

## FUNCTIONS OF SALARY AT MACHINE-BUILDING ENTERPRISES IN FORMATION OF MOTIVES AND STIMULES OF PERSONNEL

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### Key words:

payment, salary, motivation, stimulation, personnel, machine - building enterprise.

In the decision of the question of the qualitative changes formation in the personnel management system, the formation of motives and incentives of the personnel that, taking into account the experience of developed countries, is advisable to orientate towards obtaining a decent salary for an employee. It is advisable to carry out a meaningful study of the functions and trends of personnel salary at machine-building enterprises, studying its size and comparison at the level of countries and regions, as well as identifying the existing problems. The problems of the salary as an effective component of material incentives and enhancement of personnel motivation were discovered by such prominent scientists as O. M. Baksalova, D. P. Bohynia, V. I. Blonska, A. V. Kalyna, M. I. Karlin, O. M. Krasnonosova, V. M. Nyzhnyk, Yu. V. Malakhovskyi, V. S. Medvedev, M. V. Semykina, A. O. Shevtsova, A. I. Yashchenko and many others. In scientists' researches, many questions regarding the search for effective ways of forming motives and incentives for personnel at machine-building enterprises, which are to provide an employee with a decent salary, are still unresolved. The article analyses the size of a salary in different countries of Europe, reveals the tendencies of its change and makes comparisons with a salary in Ukraine, in some regions and at machine-building enterprises, in particular. Measures aimed at improving the salary at machine-building enterprises are proposed. It is proved that in addition to salary, which according to the analysis at the domestic machine-building enterprises increased only due to the increase in the salary minimum, in order to create incentives and motivation of personnel is necessary to borrow the foreign experience in the use of social security, benefits, employee participation in ownership of the enterprise and distribution of profits, rotation of personnel, etc.

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## ФУНКЦІЇ ЗАРОБІТНОЇ ПЛАТИ У ФОРМУВАННІ МОТИВІВ ТА СТИМУЛІВ ПЕРСОНАЛУ МАШИНОБУДІВНИХ ПІДПРИЄМСТВ

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### Ключевые слова:

оплата праці, заробітна плата, мотивація, стимулювання, персонал, машинобудівне підприємство.

У вирішенні питання формування якісних змін у системі управління персоналом особливої актуальності набуває формування мотивів та стимулів персоналу, які, враховуючи досвід розвинутих країн, доцільно орієнтувати на отримання працівником гідної заробітної плати. Доцільним є змістовне вивчення функцій та тенденцій заробітної плати персоналу на машинобудівних підприємствах, дослідження її розміру та порівняння на рівні країн та регіонів, а також виявлення основних проблем, що існують. Проблемами заробітної плати як ефективною складовою матеріального стимулювання та підвищення мотивації персоналу займалися такі видатні вчені: О. М. Баксалова, Д. П. Богиня, В. І. Блонська, А. В. Калина, М. І. Карлін, О. М. Красноносова, В. М. Нижник, Ю. В. Малаховський, В. С. Медведєв, М. В. Семікіна, А. О. Шевцова, О. І. Ященко та ін. У дослідженнях науковців багато питань щодо пошуку ефективних шляхів формування мотивів та стимулів персоналу на машинобудівних підприємствах, що полягають в отриманні працівником гідної заробітної плати, є досі невирішеними. У статті проаналізовано розмір заробітної плати в різних країнах Європи, виявлено тенденції її зміни та здійснено порівняння із заробітною платою в Україні, в окремих регіонах та на

підприємствах машинобудування, зокрема. Запропоновано заходи, спрямовані на удосконалення оплати праці на машинобудівних підприємствах. Доведено, що окрім заробітної плати, яка відповідно до проведеного аналізу на вітчизняних машинобудівних підприємствах зростала лише у зв'язку із підвищенням мінімальної заробітної плати, з метою формування мотивів та стимулів персоналу необхідним є запозичення зарубіжного досвіду у використанні соціальних гарантій, пільг, участі працівників у власності підприємства та розподілі прибутку, ротатції персоналу тощо.

### Statement of the problem

At the current stage of reforming the national economy of Ukraine, qualitative changes in the personnel management system are a necessary condition for the effective functioning and development of any industrial enterprise. In addressing this issue, researchers focus on developing mechanisms for motivating and stimulating the staff, which, taking into account the experience of developed countries, should be oriented towards raising staff salaries. This tendency can be explained by the fact that the effective work of employees requires high material remuneration, as well as a reduction in the income of those workers whose labour productivity is lower. An increase in the volume of material goods has a significant impact on the modification of the structure of consumption of the employee, which, in turn, should positively reflect on the formation of motives to work, as well as the principles of production and economic behaviour.

This question is obviously actual for machine-building enterprises, the weight of which in the domestic industry is the largest. Being the foundation of the economic prosperity of the country, the state of socioeconomic development of Ukraine depends on the level of efficiency of the enterprises of this industry.

It is advisable to carry out a meaningful study of the functions and trends of wages of personnel at machine-building enterprises, studying its size and comparison at the level of countries and regions, as well as identifying the main problems associated with the study of this problem.

### Analysis of recent studies and publications

Issues related to the organization of remuneration as an effective component of material incentives for staff, as well as the study of the subsequent influence of wages on the motivation of workers to work were popular among such foreign and domestic scientists as: O.M. Baksalov, D.P. Bogin, V.I. Blonskaya, A.V. Kalina, M.I. Karlin, A.M. Krasnosnova, V.M. Nyzhnyk, Yu.V. Malakhovsky, V.S. Medvedev, M.V. Semikina, A.O. Shevtsova, O.Yaschenko and many others. Despite the large number of scientific works and significant achievements in the theory and practice of motivational activities, a lot of questions regarding the search for effective ways to create motives and incentives for personnel at machine-building enterprises, which are to increase wages, are still unresolved, so the state of the enterprises of the machine-building industry needs constant monitoring and salary analysis of staff in order to find new ways to overcome the problems that arise in this aspect and ensure further development.

### Objectives of the article

The article is intended to analyse the size of a salary in different countries of Europe, to identify trends in its changes and to make comparisons with a salary in Ukraine, in certain regions and at machine-building enterprises, in particular. In addition, an analysis of the activities of machine-building enterprises is important, as well as the identification of the existing problems.

### The main material of the research

The definition of the directions of solving the tasks connected with the study of wage functions at machine-building enterprises, the comparison of wages in other sectors of the economy, regions of Ukraine and in Europe should be aimed at the development, formation and operation of a mechanism for assessment, motivation and stimulation personnel of machine-building enterprises.

In a crisis situation, the focus on machine-building enterprises should be focused on effective use and motivation for highly productive activities of personnel that can strengthen the state of machine-building enterprises in the country's economic system.

The article is intended to analyse the size of wages in different countries of Europe, to identify trends in its changes and make comparisons with wages in Ukraine, in certain regions and in machine-building enterprises, in particular. In addition, an analysis of the activities of machine-building enterprises is important, as well as the identification of the main problems related to the study of this problem.

The problems of paying and improving wages for today are a topical issue for both the economy of Ukraine and foreign countries. The size of wages in different countries of the world is significantly different. When comparing European countries, the wage level is 15% lower than in the United States. However, if the list of comparisons excludes Eastern European countries, the salary in European countries will be 23% higher than in the United States. According to Eurostat's European Statistics Institute, in 2017 the highest average monthly salaries were in Denmark, Luxembourg and Iceland. In Western Europe, except Luxembourg, the average monthly wage was also high in Germany and Austria - more than 3,500 euros, and slightly lower than 3,000 euros in France and the Netherlands. In the countries of southern Europe - Italy, Spain, Slovenia, Serbia, Montenegro and Greece, the highest salary was in Italy - 2,534 euros, and the lowest in Serbia - 584 euros. Less than a thousand euros a month earned by residents of Lithuania, Russia and the Republic of Belarus. The average monthly wage in Ukraine is much lower than the European wage (Fig. 1).

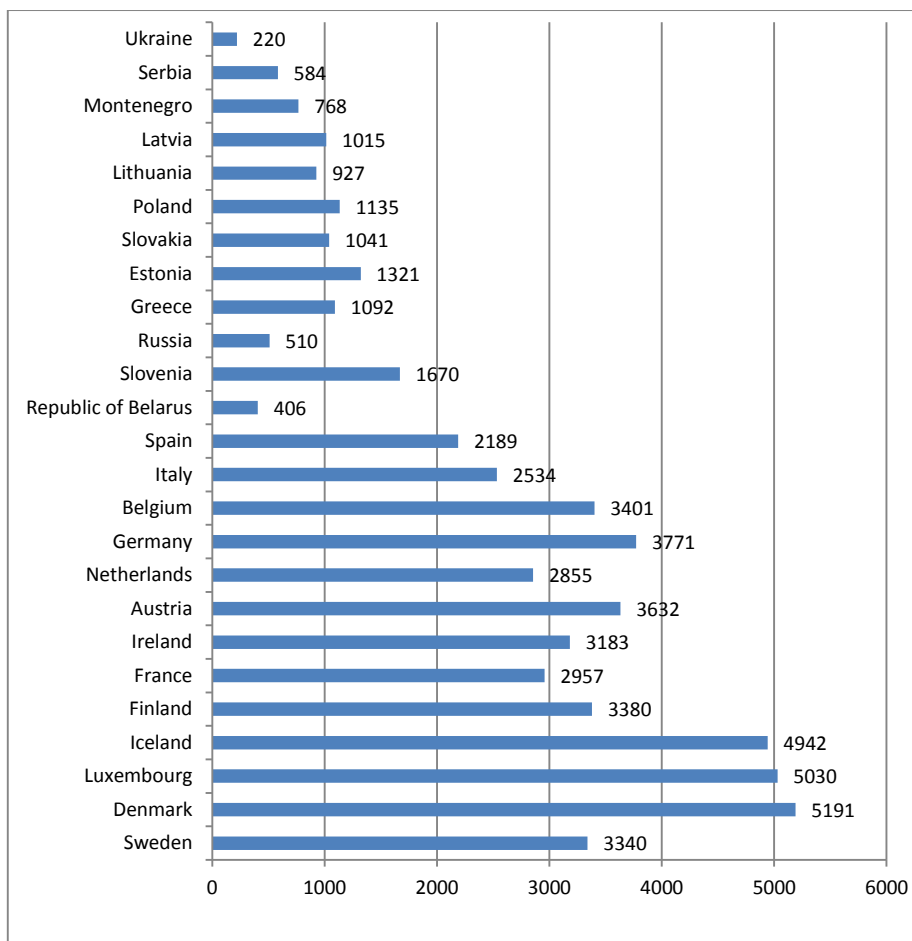


Fig. 1. Average salary in some European countries for 2017 (in euro)  
Source: Eurostat, 2016

Among the reasons for such a lag in Ukraine it is expedient to allocate energy-saving structure of the national economy, the insufficient share of high-tech industries, high level of income shadowing, low productivity of labour, the inefficiency of state policy aimed at stimulating the growth of wages of employees. Despite wage cuts in the face of crisis, the nominal level of wages in Europe still remains high enough.

In Ukraine, the average monthly wage in industry is slightly higher compared to the indicator in other sectors. For the purpose of comparison, we will investigate the size of salaries of regular employees for other types of economic activity in Khmelnytsky and Vinnytsya regions (Fig. 2). According to statistics (Department of Statistics in Khmelnytsky region, 2017), in 2017 industry by volume of remuneration in Khmelnytskyi region took the 3rd place and amounted to 6826 UAH. The lowest was the level of remuneration in the field of temporary placement and organization of food – 3331 UAH.

In Vinnytsya region, the average monthly wage in the industrial sector was the 4th – 7089 UAH. The lowest was the level of remuneration in the field of providing other types of services – 4070 UAH (Department of Statistics in Vinnytsya region, 2017).

Thus, despite the protracted financial and economic crisis in Ukraine, as well as the unstable political situation and the aggravation of events in the east of Ukraine, the average salary of Ukrainians is constantly increasing. According to

the State Statistics Committee of Ukraine, during 2010–2017, the average wage in Ukraine increased by 4854 UAH. If we compare the growth of consumer prices in the period 2017–2018 with the growth of the average wage, then we will have an indicator of the growth rate of nominal wages – 137.1 % compared to the previous year, as well as the consumer price index – 114.4% in 2017. Thus, nominal wages grew more than the consumer price index, which suggests that the situation of Ukrainian workers has improved (State Statistics Service of Ukraine, 2017). According to the analysis, wages in Ukraine in 2017 compared to 2010 increased by more than 215%. As for the size of salaries at machine-building enterprises, in 2017 this indicator made 96.4% of the average monthly salary in the industry.

According to the Law of Ukraine "On the State Budget of Ukraine for 2017" (Article 8), 2017, which came into force on the 01.01.2017, the minimum wage for Ukrainian workers amounted to 3200 UAH. Compared to 2016, where the average size of the minimum wage was UAH 1476 (Law of Ukraine "On the State Budget of Ukraine for 2016" (Article 8), the beginning of action is the 01.01.2016 (UAH 1378), the beginning of action is the 01.05. 2016 (UAH 1450), the beginning of action is on January 1, 2016, UAH 1600 [6]), the growth rate of the minimum wage in 2017 in relation to 2016 was 216.9%. Proportionally, the growth of the minimum wage in all sectors of the economy was accompanied by an increase in the average monthly wage. As of 01.01.2018, the minimum wage of Ukrainian workers

increased to UAH 3,723. Proportionally, the growth of the minimum wage in all sectors of the economy was accompanied by an increase in the average monthly wage.

In the case of wage increases, there is an increase in employee incomes, which leads to an increase in demand for goods, production and the economy as a whole. Ensuring the growth of real wages and real incomes of workers working in machine-building enterprises is one of the components of the formation of motives and incentives for staff which is what our researches are targeting.

However, today, another problem for not only the enterprises of the machine-building industry, but also the industry as a whole, is the sharp difference between wage levels in the regions and the capital. In particular, the average monthly salary in Kyiv region in 2017 amounted to 7188 UAH, while for the industry sector it was 8123

UAH (Department of Statistics in Kyiv region, 2017), while in Khmelnytskyi region it was 5938 UAH and in the industrial sector – 6826 UAH, in Vinnytsia region – 6121 UAH and 7089 UAH respectively. Although these indicators are not the worst for the last two regions. Thus, in comparison, the average monthly salary in Ternopil region in 2017 amounted to 5554 UAH, and for the employees of the industry sector – 6187 UAH (Department of Statistics in Ternopil region, 2017).

In the case of wage increases, there is an increase in workers' incomes, which leads to an increase in demand for goods, production and the economy as a whole. Ensuring the growth of real wages and real incomes of employees working in machine-building enterprises is one of the components of the formation of staff motives and incentives, which is the focus of our research.

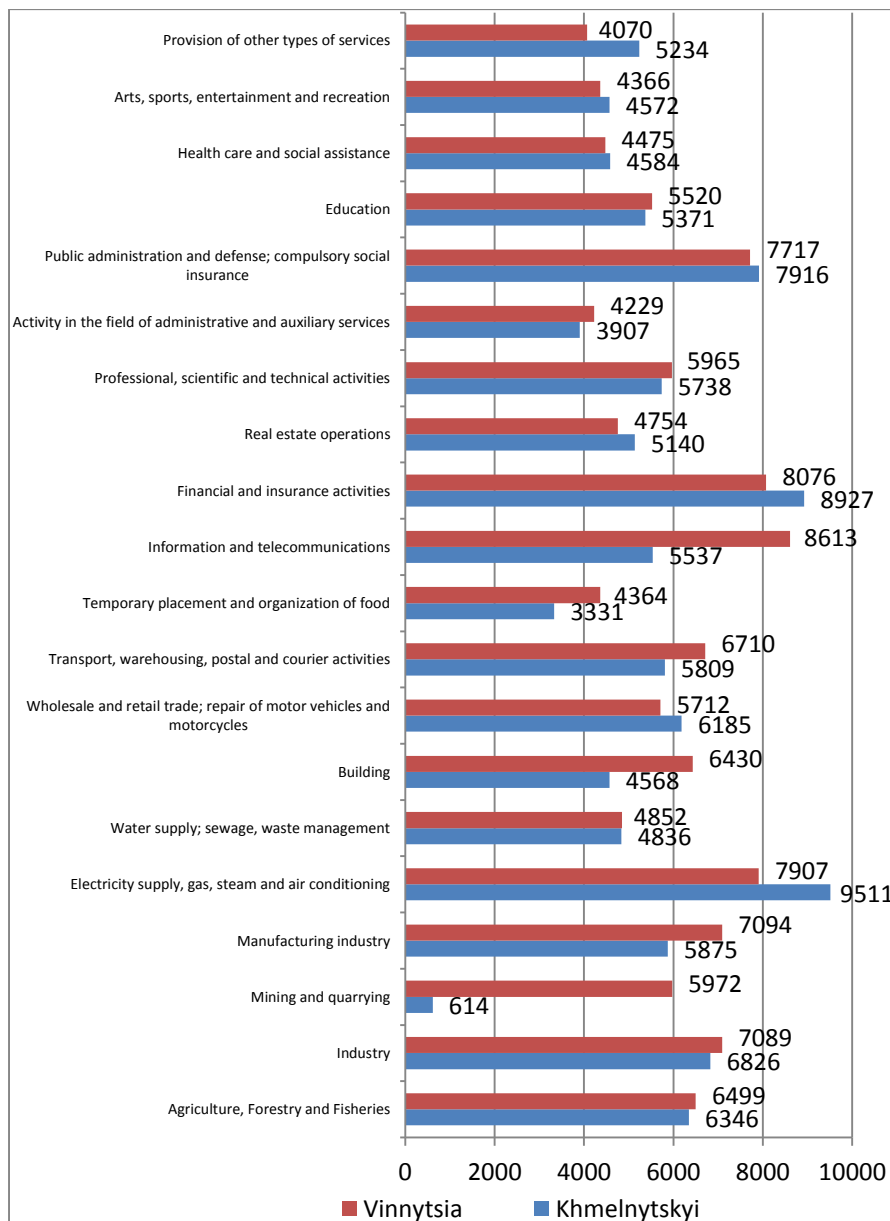


Fig. 2. Salaries of regular employees by types of economic activity in Vinnytsia and Khmelnytskyi regions in 2017, UAH

Sources: Main Department of Statistics in Khmelnytskyi region, 2018; Main Department of Statistics in Vinnytsia region, 2018

However, today, another problem for workers not only in the machine-building industry, but in the industry as a whole is the sharp discrepancy between wages in the regions and the capital. In particular, in Kyiv the average monthly wage in 2017 was 5229 UAH, and for workers of the industry sector - 6385 UAH [7], while in the Khmelnytsky region 4042.6 UAH and in the industrial sector - 5226 UAH, in Vinnytsia region - 4189 UAH and UAH 5454 respectively. Although, for the latter two areas these indicators are not the worst. Thus, in comparison with the average monthly wage in Ternopil region in 2016 amounted to 3695 UAH, and for workers of the industry sector - 4431 UAH [8].

Let's turn to a more detailed analysis of wages at the enterprises of the machine-building industry. It should be noted that the machine-building industry in Ukraine belongs to the leading and rather powerful sectors in the industry, which, according to the State Statistics Service of Ukraine 2017, covers 4483 enterprises, employing 328.6 thousand people. The level of development of mechanical engineering determines the pace and scale of the implementation of scientific and technological advances in the industries that are consumers of machine-building products. Despite the fact that the contribution of the machine-building industry to the development of the national economy is quite significant, it should be noted that its share in the structure of domestic industry continues to decrease.

According to the results of international statistical studies, in the economically developed countries, the share of the machine-building industry accounts for 30–50% of the total volume of production of industrial production. Thus, in Germany, the share of machine building is 53.6%, Japan – 51.5%, the United Kingdom – 39.6%, Italy – 36.4%, China – 35.2%. Under these conditions, the technical re-equipment of the entire industry is provided every 8–10 years (The state statistics service of Ukraine, 2017).

In this case, the production of the machine-building industry of the EU countries provides 36–45% of GDP, in the USA – 10%, in Russia, the share of machine building products in GDP is 18%. According to statistics,

the share of products of Ukrainian machine-building enterprises varies within 10–13% of the total volume of industrial output, that is, this indicator is 3–5 times smaller than in many developed countries with developed economies (Petrenko, 2016). As a result, there is a backlog of domestic industry, according to the technical characteristics of the industrialized countries.

It should be emphasized that the global crisis directly impacted on the development of the national industry, manifestations of which were observed in a significant reduction in production volumes. Crisis phenomena of an economic nature, largely due to political turmoil, have caused too serious consequences, which resulted in falling demand and supply, as well as destabilization of the financial and economic situation.

These events are associated with the beginning of an antiterrorist operation in the east of Ukraine and the loss of control over part of the territory, as well as with the temporary occupation of the Crimean peninsula. Due to the fact that most of the machine-building enterprises in Donetsk region and Luhansk region were left uncontrolled in Ukraine, the State Statistics Committee today does not take into account their financial results, which were considered positive by the previous year. In order to conduct the current study, it is important to provide statistical information on the actual situation in the country, as a significant proportion of machine-building enterprises are located mainly in the eastern regions of Ukraine.

As part of our study, we will analyse the employment of employees and the dynamics of wages in industrial and machine-building enterprises (Table 1).

Based on the data presented in Table 1, we see that the number of machine-building enterprises, as well as the number of employees employed in this area, has sharply decreased since 2014. In turn, the size of the average monthly wage in the industry, as well as in machine-building enterprises, has been gradually increasing, which is explained solely by the growth of the minimum wage during the analysed period.

Table 1 - Comparative characteristics of the number of full-time employees and wages in industrial enterprises and, in particular, machine-building enterprises

Years	Number of employed at machine-building enterprises, thsd. persons	% of the total number employed in industrial enterprises	Average monthly wages at machine-building enterprises, UAH	% of the average monthly wage in industry
2011	498,6	16,4	2756,0	88,3
2012	519,7	17,2	3042,0	86,9
2013	487,7	16,7	3229,0	85,8
2014	421,2	17,3	3336,0	83,7
2015	369,5	16,4	4211,0	87,9
2016	350,5	16,5	5344,0	90,5
2017	328,6	17,4	7357,0	96,4

Source: State Statistics Service of Ukraine, 2017

Considering that the wages of workers of the machine-building complex increased only with the increase of the minimum wage and in connection with the crisis phenomena, which caused a significant reduction of

production volumes, it is necessary to formulate measures aimed at improving wages. The implementation of these measures should be carried out on the basis of its individualization and differentiation, which promotes: the enhancement of the stimulating

function of the payroll in the development of machine-building enterprises; the establishment of a fair price for the labour force, demand and supply in the labour market; an increase in fiscal surcharges and a change in the burden on budgets of all levels; the reduction of the scale of the poverty of the working-class nausea, the establishment of a stable social life of life; to increase the level of general competitiveness of enterprises in the machine-building industry.

Along with the increase in wages, it is necessary to borrow foreign practices to use social guarantees, benefits, participation of employees in the company's property and distribution of profits, rotation of staff and other components of the formation of the motives and incentives of employees. At the machine-building enterprises, most of the components of this system are rather weakly applied, or it is done only for individual workers. Such a tendency requires the need to direct the actions of owners of machine-building enterprises in the formation and implementation of an effective mechanism of motivation and stimulation of the personnel of the enterprise. During implementing such a mechanism, it is necessary to take into account the quality of work of each employee.

Thus, in order to increase the economic efficiency of the machine-building enterprises of Ukraine, first of all, it is necessary to develop such a mechanism of motivation and incentives for staff, which would encourage employees to constantly search for ways to improve their own labour function, providing the opportunity to live in a dignified place in the public space, to make a full

satisfaction the material and spiritual needs of his family and his own needs. Taking into account the results of the research carried out, the formation of a fair remuneration system should be an important part of this mechanism.

### Conclusions

According to the results of research, wages in Ukraine are much lower than in European countries. In industry, the average monthly wage is somewhat higher compared to the indicator in other sectors. With regard to the size of wages at machine-building enterprises, this figure amounted to 87.9% of the monthly average wage in industry.

Taking into account the analysis, it is expedient to argue that the success of machine-building enterprises today is determined by the ability to effectively use the potential of employees, which depends on the working conditions and their interest in the proper performance of their duties, that is, from the development of the system of motivation in the enterprise, namely, from stimulating factors, to which is worthy of wages. In the case of using such factors in the calculation of wages and the promotion of employment, the company will be able to influence the labour conduct of the employee, thereby focusing his work efforts on achieving high motivated activities.

Against this background, further research should be based on the determination of bonus rates in the context of the basic, subsidiary and non-susceptible subdivisions of the industrial enterprise.

### References

1. Eurostat. Retrieved November 12, 2016. Retrieved from <http://ec.europa.eu/eurostat/web/labour-market/earnings/database>
2. Holovne upravlinnia statystyky u Khmelnytskii oblasti [Department of Statistics in Khmelnytsky region]. Ofitsiyni veb-sait [Web-site]. Retrieved from <http://www.km.ukrstat.gov.ua/ukr/index.htm>.
3. Holovne upravlinnia statystyky u Vinnytskii oblasti [Department of Statistics in Vinnytsia region]. Ofitsiyni veb-sait [Web-site]. Retrieved from <http://www.vn.ukrstat.gov.ua/>
4. Derzhavna sluzhba statystyky Ukrainy [State Statistics Service of Ukraine]. Ofitsiyni veb-sait [Web-site]. Retrieved from <http://www.ukrstat.gov.ua/>
5. Pro Derzhavnyi biudzhzet Ukrainy na 2017 rik: zakon Ukrainy vid 21.12.2016 № 1801-VIII iz zminamy i dopovnenniamy, vnesenymy Zakonom Ukrainy vid 21 liutoho 2017 roku № 1860-VIII, vid 23 bereznia 2017 roku № 1979-VIII [Law of Ukraine on the State Budget of Ukraine for 2017 from December 21, 2016, No. 1801-VIII, as amended and supplemented by the Laws of Ukraine from February 21, 2017 No. 1860-VIII, from March 23, 2017 No. 1979-VIII]. Vidomosti Verkhovnoi Rady Ukrainy [Bulletin of Verkhovna Rada of Ukraine]. Retrieved from [http://search.ligazakon.ua/l\\_doc2.nsf/link1/T161801.html](http://search.ligazakon.ua/l_doc2.nsf/link1/T161801.html)
6. Pro Derzhavnyi biudzhzet Ukrainy na 2016 rik: zakon Ukrainy vid 25.12.2015 № 928-VIII iz zminamy, vnesenymy zghidno iz Zakonom № 1384-VIII vid 19.05.2016 [Law of Ukraine on the State Budget of Ukraine for 2016 from December 25, 2015, No. 928-VIII, as amended, in accordance with the Law No. 1384-VIII from May 19, 2016] Vidomosti Verkhovnoi Rady Ukrainy [Bulletin of Verkhovna Rada of Ukraine], No 5 [in Ukrainian].
7. Holovne upravlinnia statystyky u Kyivskii oblasti [Department of Statistics in Kyiv region]. Ofitsiyni veb-sait [Web-site]. Retrieved from <http://kyivobl.ukrstat.gov.ua/content/p.php3?c=1037&lang=1>
8. Holovne upravlinnia statystyky u Ternopilskii oblasti [Department of Statistics in Ternopil region]. Ofitsiyni veb-sait [Web-site]. Retrieved from <http://www.te.ukrstat.gov.ua/files/DN/DN72.htm>
9. Petrenko, I.S. (ed.) (2016). Promyslovist Ukrainy u 2011–2015 rokakh: statystychni zbirnyk [Industry of Ukraine in 2011–2015: Statistical Yearbook]. Derzhavna sluzhba statystyky Ukrainy. Kyiv: State Statistics Service of Ukraine [in Ukrainian].
10. The state statistics service of Ukraine. Emissions of pollutants and greenhouse gases into the atmospheric air from stationary sources of pollution. Retrieved from: <http://ukrstat.gov.ua/>