The multivariable method of the specialists in logistics wage calculation in modern Ukrainian enterprises functioning under the conditions of the market economy meaning the formation of the mathematic model in which such factors as education, experience, psychological parameters are formalized is offered. The psychological factors of the logistic business activity are classified and, the most significant of them are specified, the psychological testing method which allows to both formalize the results of all corresponding factors and further use the received results while complex calculating the recommended level of the wage of the specialist in logistics is offered. The unique cross-correlation model of the specialists in logistics recommended level of salary calculation due to three groups of factors - the education, the experience, the psychological parameters is formed. This method includes the following stages: questionnaire capture of data; the psychological testing; the use of the received formalized results in the mathematic model of the specialists in logistics recommended level of salary calculation; the account of the inflationary factor.

I received a specialty of a manager at NTU "Dniprovska Polytechnic". Today, professional logistics with experience of more than 15 years.

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Wage Management of Logistics

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Content

Introduction

Reforming the economy along with the tendencies of the most widespread introduction of market relations in the processes of management in Ukraine, which can be observed in the last decades, saves from the root defect of the administrative-command system of distribution, consisting in breaking the functions of production and distribution (enterprises create national wealth, the state distributes it) . Distribution functions are passed directly to the manufacturer or partially to the owner of the enterprise. Only the owner can now independently dispose of the means of production and the results of labor. In the new conditions a decentralized form of distribution relations is oriented on cost indicators, competition in the market and reflects the financial and market position of the enterprise.

The urgent problem of bringing the algorithm of salary calculation of logistics into line with the objectives of the management strategy, namely the development of a sense of community in the workers, their education in the spirit of partnership, the rational combination of personal and social interests - there is a need to change its motivational mechanism. Psychologically, and then economically, wages should target logistics on a clear understanding of the relationship between the requirements of the company, its contribution to the final results, and as a consequence - the size of wages. Unfortunately, in the modern organization of wages the economic orientation prevails. The dominant categories are economic categories: gross income, wage fund, internal prices (estimated, planning, etc.) and others that are not analyzed in terms of motivation, motivation for active work of each employee.

As an optimization tool, tools of economic and mathematical modeling are now widely used. Advances in the application of mathematical programming to the solution of various types of economic, scientific, technical and military tasks have generated methodological views that a cardinal solution to management problems is possible only when all its aspects are reflected in a system of interdependent mathematical models.

It should be noted that the aspects of economic-mathematical modeling of salary management processes in modern market conditions do not pay enough attention. That is, based on the definition of personnel motivation at the enterprise, the scientists did not set the task, systematizing factors, create a model for calculating the salary of the design block, which includes the work of logistics.

Chapter 1.
Theoretical and methodological bases for improvement of the organization of labor remuneration of logistics

1.1. Features and evolution of logistics activities

Changes that occur in the functioning of enterprises; the tendencies that are formed regarding the possibilities and conditions of the use of the natural resource potential of the economy, the increase of competition in many markets significantly increase the attention of practitioners and representatives of economic science to issues of management of material flows of enterprises. The main essence of the modern logistics concept is the managerial integration of all functional areas associated with the passage of material flows from the resource supply of production to bring its results to the relevant consumers. The concept is focused on finding significant cost savings reserves. In a number of industries, in particular metallurgy, logistics costs occupy a fairly high proportion in the total costs of enterprises (by some estimates, up to 40%). Therefore, the use of logistics principles in practice of many enterprises can create opportunities for reducing the cost of production, obtaining significant competitive advantages. So, studies conducted by the National Council of Physical Distribution Management (USA) have shown that the implementation of an integrated logistics system can lead to savings of 10-20% of total corporate costs.

If you analyze the origin of the term "logistics", it is often associated with either Greek "logistikos" (to calculate, reason), or with the French "loger" (to supply, quarantine).

But despite the ancient roots of logistics, for a long time in the socio-economic life, logistics was not seen as a special and important management object, an important direction for improving efficiency, but rather as a tool to complement the main levers of management and provision the competitiveness of the organization (enterprise).

The conducted analysis of the history of logistics allows us to conclude that systematically the principles of logistics in the economy, in the management began to be used in the United States (first of all) and Western Europe in the 1960-1970's, especially in the industrial sectors. In the early 1960's, O. Morgenstern pointed to the possibility of using the principles of logistics in the economy, first of all in industry. One of the main reasons for the formation of a new view on logistics, the possibility of its active use in economic practice, in the management, experts call the energy crisis of the early 70's. The need to find new ways and means of saving costs, primarily material, increased interest in logistics, as one of the effective forms of integration of production, transportation, storage and distribution of goods.

If we consider the question of the theory of logistics, then it should be noted that the first theoretical definitions of logistics were its interpretation as a science of transportation management, planning and provision of troops (XIX century). That is, the military direction of logistics, the concentration of attention only on military activities also affected the process of laying the foundations of the theory.

A departure from the notions of logistics as a way of organizing military activities, expanding the scope of the use of logistic principles led to the emergence of a large number of its definitions. Thus, in particular, at the present stage of the development of the logistics theory, one can distinguish the following definitions:

Logistics is the science and art of managing material flows [159]. Logistics is the theory and practice of managing material and related information flows [160]. Logistics is the direction of economic activity, which is used in the management of material flows in the spheres of production and circulation [24]. In such laconic definitions, the authors focus on the object of management.

In more detailed definitions, the authors represent the functions of logistics, its functional areas (directions). Logistics is the science of planning, control and management of transportation, warehousing and other tangible and intangible operations carried out in the process of bringing materials and raw materials to a production enterprise, in-plant processing of raw materials, materials and semi-finished products, bringing the finished product to the consumer in accordance with

the interests and requirements of the latter , as well as the transmission, storage and processing of relevant information [22]. Logistics is the process of planning, implementing and controlling sufficient and efficient flow and storage of raw materials, incomplete and finished products, servicing and relevant information from the point of receipt to the point of consumption (including acceptance, dispatch, internal and external traffic) in order to meet the needs of the consumer. [24]. "In the classical sense, logistics includes all aspects related to the management of the movement and storage of materials and goods from the primary source to the end user [161].

In some cases, management objects are expanding through the inclusion of financial and human resources: "Logistics represents not only science but also the practical activities of efficient management of the totality of material, financial, information and personnel resources in the sphere of production and circulation" [162].

The definition of the American Council for Logistics Management (Counsil of Logistics Management) states that "logistics is the process of planning, management and control of the efficient (in terms of cost reduction) flow of stocks of raw materials, work in progress, finished products, services and relevant information from places of origin of this flow to the place of its consumption (including import, export, internal and external movements) in order to fully satisfy the demand of consumers "[163].

The variety of definitions of the concept of "logistics" is largely due to the fact that this sphere of economic activity as an independent, separate branch of theoretical studies emerged relatively recently. And, thus, it is obvious that we are dealing with a theory that is still largely in the stage of its formation.

In general, in our opinion, logistics can be considered in different aspects:

- as a sphere of production activity of the organization (enterprise);
- as a managerial function, as a kind of management activity;
- as a separate sphere of entrepreneurial activity;

- as a theory that concentrates its attention on the processes of moving material and related information flows with their affiliation with a particular organization (enterprise).

Logistics in the theoretical perspective acts as a certain systemic review of the organization (enterprise), its production and other processes in the context of the movement of material and other flows associated with it.

Depending on the object of the move, the stage and the functional purpose of the commodity wheel, the following types of logistics can be distinguished:

- Supply logistics or procurement logistics;
- industrial logistics;
- sales logistics [22].

Quite often, procurement and marketing logistics are combined with the concept of "commercial logistics", which is associated with the market organization of the organization - at the entrance and exit.

If we take into account the general technical solution of the main logistics operations, then you can distinguish, in particular, transport and warehouse logistics.

Consequently, in general, logistics can be defined as the theory and practice of managing material and related flows. From the point of view of organization management, logistics is interpreted as the organization of management by purposeful preparation and expedient use of resources necessary for solving specific tasks of the organization, and further ensuring the movement of goods (services) to their customers.

Logistics acts as a certain infrastructure of economic activity - at micro or macro levels. It is based on the clear interaction of demand, supply, production, transportation and distribution of products. From a technological point of view, logistics begins with primary sources of raw materials or semi-finished products, continues in the circulation of materials and semi-finished products within the production process of the enterprise and ends with the delivery of finished products to the consumer to achieve the economic goals of the entrepreneur.

From the standpoint of traditional marketing, logistics is the process of managing the production, movement and preservation of materials and goods, as well as related information flows through the organization of channels of commodity routing, with current and future costs minimized provided highly effective execution and delivery of orders.

The main functions of the micrologistics are as follows:

- quality control, distribution of product release by the production departments of the enterprise;

- processing of transported cargoes - accounting and inventory management, their movement, communication and organization of information flows;

- packaging of products, their storage, warehousing, loading and unloading operations;

- ensuring the movement of goods to the end consumers, the establishment of feedback;

- Consumption - designing orders for products, stockpile, customer support, order financing.

Consequently, logistics at the present stage should be considered as an important element of a competitive market strategy of the company, as the key primary activity to ensure competitive advantages. It should be borne in mind that these advantages can be formed both on the basis of the cost factor of commodity products, and on the basis of quality of customer service, speed and comfort to meet their needs. Note that sometimes in the literature the advantages of statistics to ensure the competitiveness of the enterprise are treated only in terms of minimizing costs, cost and price. Indeed, this direction can be defined as a priority destination of logistics. But, at the same time, one must pay attention to the specifics of this or that market, where the sale of the enterprise takes place, to pay attention to the priorities of consumers. In some cases, the speed, comfort of service can play even more significance than minimizing the price offer. Therefore, the role of logistics in shaping the competitive potential of the enterprise can not be reduced only to save costs and the emergence of further price advantages of the product offer.

The importance and development of logistics activities in the world also testifies the fact of the creation and active functioning of national logistics associations, the European Logistics Association (ELA). The authoritative theoretical sources are periodicals: Logistics (Great Britain), Logistiques Magazine (France), Logistik Spektrum (Germany), Production and Inventory Management (USA), International Journal of Physical Distribution and Logistics Management "and so on.

Experience of developed countries in the field of increasing the efficiency of material production shows that one of the main tools for strengthening the position of the market is the use of the concept of logistics in the organization of economic activity of the enterprise. In the modern sense, logistics covers both production and planning, and the management of all activities of the enterprise in the chain of "supplier - producer - consumer".

Logistics is a reflection of the marketing orientation of the enterprise, the priority of the consumer, full and high-quality performance of contractual obligations, high level of service. At the same time, application of logistic recommendations is beneficial to suppliers. There are many examples of entrepreneurial activity, which show that effective implementation of logistic principles makes it possible to reduce reserves by 20-40%.

Consequently, logistics should optimize the infrastructure of goods, make it less costly, able to provide the required speed of commodity flows. The concept of logistics is based on the following main approaches:

1. Movement of material resources from the primary source to the end user is considered, as a rule, as the only material flow. Elements that form the material flow of the enterprise are technologically related, and the costs caused by them are economically dependent. This means that changes in one type of activity affect others, and attempts to reduce individual costs can lead to higher aggregate costs.

Logistics is difficult to manage, so there is always a conflict of interest in it. Insufficient operational actions of supply units can negatively affect the work of production units, whose signals, in turn, are very important to the sales service. The desire to optimize the work of production units can lead to the overload of

warehouses by one type of product and the lack of timely provision to others. Minimization of transportation costs can be explained if transport departments do not adversely affect the speed and reliability of delivery unless there is a need to increase the cost of maintaining stocks. The greater the amount of batch of parts that are put into production, the lower the cost of adjusting the equipment. However, the cost of saving uncompleted production is increasing. On the contrary, with the decrease in the amount of the party, the cost of maintaining the stock is reduced, and the cost of re-equipment is increasing. Placement of production facilities, warehouses, technical control points affects transportation costs.

One of the defining characteristics of the material flow of the enterprise is its continuity. The latter involves the provision of external (commercial) and internal flows of materials, meeting the needs of partners. But at the same time the implementation of this principle should be accompanied by the minimum aggregate costs associated with the goods.

Given the link between the stages forming the material flow of the enterprise, its interfactual character and taking into account the target direction, logistics involves the use of organizational and managerial mechanisms of coordination - logistics systems.

The organizational mechanism is associated with the achievement of a sufficient level of integration through appropriate transformations in the enterprise management structure. The organizational structure can be different and depend on the nature of the products produced, the number of its consumers, the amount of material, the size of the company, etc.

The management mechanism of the enterprise involves the introduction of specially developed management procedures, which are based on the planning of supply, production, marketing, storage and transportation as a single material flow.

2. Recognition of the need for the implementation of logistics systems - organizational and managerial mechanisms for coordinating the actions of specialists of various services that control the material flow at the enterprise.

The term "logistics system" is used in relation to the authorities and is characterized by two features. On the one hand, the logistic system is an organized set of structural elements that function to achieve a single goal, on the other hand, a plan by which the subject of management seeks to achieve it.

The logistics system is an organizational mechanism that crosses the functional boundaries of the enterprise units (with the help of flexible coordination) and directs their actions to achieve the goal of logistics. The relevant divisions of the company are responsible for the implementation of the whole set of activities related to the material flow and necessary to meet the demand of consumers, from the choice of suppliers to the provision of services. Coordinate the activities of the relevant units has a special manager, which formulates the operational objectives, eliminates conflicts, is responsible for improving the system and the final results of its functioning. For example, in the management structure of NVHI Interpipe, one of the largest metallurgical companies in Ukraine (in particular, it is the fourth largest company in the world), the director of logistics has been appointed. The manager who is in charge of this post is obliged to ensure the effective functioning of the system of shipment of products. Approximately, this situation is also observed in the management structure of OJSC "Dnipropetrovsk Metallurgical Plant named after Petrovsky", which is illustrated in Fig. 1.4. Logical in this regard is the idea of subordinating this manager to the first manager of the company.

Along with the notion of "management of material flow", specialists allocate two more terms - "material management" and "management of distribution." The first concerns the movement of materials within the enterprise, the second - the distribution of finished products among consumers.

As part of the distribution management unit (outflow) combines motion-related functions that are in the "economic space" between the extreme of the production process, that is, the shipment of finished products from the stores located on the territory of the company, and the sphere of consumption of products, supplied.

Thus, the material management unit (input streams) is an organizational mechanism for reducing costs that arise principally at the stages of supply and

production, and the division management division has a similar mechanism for reducing costs, but already in the field of sales. The existence of the distribution of logistic functions between the divisions of the enterprise is based on the dismemberment of the material flow and the corresponding specialization within the functional units of management. Management specialization at the enterprises leads to the need to solve problems connected with the coordination of actions of all units through which material flow flows.

Considered organizational forms of logistics activities have successfully proven themselves in many industrial corporations in the world. The transition to a market economy and objective production needs lead to the introduction of similar management schemes at Ukrainian enterprises, in particular industrial ones.

3. Ensuring the control of the efficiency of logistics in the context of the general objectives of the operation of the enterprise. It is necessary to record the costs of logistics and the effect that arises as a result of the introduction of innovations in the organization of logistics activities. On the basis of the ratio of actual total costs with the minimum, subject to one condition - quality customer service - conclude on the effectiveness of the operation of logistics systems.

The costs associated with the movement of material resources, in essence, are the cost of creating and maintaining stocks and are quite easily formalized.

Logistics management is aimed at coordinating planning and ongoing activities in the field of material support and distribution in close connection with the technological process.

Implementation of the concept of logistics at the enterprise can give the following real results:

- reduction of sales volumes losses due to the lack of stocks of necessary products, due to more accurate inventory placement and control over them. Thus, the dual goal is achieved: sales volume is increased and a higher level of customer service is provided;

- A logistics system that is capable of responding quickly to market changes can provide a reduction in the "customer service cycle" and, consequently, a

reduction in their stocks. This gives the enterprise-provider advantages over competitors in the struggle for their market share;

- A well-designed logistics system helps to strengthen supplier-customer relationships. This can be achieved by integrating the means of delivery of the supplier's products and the means of obtaining it by the consumer.

- effective methods of "physical distribution" provide significant cost savings that can be extended to the consumer in the form of reduced payment for the delivery of products, etc .;

- the introduction of an efficient logistics system enables the company to compete more successfully and profitable in individual markets.

Consequently, the concept of logistics - a way of thinking that defines the goals and principles of production and economic activity of the enterprise, logistics itself acts as a means of action, a means of implementing the concept.

If the concept of logistics is the focus of business thinking, then logistics is the focus of business. If the concept of logistics is the philosophy of the enterprise, then logistics is a management system that is objectively necessary for the realization of the goals of the enterprise.

The concept of logistics includes the planning, control and management of transportation, warehousing and other material and intangible operations that are carried out in the process of delivery of raw materials and materials to a production enterprise, in-plant processing of raw materials, materials and semi-finished products, delivery of finished products to the consumer in accordance with interests and requirements of the latter, as well as the transmission, storage and processing of relevant information.

For the sake of competitiveness, the right strategic approaches to enterprise management, the quality of strategic analysis, and the subsequent further operational activity of enterprise management become of great importance. So, in our opinion, it must be objectively recognized that the insufficient level of strategic analysis in the metallurgical industry, at individual enterprises in this sphere, led to the fact that the shock recession of the second half of 2008 was virtually not predicted, was not

foreseen by Ukrainian metallurgical enterprises. Losses of these enterprises can be regarded as rather high fees for underestimating the analytical work, strategic development for their sphere of activity.

In Table 1.1 we showed the results of the strategic SWOT analysis conducted by us in a generalized form for Ukrainian metallurgical enterprises. Note that a group SWOT analysis can be a fairly correct form of analysis. In some ways, he is similar to the industry analysis of M. Porter - "an analysis of five forces." For example, threats from substitutes producers in the M. Porter scheme acquire the realities of metal pipe manufacturers as producers of polymer pipes, which are actively expanding the sales of their products [164].

It is understandable that each individual metallurgical enterprise has its own peculiarities of functioning, a certain specificity of the conditions of its market functioning. But at the same time, one can foresee that all branch enterprises have a lot of common features that are characteristic of their market situation and activities in general. At the same time, macroeconomic, global components are largely decisive for the current and prospective state of these Ukrainian commodity producers.

Table 1.1

A generalized SWOT analysis for Ukrainian metallurgy exporting companies

External factors	Opportunities	Threats
	The presence of a large world market of metallurgical products. The existence of significant needs of the world economy in the future for metallurgical products.	Formation of the tendency of unfavorable market conditions. Dominance of price competition. Formation of global subjects of the proposal - competitors. Protectionist measures by national governments. Increased use of substitutes.
Internal factors	Strengths	Weak sides
	Availability of a comprehensive raw material base. Territorial equilibrium of distribution of raw materials. Great experience in world markets. Low labor cost.	In general, the low technological level of production. High depreciation of equipment. High energy intensity of production. Some conservatism in management. Limited internal sources of investment.

The results shown in Table 1.1 are, on the one hand, the results of our own research, and, on the other hand, they are based on those surveys of managers of the metallurgical enterprises of the Dnipropetrovsk region, which were conducted within the framework of the research of the problem of strategic competitiveness of Ukrainian metallurgical enterprises.

Obvious, in our opinion, there are serious challenges and threats that are emerging in foreign markets for metallurgical enterprises in Ukraine:

1) the threat of reducing competitiveness at the cost of production. The cost of commodity products in the metallurgical industry depends on many factors: the cost of raw materials; cost of delivery of raw materials; cost of electricity; the cost of sales of finished goods, etc. In the global economy, the factor of scale of activity is of particular importance for cost and competitiveness. China's competitors in the metallurgy and other sectors are dangerous for other market operators primarily due to the expansionist use of the "scale effect". Data tabl. 1.2 [165] indicate, in particular, the extent to which a large, large-scale platform of competitiveness has been created by Chinese producers of metallurgical products - their share of the world market for this product reaches almost 40%. The latter figure is evidence of the achievement of the great potential of Chinese commodity producers to obtain competitive advantages from the "scale effect", in other words - to obtain long-term benefits at cost, at market prices for product sales. Taking into account the competitive tendencies in the world market of metal products, the price factor becomes increasingly important for success.

Table 1.2

The largest producers of steel in terms of countries, 2018

Place in ranking	Country	Volumes production, million tons	Growth/ abbreviation until 2017	Specific weight countries in world production
1.	China	502,1	+ 2,6	37,8
2.	Japan	118,7	- 1,2	8,9
3.	USA	91,5	- 6,8	6,9

Place in ranking	Country	Volumes production, million tons	Growth/ abbreviation until 2017	Specific weight countries in world production
4.	Russia	68,5	- 5,4	5,2
5.	India	55,1	+ 3,7	4,1
6.	South Korea	53,5	+ 3,8	4,0
7.	Germany	45,8	- 5,6	3,4
8.	Ukraine	37,1	- 13,4	2,8
9.	Brazil	33,7	- 0,2	2,5
10.	Italy	30,5	- 3,4	2,3
	Total in the world	1330	- 1,2	100

2) the threat of adopting open and covert protectionist measures by those national governments whose products are exported to the markets of Ukrainian metallurgical enterprises. Open protectionism is dangerous, it is a certain dissonance with the rules of the World Trade Organization signed by the governments of all countries, operators of which are represented on the world market of metallurgical products. Non-tariff methods of market protection, hidden protectionism create a slightly different situation with regard to the perception of regulation of market environment. Thus, the practice of import quotas (it is used in particular by the European Union, Russia and other countries), the strengthening of anti-dumping legislation and related prosecutions, as well as other measures that governments resort to at the macro-economic level to protect the domestic producers of metallurgical products, is widespread ;

3) Further strengthening of competition in the world market of metallurgical products, due to the tendency to reduce its capacity. It should be noted that from the point of view of the state of the world market of metallurgical products, the functioning of the world industrial metallurgical complex can be distinguished in the last decade by the following stages:

- stage of traditional tendencies - the level of use of world production capacity at the level of approximately 85% (before 2003);

- stage of the metallurgical boom - the level of use of world production capacity at the level of approximately 95% (2003-2008);

- the stage of metallurgical decline - the level of use of world production capacity at the level of approximately 80% (since the end of 2008).

It is obvious that the world market of metallurgical products is entering a new phase - unfavorable conditions for producers of these products. There is a significant decline in prices. Price competition becomes the main form of competition, protection or expansion of its market share.

Strategic analysis should be the basis for further adoption (correction), deployment of relevant corporate strategies and operational processes for their implementation at the enterprise, industry and government level as a whole.

In our opinion, the future competitiveness of the Ukrainian mining and smelting complex in world markets will depend crucially on the ability of owners and managers of these enterprises to control the cost price of commodity products and find ways to minimize it.

Commodity - procurement of resources, internal production, sales of finished products - is associated with costs, which are important components of the final cost price. According to F. Kotler, the level of costs for marketing logistics can reach 30-40% of the cost of finished products [166]. Therefore, the level of logistics costs management is reflected in the ultimate competitiveness of the enterprise.

Ensuring competitiveness on the external and internal markets requires, in our opinion, the consideration of the problem of effective commodity circulation as a complex problem. Moreover, the larger the enterprise, the more important the organization of logistics activities, its effectiveness. As you know, enterprises of the mining and metallurgical complex are, as a rule, large-scale enterprises, and therefore logistic costs, and, accordingly, logistic savings, acquire special significance for them.

Logistics as a problem as an object of scientific research has different components, different aspects for studying. Logistics processes, like any other economic processes and phenomena, change over time. Therefore, it is clear that depending on the period in which the study of logistics processes is carried out, the significance of one or another of its constituents varies in different ways. In our opinion, if to allocate the most actual problems of logistics for Ukrainian enterprises at the present stage of their development, then it is advisable to pay attention to such question:

First: the question of the basic definition of performers - those who will directly carry out logistics activities. To some extent this is a matter of choice: logistics is defined as the prerogative of the units of the enterprise itself, or logistics is transferred to another organization (organizations), with which the relevant agreements are concluded. On the general scheme of logistic processes in the enterprise, shown in Fig. 1.2, one can see that one of the aspects of logistics management is to address the issue of endogenicity and exogenousness of such management.

It should be noted that the issue of logistic mediation (external service) at the stage of output commodity flow (stage 3 in Figure 1.2) is most often associated with transport and expeditionary activities, which in turn is considered as an integral part of transport logistics and one of its defining functions .

Forwarding intermediary service is represented as an integrated delivery system, which includes the transportation of goods from manufacturer to consumer and the handling of associated handling, packaging, warehousing, storage, insurance, settlement calculations, etc. In developed countries, the freight forwarder in the framework of provision of goods in stage 3 is the main link between the consignor, the carrier and the consignee.

During the last 10-15 years there has been an increase in the share of forwarding capital in transport business and, accordingly, freight forwarding services in the organization of the process of cargo transportation. This tendency can be considered as one of the results of the scientific and technological revolution in

transport, which was manifested, in particular, in the containerization of cargo mass and the transition to multimodal transport organization technologies. In general, in modern conditions, freight forwarders carry about 60-70% of freight traffic in the world. According to the International Federation of Forwarding Associations (FIATA), 75-80% of shipments of general and foreign cargoes in containers are made not by shippers, but on their behalf by forwarding and agency companies.

The Association of International Freight Forwarders of Ukraine (AMEU) was established in 1994 and since 1995 it is a national association of FIATA. Today AMEU unites more than 160 forwarding companies of Ukraine, which provide organization of more than 50% of import and export transportation of cargoes and more than 70% of transit through all types of transport [AMEU website]. The market of transport and logistics services of Ukraine is estimated at about 30-40 billion dollars.

Increasing the importance of logistics in today's economic conditions leads to the formation of a new level of qualification requirements, to the competence of those people who carry out this activity. It is clear that logistical activity is a system in which the internal division of labor takes place - its functioning is ensured by people of different professional lines, responsibility, influence on the final results of the enterprise. But at the same time the definition of the importance of the work of those representatives of the logistics sphere, which perform analytical, organizational functions. That is, the emphasis in considering logistics issues, their level of training and competence should be on logistics managers.

The tendency to specialize in many types of entrepreneurial activity, in particular the transport process, leads to the formation of specialized enterprises that professionally direct, control and answer for the quality of their services. Such specialization is a form of the search for ways to save material, money and time resources of cargo companies.

The question of which type of transport is best to send a freight and on which route is important in logistics. The choice of transport - a matter of comparison, the assessment of positive and problematic moments, the choice of the route - is not only

a matter of cost, but also marketing - ensuring the interests of customers at the right level. Obviously, for the development of an optimal logistic scheme, the nature and parameters of the cargo, knowledge of the rules, laws, and customs that exist in different countries become important.

The enterprise forms a client base with its geographical coordinates. It is necessary to decide how to organize the transportation the most optimally, with the least cost. Authorized freight forwarding companies usually work with their customers on the basis of the General Contract of Transport forwarding, which defines the general terms of organization of transportation, rights, responsibilities and responsibilities of the parties, and subsequent arrangements for specific transportation. In this case, the customer company, as a rule, transfers to the account of the forwarding company the funds for all operations in order for the forwarder, on its behalf, to pay all the complex of services of the carrier, cargo handling, storage of goods, customs clearance, etc. A part of this amount is paid for the work of the forwarder. The size of the forwarding remuneration depends on many factors, which are quite dynamic in the market of organization of transportations.

Members of the National Association of Freight Forwarders, based on the model developed by FIATA and approved by the Chamber of Commerce and Industry of the General Conditions of Expedition (General condition), the information base of association and experience, draw up contractual documents, build an optimal logistic scheme of transportation, organize transportation in optimal terms and with minimal expenses, which determines the quality of forwarding services.

The advantage of affiliated enterprises is evident not only because information about them as members of a national association is available in many available sources. Membership in the association provides an opportunity to maintain international relations, contacts with large cargo owners, carriers, traders and their associations, influence legislative and executive bodies in order to protect their interests, obtain the necessary information on their activities, qualified legal support, brothers participation in the system of vocational training and advanced training and much more needed by forwarding companies to maintain their competitiveness at the

national and international levels. Enterprises that have reached a certain degree of professionalism have the opportunity, through the mediation of the national association, to become an individual member of FIATA, which, in addition to prestige, offers additional advantages.

The provision of complex forwarding services, the essence of which is to offer and provide in practice door-to-door (mixed transportation) services, which involves all problems related to Stage 3 of the logistic process of the enterprise, assumes the company- forwarder. Moreover, the forwarder does not work as an agent of the sending company, but as a self-employed person ("contractual carrier"), issuing a single transport document for all transportation - a bill of lading for a mixed transport.

By issuing a bill of lading for a mixed transport, the forwarding company accepts the cargo under its responsibility for the entire time of carriage. This means that the shipper in case of damage to the cargo will not have to deal with different carriers carrying out their separate stages, but only with one company, which logically needs to take care of its market image.

Freight forwarding companies - members of national associations are constantly working on the issues of staffing, raising the level of professionalism of employees, as this is one of the statutory tasks of both FIATA and each association. According to FIATA training programs, the employees of the listed companies systematically increase their professional level through various forms of training, receiving the FIATA diploma after the completion of the theoretical course and the successful passing of the exam, which confirms the international level of their training. In Ukraine, many specialists who have received FIATA diplomas have already been trained.

An analysis of practice shows that it is rather difficult to find examples of absolute choice of alternative, that is, say, transfer of all logistic functions to external service. As a rule, in practice there is a combination of endogenous (internal) and exogenous (external) forms. Therefore, the more correct and accurate statement of the question is how to find the most effective combination of forms. Ultimately, one form

is insouring (internal), and the second form - external - is a contractual form that may include: a) the acquisition of logistics services without the transfer of its own logistical resources under the contract; b) outsourcing form of logistics service. But, we emphasize, in any case within the company logistic logistics is maintained, a group of people responsible for the organization and implementation of logistics activities is formed. That is, in any case, the company needs a certain organizational structure of logistics.

The second issue is the creation of an organizational structure for logistics in the enterprise. Here two lines are formed: functional and managerial. Functional is connected with the creation of the appropriate divisions of the enterprise, which will carry out transportation, warehousing, storage, etc. This can be called a production logistics direction. The managerial direction involves determining how the company will manage the logistics activities, as it will be "inscribed" in the general scheme of enterprise management.

This question is not easy, because there is a need to coordinate the activities of different units, a clear separation of "zones of responsibility" units and relevant managers. Logistic functions are to some extent dispersed among a number of divisions of the enterprise. In fig. 1.3 it can be seen that logistics activities to some extent integrates separate components of production, economic, financial and marketing activities of the enterprise.

The issue of the management system is relevant to Ukrainian mining and metallurgical enterprises, which, in our opinion, due to a number of reasons, including those related to the management traditions, are characterized by a certain conservatism in relation to the formation of a management system, the need for its continuous modernization. This is a certain barrier to managerial development, a certain barrier to more active and open responses to the global competitive challenges of the present, which businesses can not fail to notice.

An analysis of the activities of Ukrainian enterprises, in particular the metallurgical industry, shows that the main directions of ensuring administrative

coordination in the context of analyzing logistics activities should be recognized as follows:

- "logistics - production";
- "logistics - marketing";
- "logistics - finances".

Proceeding from the fact that the concept of marketing management of enterprises becomes essentially a dominant approach, the core of the organization of management in many enterprises, namely ensuring the necessary level of coordination of marketing and logistics activities can be recognized as a priority coordinating direction in management.

Marketers express their claims to conceptually manage the entire logistics process of the enterprise. So, F. Kotler uses the term "marketing logistics", which includes the planning, implementation and control of material flows of materials and finished products, from the points of origin and ending with destination, in order to meet the needs of buyers [166, p. 380]. Other views on the meaning of the "marketing core" are expressed by other authors, in particular [167].

The basic position of marketing in relation to logistics is the priority of marketing in the deployment of management activities. According to marketers, the deployment of logistics activities should occur in accordance with the results of research requirements market, in which the company intends to offer its products. After that, the company should have an analytical "supply chain" constructed and managed accordingly. Moreover, it is recommended in the analytical work not only to go to the company - direct suppliers of resources, but also to investigate, in turn, their suppliers. That is, the "chain" of research, analytical supervision is formed quite long.

The third question is the level of personnel potential of activity. This is a question of the ability of senior management of an enterprise to ensure the effective selection and development of personnel responsible for the implementation of logistic functions.

Metallurgical and other enterprises of Ukraine constantly feel internal contradictions, conflicts of administrative processes. On the one hand, it is necessary to control the cost of commodity products of the enterprise, to find ways to minimize it. As you know, one of the important components of cost - the cost of staff. Moreover, these costs for the enterprise are not only direct - in the form of payments from the wage fund. Almost all compulsory charges on the wage fund, which companies have to pay, is an additional financial burden for them.

On the other hand, it is obvious that the quality of the personnel that is formed in the enterprise through the labor market depends to a large extent on the remuneration system, in particular the level of payment. The relationship between the level of wages, or more - the employee's income, and the level of its return, the degree of influence on the performance of the enterprise is not a direct dependence. But in general, one must admit that more skilled workers have a higher market value, attracting them (maintenance) to the company involves the formation of an interesting economic proposal for them. That is why there is a managerial problem, how to correctly determine the level of individual income, which it is advisable to offer, in particular, logistics, which factors should be taken into account when determining the basic values in the system of remuneration.

In our opinion, these three problems - the division of logistics into endogenous and exogenous, endogenous distribution of logistic functions and management, stimulation of logistics work - are of the highest scientific importance, relevance, if we proceed from the practical relevance of certain issues related to logistics activity of Ukrainian enterprises in modern economic conditions. All of them, on the one hand, are sufficiently new for the Ukrainian mining and metallurgical complex, in particular the metallurgical industry, and, on the other hand, they are largely interconnected, which, accordingly, must be taken into account when seeking solutions to them.

Management of the personnel of an industrial enterprise is a multifaceted problem. Logistics are part of the staff. Let us pay attention to three important moments in our opinion:

- firstly, logistics activities are increasingly acting as an independent profession, especially based on the level of logistics costs of enterprises;

- secondly, the demand for the Ukrainian labor market for logistics specialists is increasing;

- thirdly, the logistics profession is a multidisciplinary and

The company has a powerful human and technological potential and has all the opportunities for the development and production of new types of products. Today Petrovka fruitfully cooperates with consumers in the markets of near and far abroad. The plant's products are used in many industries - machine-building and automotive, agricultural machinery, military-industrial complex, industrial and civil engineering, and thermal power engineering. The plan for reconstruction of the plant was adopted, according to which the construction of the department of continuous casting of steel was started in the converter shop, a machine for continuous casting of billets was purchased, construction and installation works are under way. At Petrovka sure: the implementation of the program of technical re-equipment of the plant will achieve higher rates in the production of iron, steel and rolled products, create additional jobs.

1.2. Wages as an object of management

Wages as remuneration, calculated in terms of money, which the employer pays to an employee for the work performed by him under the employment contract, consists of the following parts: basic salary, additional wages, other incentive and compensatory payments.

The basic wage is the remuneration for the work performed in accordance with the established norms of labor (time standards, production, service, duties). It is set in the form of tariff rates (salaries) and unit labor costs and salaries for employees.

Additional wages - remuneration for work exceeding the established norms, for labor success and ingenuity and for special conditions of work. It includes

surcharges, allowances, guarantee and compensatory payments provided by the current legislation; prizes related to the execution of production tasks and functions.

Other incentive and compensatory payments include payments in the form of remuneration based on the results of work for the year, bonuses for special systems and provisions, compensatory and other monetary and material payments, which are not provided for by the acts of the current legislation or which are being carried out by the monads established by the said acts of the norm.

The structure of wages is the ratio of individual components of wages in its total volume. In stable developed economies, the basic wage is 85-90% in the wage structure.

On the basis of the above-mentioned principles of the organization and functions of wages in the context of building market relations, the organization of wages is created directly at enterprises. Under the organization of wages we understand its construction, that is, bringing its elements into a certain system, which ensures the relationship between the quantity and quality of labor with the size of wages.

In the economic system, which is based on various forms of ownership and management, the mechanism of wage organization consists of the following elements:

a) market regulation;

b) state regulation;

c) collective-contractual regulation through concluding general, sectoral, regional agreements; collective bargaining at the enterprise level;

d) labor contracts with employees;

e) the mechanism for determining individual wages directly at the enterprise (in a structural subdivision) using elements such as a tariff system or a non-tariff model, labor standardization, form and system of remuneration and bonus.

The restructuring of the organization of wages in the enterprise in accordance with the requirements of a market economy involves solving three main tasks:

• firstly, increasing the interest of each employee in identifying and using reserves to increase the efficiency of their work, with the exclusion of the possibility of obtaining unearned money;

• secondly, eliminating cases of equalization in wages, achieving direct dependence of wages on individual end results of work;

• thirdly, optimization of the ratios in the wages of workers of different categories and professional qualification groups, taking into account the complexity of the work performed, the working conditions, the shortage of certain types of labor force in the labor market, and the influence of different workers on the achievement of the final results and the competitiveness of the products.

Although each enterprise (and sometimes a structural subdivision) has its own specifics in the organization of labor remuneration, its organizational basis is always: ensuring the necessary increase in wages while reducing its costs per unit of output; regulation of labor relations, ensuring equal rights of the employer and employee; improvement of labor valuation; choice of model, forms and systems of remuneration; interconnection of wages with volumes and cost of manufactured goods. Let's examine them in more detail.

Compliance with the requirement to ensure the necessary increase in wages while reducing its costs per unit of output is both a guarantee of both the growth of labor income of employees and the increase in the efficiency of production (under other identical conditions), which is in the interests of all participants in the labor process and market requirements.

When organizing the salary at the enterprise, the main interests of both employees and employers are intertwined. In a democratic society, both parties should have equal rights in solving wage issues. Therefore, collective agreements between the administration of the enterprise (as the representative of the employer) and the trade union (as a representative of the employees) become, in the market conditions, the most effective form of regulation of labor relations, including on issues of wages.

The level of prices for enterprise products and the market reaction to it significantly affect the company's ability to regulate wage levels: on the one hand, raising prices makes it possible to increase wages, and on the other hand, limiting wage growth is an important measure to maintain a competitive price for products. The best solution in this case is to compensate for rising wage costs due to additional production volumes, product range improvements, productivity growth and product quality.

Effective organization of wages at any enterprise is impossible without its fundamental element of labor standardization, which allows establishing the correspondence between the amount of labor costs and the size of its payment in specific organizational and technical conditions. The employer is obliged to establish the standardized volume of work for each employee, based on the length of the working day established by the legislation, the normal intensity of labor and the average for this type of work productivity. An employee has the right to count on full pay only if the full normalized amount of work is fulfilled. At each enterprise it is expedient to have the characteristics of the main types of work with the relevant norms of labor costs for their implementation (normative base of labor costs). Work to improve the standardization of labor should primarily be aimed at improving the quality of standards by ensuring their equilibrium stress for all types of work and all groups of workers.

The basis for the organization of remuneration is the tariff system, which is a set of normative materials, through which the level of wages of employees of the enterprise is determined, depending on their qualifications, complexity of work, working conditions. Tariff system of wages includes: tariff grids, tariff rates, surcharges and surcharges to tariff rates, salary schemes and tariff-qualification characteristics (directories).

The tariff system is used for the distribution of works depending on their complexity, and the employees, depending on their qualifications and responsibility for the rates of the tariff grid. It is the basis for the formation and differentiation of wages.

Tariff grid is a scale of qualification digits and tariff coefficients, with the help of which the direct dependence of the wages of employees on their qualification is established. Each qualification category corresponds to a tariff rate, which shows how many times the tariff rate of this category exceeds the tariff rate of the first category. The tariff rate of the first level is always equal to one. The number of qualifying digits and coefficients is determined by the complexity of the production and the work being performed, and stipulated in the collective agreement.

For salaries of managers, specialists and employees salary schemes are used, the sizes of which are set depending on the positions occupied by managers, specialists and employees, their qualifications, working conditions, scale and complexity of production, volumes, complexity and importance of works. The peculiarity of using the salary scheme at the enterprise is the development of staffing - an internal normative document, which specifies the list of positions held at this enterprise, the number of employees for each of them and the size of their monthly salary.

In recent years, in the enterprises of both manufacturing and non-productive sectors, instead of the separate formation of tariff rates of workers and schemes of salaries of specialists, the single tariff networks (ETS), which contain tariff rates for all categories of personnel, are successfully applied. The advantage of the ETS is that they are built on a single methodological basis, and therefore provide a unified approach to assessing the differences in the work of all employees. The methodology of developing such tariff nets for industrial enterprises is given in the special literature.

Tariff rate is the absolute amount of remuneration expressed in money terms per unit of working time. The tariff rate of the employee of the first category is stipulated in the collective agreement and depends on the financial capabilities of the enterprise and on the payment conditions established by the branch and general tariff agreements. In any case, it may not be less than the statutory minimum wage. On the basis of the tariff grid and the tariff rate of the worker of the first category, the tariff rates of each subsequent category are calculated. The tariff rate is the starting point for determining the level of wages of employees irrespective of which forms and systems of remuneration are applied at the enterprise.

Depending on the selected unit of time, tariff rates are hourly, daily and monthly (salaries). The most common are hourly tariff rates, because they are based on a variety of surcharges. The daily and monthly tariff rates are calculated by multiplying the hourly rate by the number of hours in the change or the average monthly number of working hours.

Tariff-qualification reference books of works and occupations of workers, united in a single tariff-qualifying manual (ECTS) are collections of normative documents, which contain qualification characteristics of works and occupations, grouped in sections by type and type of work. With the help of tariff-qualification directories, the tariffication of works is being carried out (a level of work is established), the assignment of qualifications to the workers, programs of training and advanced training of workers are formed. The qualification characteristic of the work and occupation of the worker consists of three sections: "Characteristics of works", "Must know" and "I examples of works". Qualification grades are assigned to workers on the basis of the requirements of tariff-qualifying directories by the qualification commission of the enterprise or its structural subdivision. The current EBTC holds 72 issues for different types of works and types of works, with the help of which it is possible to spend more than 5 thousand works and occupations of workers.

The qualification manual of the positions of managers, specialists and employees is a normative document that contains general sectoral qualification characteristics. They specify the duties, requirements for knowledge and experience of work in the specialty, level and profile of professional training of managers, specialists and employees. The qualification characteristic of an employee of each position in this manual consists of the following three sections: "Official Duties", "Must Know". "Qualification Requirements". This guide is intended for use by enterprises in order to ensure a rational division of responsibilities, the most appropriate arrangement and use of the personnel of managers, specialists and employees, to determine their official duties, substantiation of qualification requirements for staff selection, provision of reserve and professional training of personnel, and for establishment of salary.

The system of surcharges and surcharges to tariff rates is also a normative document. Most of them are regulated by labor legislation, some are established directly at the enterprise. In any case, the system of supplements and surcharges to tariff rates adopted at the enterprise should not create conditions worse for workers than those stipulated by the current legislation, the branch and the general and general tariff agreements.

Supplements are related to the quality of a particular worker and are clearly expressed stimulating character. Their main types are:

- for the high professional skills of the workers;
- for high achievements in the work of specialists;
- for years of service;
- for performing especially important work for the term of its implementation;
- for knowledge and use of foreign languages. Supplements are associated withcharacteristics of the field of labor and are compensatory in nature. The main ones are:
- for high labor intensity (for example, on conveyors):
- for work in overtime;
- for the combination of professions (positions), for expansion in comparison with the norm of service areas:
- for the performance of duties of temporarily absent employees;
- for the period of development of new norms of labor costs;
- for work on weekends and holidays, working on schedule;
- for work at night;
- for the management of the brigade, if the foreman is not released from the main job;
- for the traveling nature of work, etc.

Wages as an indicator, which depends directly on production efficiency, labor productivity, and product competitiveness, is not only an indicator that determines the general standard of living of employees. From its state and forms of implementation, the

shares in the gross national product in many respects also depend on the development of the economy in general. Important for a modern transitional period in the establishment of market relations in Ukraine is the consideration of wages through the prism of the dominant forms of its payment to employees. Their evolution during the years of market transformations allows us to speak about the use of three types of payment: monetary, natural and mixed.

The main, of course, is the monetary form, which is due to the leading value of money as the general equivalent of the mature stage of commodity-money relations of market players. At the same time, wages can be provided in kind payments when they are perceived and desirable for employees. This is characteristic of the organization of remuneration primarily in agricultural production. Typically, for personal use, products of their own production, which may be the direct object of consumption. Enterprises engaged in the sale of products, or those who do not have their own production of consumption goods, can pay employees with products from other manufacturers, based on the possibilities of its acquisition or available inventories.

Simultaneous use of cash and cash payments leads to the emergence of a mixed form of payment, the elements of which may serve other forms of settlement. In particular, as compensation for work on weekends and holidays, the implementation of overtime work of widespread use received rebates or additional paid leave, through which to some extent realized the idea of free time stimulation. With the extension of the ownership rights of labor collectives in wage systems, the possibilities of attaching employees to ownership rights of shares, shares of the labor collective, etc. are also used.

In a scarce economy, the use of mixed forms of wages, first of all, with the use in the form of the payment of goods of limited supply, is often associated with the prestige of the workplace, since it provided workers with free spare time to seek and purchase these goods, and in the period of excitement of demand - as well as the possibility of more efficient use of earnings to meet life's needs.

Assessing the tendency towards changes in the ratio of wage forms of the transition period to the types of payments with employees, it should be noted that

inflationary processes have always played the role of one of the main catalysts to accelerate such changes.

In the conditions of a mass stop of production, one of the specific forms of mutual settlements with employees is becoming widespread, which is the additional leave or so-called non-appearances with the permission and initiative of the administration. In 1994 on holidays without salary wages in the industry of Ukraine is permanently more than a third of employees. More than 15% work part-time (week) [28, 23]. These phenomena of hidden unemployment are, at first glance, difficult to relate directly to the evolution of wage forms during the transition period. But steady unemployment in the mainstream, in need of livelihoods and in the presence of time, inevitably forces conditionally released labor to seek alternative wages that are often outside the official economy.

The value of wages along with the assessment of the material position of the working people largely determines the state of the economy, the degree of its development and the place in the world market of goods. This shows the duality of wages as social and economic categories. On the one hand, it reflects the size of the individual salary, which shows how much it provides a person with a standard of living, on the other shows the cost of reproduction of the workforce.

The peculiarity of wages as an economic category is the ability to conclude on its size about the development of the economy as a whole. Higher salaries are usually in economically developed countries. A large range of consumer goods and services produced there must be used as much as possible, and this is ensured by the high level of income of the working people. Another situation is in the economically backward countries, which Ukraine and today have fallen into. Reductions in wages and their level coincide with the beginning of economic reform.

There was a weakening of the link between wages and labor productivity, which was largely due to the fact that factors such as inflation, changes in the structure of production, instability of the economic situation of enterprises, high degree of monopolization of production, private, unpredictable investment, commercial ties, various forms of ownership and wages. This, among other things, contributed to the deterioration

of the structure of wages in the main sectors of production: the share of the tariff decreased, the share of wages in the basic incomes of the population decreased (from 70% in 1992 to 55% in 1997). In the incomes of the working people, instead of production, other factors began to play a priority role (side earnings, household economy, commerce, participation in business). The connection of labor efficiency with its payment has been violated. Suffice it to say that the proportion of workers who combine additional work with work at state-owned enterprises has, over the past years, exceeded 40%.

If you compare the level of earnings in the public and private sectors, they are usually not in favor of the state (with a difference of 20%)

In recent years, the government has restricted wages by stopping its indexation and by establishing control over the regulation of the consumption fund by reducing the minimum wage. In addition, hyperinflation, which took place in 1993, sharply reduced the real wage, as well as its minimum size: by mid-1994. the average salary of employees was lower than the subsistence minimum. If in 1991 it was 53% of average, then in 1994. hardly reached 7%. Of the 9.1 million workers in June 1997, 20.4% of their number was below the poverty line (71grn.), The share of workers accrued to 105 UAH was 42.3%.

From these figures one can see that the bulk of the workers are still close to the limit of impoverishment [29,21].

In the period of economic transformation, the wage function has changed significantly. As an economic category wages almost ceased to perform functions of reproduction of labor and stimulation of labor. In the course of the reforms that took place, wages turned into a kind of social assistance, which does not contribute to the formation of the economy at all, nor to the well-being of the working people.

At the level of average wages in the CIS countries, Ukraine is now steadily one of the last places.

The disadvantages in our remuneration system are also apparent from the ratio of minimum and maximum wages, which by the end of 1996. was 1:12, while in the developed countries of Europe it is equal to 1: 3 or 1: 4.

There were imbalances between wages and employment. Between real wages and employment in the industries of the country lately, there is no direct dependence. So,

the decline in real wages for the period 1991-1997. More than 60% compared to 1990 led to a decrease in the number of workers and employees employed in the economic sectors by 34%. Such a gap in these indicators became possible because the effect of wages on employment is weakened by the effect of low factors. Firstly, many enterprises do not always have the financial ability to pay redundant workers two months' assistance. Secondly, the company seeks to retain skilled personnel, hoping in the future to stabilize the economy and resume production. Thirdly, the deterrent is a moral and ethical factor, since those who have been released will not even have the minimum wages necessary for the basic satisfaction of needs.

An analysis of wage trends and the labor market shows that wages do not fulfill their main functions (reproductive, regulatory, motivational and stimulating), perform other functions due to peculiarities of the transition period, namely: saving employment, preventing unemployment at the cost of reducing real wages; redistribution of employment by sectors of the economy, its branches and regions; growth of illegal activity and secondary and even tertiary employment; increasing competition in the labor market; increasing labor mobility.

Thus, wages to some extent perform some of their market functions, influencing the dynamics of demand and supply in the labor market. The specifics of the organization and the differentiation of wages in the conditions of the transition economy led to its peculiar role as a regulator of the labor market.

The current situation in the labor market, that is, the minimum price of labor supply, is now causing increased interest of foreign investors. This, in turn, promotes the organization of new jobs and the reduction of the number of unemployed. Without getting salaries at the company, people go to work in other countries.

A negative trend is the actual degradation of skilled labor. According to statistical data in industries that determine scientific and technological progress and science-intensive production, salaries of staff is the lowest. Thus, in machine building, the share of average wages in industry decreased from 101.1% in 1990 to 67.2% in 1997, and in the field of science and scientific services from 126.6 to 112.2%. Simultaneously the

share of personnel in these industries in industry fell from 35.0% to 28.1% and from 7.8% to 5.3% over the same period [30,17].

Debt on wages and social payments remains a sharp socio-economic problem in Ukraine.

Non-payment of wages is observed less frequently in industries adapted to market conditions, such as energy, the production of consumer goods and services, the financial sector, and so on. The arrears of wages reflect, on the one hand, the financial weakness of government and enterprises, on the other - the situation on the labor market. Large state-owned enterprises that keep their collectives and do not produce the previous volume of production, will not be able to pay their employees wages. Such a process becomes dangerous and can last a long time. In place of a system in which enterprises believed that they were paying wages, and workers who worked, came the system in which the administration of the enterprises pretends that it needs workers, and workers consider themselves to be working. The situation of hidden unemployment has been created. Employees retain their links with enterprises, mostly in order to receive certain benefits and services provided to them as employees of this enterprise, but earn a living in other organizations. Under such conditions, wage reductions in state-owned enterprises are legitimate for a market economy that takes the form of its non-payment. Quite often, labor costs at enterprises are the result of various food and industrial goods such as flour, sugar, cereals, canned goods, vodka, clothes, linen, threads, bricks, chandeliers, electrical goods, both manufactured in the enterprise and obtained for the sold products and services provided as a result of barter with other enterprises. Under these conditions, it is impossible to control the prices of products, and even more so determine the price of labor and it is very difficult to compare wages between enterprises, industries and regions. the share of personnel in these industries in industry fell from 35.0% to 28.1% and from 7.8% to 5.3% over the same period [30,17].

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In the conditions of deprivation of the ministerial and interdepartmental custody of enterprises and organizations, attempts to index wages and determine the minimum wage at high inflation led to such negative phenomena: first, the minimum wage began to have a declarative character and lost its essence as a certain scale to assess the low skilled labor; secondly, the inter-branch relationship between high and low wages deepened and reached 5.2 - 9.4 times in 1993 - 1997. As a result, the average monthly salary lost its consumer value for the workers to provide their needs even at the minimum level. At the same time, there were also positive phenomena. In place of the old stereotype in wages, it paved the way for itself: the sectoral wage began to adapt to market conditions; the psychology of the workers has changed and it became clear that wages are not just issued, but they must be earned.

Labor remuneration in those areas oriented on the market (in the financial banking, fuel and energy complex) has increased significantly, meanwhile, in machine building, light industry, industrial types of consumer services, in the socio-cultural sphere decreased. Labor potential has also gone down, as the specialization of many workers with higher and secondary specialized education in market conditions and in the event of a downturn in production was either unnecessary or obsolete.

The ratio between high, average and low wages of workers (in a month by branches of the national economy) in December 1993-1997 indicates a decline in the growth rate of high wages. The ratio between average and low wages remains constant, that is, in those sectors related to end consumption (wood, wood and pulp - paper, light industry, agriculture, public catering, social sectors), wage policy during 1995 - 1997 did not change. In the low-paid sectors during the stabilization period wages were kept below the margin of small-scale provision or slightly exceeded it.

Maintaining relatively constant relationships between high, medium and low wages is one reason for a significant differentiation in the standard of living of the population, and a brake to structural adjustment in the economy. This proportion will continue, as international experience shows, is reduced and especially by those industries that have a salary less than the limit of poverty to keep them as a necessary link in the needs of the population and finally bring down (and in this way to subdue intersectoral differentiation in wages, structural adjustment of the economy). Such a policy is in line with the reduction of subsidies from the budget to support the sectors of monopoly and sectors with a differential rent, solving the issues of minimum wages and much less differentiation in wages.

The improvement of social and labor relations, the policy of monetary income of the population, should be based on the real value of labor, in order to eliminate those imbalances that are now in the consumer market and in the motivations to work. The pay of the employed must be the beginning of a new cycle of reproduction, and not lead to a decline in production and the creation of a foundation of market relations on a shaky ground. At this stage of social development, it is necessary to introduce, as the principle of new economic relations,

the price of labor corresponding to its real value. To increase the price of labor can be due to the reduction of material and other costs, which in the structure of expenditure in 1996 equaled respectively 60 and 14%, as well as reduced deductions and taxes.

The impact of such physiological factors as the ability for a long time to work quickly memorize numbers, consistency and composure in stressful situations on the work in the field of transport logistics is not given enough attention. Formation of the size of the salary is carried out without the use of any of the methods of psychological testing. From leadership experience or situation in the labor market salary determined by the value in monetary terms. Thus, the regulation of the amount of wages in the field of logistics can be characterized as a contractual process. In addition, the processes of regulating the amount of wages are controlled by the social and economic policies of the state. Below are some of the basics of state and contractual regulation of wages.

In the economic system based riznomanit¬nyh ownership and management, organization of zaro¬bitnoyi board at the company, as international experience shows, performed by a combination [42]:

a) state regulation;

b) contractual regulation by concluding general, sectoral, regional (regional-branch) agreements and collective agreements at the level of enterprises, labor contracts with employees;

c) the mechanism for determining individual wages directly at the enterprise (in a structural unit) using elements such as the factory and tariff system, the standardization of labor, the form and the system of labor remuneration, etc.

In connection with the significant changes taking place in the economic, political and social spheres aimed at establishing a new economic system of Ukraine based on market relations, it is extremely important to find the optimum between state and contractual regulation of the amount of wages.

The principle of demarcation of state and contractual regulation of the amount of wages and the definition of their scope and scope is enshrined in the Law of Ukraine "On Labor Remuneration" [39]. According to Art. 5 of this Law, the

organization of remuneration is carried out on the basis of: legislative and other normative acts; the german agreement at the state level; sectoral, regional-level agreements; collective agreements; labor contracts.

According to the Law of Ukraine "On Remuneration of Labor", the main subjects of ensuring the value of wages are state authorities and local self-government.

The scope of state regulation of wages, in accordance with Article 8 of this law, applies to the establishment of the size of the minimum wage, other state norms and guarantees, conditions and rates of remuneration of managers of enterprises based on state, communal property, workers of enterprises, institutions and organizations financed or subsidized from the budget, regulation of wages of employees of enterprises of monopoly enterprises in accordance with the perelica, which is determined by the Cabinet of Ministers of Ukraine, as well as by taxation of taxes IRS workers [39].

An important element in determining the value of wages is its contractual regulation. It is a leading component of the system of social partnership - the system of legal and organizational norms, principles, structures, procedures (seizures), which are aimed at ensuring interaction between wage workers, employers, state bodies in the regulation of socially -labor relations at the national, sectoral, regional, production levels.

The purpose of social partnership is the achievement of social peace in society, ensuring the balance of socio-economic interests of workers and employers, promoting mutual understanding between them, preventing conflicts and resolving contradictions in order to create the necessary conditions for the progressive economic development, and raising the standard of living of the working people [43].

Guarantee the effective functioning of so¬tsialnoho partnership is a clear definition of the interests kozh¬noyi social forces of society (government, employers, trade unions as a defender and spokesman of nayma¬nyh workers), skilled roles and responsibilities for defining common social and realizatsiyu economic policy.

A normative document regulating the relations between the employer and

employees may be a collective agreement, the composition of which is regulated by the Law of Ukraine of July 1, 1993 "On Collective Contracts and Agreements" [41].

The agreement, in accordance with the current legislation, is concluded on a bilateral basis at the state, branch, and regional levels.

Collective agreement is concluded at enterprises, institutions, organizations (hereinafter - enterprises), irrespective of the forms of ownership and management, who use hired labor and have the right of a legal entity. Collective agreement may also be concluded in structural subdivisions of the enterprise within the competence of these divisions.

The absence of a collective agreement at the enterprise means that there is no basic normative act on it, which should regulate the social and labor relations between the employer and the employees.

In a collective agreement (collective agreement), the procedure for the formation and calculation of the amount of wages for each employee of the enterprise can and must be signed.

In enterprises of any type of property and size in different years, all forms and systems of remuneration were implemented, which, according to scientists, most corresponded to the nature of the tasks of workers of these enterprises and the socio-economic situation that has developed at one or another moment in the history of economic development relations in the post-Soviet space. Therefore, the main goal of the dissertation work is to examine the considered systems for their adaptability to the current principles of the functioning of the logistic sector of the Ukrainian economy.

1.3. Assessment of existing wage management systems for workers

The problem of labor motivation is one of the main issues facing modern Ukrainian entrepreneurship. More often than not, domestic managers consider the system of motivation as an instrument based on personal benefits to the employee. In most Ukrainian enterprises, the system of motivation is inseparable from the payroll

system. The general system of wage management of workers can be graphically presented [119], as in Fig. 1.5. On the axis of abscissa it postponed the variable amount of employee wages, along the axis of ordinates - the result of the enterprise, which can be revenue from sales of products, income or profitability of the enterprise as a whole.

The important components of the organization of remuneration in the enterprise are the forms and systems of wages that ensure the connection between pay and its results (individual and collective). Forms and systems of remuneration are established by enterprises and organizations themselves in a collective agreement with observance of the requirements and guarantees stipulated by the legislation, general and branch (regional) agreements.

Most commonly used are two basic forms of wages - part-time and hourly. Each of them corresponds to a certain extent with the quantity of labor: the first - the number of products produced, the second - the amount of time worked.

Forms of wages must meet the following requirements: to take into account the results of labor, to create the preconditions for the constant increase of efficiency and quality of work; to promote the material interest of employees in the constant identification and use of reserves to increase productivity and quality of products.

Wage forms will only be effective if they meet the organizational and technical conditions of production. So, choosing the form of remuneration for a certain category of workers, it is necessary to take into account the specific conditions of their work, the specifics of production, etc.

The main (general) conditions of the application of this or that form of wage are the level of technical equipment of production, the nature of the technological process and the organization of production and working conditions, the degree of use of production capacities and equipment, the state of labor valuation, etc. [11,13,16,121-124].

In addition to the general, there are several specific conditions for the use of part-time or hourly wage forms. Thus, for part-time labor it is necessary to have a

direct proportional relationship between the costs of living labor and the results obtained, that is, the worker must have a real opportunity to increase the volume of output, which must also meet the needs of production.

Today, in Ukraine, the prevailing form of remuneration of workers remains unitary. Hourly wages are used to pay employees and specialists.

Hourly and hourly wage forms are subdivided into several systems.

Systems of the unit form of remuneration are: direct detachment, unit-bonus, partly-progressive, indirect-detachment, accordion, collective (brigade) unit.

The basis of the construction of the system of remuneration should be specific indicators of work, which are accurate and fully reflect the work of this group of people or an individual. The remuneration system is based on one or two decisive indicators for a given group of people or an individual and should be simple and understandable to everyone.

As already noted, the essence of the unitary form of wages is that its size depends on the volume of work produced by the worker of the product (performed work) of the proper quality on the basis of pre-established rules of time (production) and prices taking into account the complexity and working conditions.

Correctly organized unit labor remuneration creates an interest in the workers in increasing the output of established quality, qualification improvement, and the application of advanced methods and methods of work.

Effective use of the part-time form of remuneration is possible under certain conditions: the availability of quantitative indicators of output, through which they establish norms and rates and determine the size of wages in accordance with the results of labor; opportunities and necessity of increase of individual or group productivity at this workplace; providing scientifically grounded standardization of labor and correct accounting of the work performed, strict control over the quality of products [115, 121-125].

The basis of part-time wages is the norm of output (time) and tariff rate.

Direct unit remuneration system. The individual direct payroll system directly depends on the results of each worker's work. The volume of work produced by the worker or his work is paid at individual rates.

Individual unit cost is determined in two ways: for those enterprises in which the nature of the production process is applied production standards - by dividing the hourly or daily rate rate, which corresponds to a certain level of work performed, hourly or daily production rate, and where the rules of time apply, - multiplying the hourly rate on the time rate.

Participation-bonus system of remuneration. Its essence lies in the fact that the worker, in addition to the wages of a direct subscriber system, is awarded a premium for the implementation and over-fulfillment of certain quantitative and qualitative indicators. The amount of the bonus is set as a percentage of the earnings determined by the unit costs [110-116].

Specific indicators and terms of bonus, as well as the amount of bonuses, are set by the head of the company with the consent of the trade union committee [31-20, 61].

Gradually-progressive system. Under this system of wages, the output of working within the scope of the task is paid according to strict norms (prices), and production beyond the task - at higher prices, and the prices increase progressively with the increase in the volume of products produced over the task. The baseline, that is, the limit of implementation of the norms of production, more than the payment for the work done is already at high prices, is the actual performance of the norms for the past three months. However, this starting base can not be lower than the current standards of production. The degree of increase in prices is determined by a special scale. Scales for raising prices may be one and two levels. In the case of a one-step scale in case of over-fulfillment of the initial base, the unit price may increase by 50%, that is, the increase factor is equal to 0.5, in the two-step scale in case of over-fulfillment of the initial base from 1 to 10%, the coefficient of increase is 0.5, over over 10% 1 [116].

Indirect piecework wage system. It is used to pay for auxiliary workers employed in the servicing of the main worker-contractors. At the same time, the salary of auxiliary workers depends on the results of the work of the detachment workers they serve. This system is interested in auxiliary workers in improving the servicing of machines, aggregates of automatic lines for their uninterrupted and rhythmic operation. Under this system, repairers, electricians, equipment installers, crane operators, etc. can be paid in the industry. [115,116].

Chord system of wages. It applies to individual groups of workers, the essence of which is that the unit price is not established for a separate production operation, but for the entire complex of works in general, based on the current rules of time and prices. In comparison with the direct paid subscription for the chord system, the amount of work and the period of their execution are predetermined, the size of the salary on the order is determined, depending on the task execution.

Hourly payroll systems are: direct hourly, hourly-bonus, collective (brigade) hourly.

In enterprises, except for a piece of payment, the hourly fee is used, that is, the payment for a certain length of work (hour, day, month). In the conditions of transition to the market at some enterprises there may be a tendency to replace part time payment. In this case, it is necessary to adhere to certain requirements for the creation of hourly payment, so that its application does not lead to a decrease in the efficiency of work, which is undesirable in conditions of competition in the labor market.

The use of hourly wages requires [10-20, 119-134]:

• accurate accounting and control over actual time worked;

• proper assignment of tariff digits to employees according to their qualifications and taking into account the qualification level of the performed work;

• development and correct application of reasonable standards of production (time), standardized tasks, norms of service and standards of size.

Note that in modern enterprises, the labor of workers with hourly pay should be standardized and evaluated on the basis of indicators that take into account the results of their work.

For a simple hourly system, the amount of salary is determined depending on the tariff rate of the worker and the amount of time worked out by him. By way of payroll hourly payment is hourly, daily, monthly.

A more efficient wage system is the hourly bonus, which pays the labor of both the main and auxiliary workers. Under this system, the salary of the worker is calculated not only for the time spent, but also for the achievement of certain quantitative and qualitative indicators. Quantitative indicators can be spent time, the implementation of planned and standardized tasks, and high-quality - delivery of products from the first presentation, increase the grade of production, saving raw materials, materials, fuel, tools, compliance with technological regimes, etc.

At many enterprises, hourly-premium system with standardized tasks is widely used. Workers working on an hourly form of payment are rewarded for fulfilling their normalized tasks [115,116].

In the case of applying this system, each worker has a specific variable or monthly task (in pieces, normal hours or hryvnias) and the results are taken into account when calculating premiums for this period. The introduction of this system is accompanied by an increase in the standardization of labor, the introduction of technically sound norms and norms of strength.

The efficiency of the logistics chain depends heavily on the potential of the personnel that provides it. Sufficiently motivated people more often use their natural abilities for the common cause facing them. Thus, the orientation of forms and systems of wages to the normalization of time and / or work needs to be improved. According to the author, the basis of the modern system of management of the size of wages, primarily in logistics, should be the potential of the person who performs the task, and not the task itself. Then the final amount of wages will reflect all possible work efficiency of the worker.

Chapter 2.
Development of the concept of improvement of wages of logistics

2.1. Removing a hypothesis about the factors that affect wage logistics

Returning to the concept of monthly salary, it should be noted that this part of the employee's income is unchanged, that is, provokes him to laziness, work in half past, separating him from any activity that is not part of his immediate duties, which can adversely affect on project results, especially urgent. At the same time, its value for the average individual is enormous, because it determines stability, confidence in the future. In Ukraine, this is the main, if not the only source of income for the population, or rather the exact one, which is employed in small business.

From the above it follows that the starting point for the study should be to determine the motives that guide the applicant when choosing the right for themselves: the material factor, the prospect of growth, the situation in the team, the remoteness of the office from the house and other factors. Since the term Applicant is often found in this section of the dissertation study, I consider it necessary to give its definition.

Applicant - a person applying for a vacancy in an organization [38].

For the employees of the lower link the material factor, namely the size of the monthly salary, is the main factor when choosing a job. As already mentioned, this is a monetary expression of an employee's assessment of labor. These are the means by which an employee and his family, in the case of his family, will try to meet their needs. The material incentive of an employee is always the most costly for the employer, however, is the most important and determining factor when taking a person to work.

It should be noted that the amount of monthly salary is determined during the negotiations between the employee and the employer, or the head of the personnel department. Most often in the modern system of market relations in Ukraine, it is

determined by roughly personal relationships and assessments. At the same time, for employees of the design block, which certainly includes the profession of transport logistics official, the amount of wages should depend on the following parameters (factors):

— the correspondence of the received specialty to the elected office;

— the level of education received;

— experience in this direction;

— personal characteristics that may include communicability, honesty, loyalty, resistance to stress, conflict.

These parameters, if necessary, are not as difficult to determine with questionnaires and test systems. Then, substituting them in a certain formula (or mathematical model) and multiplying it by some constant, one can obtain the exact size of the initial salary of the employees of transport logistics. Such are the grounds for the formation of a wage model, at least its material component.

Based on the above factors, it was determined that the model of calculation of wages of employees of transport logistics to exist in the form of formula 2.1:

$$ZP = [W_1 K_{conf} E + W_2 (C + PFH)]\overline{ZP}, \qquad (2.1)$$

where K_{conf} – coefficient of correspondence of the received specialty to the elected post; E – the level of education received; C – work experience in this field; PFH – personal psycho-physiological characteristics of the worker; W_1, W_2, W_3 – weight factors of factors influence on the final amount of salary logistics; $\overline{ZP}$ – the value expressed in monetary units, adopted by the average wage in this particular industry.

Such a factor as the level of education received, adjusted for the coefficient of correspondence of the received specialty to the elected post is very important in the model of determination of wages. First, directly the level of education received in the modern world is fundamental at the initial stage of the career of any employee. A

special scale was developed for its determination, taking into account that the highest score, ie 1, is obtained by applicants with higher education. Other values of the parameter are evenly distributed over the interval of values from 0 to 1. The scale is presented in Table 2.1.

Table 2.1

Scale for estimating the "education level" parameter (E) in the payroll model

Educational level	The value of the coefficient *E*
middle	0,25
middle professional	0,5
unfinished higher	0,75
higher	1

At the beginning of the development of market relations in the post-Soviet space, namely in the mid-1990s, there was a widespread practice of urgent courses in certain areas necessary for the development of small business. Such courses are mainly offered in the direction of training accountants and users of personal computers. In general, the methods of teaching logistics are still at the initial stage of development in Ukraine and it is presented only in several domestic state universities. Thus, the level of education must be adjusted by the coefficient of correspondence of the received specialty of the chosen post (K_{conf}). The task of this factor is to determine to what extent the employee will be able to use the acquired knowledge and skills in daily work without difficult and cumbersome tests for professional knowledge. Previously, no one has allocated such a factor.

Consequently, there are four steps in the scale of the values of this coefficient. Lower - secondary education. The highest is the higher education in the specialty "logistics". It is advisable to take the area of definition of this coefficient from 0 to 1, which was done when developing a scale of definition K_{conf}. Intermediate values are obtained if the applicant indicates that some, economical or non-economic, higher education has been obtained. In order to determine them, a study was conducted that

determines the proportion of economic specialties in the total number of training areas in higher education institutions in the country. Calculating the average value from the set of all values of the specific gravity of economic specialties, one can determine the intermediate values of the coefficient.

The following section was taken. Of all the national state higher educational institutions, higher education institutions of the IV accreditation level were selected without a certain specialization. According to the data of the admission commissions of higher educational institutions for 2007, Table 2.2 was compiled [135-148]. As a result, the required value of the coefficient that he receives is obtained if the applicant received an economic specialty.

The coefficient is zero if the applicant receives secondary school education. In this case, the value of such a factor as the education received is reduced to 0. The value of the coefficient it receives in the event that the applicant received higher non-economic education, calculated as 1 - 0.83 = 0.17. In the resulting table 2.4 presents the calculated area of the values of the required coefficient of correspondence obtained specialty elected office.

Experience of work (*C*) - is no less important factor in determining wages than the level of education received. The maximum value was also taken as 1, and the values themselves are evenly distributed over the interval of values from 0 to 1. They are presented in Table 2.4.

The most labor-intensive for staffing is the definition of personality characteristics of the subject. These indicators determine the potential of the employee, his ability to adapt to the new team, ability to work, the ability to solve non-standard problems and some other personality indicators that affect the professional activities of the employee of transport logistics.

Table 2.2

Calculation of the average coefficient of compliance K_{conf}

Назва університету	Specialties		
	Total	Economic	K_{conf}
National Mining University of Ukraine	44	8	0,82
Dnipropetrovsk National University	61	10	0,84
Volyn National University named after. Lesia Ukrainka	44	7	0,84
Donetsk National University	38	12	0,68
Zaporizhzhya National University	37	6	0,84
Kamyanets-Podilsky National University	35	2	0,94
Lviv National University named after. Ivan Franko	79	15	0,81
Sumy State University	32	7	0,78
Khmelnytsky National University	33	8	0,76
Kherson State University	55	2	0,96
Cherkasy National University named after. Bohdan Khmelnytsky	36	8	0,78
Chernivtsi National University named after. Yuri Fedkovich	72	7	0,90
Kharkiv National University named after. V. N. Karazin	56	9	0,84
Kyiv National University named after. Taras Shevchenko	77	12	0,84
Average value of the coefficient			0,83

Table 2.3

Range of values of the coefficient of conformity K_{conf}

Condition	The value of the coefficient (K_{conf})
secondary education	0
higher (special) non-economic education	0,17
higher (special) economic education	0,83
Specialty logistics	1

Table 2.4

Scale of estimation of the parameter "work experience" (C) in the model of calculation of wages

Condition	Parameter value *C*
less than a year	0,25
from one to three years	0,5
from three to five	0,75
more than five	1

Thus, there are three groups of indicators that are responsible for:

1) psychological processes,

2) working capacity

3) personal characteristics.

The resulting indicator of personal characteristics is determined by multiplying the test results calculated according to special scales. The values that can be taken by the coefficient in the I and II group of personality characteristics are also evenly distributed over the interval from 0 to 1 in the manner shown in Table 2.5. A

table in which the scale for assessing psychophysiological characteristics in Group III is presented in Table 2.10.

Table 2.5

Scale for group I and II personal psychophysiological characteristics (PFH) in the payroll model

Condition	Parameter value *PFH*
Perfectly	1
Okay	0,75
Satisfactorily	0,5
Badly	0,25

If we make up the numerical expressions of the above factors, we get the meaning that in theory there can be no more than 3.

Thus, there is only one uncertain indicator in the model. This is some kind of value or indicator conventionally labeled in the model as $\overline{ZP}$. In the tariff system of wages the function of this value carries a salary. Occupational salary - the nominal monthly salary, established by the employee in accordance with his position. Official salaries for employees are established by the owner or an authorized body according to the position and qualifications of the employee. According to the results of attestation, the owner or authorized him body has the right to change the salaries of employees to the employees within the limits of the approved minimum and maximum salaries in the corresponding position [38].

This is some kind of average wage, that is, the amount that serves as the starting point for the calculation of wages and is the established average wage in the industry. In the model, it corrects, of course, the numerical expression of the above-mentioned factors of wages.

To calculate the wages of logistics workers, we will turn to the State Statistics Committee of Ukraine. During the year, the committee calculates the average wage

by type of activity. This information is used by the ministries when calculating the budget, that is, the minimum wage, subsistence level, etc. [118].

Let's separate from the table such an economic activity as additional transport services and auxiliary operations.

This value of the average wage was used in the wage calculation model, since in terms of its functional load, these operations correspond to those included in the duties of logistics in the modern economy of Ukraine.

Further research is to develop a psycho-physiological examination for applicants. Not yet allocated professionally significant psychophysiological parameters of the subject, methods of their quantitative calculation and peculiarities of their use in the proposed model. The next point of the dissertation will be devoted to the analysis of existing methods of selection, structuring and methods for measuring professionally important qualities for the successful work of logistics.

2.2. Research of the most influential psychophysiological factors on wages and logistics

In the conditions of decentralization of the system of determination of wages at small enterprises of Ukraine, the responsibility of the personnel services for the formation of a highly skilled team increases. At the same time, practice shows the urgent need to create a scientific foundation for wage management of the logistics system. First of all, this approach involves the inclusion of specialists-psychologists and sociologists in the personnel of enterprises with the further formation of the relevant services. This would make the human resources work a powerful means of enhancing the professional qualities of workers [47].

Private firms, non-state property organizations, agencies that specialize in staff selection, have long enjoyed the services of psychologists. However, there is

still no scientifically substantiated system that could meet the needs of the employer in determining wages in the field of transport logistics [46].

This problem has gained a certain weight today, as the time comes, due to the socio-psychological effects of reforms, the high psychological price of the transition period. The socio-psychological situation has become a kind of "social order" for attracting the attention of specialists-staffers [46-48].

Today, the need for professionals, the attraction of scientific knowledge to the solution of the tasks of progressive personality-professional development has increased significantly.

Given the growth in modern conditions of the intensity of professional activity and the high "price" of false actions, the result of which may be a decline in the quality of professional activity and the occurrence of accidents and even disasters, high speeds and high rates of work, shortage of time, the presence of high levels of neuro-emotional stress, arises the question of raising the requirements for psychophysiological qualities of a person.

In developed countries, the problem of "human factor" in the industry is solved by means of professional psycho-physiological selection, the final result of which is the conclusion of psycho-physiological examination. For example, in the US under the Ministry of Labor, 1200 state centers of vocational guidance and professional separation have been established; Each year more than 1 million young Americans pass through them. The long-standing experience of using the professional selection in the US proves its high efficiency [48].

The emergence of such a direction as psycho-physiological examination is not an arbitrary act of scientists, management or employers - this is due to the tasks of ensuring the safety of work in all its aspects, ensuring professional reliability, preserving health and working longevity of workers. Psychophysiological selection is an integral part of the integral complex of primary psychohygiene, psychoprophylaxis and the formation of psychology of safety in the performance of work of increased danger.

The willingness to engage immediately in activities, the ability to act in an organized and purposeful manner in difficult and dangerous conditions, in the absence of a clear algorithm of action, an increase in the level of material and moral responsibility, is inherent in not every person. World experience proves that in such "critical" professions can not work all people who have received appropriate qualifications and education. Reliability in an extreme situation is not determined by experience, knowledge of the employee or his passionate desire. For such professions there is no alternative to psychophysiological selection, its absence or neglect leads at least to a significant drop in the period of study or during the next activity.

Admission to the work of persons who, according to their psychophysiological features, can not satisfactorily perform it or perform it with a significant number of errors is economically unprofitable and dangerous for the society, and for citizens it may end with loss of health and disability. Admission to the work of such persons may lead not only to the inappropriate use of resources, but also to cause technogenic accidents or environmental disasters. From the point of view of ensuring a higher level of safety and economic feasibility, a psycho-physiological examination is carried out to identify unskilled persons. Such an approach is due to knowledge of the sufficient stability of psychophysiological qualities of a person, formed in the process of its development, and the limited ability of their directed development (changes) in real time, necessary for the mastery of the profession.

The problem of psychophysiological properties of an employee of a person is somewhat mentioned in the legislation of Ukraine. For example, measures of professional psycho-physiological selection and psycho-physiological examination are envisaged in Article 5 of the Law of Ukraine "On Occupational Safety", which states: "Upon performance of work of high danger and those requiring professional selection, individuals are allowed in the presence of a conclusion psycho-physiological examination" [49].

It is well-known that for managing people it is not enough to be a professional manager. The head of the management body needs to have comprehensive scientific knowledge about the psychological peculiarities of each person in the structure of management activity, as well as the psychological functions of managerial activity related to motivation of the personnel, his professional development, evaluation during certification and annual evaluations, planning and selection of personnel. To a large extent, this is the competence of psychologists, acmeologists who possess the necessary knowledge and are ready to professionally assist managers and human resources services personnel [47].

Using the achievements of psychology of human resources management involves taking into account individual psychological characteristics of people, socio-psychological patterns of their interaction in organization and the influence of these factors on employee satisfaction with work and the effectiveness of their activities. Unprofessionalism in the management of personnel, incompetence in matters and psychology not only hinders the work process, but also contributes to the growth of psychological discomfort, tension between personal and intergroup relations, increasing the number of conflicts. Likewise, it is unacceptable to ignore the psychophysical factors of personality when forming the system of motivation at today's enterprise.

Of particular importance in the management process, including the formation of a system of motivation, now acquire methods of optimization, based on the application of formal, often mathematical models, which provide time and money savings in solving many practical problems. The construction of models helps to bring complex and sometimes uncertain factors related to the problem of decision making into a logical schematic diagram, to determine what data are needed to evaluate and select alternatives.

It should be noted that the aspects of the economic-mathematical modeling of wages of logistics in today's market conditions in Ukraine are not given enough attention. That is, based on the definition of personnel motivation at the enterprise,

the scientists did not set the task, systematizing factors, create a model for calculating the salary of the design block, which includes the work of the manager of logistics.

In this section of the dissertation research methods of expert evaluation and economic-mathematical modeling will be substantiated factors of the formation of wages of logistics.

In the process of management, there is a natural desire to find a solution that is objectively the best of all possible. As an optimization tool, mathematical programming is now widely used. Advances in the application of mathematical programming to the decision of various types of economic, scientific, technical and military tasks have generated methodological views that a cardinal solution to management problems is possible only when all its aspects are reflected in a system of interdependent mathematical models [96].

The availability of information and the correct use of it largely determine the optimality of the chosen solution. In addition to data consisting of numerical statistical variables, the information includes other non-measurable quantities, for example, assumptions about possible solutions and their results. Practice shows that the main difficulties encountered in finding business decisions are primarily due to insufficiently high quality and incomplete information available.

In this regard, one of the main features of solving complex problems is that the application of calculations here is always interwoven with the use of judgments of managers, scientists, specialists. These judgments can at least partially compensate for the lack of information, make full use of individual and collective experience, take into account the assumptions of specialists about the future state of objects [98].

Experience shows that the use of unsystematized judgments by individual experts appears, in solving many complex scientific and technical problems, not sufficiently effective due to the diversity of interrelationships between the main elements of such problems and the inability to reach them all. When using traditional decision-making procedures, it is often not possible to consider a wide range of factors, taking into account the full range of alternative ways of solving problems.

All this forces us to recruit specialists from expert groups in various fields of knowledge. Application of group expertise allows not only to consider a lot of aspects and factors, but also to combine the different approaches by which the manager finds the best decision.

Methods of expert assessments are methods for organizing work with expert experts and processing expert opinions [97]. These thoughts are usually expressed in part in quantitative, partly in qualitative form.

Expert assessments are individual and collective. Individual assessments are evaluations of one specialist. For example, the teacher alone assesses the student, and the doctor - a diagnosis of the patient. But in complex cases of illness or with the threat of student deductions for ill-treatment, they turn to collective thought - a symposium of doctors or a commission of teachers [99].

To implement the expert evaluation procedure, a group of experts should be formed. The general requirement for the formation of a group of experts is an effective solution to the problem of expertise. The effectiveness of the solution of the problem is determined by the characteristics of the probability of examination and the cost of it.

The probability of expert evaluation can be determined only on the basis of a practical solution to the problem and the analysis of its results. The use of experts is due to the fact that there are no one or the other ways of obtaining information. Therefore, the assessment of the probability of examination can be carried out, as a rule, only on a posteriori (after a survey) data. If examination is carried out systematically with approximately the same expert groups, then there is the possibility of accumulation of statistical data on the probability of the work of the group of experts and obtaining a stable numerical assessment of probability. This estimate can be used as a priori data on the probability of a group of experts for subsequent examinations [98,99].

The probability of group expert evaluation depends on the total number of experts in the group, the composition of specialists in the group, on the characteristics of experts.

Determining the nature of the dependence of probability on these factors is another problem of the procedure for selecting experts. A complicated problem in the selection procedure is the formation of a system of expert characteristics that significantly affect the course and results of the examination. These characteristics should describe the specific properties of a specialist and possible relationships between people influencing the examination.

An important requirement for the characteristics of an expert is the dimensionality of these characteristics. Another problem is the organization of the selection procedure for experts, that is, the definition of a clear sequence of work performed in the process of selection of experts and the necessary resources for their implementation. [101]

The next stage of the selection of experts is the compilation of a preliminary list of experts. When compiling this list, an analysis of the qualities of experts is conducted. In addition to taking into account the qualities of experts, their location and opportunities for the participation of selected experts in the examination are determined. In evaluating the qualities, the opinion of people who know the candidates for experts is taken into account. After writing a list they are sent letters with an invitation to participate in the examination. The letters explain the examination, its terms, the procedure, the amount of work and terms of remuneration. The letters are accompanied by questionnaire data expert and self-assessment of competence. Having received expert answers, the final list of the expert group is determined.

After the drawing up and approval of the list, experts are sent reports on their inclusion in the expert group. If an expert evaluation is carried out using the questionnaire, then, together with the report on inclusion in the expert group, all experts are sent a questionnaire with the necessary instructions for their completion.

Notice to experts about their inclusion in the expert examination ends with the selection of experts. [101]

The essence of the method of expert evaluations is to conduct experts intuitive-logical analysis of the problem with the quantitative assessment of judgments and the formal processing of results. The resulting expert opinion is received as a result of processing as a solution to the problem. Complex use of intuition (unconscious thinking), logical thinking and quantitative estimates with their formal processing allows you to get an effective solution to the problem.

In performing their role in the management process, experts make two main functions: they form objects (alternative situations, goals, decisions, etc.) and measure their characteristics (probability of occurrence of events, coefficients of significance of goals, advantages of decisions, etc. .) The formation of objects is carried out by experts on the basis of logical thinking and intuition. In this case, the knowledge and experience of the expert play a big role. [101]

The characteristic features of the method of expert assessments as a scientific tool for solving complex non-standard problems are, firstly, scientifically substantiated organization of conducting all stages of examination, which ensures the greatest efficiency at each stage, and, secondly, the application of quantitative methods as in the organization of expertise, both in assessing judgments of experts and in formal group processing of results. These two features distinguish the method of expert assessments from the usual long-standing expertise, widely used in various spheres of human activity.

The whole set of such problems can be divided into two classes. Prior to the first class, there are problems for which there is sufficient information potential that allows them to successfully solve these problems. The main difficulties in solving the problems of the first class in expert evaluation are the implementation of existing information potential through the selection of experts, the construction of rational procedures for the survey and the application of optimal methods for processing its results. At the same time, the methods of questioning and processing are based on the

use of the principle of "good" meter. This principle means that the following hypotheses [100,101] are fulfilled:

1) An expert is a repository of a large amount of rationally processed information, and therefore it can be considered as a qualitative source of information;

2) group opinion of experts is close to the exact solution of the problem.

If these hypotheses are correct, for the construction of survey procedures and processing algorithms, we can use the results of the theory of measurements and mathematical statistics.

The second class includes problems in respect of which the information potential of knowledge is insufficient for the assurance of the validity of these hypotheses. When solving problems from this class of experts can no longer be considered as "good meters". Therefore, it is necessary to carry out very carefully the examination of the results of the examination. Applying the methods of averaging fair for "good meters" in this case can lead to bigger errors. For example, the opinion of one expert, which is very different from the opinions of other experts, may turn out to be correct. In this regard, for problems of the second class, mainly qualitative processing should be applied. [101]

Different types of expert judgment methods are used. The main types are: questionnaires and interviews; brain storm; discussion; conference; operational game; scenario.

Each of these types of expert evaluation has its advantages and disadvantages that determine the rational scope of application. In many cases the greatest effect is the complex application of several types of expertise. The questionnaire and the script assume the individual work of an expert. Interviews can be carried out both individually and with a group of experts. Other types of expertise assume the collective participation of experts in the work. Regardless of the individual or group participation of experts in the work it is advisable to receive information from many experts. This allows obtaining more reliable results on the basis of data processing as

well as new information on the dependence of phenomena, events, facts, judgments of experts, which is not explicitly contained in the statements of experts [99-101].

In the course of the selection of professionally significant psychophysiological characteristics of the individual, the study of which was conducted through questionnaires, the following question was asked: what exactly psychological parameters of a person should have a worker for successful work in the field of transport logistics? The answer can be obtained using one of the methods for assessing the psychophysical properties of individuals, namely, the questionnaire of O. Lipman [46].

The American psychologist proposed to use a questionnaire based on expert assessments, which consists of 151 person characteristics. Each of the characteristics is evaluated by an expert jury three times:

- necessity of its affiliation;
- How often is this personal characteristic used in everyday work;
- may the characteristic develop over time.

M.Yu. Shahnis offers an adaptive form of Lipman's questionnaire [46]. Here the number of personality qualities is reduced to 98. The experts twice evaluate each of them as follows:

1. Whether this quality is necessary in the work of the specialist-logistics;
2. How often this quality is applied.

Each of the possible options according to a special scale is assigned a corresponding score of 1 or 2. The results are summarized in a table, the form of which is presented in Annex B. By the results of the survey, making expert rating points, the priority psychophysiological indicators of the employee's personality are determined.

By selecting an adequate system of test methods for assessing the required qualities, using the results of a survey that can be both psycho-physiological characteristics and professional qualities of an employee, a staff member can get a clear adaptive algorithm for selecting candidates for certain positions.

Each professional activity brings to the specialist specific requirements, among which a separate block should be allocated requirements to the psychological qualities of a specialist. This formulation of the problem allows you to answer a lot of questions: to provide faster adaptation of the employee in the specialty, to reduce the risks of professional deformation, burnout of a specialist and other personal changes under the influence of professional activity, to solve the issue of the direction and options for further training in this specialty, etc. It also allows solving the issue of payment, including the development of mechanisms for the formation of wages, taking into account not only external factors, but also the psychological characteristics of a specialist, to identify and modernize the mechanism for solving issues of motivation of the employee, including material.

Some authors discussed these issues in their work. Among them one can mention M.Yu. Shahnis [46], who presented Lipman's "expert assessment" methodology. In addition, G. Shchekin [92], E.P. Ilyin [94], BLL Pokrovskii [93], each of whom proposed a separate system of tests to determine the psychological parameters of the individual. However, none of the scientists tried to include the results of these tests in calculating wages, offering a model for such calculations.

In this section of the dissertation will be determined the professionally important psychological qualities for the specialty of transport logistics and determination of ways to include these parameters in the structure of wage formation.

The work consisted of three stages. At the first stage, experts in the field of logistics were offered with the help of the methodology of expert evaluation of O. Lipman's activity to determine professionally significant psychological qualities for a worker of this specialty [46]. The experts were selected on the basis of the following indicators:

- the position is not lower than the head of the unit;
- direct work in the field of transport logistics;
- the overall success of a company or unit.

Experts evaluated the qualities according to the proposed methodology and did not apply any time limits. However, given that they performed tasks from the point of view of the head who knows the specifics of work in this field, having passed through this on their own, in some cases an expert evaluation was spent up to a week. On the results of this survey one could say that those qualities that were allocated by experts are inherent in all professions of the design block, that is, most professions, which are oriented to study at the economic faculties of Ukrainian universities. The form of the survey is presented in Annex B.

At the second stage, the processing of the results of expert evaluation was carried out. There were selected qualities that scored the highest number of points out of 28 possible points. The above were seven experts who evaluated twice each quality. Thus, the maximum number of points for each quality ¬- 28.

In the third stage, after processing the results of the expert evaluation, an analysis and selection of psychodiagnostic techniques was carried out, which, having reliable reliability and validity, are also the least costly in terms of the time required for their conduct and processing, and in the training of specialists of the personnel departments - for their analysis, could be used as indicators of wage formation.

In the first stage, according to the results of the study and with the help of the methodology of expert evaluation of O. Lipman's activities, the following trends were highlighted. In the group of professionally necessary psychological qualities of a specialist for work in the field of transport logistics were highlighted the following qualities:

- high working capacity
- discipline
- efficiency,
- the ability to quickly memorize;
- wisdom
- wit,
- industriousness

— Initiative
— diligence
— responsibility,
— attentiveness
— organization.

Further, three groups of professionally necessary qualities were separated: 1) the qualities that make demands for a high level of development of mental processes - the ability to quickly memorize, wisdom, wit, and attentiveness; 2) qualities that directly influence the work of a specialist - discipline, diligence, diligence, and efficiency; 3) qualities that impose requirements on the personality traits of a specialist: initiative, efficiency, responsibility, organization. So, already at this stage, we can talk about the need for employees of this specialty to conduct two types of psychological training and retraining: the development of professionally significant psychological functions and training sessions of personal growth of a specialist.

Results of the second stage of the study can be presented in Table. 2.7. To determine the specific gravity of each group of selected psychophysiological factors in the total number of selected psychophysiological indicators, the total amount of points for each group was determined. Next we find its relation to the sum of the points of all the psycho-physiological factors that were selected. To the resulting sample, Kendell's correlation coefficient was used, which compares the ranks for all pairs of units of the population that are pre-subordinated to the value of the sign x (1.3). Its value is 89.7%, which suggests that the research data can be used in the formation of the model.

Table 2.7. the following notations are adopted: I - mental processes, II - hard working, III - personal characteristics. On the basis of the table it can be concluded that the groups of indicators have the same share in the overall assessment, which clearly says that there is no need to introduce into the payroll system a coefficient of importance when quantifying the psycho-physiological characteristics of the person at this stage of the study.

It should also be noted that the qualities that received the smallest number of points in the expert assessment (riskiness, vulnerability, etc.) are directly opposite to the highlighted qualities, indicating the accuracy and reliability of the choice.

Table 2.7

Grouping and ranking of groups of psychophysiological indicators

Group	Quality		Bali	Specific weight*
I	Ability to quickly memorize	23	91	0,34
	Comprehension	21		
	Savvy	24		
	Attentiveness	23		
II	High performance	22	88	0,33
	Discipline	22		
	Industry	22		
	Care	22		
III	Efficiency	23	89	0,33
	Initiative	17		
	Responsibility	25		
	Organisativity	24		
	Total	268		

* The indicator is obtained by the ratio of the total amount of points for each group (third column) to the total amount of points in the chosen qualities.

In the third stage, methods were analyzed that allow inclusion of the obtained results into the structure of the mathematical calculations of the salary of a specialist.

Among all the methods used in professional counseling, three tests were selected for each of the selected groups of indicators: "Tepping Test" E.P. Ilyin [92], B.L. Pokrovsky's "Determination of the Laws" Test [93] and a test for the characterization of Leonhard's accentuation [93, 95]. Consider each of these techniques in more detail.

To evaluate the first group of characteristics, the methodology of B.L. Pokrovsky's "Definition of regularities" was used, which serves to assess the qualities of thinking - the ability to analyze and compare, the ability to make logical constructions, the ease of occurrence of associative ties, the establishment of identity and difference, the switching speed from one method of mental action to another, and also to characterize the stability of attention and memory [95].

The form has 25 lines of 5 words in each.

The icons are on the left before each line: +? *, Etc. These symbols denote or encrypt one or more words from those in this line. The task of the subject is to find and emphasize these words. To do this, he must catch the regularity of the location of the signs. So, if all the icons are different, it turns out, and the word to be found consists of different, non-repetitive letters. For example, [+ *: =] bullet nanny tare uncle (correct answer - bullet). If at the beginning of the line there is a set of signs of this kind: [* + *?], Then it is obvious that this set of characters will correspond to words in which the second and fourth letters are identical. Words can consist of 4, 5, 6, 7 and 8 letters, that is, the task as complicated as the letter increases, but the principle of designating and decoding the words is the same. Sometimes icons can mean words in which there are two pairs of identical letters. For example, [*: AND: O] - article, forty, thought, rocking.

According to the experiment, the coefficient of success (A) is calculated:

$$A = \frac{D - \text{omissions}}{D + \text{errors}}, \qquad (2.2)$$

where A - coefficient of success; D - the number of words that needed to be emphasized in the amount of material that had been reviewed by the subject for 8 minutes; *omissions* - the number of underscored words that needed to be emphasized in this volume of material; *errors* - the number of incorrectly emphasized words; *Wr* - the total number of all the words viewed.

The success of the task, estimated at coefficient A: more than 100 - excellent; 85- 100 - good, 70- 84 satisfactorily, less than 69 - bad.

The survey highlights the words that he believes correspond to the characters in the first column. On the right, you can see the markings of the testing specialist. If the interviewer mistakes only in 10 points of the survey, as evidenced by a mark near the false answer. Calculate the success rate (A) of the respondent according to the results of the survey using formula 2.2.

$$A = \frac{20 - 0}{20 + 1} \cdot 125 = 119$$

According to the developed scale presented in Table 2.5, the survey gets "excellent" score and 1 point in the first group of psychophysiological characteristics.

To evaluate the second group of characteristics, the EP method should be used. Ilyin, which reveals the interindividual variation of the mental pace, the strength and stability of the nervous system, the level and dynamics of performance, psychophysiological bases and the level of attention development [94].

The probe is offered to put the dot in a pencil in the form with the right hand. By the signal of the experimenter, he must go to the placement of points from one square to another.

The purpose of processing the results - to determine the character of the workability of the subject during the task of the tapping test. To do this, you first need to calculate the number of points placed by the subjects every 5 seconds in the squares of the first and second forms, and put the results into a protocol that is presented in the form of table 2.8.

Then work schedules are built. For this purpose, on the abscissa axis, it is necessary to postpone the five-second intervals of time, and on the ordinate the number of points in each square.

The strength of the nervous system is diagnosed on the basis of the analysis of the graph of ability to work in the shape of the curve according to the following criteria. Types of dynamics of maximum pace of motion can be illustrated by graphs, for example, as in Fig. 2.1 [94].

Table 2.8

Protocol of the results of Ion's tepping test

Square number	Time interval	Number of stacked points
1-й	0-5	
2-й	6-10	
3-й	11-15	
4-й	16-20	
5-й	21-25	
6-й	26-30	

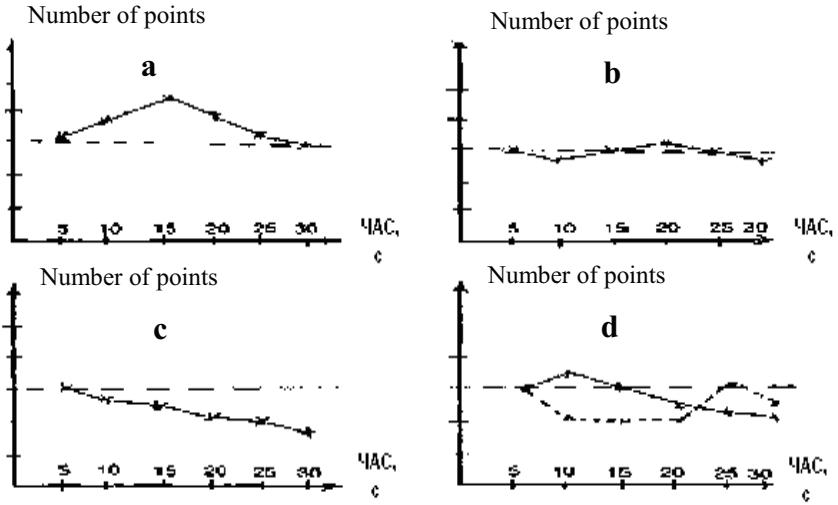

Fig. 2.1 Charts: a - convex type; b - equal type; c - descending type; d - intermediate and concave types. Horizontal line - a line marking the initial rate of work in the first 5 seconds.

Consider the value of the graphs in more detail.

1. Scope of performance as convex: the pace of performance of the subject increases in the first 10 to 15 seconds of work, and in the future to 25- 30 seconds, it can fall below the original level. The type of nervous system of the subject is strong.

2. Schedule of performance on a type of equal, the maximum rate is kept by the subjects at approximately the same level throughout the working time. Type of nervous system in the tested average strength.

3. Schedule of performance by type descending: the maximum pace decreases already from the second 5-second time segment and remains at a reduced level during all other work. This testifies to the weakness of the type of the nervous system of the subject.

4. Schedule of performance by type of intermediate; the pace of work decreases in this case after the first 10-14 seconds. The type of the nervous system in this case is medium-weak.

5. Schedule of performance by type inclining: the initial reduction of the maximum pace is then changed by a short-term growth of the pace to the original level. Due to the ability to short-term mobilization, such subjects also belong to a group of people with moderate to weak type of nervous system.

For the results of this psychological test it is necessary to develop a scale of assessment. Given that the specificity of the work of the specialties of the design block requires a strong type of nervous system, the scale can be represented as follows: strong type - excellent, type of average strength - good, medium - weak type - satisfactory, weak type - bad.

In fig. 2.2 shows how the subject filled in the form in accordance with the instructions above. You can clearly see the points that the applicant put in each square and the fact that they are calculated. In the same drawing, as a test specialist, a plot of an intermediate type, which characterizes the nervous system of the subject as moderately weak, is constructed. According to the developed scale presented in Table 2.5, the survey gets "satisfactory" and a score of 0.5. In addition, according to the results of this test about the subject, we can say that the peak of his ability to work at the beginning of the day, then there is a recession, and again a surge of activity at the end of the working day.

To assess the third group of characteristics, a test to identify the emphasis on the character of Leonhard, which is intended to diagnose the type of personality accentuation, that is, the most expressive and meaningful in the structure of the character of qualities [93,95].

According to K. Leonard's theory of "accentuated personalities" [95] inherent features of a person can be divided into basic and additional. The core is the core of the person. In the case of their vivid expressiveness, the features become accentuations of nature, as if the exacerbation of some peculiar individual features of each individual.

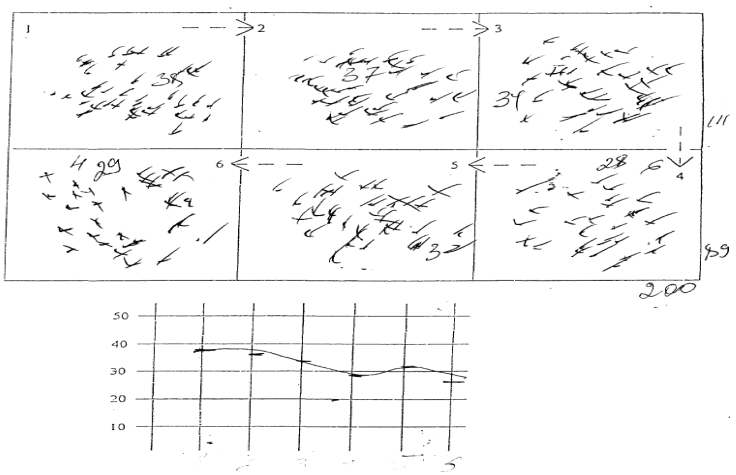

Fig. 2.2. An example of passing a tepping test E.P. Ilyin

This test is intended to detect character accentuations, that is, a certain direction of character. The questionnaire contains 88 questions and 10 scales that correspond to certain character accentuations. The first scale describes a person with high vital activity, the second scale shows excitatory accentuation. The third scale speaks of the depth of the emotional life of the subject. The fourth scale shows a tendency to pedantry. The fifth scale shows increased anxiety, the sixth - a tendency

to mood swings, the seventh scale speaks of demonstrating the behavior of the subject, the eighth - about the imbalance of treatment. The ninth scale shows the degree of fatigue, the tenth - the strength and expressiveness of emotional response. A survey is given before the interview. The response time is not limited.

In tabl. 2.8-2.11 provides snippets of logistics assessment tables. The full questionnaire consisted of 88 questions.

Table 2.8

Determination of weight coefficients of factors of wage formation

Experts / Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14
education	40	10	40	40	30	30	40	40	10	10	10	25	25	25
experience	20	60	20	30	30	25	20	20	50	20	20	50	50	50
psychophysiological properties	40	30	40	30	40	45	40	40	40	70	70	25	25	25

Table 2.9

Determination of the degrees of professional growth in logistics

Experts	1	2	3	4	5	6	7	8	9	10	11	12	13	14
% за 0 рік	20	5	20	10	10	20	20	15	5	20	20	5	10	10
% за 1 рік	20	50	20	40	40	50	40	50	70	50	50	60	50	50
% за 2 роки	60	40	20	40	40	50	40	50	70	50	50	60	50	50
% за 3 роки	60	40	50	40	40	50	40	50	70	50	50	60	50	50
% за 4 роки	85	70	50	80	70	80	40	70	90	90	90	80	70	70

Table 2.10

Determination of the degrees of professional growth in logistics

Experts	1	2	3	4	5	6	7	8	9	10	11	12	13	14
год	0	0	0	0	0	0	0	0	0	0	0	0	0	0

%	20	5	20	10	10	20	20	15	5	20	20	5	10	10
год	2	2	3	1	1	1	1	1	1	1	1	1	1	1
%	60	40	50	40	40	50	40	50	70	50	50	60	50	50
год	4	4	5	4	4	3	3	3	3	3	3	3	3	3

Table 2.11

Definition of a set of qualities necessary for successful work in the field of transport logistics

Experts	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Ability to quickly memorize	4	3	3	4	3	3	3	2	3	3	3	4	4	3
Comprehension	4	4	3	1	2	4	3	2	2	2	2	3	3	4
Savvy	3	4	3	4	2	4	4	3	3	4	3	3	3	4
Attentiveness	4	4	4	2	2	3	4	3	3	4	3	4	2	4
High performance	3	3	4	3	4	2	3	3	3	4	4	4	4	4
Discipline	4	3	3	4	2	2	4	4	4	4	4	4	2	2
Industry	4	3	4	4	1	3	3	3	3	3	2	3	4	4
Care	3	3	3	2	3	4	4	3	3	4	3	3	3	3
Efficiency	4	3	3	3	2	4	4	3	4	3	4	4	3	4
Initiative	1	1	3	4	2	3	3	3	3	2	2	2	2	4
Responsibility	4	3	4	2	4	4	4	3	2	2	2	4	4	4
Organisativity	4	3	4	4	2	3	4	4	3	2	4	4	4	3

From the point of view of the analysis of the results, the test for identifying the emphasis on the character of Leonhard is the most complex, since it is a specific and versatile character of the personality of the subject. The object of this study were personal qualities from the third group, namely: efficiency, initiative, responsibility, organization. Proceeding from the definition of accentuations of personality, we can assert that for the above qualities correspond to two accentuations of character, ie: efficiency, initiative refer to the first (hypertension), and responsibility and organization - to the second (pedantry). The scale of assessment was designed taking into account the fact that the extreme, that is, unexperienced or strongly pronounced test results, receive a lower estimate than the results that hit the middle of the range of

admissible values. I repeat that the maximum possible result on accentuation is 24. Let's represent the scale in the table. 2.12.

Table 2.12

Scale of assessment of psychophysiological parameters of group III

Scope of results values	Condition	Points
0...6	Badly	0,25
6...12	Satisfactorily	1
12...18	Okay	0,75
18...24	Perfectly	0,5

After that, the results on the allocated character accentuations were averaged. The average arithmetic was calculated, which is the final result for group III.

An example of filling out a response form is the characterological questionnaire for Leonard presented in Figure 2.4. In addition, in the figure, the specialist hand marks on each of the accentuations of the character of the subject.

The figure shows that the character accentuates scored the following points:

- a person with a high life activity - 21,
- excitatory accentuation - 9,
- depth of emotional life - 9,
- Propensity for pedantry - 12,
- increased anxiety - 15,
- propensity to mood swings - 18,
- demonstrative behavior - 16,
- unbalanced behavior - 16,
- Degree of fatigue - 12,
- strength and expressiveness of emotional response - 18.

Thus, the resulting index for group III psychophysiological characteristics for the subject is 10. According to the developed scale (Table 2.13), the test is awarded "excellent" and the number of points is 1. The total indicator of the subject is 2.5.

Application of all together methods require a test time spent no more than half an hour. They meet the specified requirements and have been tested in the decision of the task. Their value is, moreover, that they are suitable for a very wide range of professions and can be applied both to the wage calculation model and to the selection of personnel.

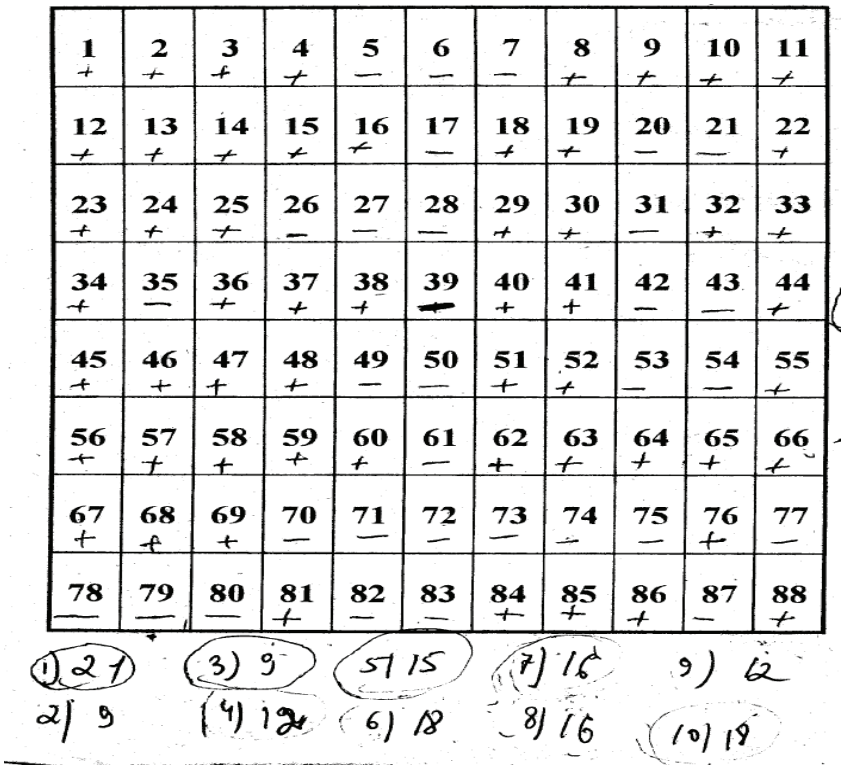

Fig. 2.3. The response form in accordance with the characterological questionnaire of Leonhard was obtained during the testing

2.3. Investigation of payroll logistics with factors: psychophysiological characteristics of personality, seniority, level of education

Each of these types of expert evaluation has its advantages and disadvantages that determine the rational scope of application. In many cases the greatest effect is the complex application of several types of expertise. The questionnaire and the script assume the individual work of an expert. Interviews can be carried out both individually and with a group of experts. Other types of expertise assume the collective participation of experts in the work. Regardless of the individual or group participation of experts in the work it is advisable to receive information from many experts. This allows obtaining more reliable results on the basis of data processing as well as new information on the dependence of phenomena, events, facts, judgments of experts, which is not explicitly contained in the statements of experts [99-101].

It is a complex method of expert assessments used in the formation of the model of wages of logistics. With the help of research, selected and evaluated qualities that affect the professional activities of logistics, and factors affecting the deduction of wages in the field of the design block [103]. In the course of the study the goal was to prove the possibility of using the obtained results in mathematical modeling. To do this, the results must be ranked and checked for consensus among experts, that is, calculate the Kendall concordance coefficient [100].

Thus, an algorithm was developed that is a system of expert assessments, which allows to determine:

- the influence of three factors (education, seniority, psychophysiological characteristics) of wage deduction;
- the degree of professional growth of logistics;
- a set of qualities necessary for successful work in the field of transport logistics.

The level of consensus among expert opinions was determined using the Kendall concordance factor (W), which was calculated by formula 1.3.

Examples of questionnaires are given in the following in Table 2.13-2.15.

The expert had to determine the probability that the hired worker would perform the most difficult logistic task, if the impact of the investigated factor would be 100%, and the influence of other factors would be reduced to 0.

The factors are represented in the first column of the table. In the second - you need to put your expert assessment of probability in percentage, provided that if all factors are developed at the employee for all 100%, he and 100% will fulfill the logistics task. For example, education - 40%, experience - 20%, personal characteristics - 40%.

Table 2.13

Questionnaire for determining the weighting factors for the formation of wages

Name of the factor	Probability of execution, %
Education	
Experience	
Personality characteristics	
Total	100%

Table 2.14

Determination of the degrees of professional growth in logistics

Degrees of professional growth	Less than 1 year	2	3	4	5	6	7	8	9	10 or more
Probability of the task										

In tabl. 2.14 The expert was required to make an expert assessment regarding the professional growth of logistics. The first line represents the time scale of 10

years. Vertical lines need to be differentiated on the time scale of the degree of professional growth. For example, the first stage - up to one year of service, the second - from one to three years, the third - from 3 to 5, the fourth - more than 5 years of seniority. Under these periods, it is necessary to put probability of an employee performing the most difficult logistical task, proceeding from his professional level. For example, the first stage - 15%, the second - 50%, the third - 70%, the fourth - 95%.

A complete calculation of the consistency of expert opinions was carried out using the Microsoft Excel software using the RANG Excel spreadsheet function to calculate the ranks of expert responses and is presented in Appendix A.

Separately, it is necessary to highlight the results of the expert survey according to Table 2.15.

Table 2.15

The value of Kendall's concordance factor

Expert evaluation	The value of the coefficient
influence of three factors of deduction of wages	9,31 %
the degree of professional growth of logistics	79,26%
psychophysiological characteristics	94,54%

They were summarized in the table. 2.13, which had to be modified in such a way that the timeline was laid down in the table, and the corresponding values of expert opinions on this scale are in columns. Thus, by normalizing the table, it was possible to use the function of RANG Excel spreadsheets to calculate the Kendall concordance coefficient. In carrying out such a task, the study encountered difficulties, which were that the degrees of professional development of logistics were indicated by experts in different ways. The problem was solved by developing a

universal scale that would summarize in a certain way all the results of the survey. At the same time, the entire distance of the time limited by one degree of logistics development, the expert opinion (the result of the survey) is repeated. The resulting area of values of the coefficient of seniority in the position of logistics (C) is given in the third section of Table. 3.2.

This time, an expert evaluation was carried out by 28 experts, regardless of their position in the company, wages or the success of the company itself. The only criterion for selecting this expert group was a certain experience of working with documents, that is, within the framework of the so-called design block, which is often mentioned in this paper, and which distinguishes M.Yu. Shahnis The results of the calculations of the Kendall concordance coefficient are summarized in Table. 2.15.

Analysis of the results shows that the use of the Kendall coefficient in the processing of data from sociological studies yields results. According to these results, it can be argued that it is expedient to use the data of the survey according to the parameters of "logistics work experience" (C) and "psychophysiological characteristics of the person" (PFH). Thus, the payroll model presented by formula 2.1 is not adequate to the task.

Chapter 3.
Development and introduction of a methodology for calculating wages of logistics in a market economy

3.1. Construction of the economic-mathematical model

In a modern system of economic relations, such a system of assessment can find its worthy use. Already nowadays are used the systems of calculation of wages, focused not on the ultimate economic efficiency of the enterprise, but on the individual and his potential.

Section 2 explored the set of factors of wages that directly affect its size. The relationship between these factors was proposed due to weight factors that would be determined by expert judgment.

An algorithm was developed that is a system of expert assessments that allows us to determine:

- the influence of three factors (education, seniority, psychophysiological characteristics) of salary deduction
- the degree of professional growth of logistics;
- a set of qualities necessary for successful work in the field of transport logistics.

The level of consistency of expert opinions was determined using the Kendall concordance factor. A complete calculation of the consistency of expert opinions was conducted using the Microsoft Excel software using the RANG function to calculate the ranks of expert responses.

The results of calculations of the Kendall concordance coefficient are summarized and shown in Table 2.15.

Thus, the study makes it impossible to use formula (2.1), in which it was planned to substitute average weighting factors for expert estimates.

Using data from previous studies, and systematizing them, one can conclude that all of the psychophysiological characteristics of the employee, based on the scale of their deduction, formed 64 groups of employees. An expert assessment was provided by experts on the size of wages for each of these groups and depending on the length of work and education.

This expert evaluation took the form of a script. Only five experts from the list indicated in paragraph 2.2 of this paper agreed to take part in such a survey, two motivate their refusal to be commercial secret and labor-intensive task. Consequently, it was proposed to pay wages to the worker, depending on each value of the indicators of the level of education, seniority and psycho-physiological examination. The complete data table contains 768 salaries, which occupy 55 pages of Excel spreadsheets. Table 3.1 presents a form of a spreadsheet with some indicators for an example. Part of the protocols of these studies, with the stamp and signature of the directors of the firms on which it was conducted, are given in Appendix D.

The grading of the "education" and "experience" parameters after some transformations should be added to the resulting table for correlation-regression analysis. The assessment of the "education" parameter does not require any changes, and can take place in Table 2.1, as shown in Section 2.

The study of the influence of the factor "experience" on the implementation of the most complex logistical problem was carried out in the form presented in Table 2.15 and fully described in Section 2. Table 3.2 presents the result of this study. The average values of experts on this parameter can be considered as the final coefficients, which numerically show the effect on the amount of wages. These values were used to fit into the final table, namely the data for the second year (48,21429%), for the fifth year (73,39286%) and for the eighth year (96,78571%). The results are presented in Table. 3.2.

Table 3.1

Excerpt from the matrix formed by expert estimates of wages of logistics

Work experience	Level of education received	Expert examinaton					Average value, USD
		Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	
1 year	middle	1185	830	1015	1085	1535	1130
1 year	higher	1425	975	1250	1325	1675	1330
4 year	special	1610	1110	1330	1450	1750	1430
4 year	unfinished above	1720	1380	1620	1630	2050	1680
7 year	middle	1420	1050	1200	1280	1700	1330
7 year	special	1500	1100	1350	1400	1800	1430

Table 3.2

Value of the coefficient "experience" (C)

Year	The value of the coefficient C
By the year	0,14
The second year	0,48
The third year	0,49
Fourth year	0,50
Fifth year	0,73
Sixth year	0,94
The seventh year	0,96
By the tenth year	0,97

Since the study makes it impossible to use formula 2.1 given the low Kendall coefficient (Table 2.15), which was supposed to substitute average weighting factors for expert estimates, it is necessary to sum up the data in the general table and to calculate the complex characteristics of these values for the purpose of data regression analysis.

Under complex characteristics (effects) it is necessary to understand all sorts of combinations with three basic parameters: "level of education", "experience", "psycho-physiological characteristics". After that, you need to apply correlation analysis methods in Microsoft Excel. It is presented in the table. 3.3.

Pay particular attention to the calculation of the data of the final table by the parameter "psycho-physiological characteristics" (in Table 3. 3 - PFH). The system of tests that it calculates was presented in clause 2.2 of the second section of the work. All values for each of the three identified groups of psychophysiological characteristics are allocated to the interval [0; 1]. Thus, the final (resultant) indicator of psychophysiological characteristics of the individual is obtained by multiplying the test results for each of the selected groups of the indicator.

Correlation analysis of data (Table 3.3) shows that some of these complex characteristics or effects have a very high correlation level. Therefore, they can and should be used for regression analysis.

The next step of the economics and mathematical modeling was to calculate the regression dependence between these complex characteristics using the data analysis package of Microsoft Excel spreadsheets, obtaining coefficients and, thus, writing a dependence in the form of a formula $Y = f(x_1, x_2, x_3...)$.

The smaller the distribution of the residue values near the regression line with respect to the general distribution of values, then, perhaps, a better forecast. For example, if the relationship between the variables X and Y is absent, then the ratio of the residual variability of the variable Y to the initial dispersion is equal to 1.0. If X and Y are tightly bound, then there is no residual variability, and the dispersion ratio will be 0.0. In most cases, the ratio will lie somewhere between these extreme values, that is between 0.0 and 1.0. 1.0 minus this ratio is called the R-square or the determination coefficient. This value is directly interpreted as follows. If there is an R-square equal to 0.4, then the variability of the values of the variable Y along the regression line is 1- 0.4 from the initial dispersion; in other words, 40% of the initial variability can be explained, and 60% of the residual variability remain unexplained.

Ideally, it is desirable to have an explanation if not for all, at least for most of the initial variability. The value of the R-square is an indicator of the degree of fit of the model to the input, ie expert evaluation.

Consequently, for conducting a regression analysis, which will determine the coefficients of a nonlinear model, it is necessary to create nonlinear effects from the most significant indicators of the species

$$x_1, x_2, x_2x_3, x_1x_3, x_2x_3, x_1^{x_2} + x_2x_3,$$
$$x_1^{x_2} + x_3, x_1x_2, x_1x_2x_3, x_1^{x_2}, x_1^{x_{22}}, x_3, \sqrt{x_1}, \sqrt{x_2}, \sqrt{x_3}, \quad (3.1)$$

where x_1 – practical experience; x_2 – coefficient of education received; x_3 – coefficient of psychophysiological characteristics.

Next, a correlation analysis was performed to identify the most significant transformations of financial indicators (effects). Were chosen those with a correlation coefficient greater than 0.7:

$$x_1, x_2, x_1^{x_2} + x_2x_3, x_1^{x_2} + x_3,$$
$$x_1x_2, x_1x_2x_3, x_1^{x_2} \quad , \quad (3.2)$$

where x_1 – practical experience; x_2 – coefficient of education received; x_3 – coefficient of psychophysiological characteristics.

A regression analysis was used to obtain the model coefficients [83]. Since this analysis requires that all variables conform to the normal law, the normalization of all component models [90] was carried out.

Conducting a regression analysis gave results that were reflected in the creation of the desired model of calculating the average wage with the value of R-square, equal to 0.92:

$$\overline{ZP} = 16532C^E - 3811C + 12280E + 1186PFH - 8808CE\text{-}12498\,, \quad (3.3)$$

where C – practical experience; E – coefficient of education received; PFH – coefficient of psychophysiological characteristics; $\overline{ZP}$ – average salary/

To test the significance of the R-square indicator, the Student's criterion, described in the first section, was applied. The task that was solved with its application was to compare the data from the sample (Table 3.1) with the estimated data of the generated model. The result showed that with the probability of 95.28%, the two data arrays have the same mean. So, the model is suitable for use.

In order to illustrate the impact of individual factors on the final level of the fixed unchanged part of wages, the graphs showing its dependence on each of them are presented, provided that the other two remain unchanged.

So, in Fig. 3.1 shows the dependence of wages, calculated using the formula 3.3, from the results of psycho-physiological examination. In this case, the values of the parameters C and E remain constant. The graph is built using Microsoft Excel spreadsheets.

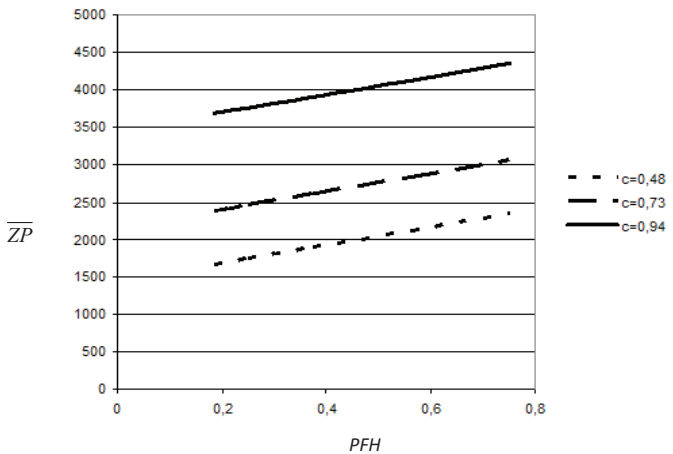

Fig. 3.1. Influence of results of psychophysiological examination on the level of wages of logistics

In fig. 3.2 shows the same dependence of the unchanged part of the salary of logistics, also calculated by formula 3.3, from the parameter C, which means Experience. Parameters PFH and E remain unchanged.

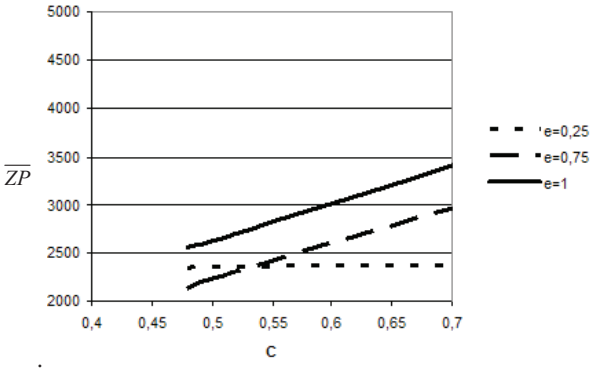

Fig. 3.2. Influence factor "experience" on the level of salary logistics

Fig. 3.3 reflects the dependence of the unchanged part of wage logistics on the factor of education, which is also present in the study, which resulted in formula 3.3.

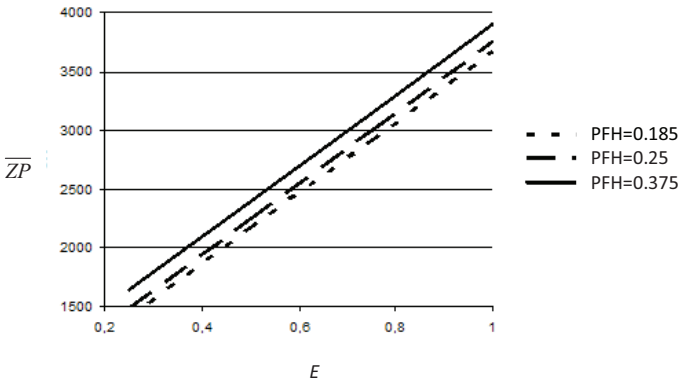

Fig. 3.3. Influence of the factor "education" on the level of wages of logistics

Based on the type of charts, it was concluded that each of the factors directly affects the final level of wages. Consequently, the calculated model adequately describes the process of deducting logistics wages, in which the worker, whose higher rates get higher wages.

The following is a regression model for standard deviation of wage values.

$$\delta = 49 + 93C + 185E + 8PFH + EPFH - CE(185 + 12PFH) + 139C^2 \text{ , (3.4)}$$

For this model, the value of the *R*-square is 0.99. The value δ was introduced into the model for the analysis of the deviation from the final amount of wages, depending on the level of trust probability collected by staffing data.

The adequacy of the model for determining the average wage at the final stage of its calculation has to be investigated using the Pearson matching criterion, or the so-called hi-square, which was mentioned in the review of mathematical methods for processing statistical information in the first section [88-92]. The use of this criterion is to compare the tabular and the calculated chi-square. The first is calculated by the formula 1.1, the second is calculated by means of Microsoft Excel spreadsheets using the function XI2OBR (confidence probability; number of degrees of freedom). The adequacy of the model was confirmed by the fact that the table value obtained with the XIOBB function in Microsoft Excel was much less than the estimated value of the Pearson criterion.

Calculated regression models allow conducting research in the direction of developing a methodology (algorithm) for calculating wages for logistics.

Table 3.3

A fragment of the correlation analysis of data using Microsoft Excel

	C^E+*EPFX*	C^E+*PFX*	C^E	*CEPFH*	C^E	*Medium*
C^E+*EPFX*	1					
C^E+*PFX*	0,99999	1				
C^E	0,883838	0,883657	1			
CEPFH	0,445191	0,446457	0,499151	1		
C^E	0,999987	0,999975	0,883679	0,44109	1	
Medium	0,835767	0,836900	0,788540	0,61213	0,8349	1
Standard	0,223872	0,224331	0,506687	0,25291	0,224	0,465

3.2. Development of methodology for calculating wages and salaries of logistics

Considering existing mechanisms for the formation of wages of small and medium sized logistics, we can conclude that there is a lack of a methodologically grounded mechanism for calculating wages of employees of the design block, depending on certain factors of its calculation. The next section of the dissertation will be devoted to proposing an algorithm for calculating wages and methodologically explaining it through economic-mathematical modeling.

The methodology consists of five stages, after which a staff member can submit recommendations to the employer on the amount of salary of the employee, depending on the three factors of the applicant's personality: the level of education received, the length of work in the specialty and its psychophysiological characteristics.

The first stage is the questionnaire collection of data for the first interview. A potential transport logistics worker is requested to complete a questionnaire to determine the length of work experience in the chosen specialty and the level of

education received: the full name of the specialty and institution where the employee received a diploma of higher, special or secondary education.

The second stage consists in testing the psycho-physiological qualities (parameters) of the individual of the individual. It consists of three tests and takes about half an hour. The survey may take longer, as some tests are conducted without a polling time limit. According to the developed special scales, the coefficients of education and seniority of the interviewed person are determined [73,74].

The result of the second stage of determining the amount of salary are three values in the range from 0 to 1, which respectively describe the three groups of psychophysiological indicators of the individual: the level of development of mental processes (the ability to quickly remember, wit and so on), the level of hard work of the individual and his personality characteristics (organization, initiative, etc.). Since the values are normalized, that is, they are brought to one range of values, the HRM, multiplying them, receives the final coefficient of psychophysiological characteristics.

In the third stage, the indicators obtained are substituted in the formula of the average wage and standard deviation, which quantitatively characterizes the possible variation from the average wage. Thus, as a result of the third stage, we are approaching the determination of the amount of wages, calculating its average and standard deviation. Formulas for their calculation - (3.3) and (3.4).

In order to protect the interests of the hired labor personnel, it is proposed to carry out the fourth stage of the methodology for calculating the wages of logistics. The essence of this phase is the adjustment of the level of wages received in cash on the inflation rate or the consumer price index. This indicator represents the total change in prices in percentage terms in the previous year [118]. Table 3.4. Indicator values for 2017 and 2018 are presented.

Table 3.4

Inflation Indices (2017-2018)
(in percent to the previous month)

Month	2017	2018
January	100,5	102,9
February	100,6	102,7
March	100,2	103,8
April	100,0	103,1
May	100,6	101,3
June	102,2	100,8
July	101,4	99,5
August	100,6	99,9
September	102,2	101,1
October	102,9	101,7
November	102,2	101,5
December	102,1	102,1
Total for the year	116,6	122,3

The adjustment of the average wage of logistics and standard deviation was carried out using the coefficient k_I (3.5) by the formulas (3.6) – (3.7).

$$k_I = \sum_{i=2017}^{R} (1+I_i), \tag{3.5}$$

$$ZP' = \overline{ZP} k_I, \tag{3.6}$$

$$\delta' = \delta k_I, \tag{3.7}$$

where ZP' and δ' – the values of the average wage and the standard deviation according to the level of inflation are given; k_I – correction factor, R – year of calculation, I_i – inflation in the corresponding year.

At the fourth stage, it is necessary to determine the indicator ε_m. This coefficient will allow the HR person to determine the standard deviation from the average wage, depending on the level of confidence in the data submitted by the applicant. It is based on the formula:

$$\varepsilon_m = \Phi^{-1}(\beta)\delta, \tag{3.8}$$

where $\Phi^{-1}(\beta)$ – the inverse value of the Laplace integral (quantile) for which the integral value is equal to β – the given confidence probability of the calculations, that is, the level of reliability with which it is desirable to carry out the calculations, δ – standard deviation calculated for (3.4) using all reported data.

The integral (function) of Laplace is used to calculate the values of the distribution density of a continuous random variable distributed according to the normal law [108].

$$\Phi(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2} dt, \tag{3.9}$$

At the fourth stage of wage formation, manager-logistics is determined by the confidence interval of wages. It has the following general appearance: $\left[\overline{ZP} - \varepsilon_m; \overline{ZP} + \varepsilon_m\right]$ and is calculated using all the questionnaires and the results of psycho-physiological surveys. Thus the range of values will reach the value $2\varepsilon_m$.

The last step in determining the recommended wage remains the application K_{conf}, which quantitatively characterizes the correspondence of the received higher education to the position of manager-logistics or other position of the design block.

When applying for a job, it is necessary to adjust the coefficient of correspondence of the received specialty of the chosen position (K_{conf}). The task of this coefficient ¬- determine the extent to which the employee can use the knowledge and skills in daily work without difficult and cumbersome tests for professional knowledge. Previously, no one has allocated such a factor.

Thus, there are four degrees in the scale of values of this coefficient. Lower - secondary education. The highest is the higher education in the specialty "logistics". It is advisable to accept the area of definition of this coefficient from 0 to 1. Intermediate values are obtained if the applicant indicates that some, economical or non-economic, higher education has been obtained. In order to determine them, a study was conducted that determines the proportion of economic specialties in the total number of training areas in higher education institutions in the country. Calculating the average value from the set of all values of the specific gravity of economic specialties, one can determine the intermediate values of the coefficient.

Of all the national state higher educational institutions, higher education institutions of the IV accreditation level were selected without a certain specialization. According to the admissions commissions of higher educational institutions for 2017, the desired value of the coefficient that he receives in the event that the applicant received an economic specialty is obtained. Its full calculation is presented in Table 2.2.

Expert data did not reveal a direct correlation between the value of this coefficient and the average wage. However, despite this fact, the expediency of its use is to use it precisely in this way, that is, at the final stage of the calculation of wages.

The results were summarized in Table 3.5 in such a way that the range of values, namely 2εm, is distributed according to the values of Kconf. For example, if the applicant received higher non-economic or special education, the calculation of the final recommended amount of wages was as follows. Range $2\varepsilon_m$ must be multiplied by a factor of 0.17; the result is a value $0{,}34\varepsilon_m$. Then $\overline{ZP} - 0{,}66\varepsilon_m$. Similarly, the value was obtained for K_{conf}, which is equal to 0.83 and the data have been summarized in the table.

The whole algorithm that was presented above has the purpose of calculating the unchanging part of wage logistics during the first interview.

Obviously, the official salary is an element of the hourly form of remuneration. Indeed, data on the actual salary of logistics at an enterprise per month, which were collected and used in the regression analysis, were also an integral part of the hourly wage. Consequently, as a result, an algorithm for calculating the monthly salary of logistics is obtained.

Table 3.5

Distribution of final salary values depending on K_{conf}

Condition	The value of the coefficient (K_{conf})	Recommended wage
secondary education	0	$ZP' - \varepsilon_m$
higher (special) non-economic education	0,17	$ZP' - 0{,}66\varepsilon_m$
higher (special) economic education	0,83	$ZP' + 0{,}66\varepsilon_m$
specialty logistics	1	$ZP' + \varepsilon_m$

3.3. Development of the algorithm for calculating economic efficiency from the implementation of the methodology for calculating the salaries of logistics at enterprises, depending on their direction of activity

The method of calculating wages - is scientifically substantiated. In addition, its benefits include both ease of use and insignificant interview time, the refusal of tests for professional compliance, and, finally, the consideration of all the factors that affect the size of wages of logistics.

Consequently, the method allows a staffer to calculate exactly the amount of the recommended salary of logistics logistics, depending on its "parameters".

However, in order to ensure that this technique has practical interest for employers and did not cause any economic loss to the company, in the framework of this study it is necessary to show the economic effect of the introduction of this methodology in the enterprises of the logistic sector of the economy.

It should be noted that the methodology is aimed at selection and, accordingly, education in the ranks of the firm of specialists of high class, with high ability to study, with high knowledge of the specifics of this activity. This is the purpose of this technique. From this it turns out that the economic effect of calculating in the short run is impossible as it is impossible to imagine a situation when the manager, acting on the position of logistics, would be able to immediately set up the logistics department (department, firms, and so on). This is due to the peculiarities of the unit of the management structure in which the manager conducts its activities, various communication processes, standards, traditions of this unit. For the manifestation of his business and personal (psychophysiological) qualities, the manager needs time to adapt in a new environment. In addition, as part of the marketing activities of the enterprise, the logistics service takes on the role of attracting new customers or strengthening relationships with old customers, showing professionalism in the organization of cargo transportation. Development of new solutions aimed at satisfying the needs of customers - consumers of this service requires some effort and, accordingly, a long-term period of time. Improving work at everyday level also requires time and effort for a well-defined circle of employees of the company.

From all the above it follows that for the possibility of observing the economic effect of the proposed methodology it is necessary to use it during the year. Hence, it is necessary to observe the results of the implementation of the methodology at the end of the reporting year and compare them with the results of the year preceding it, that is, the base one.

Thus, for analysis it is necessary to take full two calendar years: the base 2017 - for comparison, and the report 2018 - which uses the proposed system of selection of personnel and the formation of wages.

In the normalization of labor costs it is accepted to calculate costs per unit of time, costs per unit of finished products and so on.

Rationing labor - a component of the organization of labor and production. It is an important link in the technological and organizational preparation of production, operational management, an integral part of management and social and labor relations [84].

The growth of labor productivity is a prerequisite for raising the welfare of the people, creating an abundance of material and cultural goods for the working people. Establishing the objective value of working time expenses for specific conditions is carried out by different valuation methods.

The more advanced method of standardizing labor will ensure a higher quality of labor standards, that is, the high degree of probability that the established value of labor costs is really necessary and sufficient.

The values of labor standards, determined by the intuitive method, represent a guess based on previous experience. The probability of the coincidence of the magnitude of the norms of labor obtained by this method, with the objectively necessary amount of expenditure in specific conditions, is negligible. The magnitude of labor standards, determined by the statistical method, has its base of mathematical statistics, namely, the theory of the development of a selective method. In this case, the quantitative values of labor standards are more reliable, since they are determined on the basis of a large or small sample.

The total method of labor valuation determines the cost of working time as a whole per unit of output of a particular workflow without analyzing the latter. The method of performance is determined by the employee. Varieties of the total method are experimental and experimental-statistical methods.

Experimental method. The expert is familiar with the working city, means and conditions of work and intuitively, on the basis of their subjective impressions and previous experience, determines the norm of labor. The established norm of labor is not an average, but only a private value of the possible costs of working time. Its reasonableness and compliance with the conditions of the workplace completely depend on the experience of the expert. This method is not able to provide the same tension. In addition, it only reflects the past experience. Practice shows that labor standards, established by the experimental intuitive method, are usually of poor quality. This is evidenced by a significant over-fulfillment of such norms by the majority of workers.

Experimental-statistical method. Labor standards are established on the basis of actual labor productivity data for the past period. This method does not analyze the normalized work process, how to organize work and work, does not take into account technical progress and best practices. Therefore, the norms of labor, established by this method, include all the shortcomings that took place in the organization of work and production in the past and reflected in the actual indicators of labor productivity. Thus, research and statistical norms have a flawed flaw: they always capture the stage that has already passed, they are back in the past and therefore can not be a mobilizing force that stimulates the further improvement of labor processes and the growth of labor productivity. The use of such rules should be limited.

The analytical method of labor valuation is called so because it applies analysis as a method of studying the process of labor. Analytical method of standardization of labor determines the cost of working time per unit of production of a specific workflow not in general, but by types of working time costs for each component of its part: operations, reception, movement. Analytical method has two varieties - scientific and technical standardization of labor.

Scientific standardization of labor is a method of establishing the necessary expenses of working time for the production of a unit of production that takes into account the natural, technical, organizational, economic, physiological, psychological

and social factors of labor, that is, the whole set of factors that influence the productive labor of labor in specific conditions.

Technical standardization of labor is a method of establishing the necessary expenses of working time for the production of a unit of production, taking into account the natural, technical and organizational factors of labor productivity in specific conditions and partly physiological factor (fatigue of the worker); is the first stage of scientific rationing of labor and is approaching it as the number of factors is taken into account. Labor standards, established by the method of technical valuation, called technical regulation, called technically sound labor standards. They are less advanced than scientifically substantiated norms of labor, established by the method of scientific valuation, because they take into account only a part of those factors which must be taken into account when establishing norms of labor [81-85].

To analyze the economic effect of the proposed methodology, we propose an algorithm developed in accordance with the analytical method of labor valuation described above.

All enterprises transporting cargo are conditionally divided into two groups: the first - enterprises, which have their own transport departments and serve only their own needs; the second is the transport companies for which the carriage of goods is the main activity. The algorithm for determining the effectiveness of using the methodology for calculating the wages of transport logistics managers will be slightly different.

Consequently, the activity on the transportation of goods is carried out at the expense of the company, transporting goods. Thus, the activity has its expenditure part, which was deducted at the end of the reporting period, taking data from the annual report on financial results (Form No. 2).

The source of income for logistic activities of the enterprise are contracts for the transportation of goods for transport companies. For enterprises that serve their own transportation of their goods, the source of income from logistics is income from contracts for the supply of these goods. It is the differences in the origin of income

that gave impetus to the differentiation of algorithms for determining the effectiveness of the use of methods for determining wages managers of enterprises in the logistic sector.

At the same time, during the study, the only general principle of such algorithms was observed. The need to find and implement such a principle is conditioned by the fact that the algorithm for calculating the economic efficiency of the implementation of the methodology should be the same for the entire sector of logistics companies in Ukraine. The practical significance of such an algorithm, while respecting the unified principle of its construction, may be much more weighty.

Consequently, as already mentioned above, the origin of income differs from the two groups of logistics companies. However, at the same time, labor costs are of common origin. This statement is proved by the fact that M.Yu. In his "Practical book of the organization's psychologist" [75], Shahnis highlights the so-called "design block", which includes all the professions of the logistics sector of the Ukrainian economy and others related to them. Thus, such a parameter as the cost of labor remuneration for logistics should be taken when calculating the efficiency of the proposed methodology, as in the case of logistics firms, and in the case of trade or other enterprises, serving the transportation of their own goods.

Further, operations carried out by professionals in logistics activities in their contracts are the same or very converge in their sense, forming in Shaunness "design block of professions." This means that the total enterprises in any of the selected groups labor costs in the reporting and baseline periods should also depend on such a parameter as the number of contracts in the reporting and baseline periods. To analyze the effectiveness of using the methodology for determining wages for logistics, it would be possible, instead of the parameter, to take such an indicator as the total revenue from the contracts, but another way was chosen because of the difference in the origins of this income: in the first case, this is the trade margin for the goods, in the second - payment for the cargo transportation service. Hence, for analysis it is necessary to take the ratio of expenses for the payment of labor logistics

to the number of contracts of supply (or transportation), or given the cost of wages for one contract of supply (or transportation of goods).

The formula for determining the effectiveness of using the proposed methodology is proposed to be presented as follows:

$$c = \frac{C_L}{N}, \tag{3.10}$$

where, c – given the costs of payment for one contract of delivery (transportation); C_L – labor costs for logistics workers at the enterprise; N – the number of supply contracts.

The formula is suitable for both previously selected groups of companies. The difference in algorithms for calculating economic efficiency will be in the calculation C_L, since in the first case it is non-productive personnel, and in the second case, on the contrary, the personnel who carry out the main activity.

Thus, the calculation in the base and reporting period pass using the formula (3.10). However, in order to compare the values of this indicator it is necessary to adjust it, by analogy with the calculation of the lost (missed) profit, on the amount of inflation in the reporting period (year).

Correction occurs according to the following formula:

$$C_{conI} = \frac{C_{con}}{(1 + I_0)}, \tag{3.11}$$

where C_{conI}– expenses, given, taking into account the inflation rate; C_{con} – costs for one supply contract for the reporting period. I_0 – the final indicator of inflation for the period.

3.4. Practical implementation of the methodology for calculating wages of logistics at enterprises of the logistic sector

This technique has been tested at two enterprises of the logistic sector of the Ukrainian economy, namely: Alant Ltd and CJSC NPPI SAU

The input data for the calculation of the economic effect from the introduction of the methodology on LLC "Alant", shown in tables 3.6 and 3.7 below, were taken from the financial statements of the enterprise and management accounting logs. Unfortunately, the materials were provided in the form of original documents, so it is impossible to provide them in the dissertation study. However, all data is valid because it is taken from trusted sources.

3.4.1. General characteristics and calculation of the economic effect on LLC "Alant"

Table 3.6

Calculation of the economic effect for LLC "Alant"

Indicator	Values for 2017 (base year)	Value for 2018 (reporting year)
salary expenses, USD.	243 888 USD.	396 800 USD.
Number of employees, people.	20	27
Number of transportation contracts, pcs.	6	9

a) the costs of wages are given for one contract of carriage in the base one (C_b) та звітному (C_{ry}) роках:

C_b = 243 888 : 6 = 40 648,00 USD.

C_{ry} = 396 800 : 9 = 44 088,90 USD.

b) reduction of labor costs in the reported year to the level of the basic one, taking into account the coefficient of inflation

C_{conI} = 44 088,90 : 1,223= 36 049,8 USD.

c) calculation of the economic effect of the introduction of the methodology

$$\Delta = \frac{C_{conI} - C_b}{C_b} = \text{- 11,3\% or 4598,2 USD}$$

Thus, it can be argued that the average cost of transportation contracts decreased by 11.3% for each contract, which is a total of 41,383.80 USD. in a year. This became possible due to the use of the recruitment mechanism based on the proposed methodology for calculating wages.

Consider the applied use of the technique on the example of a non-productive enterprise, namely the design institute of the CJSC "Research and Design Institute of Automation and Control Systems".

3.4.2. General characteristics and calculation of economic effect at CJSC "NPPI SAU"

As part of its activities, the company is engaged in supplying equipment of world-renowned manufacturers for control systems. This activity is one of the departments. Below is an algorithm with input data and an algorithm for calculating reduced labor costs for one contract for equipment delivery.

Table 3.7

Calculation of the economic effect for Closed JSC "NPPI SAU"

Indicator	Values for 2017 (base year)	Value for 2018 (reporting year)
Number of workers supplying equipment, people.	2	3
Total expenses for the payment of equipment for workers, ths. USD..	60900,00	93300,00
Total number of workers, people.	65	65
Number of supply contracts, pcs.	2	3

a) the costs of wages are given for one contract of carriage in the base one (C_b) та звітному (C_{ry}) роках:

$$C_b = 60900,00 : 2 = 30\ 450,00 \text{ USD.}$$
$$C_{ry} = 93300,00 : 3 = 31\ 100,00 \text{ USD.}$$

b) reduction of labor costs in the reported year to the level of the basic one, taking into account the coefficient of inflation

$$C_{conI} = 31\ 100,00 : 1,223 = 25\ 429,27 \text{ USD.}$$

c) calculation of the economic effect of the introduction of the methodology

$$\Delta = \frac{C_{conI} - C_b}{C_b} = \text{- 16,5\% or 5024,25 USD}$$

It can be argued that the average cost per one equipment supply contract has changed, namely, it has decreased by 16.5%. The total economic effect of all supply

contracts was $ 15,072.25. according to 2018 results. This was due to the fact that one of the logistics went away from his post. Instead, two salaried employees were recruited, calculated according to the methodology for calculating logistics salaries, developed within the framework of this study. This led to an increase in the number of processed contracts from 2 to 3, and the value of reduced costs per one supply contract decreased by 14.16%. This will allow the company to attract and process the largest number of delivery orders in the period following the reporting period and, thus, will increase the profit from this type of activity.

Conclusions

The analysis of the state of the question in the chosen direction of research has shown that:

1) Logistics as a separate type of economic activity develops in turn with trade, financial, production facilities. The cost of goods traded by manufacturers and entrepreneurs is increasing, and the number of shipments is increasing, they are gaining in increasing geography, their importance in the economic complex of the country is increasing. The area of warehouses, which has the purpose of storing goods up to the moment of their getting to the end-user, grows also.

2) All components of the logistics chain grow, develop, and need more and more skilled personnel to service their operations. In the whole world, there is a rather large stratum of service providers, public and private in the private sector, which, from one side or another, are engaged in logistics chain services until the very arrival of the goods to the end user.

3) The process of selection of personnel in logistics and wage calculation lacks a scientific basis. There is a need to implement a logistics wage calculation model that will be based on the assessment of the managerial capacity of a specialist and his / her specialty. Such a model should be created using modern methods of economic-mathematical modeling and data analysis.

So, to say that only young specialists can work in firms. However, at the same time, a dissertation research has shown that employers tend to instruct a young specialist already in the course of work in a particular post of logistics or any other position of the design block.

Thus, there was the idea of creating a system of remuneration for work of logistics, which would be able to replace the tariff system of remuneration and would have a bias to the psychophysiological qualities of the employee's personality. The creation of a non-tariff wage billing model based on employee assessment and, as a result, would give the recommended wage range for a particular logistics - this is the ultimate goal of our study. At the beginning of the study Lipman's questionnaire was

used, the results of the survey identified 12 qualities that the experts considered most important and created the basis for economic and mathematical modeling.

In our study

- For the first time:

• Selected professionally significant qualities that directly influence the logistics of their official duties;

• the proposed psychophysical testing system for assessing the potential of logistics;

• The data of psycho-physiological examination and questionnaire of logistics are used indirectly for the calculation of the official salary of logistics.

- Improved:

• scientific and methodical approaches to the calculation of economic efficiency from the introduction of a methodology for calculating the official salary of logistics;

• scientific substantiation of the economic essence of the economic and mathematical model for calculating the official salary of logistics at enterprises in the conditions of market economy, where, in contrast to existing approaches, the factor concept of calculating the salary of logistics is used;

• scientific and methodical approaches to the use of data of expert research in the formation of an economic and mathematical model of calculating the garden salary of logistics;

• scientific and methodical approaches to the use of data of psychophysiological examination logistics in the calculation of the salary;

• scientific and methodical approaches to the use of data of psychophysiological examination and questionnaires in the selection of logistics personnel of the enterprise;

- Get further development:

• scientific substantiation of the use of psycho-physiological experiments in assessing the human potential of employees in the market of state gifts;

• the theoretical basis for the development of the process of forming a system of logistics motivation, which, unlike the existing logistics wage formation approaches, is based on the use and quantification of factors that directly affect the success of the personnel of the enterprise.

Among the practical results of the study I want to emphasize the following:

1) three factors have been selected that may affect the quantitative significance of the final salary level: experience in a particular post, level of education and psycho-physiological characteristics of the employee, and selected methods of their assessment;

2) the creation of an algorithm for calculating wages, based on the calculation of three factors in the formation of wages. This algorithm includes indexes of probability of probability collected by human resources data. The authors quite deliberately refuse to test the professional suitability of a particular post, believing this is an unnecessary procedure for recruiting logistics;

3) the creation of a method of measuring the economic effect of the proposed methodology. This methodology is relevant both for logistics enterprises and for logistics departments of large factories or firms, according to which the results of activity of a subdivision or enterprise in general in the base year and the accounting year are analyzed.

4) for the two enterprises, which used the invented method of calculating wages, a total economic effect of 56 456.05 USD was obtained.

Thus, for enterprise staffing services, the results of this research can be very useful. They measure the potential of the worker and, according to this priority, evaluate the required wage.

Bibliography

1. Duncan Jack. U. Fundamental ideas of management. - M.Delo, 1996.- 272 p.

2. Maslow A. Motivation and personality. 3rd edition. - St. Petersburg, Peter, 2006 - 352 p.

3. Weber M. Economy and Society / Per. with him under science edit Lg Ionina - Moscow: Publishing House of the Higher School of Economics, 2007. - 329 c.

4. Vikhansky O.S., Naumov A.I. Management: textbook. - 3rd ed. - M.: Gardarika, 2002. - 528 p.

5. D. McClelland. Human motivation. - St. Petersburg: Peter, 2007 - 672 p.

6. A. Marshall. Fundamentals of Economic Science. - M .: Eksmo-press, 2007 - 832 p.

7. Barry M. Stowe. Anthology of organizational psychology. - Moscow: Vyshina, 2005 - 712 p.

8. A. Smith. Study on the nature and causes of wealth of peoples. - M .: Exmo, 2007 - 960 pp.

9. F. Taylor Fundamentals of Scientific Management. - M.: Progress, 1992 - 485 pp.

10. On the issue of improving the management of enterprises / O.I. Amosha // Visn. DITB Sir Entrepreneurship, management and marketing in the tourist. sphere. - 2001. - N 5. - pp. 8-11.

11. Spire C.E. Wages: the essence and formation in the transition to a market economy: Dis ... Cand. econ Sciences: 08.01.01 / Kyiv University of Technology. Taras Shevchenko. - K., 1998. - 175l

12. Kolot AM Organizational-economic mechanism of wage regulation and ways of its improvement (on materials of industrial enterprises of Ukraine): Dis ...

Dr. ekon. Sciences: 08.06.01 / Kyiv National Economic University. - K., 1998. - 392 p.

13. Kostyshina T. A. Payment of labor at enterprises of trade of different forms of property: Dis ... Cand. econ Sciences: 08.09.01 / National Academy of Sciences of Ukraine. - K., 1998. - 245 p.

14. Kucher G. Ya. Formation of the mechanism of organization of wages in the conditions of the formation of a market economy: Diss ... Candidate. econ Sciences: 08.01.01 / Ternopil State. technical un. im. Ivan Puluj. - T., 2000. - 178 p.

15. Krolenko AV Payment of labor in the conditions of market transformation of the economy: essence, functions, directions of reforming: Dis ... Cand. econ Sciences: 08.01.01 / Kharkiv National University. VN Karazin. - Kh., 2004 - 232 c.

16. Chala O. M. Contractual regulation of labor remuneration in Ukraine: Dis ... Candidate. econ Sciences: 08.09.01 / Kiev National Economic University. - K., 2001. - 210s.

17. Gerasimenko O. O. The economic mechanism of stimulation of labor in the field of scientific and scientific and technical activity (on the example of higher educational institutions of Ukraine): Diss ... Candidate. econ Sciences: 08.02.02 / Kiev National University. Taras Shevchenko. - K., 2003. - 244s.

18. Goncharov G.O. Motivational mechanism of labor activity in the conditions of formation of a market economy: Dis ... Cand. econ Sciences: 08.01.01 / Kyiv University of Technology. Taras Shevchenko. - K., 1998. - 192c.

19. Dudina NV Payment of labor in the manufacturing industries of the USA: experience and prospects of use in Ukraine: Dis ... Cand. econ Sciences: 08.09.01 / Kirovograd State Technical University. - Kirovograd, 2001. - 207 pp.

20. Babenko Yu. M. Payment of labor in agricultural enterprises in the conditions of development of market relations (for example, farms of the Kharkiv region): Dis ... Cand. econ Sciences: 08.07.02 / Kharkiv state. Agrarian Unt. V.V. Dokuchaev - Kh., 1999

21. Ponomareva Yu. V. Logistics: Textbook. - K .: Center for Educational Literature, 2003. - 192 p.

22. Glogus O.L. Logistics: Teaching A guide for the studio. econ special / Institute of content and teaching methods; Ternopil Academy of National Economy. - Ternopil: Economic Thought, 1998. - 166 pp.

23. Kalchenko A.G. Basics of logistics. - K.: Knowledge, 1999.-134 p.

24. Kachala T. M., Karpova O. M. Logistics: Teaching. manual for the stud higher teach zak .. - Cherkassy: ChTTU, 2003. - 135 p.

25. Rodnikov A.M. Logistics: Terminology Dictionary. - M.: Economics, 1995. - 251c.

26. Nerush Yu.M. Logistics: A Guide for High Schools. - 3rd edition, processing. and add - M .: YUNITI-DANA, 2003. - 495 pp.

27. Hajinsky A. M. Logistics: a manual for higher and secondary specialist. teach shut up - 3rd edition., Processing. and add - M., 2000. - 375 p.

28. Malikov O. B. Business logistics. - SPb .: Politechnika, 2003. - 223p.

29. Sergeev V.I. Logistics in Business: Tutorial. - M .: INFRA-M, 2001.-608s.

30. Lenshin I. A., Smolnyakov Yu. I. Logistics. At 2 o'clock: Tue 1. - M .: Machine-building, 1996. - 246 p.

31. Balabanova LV, Germanov A.M. Commercial activities: marketing and logistics. - Tutorial. - K.: VD "Professional", 2004 - 288s.

32. Logistics: Textbook / Ed. B. A. Anikina. - M .: INFRA-M, 1998. - 327s.

33. Nikolaichuk V.Ye. Logistics - St. Petersburg: Peter, 2002. - 160 p.

34. The Law of Ukraine "On Transport" of November 10, 1994
№232 / 94-BP.

35. Law of Ukraine "On Road Transport" of April 5, 2001 No. 2344-III.

36. Law of Ukraine "On Rail Transport" dated July 4, 1996 No. 273/96-VR.

37. Decree of the President of Ukraine "On the decision of the Council of National Security and Defense of Ukraine of April 11, 2000" On the state of railway

transport of Ukraine and measures to ensure its effective functioning "" dated April 20, 2000, No. 603/2000.

38. The Great Economic Dictionary / Pod. ed .. AB Borisova, M., Bookworld, 2007. - 624 pp.

39. Law of Ukraine dated April 20, 1995 "On the Payment of Labor" // Bulletin of the Verkhovna Rada of Ukraine. - 1995

40. Law of Ukraine No. 190/94-VR "On the Limit of Lack of Security" of 04.10.1994.

41. Law of Ukraine of July 1, 1993 "On Collective Contracts and Agreements" // Bulletin of the Verkhovna Rada of Ukraine. - 1993

42. Ivankevich. Ukrainian legislation on wages, wages, pensions, scholarships and other social benefits. - Ukraine: Aspects of Labor, No. 6, 1998. - 203 c.

43. Keynes J. M. General theory of employment, interest and money. - Moscow: 1978. - 568 c.

44. Kolot AM Labor costs at the enterprise: organization and improvement - K .: firm "Labor", 1997. - 206 s /

45. The Code of Labor Laws of Ukraine, approved by Law No. 322-VIII of 01/08/1996

46. M.Yu. Shainis "Workbook of a Psychologist of the Organization", Bahraha, 2001. - 224 c.

47. N. Alyushina, Ph.D., Associate Professor, Department of Public Administration and Management of the National Academy of Public Administration under the President of Ukraine, "Psychological and Acmeological Service as a Mechanism for Optimization of the Activity of Civil Servants in the Structure of Executive Power" - Scientific Journal "Economics: problems of theory and practice "No. 228 - Dnipropetrovsk, Dnipropetrovsk - 608 - 612 p.

48. GP "Main educational-methodical center" - ¬¬ http://gnmc.kiev.ua

49. The Law of Ukraine "On Occupational Safety" No. 2694-XII dated October 14, 1992

50. Volovich V. Y. Reliability of information in sociological research. - K .: Science. thought, 2004. - 366s.

51. Gorshkov M.K., Sheregi F. 3. How to conduct a sociological study. -M .: Politizdat, 2003.-203c.

52. Grechikhin V. L. Lectures on the methodology and technique of sociological research. -M .: Izv. MSU, 1998. - 301s.

53. Grushin B. A. Opinion on the world and the world of opinions. - Moscow: Politizdat, 1967. - 300s.

54. Yevlapov L.G., Kutuzov V.A. Expert assessments in management. - Moscow: Economics, 2000.- 502c.

55. Zhabsky M. Y. Principles of Standardized Interview // Sociological. Research, 1995. - No. 3.C.23-26

56. Zdravomyslov A.G. Methodology of the procedure of sociological research. - M .: Thought - 1969 - 123c.

57. Kupriyan A.P. The problem of experiment in the system of social practice. - M.: Science, 1981. 354c.

58. The logic of sociological research. - M .: Nauka, 1987. -366c.

59. Lukashevich N.P., Tulenkov N.V. Introduction to Sociology: Textbook. allowance - K .: MAUP, 1999. - 265c.

60. Lukashevich N.P., Tulenkov N.V. Sociology: Textbook. allowance - K .: MAUP, 1998 - 289c.

61. Nozzle 3. Massive polls. - M .: Progress, 1998 - 211c.

62. Osipov G.V., Andreev 3.P. Methods of measurement in sociometry. - Moscow: Nauka, 2004 - 302c.

63. Panina N.V. Technology of Sociological Research: Course of lectures - K .: Science. opinion, 2002 - 255c.

64. Pogosyan G. A Method of interview and the reliability of sociological information. - Yerevan: Publishing house of the Academy of Sciences of the Armenian SSR, 1985 - 200c.

65. Workshop on Sociology. - Moscow: Moscow State University, 2002 - 500c.

66. Ponto R., Gravitz M. Methods of Social Sciences: Per. fr fr - Moscow: Progress, 2002 - 302c.

67. System of Sociological Knowledge: Textbook. allowance / Sost. G. V. Shchekin. -3rd ed. - K .: MAUP, 2003 - 355c.

68. Sociological Encyclopedic Dictionary / Ed. -Kohor 70. Interpretation and analysis of data in sociological research. - Moscow: Nauka, 1987.- 116 p.

71. Rad B.Ya., Yakovlev S.A. Simulation of systems. M .: Vysh. Shk., 1998 - 124 c.

72. Tolstova Yu.N. Scaling up when collecting and analyzing sociological data. M .: Nauka, 1978. - 120 c.

73. Garassaries SV Deterministic analysis of socio-economic data. M .: Nauka, 1982. - 148 c.

74. Myrotyn LB Effective logistics. - M .: Exam, 2003. - 160 p.

75. Ayvazyan SA, Mkhitaryan V. S. Applied statistics and bases of econometrics: A textbook for high schools. - Moscow: UNITI, 1998. - 1022 p.

76. Borodin S.A. Econometrics: Textbook. allowance - Minsk: New Knowledge, 2001. - 408 s.

77. Gruber J. Econometrics: Introduction to Multiple Regression and Econometrics: In 2 t. - K: Nichlava, 1998-1999. - 356 s.

78. Johnston J. Econometric Methods. - M .: Statistics, 1980 - 444 pp.

79. Dowherty K. Introduction to Econometrics: Per. from english - M .: INFRA-M, 1997. - 402 p.

80. Emelyanov AS, Econometrics and forecasting. - Moscow: Economics, 1985. - P. 82-89.

81. Eleyko V. Fundamentals of econometrics. - Lviv: "Marka Ltd.", 1995 - 191s.

82. Zamkov O. O., Tolstopyatenko AV, Cheremnyh Yu. N. Mathematical Methods in Economics: Textbook / Sub Society. edit A. V. Sidorovich. - 3rd ed., Pererab. - M .: Delo and Service, 2001. - 368 pp. - (Ser. "Textbooks of the Moscow State University named after MV Lomonosov").

83. Kane E. Economic statistics and econometrics. Introduction to quantitative economic analysis. - M .: Statistics, 1977. - 254 pp.

84. Korolev OA Econometrics: Teaching. manual - K: European Unity, 1979 - 284 pp.

85. Rukhaevsky D.O. Determining the role of psychological personality traits in the work of a specialist in transport logistics and their impact on wage formation // Economy: Problems of Theory and Practice No. 233 - T. III - Dnipropetrovsk, DNU, 2007 - p. 607-612.

86. Shchekin G. "Practical Psychology of Management", K .: Ukraine, 1994 - 150 c.

87. "Fundamentals of psychology". Workshop / Ed. - Composition L.D. Stolyarenko Rostovn N / A: from - to "Phoenix", 2000. - 79 c.

88. Il'in E.P. Technique "Tepping-Test" // Methodical instructions to the workshop on psychophysiology. - L., 1981. - 140 c.

89. "Practicum on the basics of psychology: Texts and textbooks. A manual for students of the medical institute "/ Compiled by V.A. Melnikov Simferopol: "SONAT", 1997. - 114 c.

90. Afanasyev VG Scientific management of society. M .: Politidzat, 1968. - 183 c.

91. Orlov A.I. Expert assessments. Tutorial. M, 2002. -203 c.

92. Beshelev SD, Gurvich FG Expert assessments. M .: Nauka, 1973. - 196 c.

93. Beshelev SD, Gurvich FG Expert assessments in making decision-making. Moscow: Economics, 1976. - 287 c.

94. Beshelev SD, Gurvich FG Mathematical-statistical methods of expert evaluations. M .: Statistics, 1980 - 263 c.

95. Evlanov L.G. Decision making under uncertainty. M .: 1976. - 196 c.

96. Orlov A.I. Econometrics. Initial Guide. M., 2002. - 438 C.

97. Ruchaevsky D. Identification of psychological peculiarities of professional activity of a specialist in transport logistics // Economic Bulletin of the National Mining University of Ukraine No.1 - Dnipropetrovsk, NMU, 2007 - 84-89 p.

98. Rukhaevsky D. Formation of the factor model of calculation of wages of employees of transport logistics // Economic Bulletin of the National Mining University of Ukraine No.3 - Dnipropetrovsk, NMU, 2007 - 55-60 p.

99. M.Yu. Shainis "Workbook of the organization's psychologist", Bahhrakh, 2001. - 224 pp.

100. Norman Draper, Harry Smith Applied Regression Analysis. Multiple regression. - 3rd ed. - Moscow: "Dialectics", 2007. - p. 912.

101. Kozachok AA Paradoxes in the mechanics of continuous media. New approaches to the formulation and solution of some classical problems of mathematical physics: Textbook. allowance for college students / Under the general. edit V. G. Bar'yakhtaar. - Kiev: PVP "Zadruga", 2005 - 180 p.

102. Ventzel E.S. Theory of probabilities. - M.: Science, 1962. - 564 pp.

103. Frolov E.A. Designing general management in an industrial enterprise. - M.: Science, 1997. - 264 p.

104. Vesnin VR Fundamentals of Management. - Moscow: "Knowledge" of Russia, 1996.-472 p.

105. Emerson G. The Twelve Principles of Performance - UralJurIdast - 2008 - 216 pp.

105. Kondratova I.G. Fundamentals of management accounting.M .: "Knowledge" of Russia, 1998-245 c.

106. Emerson G. The Twelve Principles of Productivity - UraljurIdast - 2008 - 216 pp.

107. AI Morozov Scientific organization and standardization of labor at mining enterprises. Moscow "NEDRA", 1984 - 314 pp.

108. Economics course: Textbook / Ed. B.A. Reisberg - INFRA-M, 1997 - 225 p.

109. I.M. Slepenkov, Yu.P. Averin "Fundamentals of the theory of social management. M., "Higher school", 1990 - 211 p.

110. The official website of the Ministry of Finance of Ukraine - http://www.minfin.gov.ua

111. The official website of the State Statistics Committee of Ukraine - http://www.ukrstat.gov.ua/.

112. Internet portal for managers - http://www.management.com.ua/

113. Kolot AM Labor costs at the enterprise: organization and improvement - K .: firm "Labor", 1997 - 240 p.

114. The main direction of the reform of wages in the states-participants of the CIS // Man and labor. - 1988 - No. 6. - P.69-75.

115. Lyubimova V. Modern forms of incomes of employees of wage labor // World. ecca and interna Attitude, 1992. - No. 2. - P. 80-89.

116. Shcherakov S. Flexible wages (from the experience of Western countries) // Sots. labor. - 1992. - №12. - P.71-79.

117. Tsander E. Payroll in small and medium-sized enterprises / Per. with him - M .: GCIPK, 1995. - 244 pp.

118. Stavnitsky A. Improving the organization of wages // Econom. science 1988 - №6. - p. 30-36.

119. Dubovoy P. How to develop a tariff grid of a self-supporting enterprise // Man and labor. - 1993. - №1. - pp. 90-97.

120. Sokolenko V.M. Management of product quality in mechanical engineering. Dissertation diss. ... doc. economist Sciences: 08.05.01 / Odessa. state econ un - Odessa, 1994. - 39 p.

121. Silin R.I. Human factor in the implementation of modern total quality management // Visnyk TUP. Ch.I. - Khmelnitsky, 1998. - №6. - S. 5-7.

122. Human factor. In 6 t. T.4. Ergoeconomic design of activities and systems. Per. from English / J. O'Brien, H. W. Cott, J. Weaker, and others - M .: Mir, 1991. - 414 pp.

123. Kostyshina T. Evolution of Wage Forms in Ukraine in the Transition Period. K. Exmo, 1997 - 140 p.

124. Kolot A. Foreign experience of material incentives for staff - K., Exmo, 1998 - 210 s.

125. Stretovych O. A new approach to the organization of the system of material incentives for labor. K., Exmo, 1998 - 210 p.

126. Sokolik M. Payment of labor in incomes and expenses of the population of Ukraine. - M., Science, 1998-240 p.

127. Shynkarenko V., Krivoruchko O. Motivation of employees' performance. - K., Exmo, 1998 - 210 s.

128. Official website of the National Mining University of Ukraine ¬ - http://www.nmu.org.ua/ua/.

129. Official website of Dnipropetrovsk National University - http://www.dsu.dp.ua/.

130. Official website of the Volyn National University named after. Lesia Ukrainka - http://www.vdu.edu.ua/.

131. The official website of the Donetsk National University - http://www.donnu.edu.ua/.Офіційний веб-сайт Запорізького національного університету – http://web.znu.edu.ua/. 132. Official website of the Kamyanets-Podilsky National University - http://www.kpnu.edu.ua.

133. Official website of the Lviv National University named after. Ivan Franko - http://www.franko.lviv.ua/.

134. Official website of Sumy State University - http://www.sumdu.edu.ua.

135. Official website of Khmelnytsky National University - http://www.tup.km.ua/.

136. Official website of the Kherson State University - http://www.university.kherson.ua/.

137. Official website of the Cherkasy National University. Bohdan Khmelnytsky - http://www.cdu.edu.ua/.

138. Official website Chernivtsi National University named after. Yuriy Fedkovych - http://www.chnu.cv.ua/.

139. Official website Kharkiv National University. V. N. Karabin - http://www-ukr.univer.kharkov.ua/.

140. Official website of the Kiev National University named after. Taras Shevchenko - http://www.univ.kiev.ua/ua/