

## PRESENT AND FUTURE IN THE USE OF COMPANIES' PERSONNEL

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**Abstract.** *The article focuses on the problem of the use of personnel at alcohol production enterprises in the Podillya Area of Ukraine. Even though this issue has been long studied by researchers, it remains relevant and not fully investigated. The state of the alcohol industry in the period of independent Ukraine is characterized by a sharp decline in the technological level of production, wear of equipment; these factors adversely affect the use of its personnel. In view of the fact that the alcohol industry is a source of replenishment of the revenue that contributes to the state budget, it is expedient that the above mentioned problem be solved. When investigating the level of staff productivity at the enterprises of the alcohol industry in the Podillya Area, it was revealed that the factors of non-direct influence on the above level were directly related to the indicators of the level of wages and capital-labor ratio. The use of personnel has been analyzed and a forecast has been made up to 2025 with respect to the levels of average wages, capital-labor ratio and the labor productivity of the personnel of the enterprises under study.*

**Key words:** *personnel, alcohol production enterprise, use of personnel, level of average wages, level of capital-labor ratio, level of labor productivity.*

**JEL Classification:** J21, J24.

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**Formulation of the problem.** Modern economic reforms in Ukraine are accompanied by transformation processes of the employee - employer relations, which significantly affect the use of the personnel of the country's businesses as a whole and individual organizations. Economic reform and, accordingly, a decline in production volumes led to an increase in unemployment and increased migration, especially in rural areas, resulting in a decrease in the use of personnel in the national economy as a whole and in particular in the alcohol production enterprises.

**Analysis of recent research and publications** suggests that a number of scientists, namely Bazhan I.I., Bogynia D.P., Vrublevskiy V.K., Gryshnova A.A., Domanchuk D.P., Kalina A.V., Kovalev V.M., Kuzmin A.E., Lototskyi I.I., Luchik S.D., Semchenko V.V., Chikurkova A.D., Yakuba K.I. and others devoted their research and publications to this topic.

**Focusing on the unsolved problem.** At the same time, the problem of using the personnel of enterprises remains insufficiently disclosed. Not enough attention is paid to the study of the use of personnel in alcohol production enterprises.

**Research findings.** As the results of a recent study show, the development of the alcohol industry is characterized by a sharp decline in the technological level of production, wear of production tools, reduction in the volume of raw materials, product mix, deterioration of its quality, investment, and innovation processes, the use of domestic alcohol products from the domestic and foreign markets for food products, a decrease in the volume of revenues based on the budget and foreign exchange earnings to Ukraine from the export operations of the alcohol industry, and also peculiarities of personnel management of the enterprises, its specific formation, use, and development for the future.

The alcohol industry is a source of replenishment of the state budget revenues (which is relevant in the current period), and Vinnytska, Ternopil'ska, and Khmelnytskyi regions of Ukraine have all the natural conditions and raw materials necessary for operation of the relevant enterprises, thereby attracting the working population of this region to reduce unemployment. To solve these problems, it is extremely important to attract human resources and increase production. At the same time, the effective use of the existing potential is the initial task. Considering the fact that most distilleries are located in rural areas, the formation of personnel at these enterprises should be carried out with the trends in the dynamics of the rural population taken into account. As a result, the

formation of the labor potential of both the agrarian sector of the economy and the sphere of processing enterprises, in particular alcohol production, the process of reproduction of its natural basis, i.e. the rural population, takes place.

Changes in the population size, mode of reproduction and structural-dynamic changes in its age- and gender-related professional qualification composition have a decisive influence on its quantitative and qualitative characteristics. The quantitative side of the industry personnel is characterized by the labor resource number for a certain period and the amount of time that can be worked out by the working-age population in man-days and man-hours.

The qualitative side of the personnel is characterized by their composition by gender, age, level of education, qualifications and labor activity of individual gender and age groups of workers.

Therefore, when studying the process of using personnel of enterprises of the alcohol industry, it becomes important to analyze the quantitative and qualitative indicators of the population and the mode of their reproduction, which in their unity determine the organic integrity of the entire system.

Statistics show that for the period from 2004 to 2018 alone, the population of Ukraine decreased by 5.5 million. and equals 42.15 million. This trend is reflected in the Podillya Area, here the population decreased by 3.87 million. Including estimated 0.4 million reduction of the rural population. Given the location of the alcohol production plants in rural areas, we investigated the changes in the number of rural population in the study period in Ukraine and in the Podillya Area and received a negative result. The rural population of Ukraine decreased by 17.8%. The demographic development of the regional personnel remains one of the most important problems of social and labor relations. Modern demographic indicators in the region and in Ukraine as a whole retain threatening trends due to migration processes, and the negative balance of the natural increase.

Studies show that at present we need to curb not only unemployment, but also reduce the outflow of personnel from the country, especially the able-bodied population. One of the reasons for this situation is the low level of wages, which kills a person's, especially young people's desire to work, improve their skills and contribute to the development of the national economy. Academician V. Geyets argues that we can expect an increase in the unemployment rate of the working-age population; therefore, it is necessary to involve various programs for the retraining of labor resources, attract them to the service sector, in order to attract the working-age population and avoid an increase in the unemployment rate [1].

Thus, we can note that the involvement of workers from the external environment can take place in the said businesses. Therefore, we need to pay attention to a different procedure to address the needs of the personnel, organization, namely, more efficient use of the existing personnel in the industry.

To study this problem, we will use statistical materials on the regions of Ukraine, which are included in the Podillya Area, namely Vinnytska, Ternopil'ska, and Khmelnytskyi. Investigating the level of labor productivity, as the main indicator of personnel efficiency at the enterprises of the alcohol industry in the Podillya Area, it was revealed that factors that indirectly influenced its level in 2018 were wage levels and capital-labor ratio indicators; this was the next step in our forecasting (Table 1).

Table 1. Input information for the regression-correlation analysis of labor productivity at the enterprises of the alcohol industry in 2018

Distilleries	Level 3 (thousand hryvnias /man)	Average monthly wage (hryvnias)	Capital-labor ratio (thousand hryvnias /man)
Dolzhokskyi (Khmelnyskyi region)	610,2	14756,63	40,70
Annopolskyi (Khmelnyskyi region)	555,3	9785,65	29,35
Kobylovototskyi (Ternopil'ska region)	674,8	12770,20	36,10
Manikovetskyi (Ternopil'ska region)	874,2	12489,32	32,54
Ovechatskyi (Vinnytska region)	525,5	13546,80	20,00
Nemyrovskyi (Vinnytska region)	705,11	15456,25	19,24

Having the necessary data, we developed a methodology for the formalized presentation of information, that is, using a regression-correlation analysis, we made the appropriate algorithm and constructed an equation for the dependence of the level of labor productivity and factors that have no direct influence on it:

$$y = -32,075 + 0,158x_1 - 0,245x_2, \quad (1)$$

where:  $y$  - level of labor productivity at the enterprises of the alcohol industry in the Podillya Area, thousand hryvnias;

$x_1$  - average wages of employees, hryvnias.

$x_2$  - capital-labor ratio.

We calculated the multiple regression coefficient; we obtained its value of 0.92, which indicates a high degree of connection between the factor and effective signs.

Then, when modeling changes in the level of labor productivity, we provided for obtaining the results of changes in the average wage levels and the capital-labor ratio. In the process of modeling, we identified promising calculations.

The dynamics of factors influencing the level of labor productivity of the personnel of the enterprises under study is characterized by a non-stationary nature, therefore, they were predicted using trend models that allow to take into account the trends of all processes in the financial and economic operation of these enterprises, both in terms of national and industry characteristics. The use of these models is correct for the conditions of change in forecast indicators in the zone of their intended interval. Trend models determine the general direction of development, the main trend (tendency) of time series. Thus, we used trend models as

$$Y = A \times \text{Ln}(x) \pm B \quad (2)$$

The necessary retrospective information about the dynamics of changes in the levels of factor signs is presented in Table. 2,3,4 where the estimated performance indicators of the studied enterprises from 2004 to 2018 are indicated; these include the indicators of labor productivity, product profitability, the level of average monthly wages, and also the capital ratio.

After studying the dynamics of the estimated performance of the enterprises in Khmelnytskyi region, we can note the different trends in indicators for the period presented. Indicators of the level of labor productivity and the average wages of the 1st employee have a constant growth, which cannot be noted about the profitability and the capital-labor ratio, which increases for the entire period in the Dolzhokskyi Distillery but for Annopolskyi Distillery profitability indicator has decreased - this is a result of various internal and external factors and most importantly the use of all the possibilities for the stability of the enterprise and in no case does it relate to shutdowns caused by lack of either raw materials, distribution problems, or any other causes.

Table 2. Dynamics of enterprise performance indicators for Khmelnytskyi region

Indicator	2002	2006	2010	2013	2014	2018
Dolzhokskyi Distillery						
Labor productivity (thousand hryvnias/man)	54,5	118,6	284,4	349,8	470,2	610,2
Profitability (%)	3,7	2,2	3,9	20,1	26,1	23,7
Salary per employee per month (hryvnias.)	220,12	1114,58	1842,77	2431,32	8756,63	14756,63
Capital-labor ratio (thousand hryvnias./man)	17,0	26,3	31,78	39,1	39,7	40,70
Annopolskyi Distillery						
Labor productivity (thousand hryvnias/man)	49,7	120,5	254,9	312,8	425,9	555,3
Profitability (%)	4,2	7,5	7,1	6,5	4,3	0,5
Salary per employee per month (hryvnias.)	265,51	1852,3	1756,54	2232,21	7456,89	9785,65
Capital-labor ratio (thousand hryvnias./man)	19,65	20,45	22,85	24,35	27,65	29,35

Source: statistical data of economic services of enterprises

The dynamics of the estimated performance of enterprises of the Ternopil'ska region allows to come to the following conclusions:

- growth of labor productivity in the two enterprises is of a permanent nature, which testifies to the work of enterprises in a constant mode;
- salary indicators for enterprises also bear an ever-growing character;
- as a result of changes in the availability of equipment at enterprises, the indicators of capital-labor ratio for the period under review are constantly increasing;
- the influence of certain external and internal factors is evident in the changes in profitability indicators. Thus, at the Manikovetskyi Distillery, this indicator constantly changes its trajectory of movement from decline to growth and vice versa, while at the Kobylovetskyi Distillery this indicator has the character of a decline and has practically reached zero level.

Table 3. Dynamics of enterprise performance indicators for Ternopil'ska region

Indicator	2002	2006	2010	2013	2014	2018
<b>Kobylovetskyi Distillery</b>						
Labor productivity (thousand hryvnias/man)	84,9	199,0	363,5	500,4	452,8	674,8
Profitability (%)	10,0	1,4	2,3	0,9	0,5	0,1
Salary per employee per month (hryvnias.)	200,44	1201,03	2694,03	2513,53	6770,20	12770,2
Capital-labor ratio (thousand hryvnias./man)	16,2	18,7	23,36	36,5	34,1	36,1
<b>Manikovetskyi Distillery</b>						
Labor productivity (thousand hryvnias/man)	75,6	185,2	302,5	450,8	541,0	874,2
Profitability (%)	8,5	7,5	4,8	8,2	4,3	9,4
Salary per employee per month (hryvnias.)	188,45	899,45	2435,7	2756,4	5987,2	12489,3 2
Capital-labor ratio (thousand hryvnias./man)	28,56	27,56	29,45	28,85	29,54	32,54

Source: statistical data of economic services of enterprises

The dynamics of the estimated performance of enterprises in the Vinnytska region is of a similar nature compared to the previous study area (except for the indicator of profitability which is not reduced to zero in the enterprises of the Vinnytsia region), therefore we will draw the following conclusions below.

Analyzing the dynamics of the calculated indicators, we note the following: in monetary terms, the level of labor productivity in all enterprises increased over the specified period. Indicator of product profitability has a different trend in these enterprises, that is, its trends are inherent in growth and recession. The level of wages by employee per month has increased in all distilleries, which is based on an increase in the level of the minimum wage in the country.

Table 4. Dynamics of enterprise performance indicators for Vinnytska region

Indicator	2002	2006	2010	2013	2014	2018
<b>Ovechatskyi Distillery</b>						
Labor productivity (thousand hryvnias/man)	66,6	164,3	323,7	374,4	431,8	525,5
Profitability (%)	1,4	1,7	-0,1	3,2	2,9	3,2
Salary per employee per month (hryvnias.)	265,01	1871,16	2343,30	2368,53	2546,80	13546,80
Capital-labor ratio (thousand hryvnias./man)	20,2	20,1	19,9	19,9	19,9	20,00
<b>Nemyrovskyi Distillery</b>						
Labor productivity (thousand hryvnias/man)	85,6	158,6	289,5	387,54	489,65	805,11
Profitability (%)	5,8	6,7	7,8	8,9	5,8	8,1
Salary per employee per month (hryvnias.)	255,8	902,54	2444,22	3254,98	5498,75	15456,25
Capital-labor ratio (thousand hryvnias./man)	18,56	18,45	18,95	19,05	19,25	19,24

Source: statistical data of economic services of enterprises

Indicator of capital-labor ratio is subject to improvement, since not all enterprises have a stable upward trend.

Having carried out a trend analysis, we are able to construct trend models (Table 5).

Table 5. Trend models of changes in factor signs

Businesses	Average salary, hryvnias	Capital-labor ratio
Dolzhokskyi (Khmelnyskyi region)	$y = 602,91\text{Ln}(x) + 12,46$	$y = 5,5862\text{Ln}(x) + 14,337$
Annopolskyi (Khmelnyskyi region)	$y = 402,3\text{Ln}(x) + 19,54$	$y = 4,7818\text{Ln}(x) + 21,174$
Kobylovolskyi (Ternopilka region)	$y = 1124,3\text{Ln}(x) - 581,56$	$y = 3,0278\text{Ln}(x) + 13,17$
Manikovetskyi (Ternopilka region)	$y = 2854,5\text{Ln}(x) + 17,44$	$y = 2,5486\text{Ln}(x) + 16,159$
Ovechatskyi (Vinnytska region)	$y = 1106,2\text{Ln}(x) - 361,07$	$y = -0,0157\text{Ln}(x) + 19,843$
Nemyrovskyi (Vinnytska region)	$y = 1521,3\text{Ln}(x) - 456,21$	$y = 3,8546\text{Ln}(x) + 15,15$

Trend models that have a rather different meaning, which in turn is the result of all changes of factor signs taken into account for the analyzed enterprises. The use of trend models made it possible to predict trends in factors of the level of wages and capital-labor ratio for the future until 2025. and simulate the results of labor productivity at the enterprises of the Podillya Area of Ukraine.

The constructed trend models for the development of factor signs (average wages and capital-labor ratio) made it possible to develop a forecast for changes in the value of these indicators, as well as the level of labor productivity, in the presented plants until 2025 using the systemic approach (Table 6).

After we have obtained the results, we will make an analysis of the forecast changes and the corresponding conclusions. Analyzing the forecast changes in the levels of average wages, capital-labor ratio and labor productivity at the studied alcohol production enterprises of the Podillya Area (Table 4), we note that the predicted level at enterprises is different, but the growth trend of these levels is inherent everywhere, depending on the prerequisites and characteristics of each enterprise.

Table 6. Forecast of changes in the levels of indicators by enterprises (hryvnias.)

Distilleries	2021	2022	2023	2024	2025
Forecast of changes in average salary levels					
Dolzhokskyi	15103,57	15245,17	15484,08	15520,63	15755,09
Annopolskyi	12402,35	12582,16	12987,18	13221,87	13291,68
Kobylovolskyi	14385,53	14463,10	14535,66	14603,82	14668,08
Manikovetskyi	13425,67	13499,25	13567,87	13651,16	13787,25
Ovechatskyi	14323,37	14634,58	14705,97	14773,03	14836,26
Nemyrovskyi	17558,26	17651,21	176989,18	17728,16	17821,19
Forecast of changes in the levels of capital-labor ratio					
Dolzhokskyi	41,08	41,46	41,83	42,16	42,48
Annopolskyi	30,73	30,65	31,94	31,21	31,52
Kobylovolskyi	36,16	36,37	36,56	36,75	36,92
Manikovetskyi	32,67	33,92	33,46	35,14	36,17
Ovechatskyi	20,80	2084	20,86	20,88	20,90
Nemyrovskyi	20,75	20,91	21,62	22,32	24,75
Forecast of changes in labor productivity levels					
Dolzhokskyi	420,74	427,32	433,47	439,25	444,69
Annopolskyi	568,70	599,92	602,74	610,36	613,27
Kobylovolskyi	529,76	543,26	555,90	567,77	578,96
Manikovetskyi	902,60	903,50	907,50	909,70	910,00
Ovechatskyi	460,31	473,21	485,28	496,61	507,29
Nemyrovskyi	960,31	962,31	963,15	965,11	966,29

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Thus, a comparison of the ratio of forecast trends will comply with all economic laws and we hope will lead to improved financial results at each enterprise.

**Findings.** The proposed method of forecasting the efficiency of personnel use will allow specialists of the studied enterprises to obtain more reliable information on the trends in the predicted indicator through the use of the principles of the systemic approach. To implement such a judgment, enterprises need to restore or improve their fixed assets, which will also have a positive effect on capital-labor ratio of alcohol production enterprises and will give an opportunity to increase the productivity of workers of these companies, as well as increase their wages.

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