directly to the concept of a "unit of service" (Tretyak et al., 2019).

In this case, calculations of the coefficient of material costs per unit of non-productive services (the amount of work spent) do not cause methodical problems. Difficulties arise when determining the initial component for calculating coefficients (Kutsak et al., 2019). Intersectoral comparisons make sense only in terms of comparability of activities. In reality, this is impossible to implement due to significant differences between sorts of non-productive services. In our opinion, the way out of this situation is to analyse the specific indicators of non-productive material consumption in a differentiated manner, by groups of industries, under their specifics. It is also necessary to mind regional differences in the intraspecific structure of consumption of non-productive services and their level of prices. It is crucial to consider the quality of services by comparing material costs and other indicators (Tretyak et al., 2019).

2. Problem Statement

Recently, there has been a tendency to increase current volume material costs in the non-productive sector. They outstrip the growth rate of national income and current material costs growth rate in material production. Thus, the volume of material and technical equipment sales for non-manufacturing industries is also increasing, which naturally leads to the necessity to expand the scale of logistics activities in this branch of the economy. The problem of determining the ways and methods of the most rational organization of logistics systems to ensure their adaptability to new requirements arises so that they fully consider the specifics of the process.

The specifics of logistics in the non-productive sphere are explained by some features of the material resources consumption. First of all, it is necessary to determine the differences between this process and the sphere of material production (Shkaberda, 2016).

The first thing is that, as it has been already shown above, as a rule, there are no objects of labour in the non-productive sphere as it is commonly understood. Materials exposed to impacts with the help of labour tools are not part of the final product (service). A peculiar exception is the production of works of art (statue, sculpture). Products of labour appear as an output of the instrument of production on its object. However, a manufactured monument, being tangible, is not a material product. In a certain sense, it is a carrier of information.

The second thing is the breadth of coverage of the variety of consumed resources combined with small consumption volumes. In material production, due to its mass character, each production area consumes a limited range of material resources at consistently high volumes for each position. On the contrary, in the non-productive sphere, an extremely extensive nomenclature is accompanied by relatively small and, often, simply scanty specific consumption volumes (Gadzhieva, 2019).

The third difference lies in the degree of regularity of the necessity for a particular type of material resource. In industry and other branches of material production, the need is formed quite logically, and changes can occur mainly only in consumption volumes (adjustment of the production program and other factors). In the non-productive sphere, the need depends on various stochastic factors, including the demand for one or another type of service, which can lead to the complete exclusion of some resources from the content of need. Thus, both the assortment and the consumption volumes themselves are unstable.

And, finally, the fourth difference relates to the breadth of the range of interchangeability of non-productive resources. The materials and products consumed while rendering services have a strictly defined target. As a result, the possibility of finding a full-fledged substitute is highly challenging, and the use of incomplete substitution can lead to certain losses in the implementation of the target function of non-manufacturing industries (Tretyak & Shchukovskaya, 2008).

Thus, non-productive industrial processes of material resources consumption have some specific features. The main features of material consumption impact the implementation of the process. These manifest mainly in the way logistics is organized and in the methodology of arranging the needs of industries and ways to meet them.

3. Research Questions

The subject of the study is the material resources of the non-productive sphere, which can be divided (as has been mentioned previously) into two groups depending on their functional purpose in the process of non-productive activities.

The structure of each of the groups is very heterogeneous. However, it should be noted that if the group of the main component includes, as a rule, resources of a specific nomenclature, thus the category of support resources includes general-purpose materials and products for all sectors of the national economy.

An important specific feature of logistics in the non-productive sphere is that the supply of material resources for ultimate consumers is carried out mainly in a warehouse form (Nikolaeva & Karkh, 2017). Small-batch supply is an objective necessity due to the small size of consumption, a large number of small consumer organizations, and their significant dispersal in territorial terms (Slepenkova et al., 2018). In addition, warehouse supply can make it possible to ensure a level of efficiency and flexibility close to optimal in making management decisions in conditions of frequently changing needs. It serves to provide the necessary prerequisites for the rational use of resources in the process of non-productive activities.

The peculiarity of planning material resources process in the non-productive sphere is that it is necessary to choose the main element of calculation in a specific way, whether it is a natural or a cost

indicator in estimation by the value of which need for material resources is formed. The choice of such a meter is a general theoretical problem that requires further in-depth development and is currently debatable. Nevertheless, such indicators as the volume of service work and, with some allowance, services rendering time; can be considered in this capacity.

Cost measurement, including material costs, based on the representative characteristics of branches of industries, designed to reflect the final result of activities in the non-productive sphere, does not present the realistic picture of current material consumption. Moreover, the final product that appears at the end of the service process cannot be measured, except through the category of value, the value for the service consumer (Kireeva et al., 2018).

The second calculation element to determine the need is the specific value of material resources consumption based on the considered indicator (by industry). In the non-productive sphere, it takes the form of the Specific consumption rate. In material production, consumption rates are set based on the product based on detailed design and technological maps.

Another feature of planning in the non-productive sphere is its probabilistic nature. This orientation is also inherent in planned calculations in material resource management. These are due to the influence of socio-demographic factors in the formation of demand for non-productive services when it is difficult to determine with accuracy the value of the "representative characteristic" for the planned period. Therefore, stochastic methods prevail in logistics calculations in the non-productive sphere.

Insufficient objectivity of assessment of material costs and the unreasonable sectoral structure of consumption lead to miscalculations in the logistics planning process. As a result, non-productive consumers may have a shortage of material resources or, on the contrary, their surpluses as compared to genuine needs. In both situations, society is forced to bear unproductive expenses. In case of a deficit, these losses are due to the social costs of overcoming negative socio-economic consequences. With the formation of resource surpluses, the loss is determined by the excess storage costs, warehouse processing, and the like (Tretyak & Shchukovskaya, 2008).

Thus, the management of material resources in the non-productive sphere differs from production. These differences are manifested both in the economic aspect of this activity and in the forms of its implementation. The stochastic nature of the demand for non-productive services leads to the dropped uncertainty of the values of the planned needs of these organizations in material resources, which significantly increases the likelihood of the formation of positive (oversupply) and negative (deficit) deviations in the process of its satisfaction.

4. Purpose of the Study

The natures, forms of realization, reasons of formation, and the essence of these deviations have been studied in sufficient detail in the economic literature. At the same time, the issue of the socio-economic consequences of negative variations in the material and technical support of activities (material deficit) in the non-productive sphere remained without attention, which determined the purpose of this study. In this

respect, it is necessary to focus on some methodological aspects of losses from shortages in the non-productive activities field.

The shortage of material resources as a socio-economic phenomenon is typical of any socio-economic formation. Progress in science and technology undoubtedly generates qualitatively new industries and types of production. The needs of the latter in material resources, as a rule, outstrip the possibilities and the achieved level of social productivity (Tretyak et al., 2019).

Among the main factors in the formation of deficit, the potential exhaustibility of natural material resources can be named, which forms the basis of most processes of social reproduction. But such a deficit is not an insurmountable obstacle in developing productive forces. Science and technology successfully solve this problem by creating fundamentally new material resources and energy sources.

There is a deficit of a different kind. Its causes mainly lie in the field of management. The imperfection of methods and means of carrying out planned calculations predetermine errors in the planning of the quantity and an assortment of products, which lead to inconsistency in the production and consumption parameters (both productive and non-productive) (Kutsak et al., 2019).

In addition, a shortage may arise due to poor-quality performance by organizations of material production and production infrastructure of their chief functions. These include irregularities in the smooth production flow and shipments/deliveries, violations of the completeness and quality of the supplied products, and such miscalculations in the planning of cargo transportation, which causes a shortage of means of transportation (transport and packaging).

5. Research Methods

It is a topical issue to clarify the methodological aspects of determining losses from the shortage of material resources in the national economy and its sectors. The numerical value of these losses is necessary when solving the whole set of logistical problems (Shkaberda, 2016).

The functioning of non-productive industries is based mainly on two economic methods. Profit as an indicator of the final result does not play a leading role but serves as a kind of limiter for the target function of services. Most importantly, the magnitude of the actual effect of non-productive activity has a determining value, which can only be evaluated by natural measurement or can be expressed through indirect indicators of value. The growth of labour productivity in material production is a consequence of the quality of life of the employable population (Sukhodoeva et al., 2019). The problem of losses assessment of society due to the shortfall in the socio-economic effect of the non-productive sphere is currently rather acute (Yesina & Pankin, 2019). If the shortage of material resources theoretically can be presented as a factor, which partially determines the magnitude and structure of these losses, thus there is a logical need to measure such an impact. At the same time, it was determined that by their nature, structure, and consequences for society, losses in the non-productive sphere have their specifics. These losses can be seen in various forms of shortages in non-productive activities in the economy.

The mechanism of a shortage formation of material resources in the non-productive sphere does not practically differ from similar processes in the material-productive field. Two main reasons exist in both situations (Gadzhieva, 2019).

The first reason appears due to an objective shortage of raw materials, building materials, fuel, and the like. The second reason relates to the level of planning in the national economy. Under this division, it is possible to identify a conditionally objective deficit of resources, and artificial deficit, which arises from a complex management decisions shortcoming. Therefore, these deviations should be understood as the so-called artificial deficit formed due to inventory management and delivery supplies organization of material resources. At the same time, several reasons for their formation at least should be considered in our opinion.

Foremost, the current supply and inventory management policy may deviate from the planned one. Actual deviations are a type of failure in logistics promoting products from suppliers to consumers. Deviations may appear in the timing, assortment, and quality of supplies of consumed material resources. Moreover, if the planned policy is an expression of corporate interests, thus the principal means of overcoming such deviations is a realization of a set of socio-economic measures to meet personal interests with corporate ones.

In addition, deviations may occur in any case due to insufficient completeness and accuracy of calculations. Implementing complex organizational and technical measures solves this problem by integrating and increasing the efficiency of computer equipment and information technologies usage. As a result, errors in calculations are eliminated, and the quality of management and planning is improved.

6. Findings

Thus, the shortage of material resources, as a socio-economic phenomenon, is characterized by two main quantitative parameters (Tretyak et al., 2019):

1. The time of shortage (the interval expected with a certain probability between the moment of occurrence of a real need for this type of product and the moment planned for its satisfaction) is of great importance.
2. The size of the deficit is the amount of deviation of the volume of products planned for production to the cumulative value of material needs of non-productive industries.

According to the socio-economic meaning of non-productive activities and material costs in this area, material consumption of two different kinds is distinguished. The principal and subsidiary components of material consumption, as has been indicated, have various effects on the final results of non-manufacturing industries. The classification of the material consumption discussed above shows that in each particular case, different material resources appear to be the main component. The criterion for assigning them to this category is the degree of this resource usage in implementing a profiling function of a particular industry (Gadzhieva, 2019).

Losses from the shortage of the essential material components, which provide the functioning of the non-productive sector, are formed in the following situations. Firstly, reduction of non-productive services, which appears due to a partial shutdown of this process; secondly, the restructuring of the production process in a different direction to the previously expected results; thirdly, replacement of one type of resources with other ones (less effective, as a rule) in the services rendering process.

In general, when these situations arise, some elementary losses are possible: an increase in the loss of total working time in public production (due to a deterioration in the quality of reproduction of labour at a given time); a decrease in the availability of non-production services (due to the loss of institutions

experiencing a shortage from the general network of bodies); a decrease in the quality of the service provision process (as a consequence of inefficient substitutions of resources and as a result of slowing down the process and its suspension); an increase in the number of subsidiary material costs (due to the growth in the duration of the service provision process due to inefficient resource replacements); an increase in overhead costs associated with finding scarce products; losses from equipment downtime; losses from employee downtime (downtime payment and surcharges when transferring to other types of work) (Tretyak et al., 2019).

Losses from equipment downtime, together with losses from employee downtime, are characterized in a specific way (Mannapov, 2012). Depreciation expenses of fixed assets (including their active part) are repaid from state (or departmental) sources. These are because the principles of economic calculation have not been developed (for the reasons considered) in the given industries.

7. Conclusion

Thus, it follows from the above reasoning that losses in the non-manufacturing industry due to a deficit in the main material component have internal and external factors. Moreover, the external factor dominates since its consequences for society are estimated at a value many times higher than intra-industry losses.

The general points of determining losses from a material resources shortage for the entire non-productive sector, in our opinion, are:

1. The combination of the two most leading factors in the total losses of the national economy from the deficit in non-productive sectors is external (social) and internal (economic). At the same time, the latter reveals a close mutual connection and complements each other. The dominant significance of the first factor implies the need for a separate definition of losses, depending on whether the main component of non-productive material costs or subsidiary one is in short supply.

2. The quantitative value of losses from the leading component deficit is established based on an estimated value of the lost products of non-productive industries due to the shortage. At the same time, it is most important to consider the influence of other factors that determine the final result of the industry, for which economic and mathematical models of the functioning of non-productive sectors of economics are used on a large scale. A special place is given to identifying and quantifying the impact of their results on the efficiency of social production.

3. Deficit losses of the subsidiary component of material costs are established by adjusting the losses value from the shortage of the main constituent. Particular attention is paid to the validity of the calculated coefficients that characterize the degree of the shortage influence of subsidiary resources on the number of deficit losses of the main component and the overall results of non-productive activities.

There are differences in methodological approaches to assessing losses depending on the affiliation of non-productive industries to a particular classification grouping.

So, for the industries referring to the group of paid services, the basics of the approach are somewhat modified. In these industries, along with the preservation of general points, the need to consider the loss of profit from service rendering turns out to be a requirement. The calculation of these losses in these industries

is to, a certain extent, conditional. However, a prerequisite is the validity of the monetary valuation of non-productive products, its adjustment depending on public priorities and social factors.

In addition to all mentioned above, we note that all probabilistic indicators, which play a crucial role in the non-productive sphere, can be determined based on statistical data on the occurrence of individual situations and their corresponding elementary losses. They can also be explained by the widespread use of the expert assessing method and the predictive research method. The indicators, which are necessary for calculating individual losses that characterize the organization of labour, wages, fixed assets, the products of the non-productive sector, are determined according to the regulatory and accounting documents of the relevant branch cells of the non-productive sphere.

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