









“Remuneration in science: an analysis from the perspective of the decent work concept”

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REMUNERATION IN SCIENCE: AN ANALYSIS FROM THE PERSPECTIVE OF THE DECENT WORK CONCEPT

Abstract

Decent wages in science are necessary because the work of scientists is valuable for ensuring a country's viability and economic growth. This study aims to develop the theoretical and methodological foundations for examining wage policy within the framework of the decent work concept at the sectoral level. Additionally, the study seeks to analyze wage policies within the scientific field to identify areas for enhancement. The authors developed methodological principles for assessing wages in terms of the decent work concept. The assessment of wages confirmed the hypothesis about insufficient wage policy in science, which does not attract new employees to work in scientific institutions, engages scientists in research, and motivates results. The results showed that the science sector belongs to the sectors of the economy with decent wage indicators below the average. An analysis of wage policy in science revealed some positive characteristics and negative trends. Priority objectives were set to raise the prestige and attractiveness of scientific work. These objectives include raising salaries and increasing the minimal guarantees, implementing innovative wage tariffing and bonus schemes, introducing competitive social packages, reducing the gender pay gap, and developing social partnership and wage bargaining regulations. The practical significance of the study is evident in the potential application of the methodology by the National Academy of Sciences of Ukraine. Leaders of scientific institutions and social partners can use this methodology to derive practical benefits.

Keywords

wages, remuneration, decent work, collective bargaining, social partnership, sectoral agreements

JEL Classification

J16, I21

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ЗАРОБІТНА ПЛАТА В НАУКОВІЙ СФЕРІ: АНАЛІЗ В ТЕРМІНАХ КОНЦЕПЦІЇ ГІДНОЇ ПРАЦІ

Анотація

Гідна оплата праці в науці є необхідною тому, що праця науковців має велику цінність для забезпечення життєздатності та економічного зростання країни. Мета дослідження – обґрунтувати теоретико-методологічні засади дослідження політики оплати праці в рамках концепції гідної праці на галузевому рівні та проаналізувати політику оплати праці в галузі науки для визначення напрямів її вдосконалення. Авторами розроблено методологічні засади оцінки заробітної плати в рамках концепції гідної праці. Оцінка заробітної плати підтвердила гіпотезу про недостатню політику оплати праці в науці, яка не залучає нових співробітників до роботи в наукових установах, не залучає вчених до наукової роботи, не мотивує на результат. Результати показали, що наукова сфера відноситься до галузей економіки з гідним показником оплати праці, нижчим за середній. Аналіз політики оплати праці в науці виявив як позитивні, так і негативні тенденції. Для підвищення престижу та привабливості наукової роботи визначено першочергові завдання. Вони включають: підвищення заробітної плати та підвищення мінімальних гарантій, впровадження інноваційних систем тарифікації та преміювання, запровадження конкурентоспроможних соціальних пакетів, зменшення гендерного розриву в оплаті праці, розвиток соціального партнерства та положення про оплату праці. Практичне значення здійсненого дослідження полягає у можливості використання методики НАН України, керівниками наукових установ і соціальними партнерами.

Ключові слова

заробітна плата, оплата праці, гідна праця, колективні переговори, соціальне партнерство, галузеві угоди

Класифікація JEL

J16, I21

INTRODUCTION

The issue of wage is a key point in the theory and the practice of the decent work concept, along with employment, working conditions, and occupational safety. Remuneration plays an essential role in creating the proper conditions for the reproduction of employees' ability to work, professional and personal development, and ensuring employees' well-being and quality of life. The amount of wage affects a person's ability to meet needs, improve skills, and maintain the ability to work, which is the priority in terms of the decent work concept.

The material reward remains one of the main motivational factors that determine the choice of the sphere of employment, a form of employment (self-employment, work under an employment or civil contract, etc.), and the organization (employer). Also, material reward, primarily in the form of wages, is an important means of encouraging employees to improve their performance and achieve goals (Blumkin et al., 2020; Cozzarin, 2016; Katovich & Maia, 2018; Ozturk et al., 2020; Strain, 2019).

Among the expected results of the implementation of ILO's Decent Work Country Program for Ukraine for 2020–2024 is the improvement of protection, an increase in wages, and ensuring wage equality. The declared wages and income policies aim to solve three main issues – wage arrears, inadequate minimum wages, and the gender pay gap (ILO, 2020).

A decent wage will contribute to the achievement of the Sustainable Development Goals by Ukraine, in particular:

- to achieve and maintain a gradual growth of income of the least well-off 40% of the population at a level that is higher than the national average by 2030 (Goal 10.1);
- to adopt relevant policies, including fiscal policy, wage, and social protection policies, and gradually seek to ensure wage equality (Goal 10.4);
- to achieve the goal of ensuring full-time and productive employment, as well as decent work for all individuals, encompassing women, men, young people, and those with disabilities. This includes striving for equal pay for equal work by the year 2030. (Goal 8.5);
- to create an environment for ending all forms of discrimination against women and girls (Goal 5.1) (UNU, 2015).

Scientists are necessary to spur economic growth and job creation through innovation, maintain industrial competitiveness, and address other significant national and social needs (Sargent, 2013).

Scientific research and development are not only aimed to improve the quality and the duration of life, but also to address global challenges related to climate change, natural disasters, water, and food shortages, and the scarcity of other resources around the world. Human health and life often depend on the performance of healthcare employees (Tymbaliuk & Shkoda, 2022) and scientists in medicine, pharmacology, chemistry, biology, etc. This statement is proved by the situation that humanity faced during the pandemic of COVID-19. Not only do the health and livelihoods of society depend on the results of scientists' activities, but also the business's ability to exit quarantine quickly.

The importance of the scientific potential development of individual countries and humanity, in general, is reflected in the Sustainable Development Goals. In particular, goal 9.5 aims to “enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number

of research and development employees per 1 mln people and public and private research and development spending” (UN, 2015).

A decent wage in science is needed because of the value of the work of scientists to ensure the viability of the country and its economic growth. The field of science should be attractive to employees in terms of ensuring the quality of working life, decent conditions, and wages. To receive the long-term benefits of the investment that society has made in scientists’ skills, experience, and education, highly qualified scientists must be given proper financial recognition (PSA, 2015). Therefore, the issues of remuneration of scientists, in particular in terms of ensuring a decent reward for work need to be studied.

1. LITERATURE REVIEW

Scientific research is the engine that creates new knowledge, improves education, increases the quality of people’s life (UNESCO, 2022), determines economic growth (Nelson, 2020), drives innovations (HIIG, 2022) and health advances (Collins, 2015), fosters sustainability (Rull, 2014), contributes to the functioning of democracies (HIIG, 2022) and generates a change of the moral values (Burke et al., 1985). Despite this fact, different research has shown that the number of scientists in some research areas is on the decline (Baker et al., 2022; Collins, 2015; Teitelbaum, 2004).

Some research has shown that salaries and incentive schemes were not considered motivating factors by some scientists (Jindal-Snape and Snape, 2006). Nevertheless, different researchers stress that financial rewards motivate scientists besides reputational and intrinsic ones (Badawy, 1971; Lam, 2011). It confirms the significance of developing decent remuneration for scientists to increase their motivation.

According to research results, the problem of low levels of scientists’ salaries in comparison with other spheres of economic activity is present in different countries (Friedrichsen, 2022). Some research shows not a high level of scientists’ satisfaction with salary. According to the survey, 47% of scientists reported being satisfied or very satisfied with their current level of remuneration. Remuneration stood out as a priority for scientists ranking in importance second only to job security which was the highest priority (PSA, 2015).

The consequences of dissatisfaction with the remuneration are internal migration (Ochola & Gitau, 2009), and international mobility (Flanagan, 2015). However, other studies suggest that the main factors

of international mobility are not material benefits, but opportunities for professional growth (Appelt et al., 2015).

Besides low levels of scientists’ salaries, some studies disclose other relevant problems: the gender pay gap (Chakravarthy et al., 1988; Dion et al., 2018; Edwards et al., 2021), inequalities in remuneration between scientists with temporary and permanent contracts (Swider-Cios et al., 2021). As recent research has shown, almost all problems in the remuneration of scientists have been deepened by pandemic-related lockdowns (Swider-Cios et al., 2021).

Some researchers try to find efficient incentive schemes for scientists that are not less important than the levels of scientists’ salaries: performance-based rewards (Lehrer & Asakawa, 2004; Lacetera & Zirulia, 2012) and optimal incentive systems for multitasking scientists (Huffman & Just, 2010).

The promising research area is assessing factors affecting the scientists’ salaries. Some research showed that the quantity of exposure (Hamermesh & Pfann, 2012) and research performance (De Fraja et al., 2016) positively affect scientists’ salaries independent of quality. Different studies (Bratsberg et al., 2010; Hilme et al., 2015; Gibson et al., 2017) suggest that citations have an independent impact on scientists’ salaries. On the other hand, some research (Sandnes, 2018) revealed that among academic groups with little research responsibility publication performance was not used to set salaries. Liebowitz (2014) stated that citations are considered less important in decisions about promotion to the full professor than the quality of journals where the articles appeared.

Some authors emphasize that despite the essential role of remuneration, material benefits are not only a component of the rewards system of science. It also

contains recognition, respect (Schliesser, 2018), and great freedom to experiment (Azoulay et al., 2011).

Despite the necessary attention of researchers to the issues of remuneration in science, there is a lack of studies related to the implementation of decent work priorities concerning rights, social justice, and partnership (ILO, 2001; ILO, 2008; ILO, 2016; ILO, 2020) in wage policies in science. There is a deficiency in methodological approaches for assessing wage policies in terms of ensuring decent remuneration for scientists. There is a lack of research that accumulate different characteristics of wage policies: a decent level of wage, objective differentiation, policies transparency, the use of innovative approaches, and social partnership in wage regulation.

2. AIMS

The aim of the study is to establish the theoretical and methodological principles for conducting research on wage policy in terms of the decent work concept at the sectoral level and to analyze the wage policy in the field of science to determine directions for its improvement.

3. METHODS

Considering the target priorities of decent work settled by the ILO (securing rights, social justice, development of social partnership, etc.), the main characteristics of decent wages are the next: a decent level of wages; objective differentiation of remuneration; timely payment of wages; transparency; fair attitude towards employees and ensuring equal opportunities; involvement of market and contractual elements for wage regulation; use of innovative approaches to wage formation.

To assess wages in terms of the concept of decent work we developed the indicators (Table 4), the standards for each indicator, and the methodological principles for determining the individual indices and the complex indicator. The reliability of the indicators was confirmed through the utilization of the expert survey method. The participating experts comprised scientists and specialists with expertise in the realms of social and labour relations, as well as wages.

In the case of the study of wages in terms of the implementation of decent work principles in various sectors (industries), the individual indices (I_i) are determined based on the standardization procedure.

In the case of the study of wages in terms of the implementation of decent work principles in a particular sector (industry), the individual indices are determined in the following order:

- if the actual value of a certain indicator does not meet the established standard, the individual index (I_i) for this indicator is equal to 0;
- if the actual value of a certain indicator corresponds to, is within, or exceeds the established standard, then the individual index (I_i) for this indicator is equal to 1.

The complex indicator of decent wages (K) is defined by the following formula:

$$K = \frac{\sum_{s=1}^n 2_s}{n}, \tag{1}$$

where n is the number of indicators.

The value of the complex indicator of decent wages can be in the range from 0 to 1.

An important stage in the procedure of the formation of the methodical principles is the development of ranges of levels of the complex indicator. To determine the ranges of levels, the methodical approach was used, according to which the multiplicity of values was divided into equal intervals:

$$K \in \left\{ \begin{array}{l} [0.8; 1] \\ [0.6; 0.8) \\ [0.4; 0.6) \\ [0.2; 0.4) \\ [0; 0.2) \end{array} \right\}, \tag{2}$$

$$K \in \left\{ \begin{array}{ll} \textit{high} & \textit{level} \\ \textit{above - average} & \textit{level} \\ \textit{average} & \textit{level} \\ \textit{below - average} & \textit{level} \\ \textit{low} & \textit{level} \end{array} \right\}.$$

4. RESULTS

One of the most important indicators that characterize the wage policy is the amount and the dynamics of wages. Table 1 provides an overview of the nominal and real wage dynamics in the field of science in Ukraine from 2006 to 2022.

The nominal wage in science from 2006 to 2022 tended to increase. At the same time, the real wage did not have positive dynamics. Moreover, in 2009, 2014, 2015, and 2022 due to the crisis and war and

as a result, significant inflation, real wages decreased significantly. The abovementioned facts negatively characterize the wage policy.

It is important to analyze also the ratio of the average wage in a sector of the economy to the average wage in the national economy. Figure 1 shows the dynamics of the average monthly wage in the field of science and the economy of Ukraine from 2006 to 2022.

During the study period, the average monthly wage in the field of science exceeded the average

Table 1. The dynamics of nominal and real wages in the field of science in Ukraine from 2006 to 2022

Source: Compiled according to the SSSU (ukrstat).

Year	The nominal wage in the field of science, UAH	The price index before 2006, %	The real wage in the field of science, UAH	The real wage growth rates, %
2006	1.323	100	1,323.00	-
2007	1.741	116.6	1,493.14	112.86
2008	2.336	142.6	1,638.15	109.71
2009	2.556	160.14	1,596.1	97.43
2010	2.901	174.71	1,660.47	104.03
2011	3.296	182.75	1,803.56	108.62
2012	3.805	182.39	2,086.19	115.67
2013	4.059	183.3	2,214.4	106.15
2014	4.268	228.94	1,864.24	84.19
2015	4.972	328.07	1,515.53	81.29
2016	6.119	368.75	1,659.39	109.49
2017	8.212	419.27	1,958.64	118.03
2018	10.259	460.36	2,228.42	113.77
2019	11.649	479.23	2,430.76	109.08
2020	12.882	503.19	2,560.1	105.32
2021	15.179	553.51	2,742.32	107.12
2022	16.360	700.75	2,334.64	85.13

Source: Compiled according to the SSSU (ukrstat).

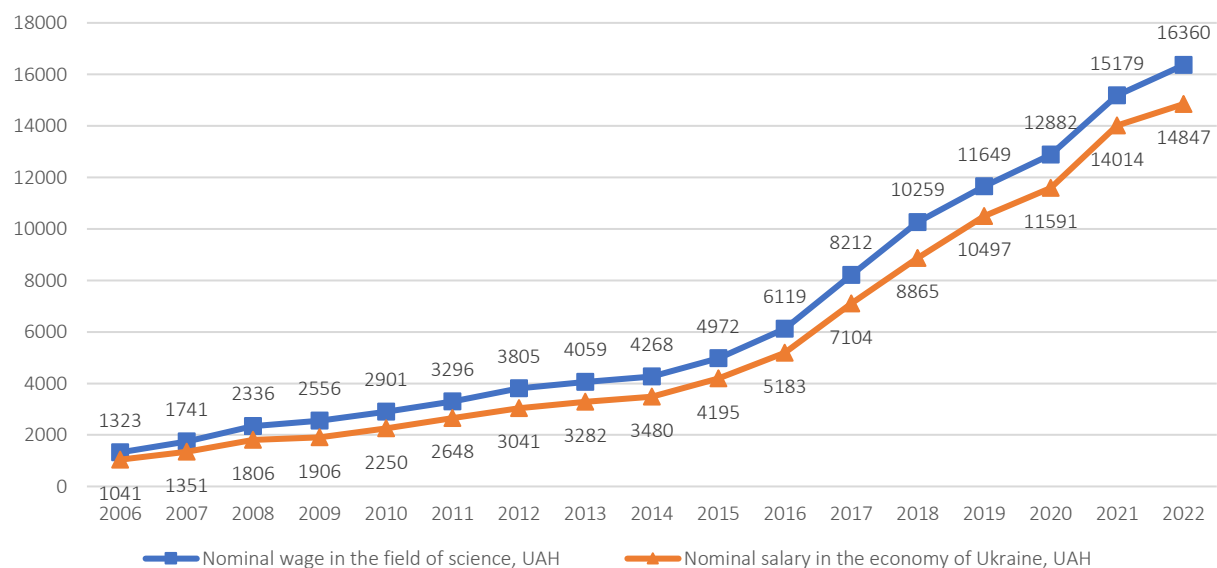


Figure 1. The dynamics of the average monthly wage in the field of science and the economy of Ukraine from 2006 to 2022

monthly wage in the economy of Ukraine. The excess, however, was insignificant. Nevertheless, it was a positive factor, in general.

At the same time, the ratio of the average wage in the field of science to the average wage in the economy of Ukraine had been growing until 2009 and in 2009 reached the maximum value – of 1.34. From 2010, this ratio started to decrease and in 2021 was equal to 1.08, which was the lowest number for the study period. This trend is negative and, in the future, may lead to the demotivation of scientists and induce them to look for a job in other sectors of the economy that are more financially beneficial.

Moreover, it is necessary to consider the significant lag of wages in the field of science behind wages in traditionally high-paying economic activities. Thus, in 2022, the average monthly salary in information and telecommunications was UAH 30,829, in financial and insurance activities – UAH 27,986, in air transport – UAH 24,963.

An important indicator that characterizes the wage policy in terms of decent work is the share of employees who receive wages below the subsistence level. In Ukraine, a legislatively defined subsistence level is not an efficient social standard and does not reflect the level of income required for labour force reproduction. That is why it is better to use the actual subsistence level for able-bodied people calculated by the Ministry of Social Policy of Ukraine. Thus, the actual subsistence level for able-bodied people was UAH 6,032 as of January 2022.

The State Statistics Service of Ukraine does not publish information about the share of employees who receive wages below the subsistence level, so it is impossible to determine the exact percentage of such employees. However, considering that in January 2022, the minimum wage was 6,500 UAH. If taxes and fees are deducted, employees receive wages of UAH 5,232.5 which is below the actual subsistence level. Because some employees receive wages at the minimum level, we can indicate the presence of employees who receive wages below the actual subsistence level.

Indicators that characterize wage differentiation play a significant role in the set of indicators for

assessing wage policy in terms of ensuring decent work. To analyze the wage differentiation at the sectoral level, it is advisable to use two indicators: the Gini coefficient and the Decile coefficient. However, due to the State Statistics Service of Ukraine does not show any data on these indicators in terms of economic activities, we did not consider the values of the abovementioned coefficients when calculating the complex indicator of decent wages in the field of science.

Among the indicators that characterize the wage policy in terms of decent work is the share of the basic salary in the wage fund. In 2021, the basic salary share in the wage fund in the field of science was 56.2%. It negatively characterizes the wage policy in terms of ensuring decent work. The low basic salary is compensated by additional rewards and increases, one-time payments, and remunerations. It does not give scientists to satisfy their needs for stability and security, and it can influence as a demotivating factor. The situation is worsening because according to current legislation, the basic salary can be set at a rate lower than the minimum wage. To ensure a minimum level of payment, the employer is obliged to make an additional reward aiming at performing only reproductive functions by wages. Instead, other significant wage functions are levelled, in particular, a motivational one – encouragement to perform more complex, responsible jobs, to improve work results, etc.

An important indicator for assessing the wage policy is wage arrears. The dynamics of this indicator in the field of science in Ukraine from 2009 to 2021 are shown in Figure 2.

Despite fluctuations in the wage arrears, it had a steady upward trend and reached the maximum value of UAH 193 mln at the beginning of 2021. The presence of wage arrears negatively characterizes the wage policy, as it does not allow for meeting the needs of employees. In this case, a wage does not perform even the reproductive function.

Thus, the indicators of the level, the dynamics, the basic salary share, and the arrears of wages in the field of science negatively characterize the wage policy. The low level of wages and the lag of wages of scientists from other sectors of the economy de-

Source: Compiled according to the SSSU (ukrstat).

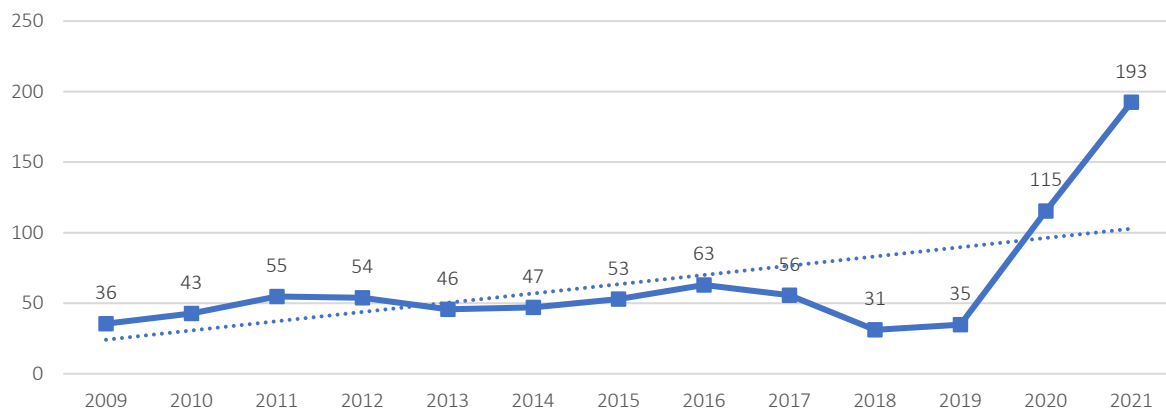


Figure 2. The dynamics of the wage arrears in the field of science in Ukraine as of 1 January from 2009 to 2021, UAH mln

motivate employees, which leads to a loss of interest in the working process. The policy of low wages for scientists induces them to look for a job in other sectors of the economy that could provide a higher income level.

An important indicator for assessing a wage policy is the ratio of women's wages to men's wages since ensuring gender equality and non-discrimination is one of the priorities of the ILO's Decent Work Country Program for Ukraine for 2020–2024. According to the SSSU, the ratio of women's wages to men's wages in science in the fourth quarter of 2021 was 82.8%. It is slightly higher than the average index for the Ukrainian economy. The gender pay gaps negatively characterize the wage policy in terms of creating equal conditions and opportunities for all genders and do not correspond to the basic principles of decent work.

Among the priority spheres underlying the concept of decent work, representation and social dialogue are highlighted by international organizations and scholars. Assuming the abovementioned, an important area of implementation of the concept of decent work is ensuring the equal representation of the main partners of social and labour relations and the development of social partnerships in wage regulation.

A positive characteristic of the wage policy in the field of science is the presence of the Sectoral Agreement signed between the National Academy of Sciences of Ukraine and the Trade

Union of Employees of the National Academy of Sciences of Ukraine for 2021–2022. However, the current agreement was concluded at the end of March 2021.

According to Article 9 of the Law of Ukraine “On Collective Bargaining and Agreements”, after the expiration, a collective agreement remains in force until the partners conclude a new one or revise the current one unless otherwise provided by the agreement (Verkhovna Rada of Ukraine, 1993).

It is not a positive practice to extend the collective agreement, which has already expired, as the norms of such an agreement are often outdated and do not correspond to the current situation in the field of labour, current social and labour relationships, and the labour market. Thus, starting in 2020, the labour situation has changed dramatically in connection with the COVID-19 pandemic and the full-scale invasion of the Russian Federation. The current state of affairs requires a new approach to labour organization and schedule regulation. Occupational safety, mental and physical employees' health, emotional burnout prevention in conditions of self-isolation, and lack of social contacts become actualized. It requires new approaches toward staff motivation and remuneration and social and medical care systems.

An important indicator of decent wages is the settlement of labour remuneration issues during collective bargaining under the legislation. Table 2 shows the results of assessing the level of settle-

Table 2. The assessment of the settlement of labour remuneration issues by the Sectoral Agreement in the field of science for 2021–2022 under the legislation

Source: Created by the author.

Remuneration norms that must be regulated by a sectoral agreement under the Law of Ukraine "On Collective Bargaining and Agreements"	Sectoral Agreement norms in the field of science for 2021-2022	Assessment of the level of settlement (yes, no, partly)
Guarantees of the minimum wage by the qualification based on a single wage scale	2.2.8, Annexes 4, 5	yes
Minimum size of additional payments and allowances, considering the specifics, working conditions of separate professional groups and categories of employees	2.2.3, 2.2.4, 2.2.7, 2.2.8, 2.2.12, 2.2.13, p. 3-9 of Annex 3, Annexes 6, 7	yes
Minimum social guarantees, compensations, and benefits in the field of labour	2.2.15, 2.2.16, 2.6.8, 3.5.8	partly
Utilities, medical, and cultural services	2.6.5-2.6.8, 3.5.1, 3.5.5, 3.5.7	partly (utilities only)
Recreational and rehabilitation services	2.6.1, 2.6.4, 3.5.2, 3.5.3	yes
Conditions for the growth of wage funds	—	no
Inter-qualified (inter-position) relations in wage	2.2.9, p. 1, 2, 8, 9 of Annex 3, Annexes 4, 5	yes
Equal rights and opportunities for men and women	—	no

ment of labour remuneration issues by the Sectoral Agreement in the field of science for 2021–2022 under the legislation.

The analysis shows that the Sectoral Agreement in the field of science for 2021–2022 does not regulate all of the principles and norms of the wage policy. It only partly regulates social guarantees, compensations, and benefits, which does not help to create attractive job offers in the science sector.

Table 3 contains a comparison of the remuneration and social guarantee-related obligations according to sectoral agreements in the field of science.

As follows from Table 3, the remuneration obligations practically do not change. The number of remuneration obligations of the National Academy of Sciences of Ukraine (as the employer) is declining.

On the positive side, the norms are concrete and contain the obligations of partners to make re-

quired payments and provide social guarantees. Simultaneously, the vast majority of them duplicate legislative provisions without expanding the list or increasing the amount of payments and without providing additional social guarantees.

The designation of officials responsible for fulfilling provisions of the Sectoral Agreement in the field of science for 2021–2022 (Annexes 1 and 2 to the Agreement) is the positive practice of regulating remunerations.

An important indicator for assessing remuneration policy is a number of remuneration provisions containing higher obligations of social partners under the current agreement versus obligations under previous ones. An analysis of the content of sectoral agreements has revealed that provisions of the Sectoral Agreement in the field of science for 2021–2022 repeat the norms of the previous agreements. Some of the obligations stipulated in the Sectoral Agreement for 2013–2014 have not

Table 3. Number of remuneration and social guarantee-related obligations according to sectoral agreements in the field of science

Source: Author's research.

Agreement	Obligations of the National Academy of Sciences of Ukraine	Obligations of the Central Committee of Trade Unions	Total
Sectoral Agreement for 2013-2014	28	12	40
Sectoral Agreement for 2016-2017	25	13	38
Sectoral Agreement for 2018-2019	25	14	39
Sectoral Agreement for 2021-2022	25	14	39

been included in the sectoral agreements. It does not help to improve the well-being of employees and negatively characterizes wage policy from the view of ensuring decent work.

The next indicator is the ratio of the number of the sectoral agreement's remuneration provisions containing concrete norms to the total number of obligations of social partners. All 39 remuneration obligations of social partners under the Sectoral Agreement in the field of science for 2021–2022 are concrete, which positively characterizes social partnership in labour remuneration.

At the same time, the agreement lacks concrete instruments for implementing some provisions, which may result in the nonfulfillment of arrangements by the partners and may prevent control over the performance of obligations.

The next set of indicators characterizes wage tariffing, which plays a significant role in wage policy. The science sector employs a traditional approach to wage tariffing, which does not envisage the use of analytical methods for evaluating positions and job duties or a flexible approach to the differentiation of basic salaries. This approach does not allow for objective salary differentiation and individualization based on employees' performance, personal achievements, and contributions to the overall performance of their institutions. It does not help to increase staff motivation and does not ensure a decent wage.

According to the Sectoral Agreement in the field of science for 2021–2022, the basic salary of the 1st category employee is set in the amount of subsistence minimum as of 1 January of the relevant year, which corresponds to the legislatively defined amount. As mentioned earlier, the legislatively set subsistence minimum in Ukraine is not an efficient social standard, and such an approach can ensure neither the performance of the reproductive function by the basic salary nor the objective differentiation of wages depending on the work complexity and responsibilities of employees. Therefore, setting the basic salary of the 1st category employee in the amount of subsistence minimum does not provide decent remuneration to employees of the science sector.

As for the ratio of tariff rates, the Sectoral Agreement in the field of science for 2021–2022 does not

contain differentiation of tariff coefficients depending on employee categories. For example, the coefficient range for employees performing work that requires high qualifications is 2.11 to 2.19. Therefore, the tariff coefficient of the 1st category employee could be 2.11 and that of the highest category – 2.19. It means that the ratio between the tariff rates for employees of the highest and the 1st categories is 1.04. According to the scheme of basic salaries contained in the Sectoral Agreement in the field of science for 2021–2022, the ratio between the basic salaries of senior officials and technical personnel is 2.15. These ratios are too small, do not ensure objective wage differentiation and do not motivate employees for professional and career growth or performing more complex duties. The ranges of tariff coefficients and schemes of basic salaries do not ensure objective differentiation between the tariff rates and basic salaries of employees of two neighbouring categories. In addition, according to the basic salaries scheme, the difference between the basic salaries of senior officials and their deputies could be 5–15%.

According to the Sectoral Agreement in the field of science for 2021–2022, the amounts and the procedure of paying additional rewards and increases comply with the requirements of labour legislation and the norms of the general agreement, which is a positive factor in the assessing collective bargaining agreements and wage policy.

The availability in the sectoral agreement of the provision concerning the introduction of personnel participation systems in the distribution of profits is a positive practice. One of the shortages in wage bargaining in science is the lack of obligations to introduce social packages and social insurance programs at scientific institutions. Even though the Sectoral Agreement in the field of science for 2021–2022 contains some social guarantees, the range of these guarantees is limited and does not comply with the best practices of personnel remuneration at leading companies.

One of the core indicators used to assess wage policies is the fulfilling provisions of a sectoral agreement by *social partners*. Since the practice of reporting by social partners on the fulfilment of sectoral agreement provisions is nonexistent, it is impossible to assess the fulfilment of norms of the

sectoral agreement. The performance of some obligations must be analyzed at scientific institutions.

The rate of employees' coverage by collective bargaining agreements is a significant indicator for assessing wage bargaining regulation. According to data from the SSSU, 86.5% of employees in science were covered by collective bargaining agreements in 2021. Even though the rate of personnel coverage by collective

bargaining agreements in the field of science is higher than in the Ukrainian economy, scientific institutions fall behind, in terms of this indicator, educational and healthcare institutions, transportation enterprises, and postal and courier delivery services.

Table 4 provides generalized information about individual indexes of decent wages in the field of science.

Table 4. Generalized information about individual indexes of decent wages

Source: Author's research.

Indicator	Standard	Actual	Individual index, I _i
1. Real wage growth rate for a sector of the economy, %	≥ 110	85.13	0
2. Ratio of the average wage in a sector of the economy to the average wage in the national economy	≥ 1	1.1	1
3. Share of employees who receive wages below the subsistence level	None	Exist	0
4. Gini coefficient for a sector of the economy	[0.20, 0.35]	n/a	-
5. Decile coefficient for a sector of the economy	[6, 8]	n/a	-
6. Share of basic salary in the wage fund for a sector of the economy, %	>60	56.2	0
7. Wage arrears in a sector of the economy, UAH	None	193 mln	0
8. Ratio of women's wages to men's wages, %	100	82.8	0
9. Availability of a sectoral agreement	Yes	Yes	1
10. The settlement of labour remuneration issues during collective bargaining under the legislation	Yes	Partially	0
11. Ratio of the number of remuneration obligations of social partners under the current sectoral agreement to the number of obligations under the previous one	≥ 1	1	1
12. Designation of officials responsible for fulfilling provisions of the sectoral agreement	Yes	Yes	1
13. Number of remuneration provisions containing higher obligations of social partners under the current agreement versus obligations under previous ones	All	Not all	0
14. Ratio of the number of sectoral agreement's remuneration provisions containing concrete norms to the total number of obligations of social partners, %	100	100	1
15. Use of analytical methods for evaluating positions and job duties for wage tariffing	Yes	No	0
16. Use of flexible remuneration models	Yes	No	0
17. Ratio of the basic salary of the 1st category employee under the sectoral agreement to the subsistence minimum	≥ 1.1	1	0
18. Ratio between the tariff rates of the highest and the 1st categories of employees according to the tariff scheme in sectoral agreement	[2, 3]	1.04	0
19. Ratio between the basic salaries of senior officials and technical personnel according to the basic salary scheme in sectoral agreement	[4, 12]	2,15	0
20. Ratio between the tariff rates and basic salaries of employees of two neighbouring categories, %	≥ 10	< 10	0
21. Compliance with the list, amount, and procedure for payment of additional rewards and increases to the legal norms and norms of the general agreement	Yes	Yes	1
22. Existence of provisions for the introduction of personnel participation systems in the distribution of profits	Yes	Yes	1
23. Availability in the sectoral agreement of provisions concerning the introduction of social packages	Yes	None	0
24. Availability in the sectoral agreement of provisions concerning the introduction of social insurance programs	Yes	None	0
25. Existence of provisions on gender equality in labour remuneration in the sectoral agreement	Yes	None	0
26. Percentage of sectoral agreement's remuneration provisions fulfilled by social partners in the total number of these provisions, %	100	n/a	-
27. Rate of employees' coverage by collective bargaining agreements, %	100	86.5	0
Total	-	-	7

The complex indicator of decent remuneration in the field of science is $7 / 24 = 0.29$.

According to the developed ranges (formula 2), the science sector belongs to the sectors of the economy with a decent wage indicator below the average.

To raise the prestige and attractiveness of scientific work, especially for young scientists, it is necessary to change the wage policy. The priority objectives of bodies of public administration, senior officials of the National Academy of Sciences of Ukraine, and the heads of scientific institutions include:

- raising salaries by increasing the minimal guarantees, in particular, by setting the basic salary of an employee of the 1st tariff category not lower than the actual amount of subsistence minimum published by the Ministry of Social Policy of Ukraine;
- implementing innovative approaches to remuneration tariffing (grading procedure, flexible remuneration models) to ensure objective differentiation of salaries depending on the work complexity, responsibility, the value of job position, enhance motivational potential and increase individualization of reward depending on achievements of scientists;
- implementing efficient systems of bonus payments to scientists to encourage their orientation toward the results of their research;
- introducing competitive social packages, which include social payments, incentives, and benefits aimed to ensure occupational safety, preserve the mental and physical health of employees, prevent emotional burnout, etc.;
- taking measures that help reduce gender pay gaps, in particular, by raising the minimum wages and guarantees, creating equal opportunities for women and men in professional and career growth and in other as-

pects, and including the relevant norms and provisions to the sectoral agreement;

- developing social partnership and wage bargaining regulation, including the concrete instruments of fulfilling commitments undertaken by the partners in sectoral agreement, increasing the responsibility of the partners for the implementation of the sectoral agreement's norms and provisions;
- introducing the practice of reporting on the implementation of collective bargaining agreement's norms and provisions at institutions.

This study has revealed problems in wage policy in science, which do not help engage new employees to work at scientific institutions, adversely affect the prestige of the scientist's work, obstruct the developing scientific potential, and cause the migration of human capital abroad. At the same time, this study is based on an analysis of statistical indicators published by the SSSU and a content analysis of the sectoral agreements in science. We did not consider the scientists' satisfaction with their salaries, bonuses, additional rewards and increases, and social guarantees when assessing wage policy. Therefore, a survey of employees in the field of science aimed to determine their satisfaction with wage policy and compare the survey results with the study results presented in this article is a promising area of further research.

In addition, arithmetic mean values were used to evaluate the level and dynamics of salaries in the science sector. However, it is advisable to incorporate the median and mode for a more precise analysis.

For this study, we consider indicators characterizing wage policy from the standpoint of ensuring decent work of equal value (having the same significance), even though they could have different weights. Additional studies must be held using, in particular, expert methods to determine the indicators' weights and use them for calculating the complex indicator.

CONCLUSION

An analysis of wage policy in the field of science from the standpoint of ensuring decent work revealed, despite some positive characteristics, the existence of some drawbacks and negative trends. The positive characteristics include the growth of nominal and real wages and a higher average salary in the field of science versus the average salary in the Ukrainian economy.

Significant lag of wages in the field of science behind wages in the traditionally high-paying sectors of the economy (aviation, finance, insurance, information, and telecommunications), the existence of employees receiving salaries below the subsistence minimum, low share of the basic salary, a significant increase in wage arrears, and gender pay gap negatively characterizing wage policy in the field of science from the standpoint of ensuring decent work.

Speaking about the development of social partnership, the availability of sectoral agreement and high personnel coverage by collective bargaining agreements in the field of science are positive factors. Positive characteristics of wage bargaining include the existence of concrete obligations of social partners, designation of officials responsible for fulfilling particular provisions of the sectoral agreement, and compliance with the list, amount, and procedure for payment of additional rewards and increases with the legal norms and norms of the general agreement. The availability in the sectoral agreement of the provision concerning the introduction of personnel participation systems in the distribution of profits is a positive practice.

Wage bargaining regulation has negative characteristics: unavailability of certain obligations that must be regulated by the sectoral agreements according to the legislation and concrete instruments of implementing some provisions, reducing the number of obligations, and duplication of legislative norms without expanding the list, increasing the amount of payments or providing additional guarantees. Wage tariffing, which does not ensure objective differentiation of salaries and has low motivational potential, also negatively characterizes wage policy in the science sector. The lack of obligations to introduce social packages and social insurance programs at scientific institutions does not help to create attractive employment offers in the science sector.

In terms of complex indicator of decent wages, the science sector belongs to the sectors of the economy with the decent wages indicator below the average, which badly affects the prestige of the scientist's work and does not help engage new employees to work in scientific institutions. It also forces the existing scientists to look for employment at enterprises in other sectors of the economy, offering more attractive remuneration and competitive social packages. The absence of decent wages forces scientists to look for employment opportunities abroad, thus resulting in the migration of human capital and, as a consequence, significant losses for the Ukrainian economy. This situation does not foster innovative development that will be essential for recovering the Ukrainian economy after the war.

To raise the prestige and attractiveness of scientific work, bodies of public administration, senior officials of the National Academy of Sciences of Ukraine, and the heads of scientific institutions should set objectives connected with ensuring decent wages. These objectives should include: raising salaries and increasing the minimal guarantees, implementing innovative approaches to wage tariffing and efficient bonus payments to scientists, introducing competitive social packages, taking measures that help reduce the gender pay gap, and developing social partnership and wage bargaining regulation.

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