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Rewarding the professors: The reality and the proposal of academic remuneration in Poland

Abstract

RESEARCH OBJECTIVE: The aims of this article are: (1) to define the role of remuneration of academic staff in shaping human capital; (2) to present the dynamics of changes in the remuneration of lecturers in Poland and its comparison with changes in the minimum wage, economic growth and the inflation rate; (3) to propose a model of changes in the minimum wage of a professor as a function of changes in the minimum wage.

THE RESEARCH PROBLEM AND METHODS: In order to ensure the proper level of training of academic staff, it is necessary to implement a remuneration system to attract and retain the best staff. To that end method of analysis and logical construction was used, which allowed to present a method for optimization of remuneration of academic staff in Poland.

THE PROCESS OF ARGUMENTATION: The insufficient funding in Polish higher education was identified, especially the low-level of salaries of academic staff in relation to the their high responsibility. Then, the dynamics of change of professor's minimum wage, the national minimum wage, the GDP, and the CPI were analyzed and compared. On these basis, a model for remuneration of academic staff in Poland was proposed.

RESEARCH RESULTS: The results showed that the minimum wage of a professor in 2012–2023 grew slower than the minimum wage on average, and in 2023 it is approximately twice as high as the minimum wage. As a solution to

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the problem of determining the professor's remuneration, the article proposes a model that will transparently determine the change on an annual basis.

CONCLUSIONS, INNOVATIONS, AND RECOMMENDATIONS: With regard to higher education, an appropriate remuneration system allows for the creation of academic staff that guarantees high-quality education in all aspects, i.e. theoretical knowledge, practical knowledge and cognitive skills.

KEYWORDS:

lecturers' remuneration, higher education, economic growth, socio-economic development, economic policy

INTRODUCTION

Ensuring stable economic development is the basic economic policy object. Research conducted since the 1960s shows that the level of education of the society, considering a long-term perspective, is a crucial determinant of economic growth (Benavot, 1989; Nelson & Phelps, 1966; Schultz, 1992). Despite the fact that several decades have passed since the first research in this area was conducted, the relationship between education and economic growth is still being verified – both in the micro- and macroeconomic aspect (Filippova et al., 2021).

Human capital is a factor of competitiveness, which makes it necessary to focus on the role of higher education in development and economic growth (Bloom et al., 2006), staff with the required skills translates into increase of efficiency in task completion, which results in improved productivity (Bagieńska, 2008). The education of qualified employees is the result of an effective education system. Not only should education opportunities be provided, but the process must go hand in hand with high quality (Hanushek & Wößmann, 2007).

The guarantee of high-quality education are people possessing not only knowledge, but also appropriate predispositions. The expectation of having qualifications must be related to the provision of an appropriate remuneration system, which is an effective tool encouraging to take up a job and motivating employees to improve their efficiency (Borkowska, 2012). Therefore, the salary should be fair and equitable. The dignity of the minimum wage should ensure a basic standard of living (Prokop, 2021), in turn, the dignity of a professor's

remuneration or their effort, also incurred to obtain qualifications, is duly paid (Wratny, 2015). Moreover, the qualitative characteristics should be taken into account – difficulty, nuisance and responsibility of the work (Jacukowicz, 2009).

In the macroeconomic scale, competition in the economy is based on having human capital with high competences, and this is provided by the education system. Therefore, the expectations of Poland's convergence in relation to other European economies are possible if the education system ensures high quality of education (Skubiak, 2013). As part of the economics of education, one of the key areas is the education financing system, including its sources (Nucińska, 2017). It has been emphasized for years that the education sector in Poland is underfunded (Jarecki, 2009).

The topicality and significance of the issue of remuneration of academic staff is also emphasized by the organization of the protest of employees of higher education and science (Związek Nauczycielstwa Polskiego, 2021), which was aimed at drawing attention to the insufficient wages of people responsible for the quality of employee education and thus for the competitiveness of the economy. The research gap can be defined as the necessity to check lecturers' remuneration in relation to the economic situation in Poland. Accordingly, the aims of the article are:

- (1) to define the role of remuneration of academic staff in shaping human capital;
- (2) to present the dynamics of changes in the remuneration of lecturers in Poland and its comparison with changes in the minimum wage, economic growth and the inflation rate;
- (3) to propose a model of changes in the minimum wage of a professor as a function of changes in the minimum wage – indirectly of socio-economic development.

In order to achieve the above aims, the following research questions were asked:

1. What are the functions of the remuneration? Can the amount of remuneration of academic staff translate into the quality of education? How does the level of education affect economic growth? At what level should the remuneration of academic staff be shaped, in order to ensure fair remuneration for this social group?

2. How was the remuneration of academic staff in Poland in 2012–2023? What was its dynamics compared to the minimum wage, economic growth and the inflation rate?
3. Is it possible to set a minimum wage of a professor as a function of changes in the minimum wage? If so, what can indirectly influence its amount?

Several scientific research methodologies were applied in this paper. A critical analysis of the literature was employed to assess the significance of higher education in molding the quality of human capital and hence the influence on economic growth. The statistical analysis of the values stated in legal acts and data from the Local Data Bank (Statistics Poland) were used to portray the condition of academic staff wages in Poland by comparing their dynamics with the national minimum wage, GDP, and CPI. Furthermore, a method of analysis and logical construction was utilized, allowing the presentation of a system for optimizing academic staff compensation in Poland.

THE ESSENCE OF REMUNERATION AND ITS FUNCTIONS

Remuneration is a social, legal and economic category and an important instrument in managing staff in an organization. Moreover, it has many functions that correlate with these categories (Grzywińska-Rapca, 2018). Many authors mention four functions of remuneration: income, cost, social and incentive (Borkowska, 2006b, p. 357; Bukowska & Łukasiewicz, 2017; Kopertyńska, 2008, pp. 115–118).

The first two functions are opposite – the income function states that the remuneration is an employee's income, while the cost function states that the remuneration is a cost for their employer (Pocztowski, 2008, pp. 359–360; Zgliczyński, 2013, p. 1). The employee expects the highest possible earnings and would like to earn as much as possible, i.e. they want to maximize the profit per unit of working time, while the entrepreneurs want to pay as little as possible for the same work.

The social function of remuneration consists in determining not only the professional position but, above all, it indicates the position in society (Pocztowski, 2008, p. 360). The amount of remuneration is the basis for creating a budget, which is the foundation for making

consumer decisions. On a macroeconomic scale, the amount of remuneration received by citizens translates into domestic consumption which, in turn, affects economic development (Łopatka, 2015).

From a human resource management perspective, the most important function of remuneration is to motivate the employee (Borkowska, 2012). In the broadest sense of the motivational function, remuneration is treated as a stimulator for more effective action (Bernatt et al., 2011, p. 123). The right motivation brings the interests of the employee and the employer together. The involvement of an employee leads to increased efficiency during the working time unit and results in better outcomes, which is desirable on the part of the employer.

In addition to treating remuneration as a motivating tool, Bukowska and Łukasiewicz (2017) try to detail the impact of remuneration as part of the motivational function – appropriate remuneration not only motivates employees to work but also determines the processes related to their attracting, retaining and further motivating them to professional development. A more detailed description of the motivational functions of remuneration can be found in the work of Borkowska (2006a, p. 21), as presented in Table 1.

Table 1. Motivational functions of remuneration

Function	Mode (implementation instrument)
Attracting employees to work in the organization	<ul style="list-style-type: none"> • Basic wage rates determined on the basis of job evaluation and market wage reviews, fixed wage supplements, e.g. for work in harmful and strenuous conditions • Movable wages depending on the effects of work, • Additional benefits • Adjusting the remuneration system to the organizational culture
Keeping employees in the organization	<ul style="list-style-type: none"> • Long-term incentives, • Share in profits • Gainsharing (share compensation: benefit share) • Cafeteria salary
Stimulating employees to achieve good work results (motivating)	<ul style="list-style-type: none"> • Flexible wage tables based on wide wage brackets, sliding wage dependent on work outcomes
Stimulating employees to continuous learning	<ul style="list-style-type: none"> • Salary based on knowledge and skills • Movable remuneration depending on the effects of work, • Additional benefits, e.g. for training

Source: Borkowska, 2006a, p. 21.

The amount of remuneration offered by an employer in the private sector is governed only by the obligation to pay wages not lower than the established minimum wages. However, this does not prevent being paid above the minimum wage. On the other hand, institutions from this sector are in many respects obliged by the statutory principles of remunerating employees, including the maximum remuneration due to the classification of the position. Therefore, a particularly important research area is the impact of the amount of remuneration on the motivation of employees in the public sector (Łuczak & Trippner-Hrabi, 2018).

THE ROLE OF EDUCATION IN ECONOMIC DEVELOPMENT

The first inclusion of education as an important factor of economic growth took place in the 1960s (Benavot, 1989). Foremost, attention should be paid to the work of Nelson and Phelps (1966) who, by using a simple growth model, showed that people with higher education contribute to economic growth in two ways. First, educated people are more effective in performing simple tasks and thus become more productive. Secondly, educated people are able to take advantage of the opportunities that appear in the economy, especially in the face of the challenges of technological development.

Since the 1960s, the number of studies discussing the relationship between education and economy has increased significantly. Especially in the 1980s, researchers paid a lot of attention to the issues of education and the economy (Benavot, 1989; Lucas, 1988), but many of them simplified assumptions concerning this subject (Schultz, 1992). However, this does not discredit the essence of research on this issue.

Better educated staff is able to create, implement and adopt new technologies. Lucas (1988) presents the same opinion – the higher the level of education, the higher the productivity should be, because people with better education are more open to innovation. Pillay (2011) argues that higher education is relevant only for highly developed countries, while for developing countries primary education should be the basis. Thus, it can be concluded that the level of education should correspond to the level of development. Subsequent

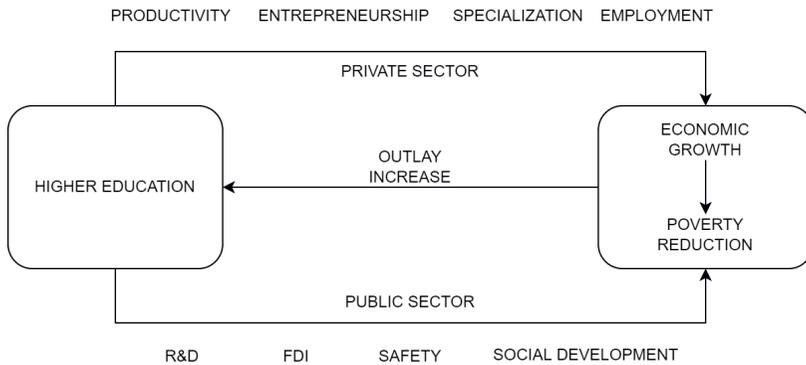
studies, that consider education as a determinant of economic growth, have shown that investment in education brings tangible results (Filippova et al., 2021).

Many authors state that in the literature, the impact of education on the economy is considered from a micro or macro perspective (Ozturk, 2001; Schultz, 1992). In microeconomic terms, it is examined to what extent education measurably influences the situation of an individual, e.g. on the held position, financial situation or simply remuneration. From the point of view of human capital, it is education that translates into an increase in an employee's productivity, which in microeconomic terms should translate into an increase in their income, because the entrepreneur should naturally assess the employee's productivity (Vuksanović & Aleksić, 2017). Higher education also brings other benefits, such as the opportunity to work in professions for which specialized knowledge is required. Moreover, research shows that a higher level of education is positively correlated with social involvement through participation in democracy and allows for more effective consumption of cultural goods (Stankiewicz, 2014). With regard to the unit, the learning outcomes are of a dual nature (Jarecki, 2009). On the one hand, it is measurable and material, translating into the amount of remuneration and employment stability, and on the other hand, it contributes to the improvement of non-material aspects, e.g. it improves the quality of life and satisfaction.

When considering the macroeconomic impact of education, it examines how the level of education affects economic development, productivity and innovation in the economy. Education can increase the human capital inherent in the labor force, which increases labor productivity and thus results in a temporary increase towards a higher level of production equilibrium (Hanushek & Wößmann, 2010). Generally, education translates into the readiness to change itself and therefore it is an accelerator of progress (Lundvall, 2008).

The Figure 1 depicts the role of education in the economy (Bloom et al., 2006). It shows that the increase in spending on higher education translates into private (micro) and public (macro) benefits. In this way, stable economic growth is achieved, improving the quality of life and thus reducing poverty.

Figure 1. Links between higher education and economic growth



Source: Bloom et al., 2006, p. 16.

Merely providing a wide range of learning opportunities is not enough because, without adequate quality, the intended goal of acquiring a large amount of knowledge is not achieved (Hanushek & Wößmann, 2007). Assuming that higher education is the main source of competitiveness, it is necessary to focus on its quality, because only high-quality education enables high competition effectiveness (Pillay, 2011).

According to Benavot (1989) higher education should broaden the cognitive abilities that are necessary in specialized work. This is confirmed in the work of Hanushek and Wößmann (2007). In contrast, Filippova et al. (2021) argue that it is necessary to combine practice with theory and at the same time provide both of these elements with high quality. However, it is crucial both to provide cognitive skills during higher education and to discuss practical case studies based on theory to ensure that the learning process is of a high-quality level.

REMUNERATION OF ACADEMIC LECTURERS IN POLAND

The work of academic staff requires a multi-task approach to the performance of employee duties, because apart from teaching, research work is also required (Chant, 2005, p. 2). Ensuring high quality is

possible only by providing appropriately qualified research staff (Pillay, 2011), which is closely related to the predisposition to work and the attitude towards it (Du et al., 2010). In conclusion, it is the academic staff and their work that constitute the core of higher education (Altbach & Umakoshi, 2004). The personnel policy should take into account the possibilities of employing the best students and doctoral students, and this should include the ensuring of decent remuneration (Abramo et al., 2020). For many professionals, high earnings are of above average importance, which means that they are constantly looking for new jobs in order to achieve better remuneration (Li-Ping Tang et al., 2000). Therefore, in many cases the amount of remuneration is the greatest determinant when it comes to choosing the place of employment.

When it comes to the decision of remaining in the current job or changing it, not only the amount of remuneration itself is important, but also satisfaction one gets from the work (Luna-Arocas & Tang, 2015). Satisfaction with the work performed, also with the amount of remuneration, motivates to make efforts to achieve better results (Shaw et al., 2002). Unfortunately, in many countries, including Poland (Jarecki, 2009), due to low wages and stress, the morale of economic staff is low (Du et al., 2010).

Chant (2005, p. 2) argues that the salary of an academic staff member should include an allowance, the amount of which depends on the achievements. Abramo et al. (2020) research indicates that full professors (more expensive to society) are on average more productive than associate professors. Whereas Cheng (2014), argues that a better-qualified academic workforce translates into better academic results and a place in university rankings, thus attracting more students. As a result, academics should also receive higher salaries.

In Poland, pursuant to Art. 116 Act on Higher Education (Journal of Laws 2018, item 1668), employment at a university as an academic teacher is possible in the following positions:

- 1) professor;
- 2) university professor;
- 3) assistant professor;
- 4) assistant.

Furthermore, the remuneration of an academic lecturer at a public university is determined by law and depends on the amount of the

minimum wage of a professor (Article 137 of the Law on Higher Education, Journal of Laws of 2018, item 1668):

1. The amount of the monthly basic salary at a public university for an academic teacher cannot be lower than 50% of the professor's remuneration, except that for:

- 1) university professor – not less than 83% of the professor's remuneration,
- 2) assistant professor – amounts to not less than 73% of the professor's remuneration.

Therefore, in order to determine the minimum salary, it is necessary to determine the amount of the minimum monthly basic salary for a professor at a public university (hereinafter: minimum wage of a professor), which is determined by the Regulation of the Minister competent. The amount of remuneration in the years 2012–2021 is presented in Table 2. In order to relativize the dynamics of wage growth, the amounts of the minimum wage in the economy (hereinafter: minimum wage) in the analyzed years in Table 2, were also taken into account.

Table 2. The amount of the minimum basic salary for a professor at a public university and the minimum wage in the economy (2012–2021).

Year	Minimum wage [PLN]	minimum wage of a professor [PLN]	Ratio of the minimum wage to the minimum wage of the professor
2023	3600 (from 01/07) 3490 (from 01/01)	7210	0.50 0.48
2022	3010	6410	0.47
2021	2800	6410	0.44
2020	2600	6410	0.41
2019	2250	6410	0.35
2018	2100	6410	0.33
2017	2000	5390	0.37
2016	1850	5390	0.34
2015	1750	5390	0.32
2014	1680	4940	0.34
2013	1600	4525	0.35
2012	1500	4145	0.36

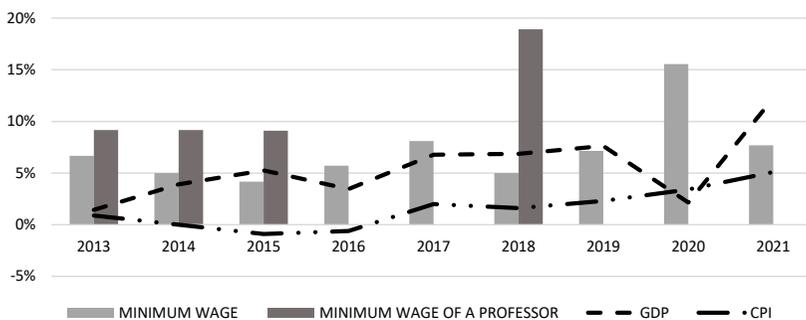
Source: own study based on Journal of Laws 2011 no. 192 item. 1141; Journal of Laws 2012 item 1026; Journal of Laws 2013 item 1074; Journal of Laws 2014 item 1220; Journal of Laws 2015 item 1385; Journal of Laws 2016 item 1456; Journal of Laws 2017 item 1747; Journal of Laws 2018 item 1794; Journal of

Laws 2019 item 1778; Journal of Laws 2020 item 1596; Journal of Laws 2011 No. 243 item 1447; Journal of Laws 2013 item 1571; Journal of Laws 2016 item 2063; Journal of Laws 2018 item 1838; Journal of Laws of 2021, item 1690; Journal of Laws of 2022, item 1952; Journal of Laws of 2023, item 16.

In 2012–2019, the minimum wage in the economy accounted for 32 to 37% of the minimum wage of a professor. Nonetheless, due to the increase in the minimum wage but not the wage of a professor in 2018, the minimum wage in 2020–2023 constituted over 40% of the minimum wage of a professor. Furthermore, despite the increase in the minimum wage of a professor in 2023, a larger increase in the minimum wage, caused this percentage to also increase.

In order to better understand the problem, it is necessary to relativize the increase in the minimum wage of a professor in relation to the basic economic indicators of the economic situation (as shown in Fig. 2). The obligation to present such a list is emphasized by the fact that in Poland the amount of the minimum wage is subject to annual negotiations. Government present information on the price index in the previous year and its forecast for the next year, as well as the level of the average wage index, the standard of living of various groups and real increase in gross domestic product (Journal of Laws of 2020, item 2207).

Figure 2. Dynamics of the minimum salary, the minimum wage of a professor, GDP and the inflation rate (CPI).



Source: Own elaboration based on data from Table 2 and the Local Data Bank.

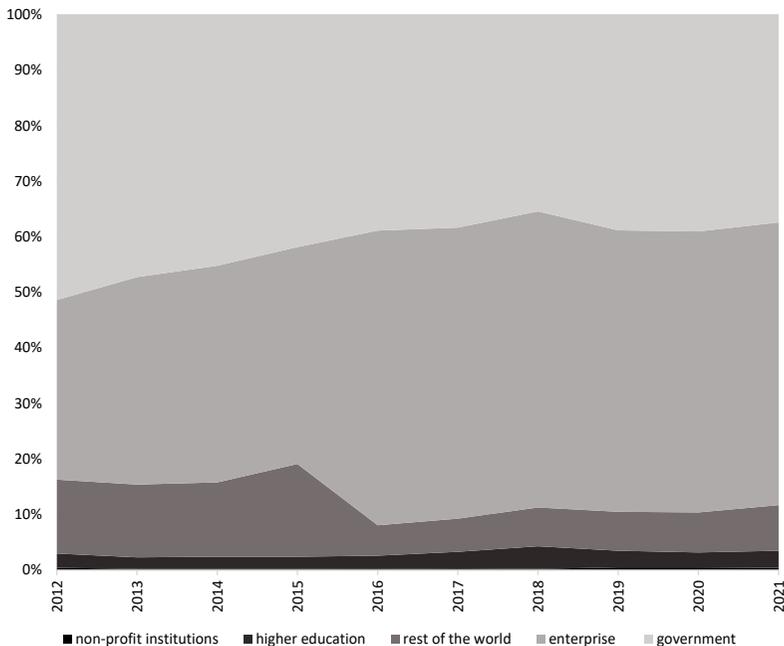
* Medium-term pace of changes: the minimum wage (6.4%), the minimum wage of a professor (4.5%), GDP (4.9%) and the inflation rate (CPI) (1.7%).

** In 2020, the slowdown in GDP growth was due to the COVID-19 pandemic.

It can be seen that from period to period, the minimum wage grew faster than it was in the case of the minimum wage for a professor. With regard to the entire period under consideration (2012–2021), this means that the salaries of academic teachers responsible for educating qualified staff grew more slowly than the rest. However, the increase in the minimum wage of a professor was faster than the GDP growth and the inflation rate. Moreover, in 2015–2016, there was a phenomenon of deflation in Poland, so the increase in remuneration was relatively greater than the nominal one.

While salary is the primary motivator, there are numerous other ways to motivate academics. Productivity in their research, teaching and administrative duties can be a determinant for financial awards. Increased efforts can be encouraged not only by a salary increase or awards, but also by creating opportunities for personal and scientific development, by providing sources of research funding. Figure 3 shows the share of individual sectors in financing R&D activities in 2012–2021.

Figure 3. Internal expenditure on R&D by financing sources (2012–2021)



Source: Own study based on data from the Local Data Bank.

It should be noted that in 2012, it was the government sector that financed over 50% of R&D activity in Poland, while now this number is at the level of 40%. In the years 2012–2021, an increasing share of the enterprise sector in financing R&D activities can also be observed. Moreover, the higher education sector itself in all the years considered, had a very small share in financing R&D activities, and the sector of private non-profit institutions is marginal.

THE MINIMUM WAGE OF A PROFESSOR AS A FUNCTION OF THE MINIMUM WAGE

In Poland, the amount of the minimum wage is determined on an annual basis, hence the period in the analysis (t) is one year. Suppose the inflation rate (g) is non-negative (there is no deflation). Moreover, by wanting to develop the economy and improve living standards, the assumed minimum wage increase is also non-negative ($\Delta y_{t+1}^{min} \geq 0$). Suppose the minimum wage is a product of the economic situation in the country in the previous period:

$$y_t^{min} = \pi Z_{t-1} \cdot g_{t-1} + \epsilon_t, \quad (1)$$

where π – vector of parameters determining the share of a given economic indicator in the formation of the minimum wage, Z_{t-1} – matrix of values of economic indicators.

* Typically, index values are given nominally. If real values are used, g can be omitted.

If the state arbitrarily sets the amount of the minimum wage without first assigning weights or significance to individual information, it can therefore be concluded that the process is as follows:

$$y_{t+1}^{min} = y_t^{min} + \epsilon_t, \quad (2)$$

$$\Delta y_{t+1}^{min} = \epsilon_t \quad (3)$$

Distribution of ϵ_t is unknown, but is dependent on the values of economic indicators, including the inflation rate $E(\epsilon_t | Z_t, g_t)$.

In Poland, when determining the minimum wage, various macroeconomic information, including the rate of inflation and GDP, is taken into account. However, they are only information and the scope of their inclusion is not legally regulated (Journal of Laws 2020, item 2207). If the government had a specific share of changes in individual economic variables, then the change in the amount of the minimum wage can be expressed using the equation:

$$\Delta y_{t+1}^{min} = \pi' \mathbf{Z}'_t \cdot g_t + \epsilon'_t \quad (4)$$

Central agendas responsible for shaping wages, observing changes in macroeconomic indicators (\mathbf{Z}'_t matrix with $\Delta z_{i,t}$ elements), determines the shares π' – values influencing the change. In order to ensure the transparency of the process of determining the minimum wage and shaping market expectations regarding changes in it, shares π' should be constant over time or changes in their level should be sporadic.

The proposal of the dependence of the minimum wage of a professor can be expressed using an equation:

$$\Delta y_{t+1}^{prof} = \delta \Delta y_{t+1}^{min} \quad (5)$$

*The protesters are calling for the initial growth figures to meet the condition $y_t^{prof} = 3y_t^{min}$ (Polish Teachers Association, 2021). Thus, in order to keep it in time, it is agreed that $\delta = 3$.

It should be noted that with the use of the relationship expressed by the equations (4) and (5), the minimum wage of the professor is related to the change of the economic situation. The proposed model gives a transparent dependency and allows for shaping expectations without arbitrary values, thus minimizing the differentiation of expectations.

DISCUSSION

Adequate education of the society is the foundation of economic development. Ozturk (2001) believes that it is impossible to achieve economic growth without investing in human capital. Hanushek

and Wößmann (2010) are of a similar opinion, claiming that education facilitates the dissemination and transfer of knowledge needed to understand and process new information. In this way, it is possible to successfully implement new technologies. It is noted that the role of the private sector in financing scientific research is gradually increasing.

It is extremely important that higher education provides high-quality knowledge. The key role here is the role of academic staff – they allow students to develop through the exchange not only of knowledge, but also experience and skills. Hiring staff with appropriately high qualifications is associated with the need of offering adequate remuneration. It is worth emphasizing that it is not only a significant motivating factor (Bernatt et al., 2011, p. 123) but most of all a factor in organizations' competition for an employee. According to Bagieńska (2008), the remuneration system should contribute to attracting appropriate employees, keeping them in the organization and stimulating them to work effectively.

The remuneration for the work performed should be decent and fair (Prokop, 2021; Wratny, 2015), that is, reflect the level of qualification of the employee. The analysis carried out by Jarecki (2009) shows that in Poland, in relation to other countries, not enough funds from the budget are allocated for higher education, and the level of individual subsidies for students is particularly low. Similar conclusions are drawn by Skubiak (2013), who is claiming that

to enable the development of the knowledge society and to compete effectively at the level of the global economy, Poland must provide education and training at the highest level.

In order to ensure socio-economic development, the staff should be properly remunerated, which is expressed in the protests of lecturers in Poland, who are fighting for the dignity of their pay (Polish Teachers Association, 2021). The results of the study presented in this article also confirm that the minimum wage of a professor in 2012–2023, on average, grew slower than the minimum wage.

Jacukowicz (2009) believes that, in order to establish the amount of remuneration at a fair level, it is necessary to take into account a wide range of macroeconomic indicators. The model proposed in the study may contribute to a more effective shaping of the expectations

of changes in remuneration of academic staff because, by making changes in the amount dependent on economic values, the transparency of decisions will increase and thus make the changes be perceived as objective and fair.

CONCLUSIONS

The remuneration not only motivates employees to their development, but above all enables the employment of people with appropriate qualifications. With regard to higher education, an appropriate remuneration system allows for the creation of academic staff that guarantees high-quality education in all aspects, i.e. theoretical knowledge, practical knowledge and cognitive skills.

Many studies have shown that the higher education system in Poland is underfunded, and scientists emphasize the need to change this state of affairs. Unfortunately, years of neglect in this aspect caused employees of higher education and science to start a protest in December 2021. The results of the study presented in this article confirm their position that the increase in salaries in 2012–2023 was insignificant, and also show that the minimum wage of a professor grew slower than the minimum wage.

One of the potential solutions is making the increase in the minimum wage of professors dependent on a proportional increase function, which could be manifested in the application of the proposed model. This could transparently determine the change on an annual basis and thus shape the expectations of academic staff for future periods.

The study has several limitations. First of all, the scope of the study covers only the level of Poland and the domestic remuneration system, without comparing it to other countries. Additionally, the scope is only the minimum wages, not the actual wages. Moreover, only the staff employed in public universities are regulated by a national regulation. However, these limitations do not detract from the value of the research it carries, especially in terms of its practical implications. The results provide arguments for the successive and long-term increase in remuneration for academic teachers and for exemplary correlation, with macro indicators of economic development. It manifests itself in the proposed model as a far-sighted

and long-term solution. A high level of education implies economic growth which is the main aspect of economic policy.

Subsequent studies could focus on checking the structure of wages, as well as the dynamics of changes in other countries, and their comparison analogically to the pace of economic growth. Moreover, taking into account the fact that the salary of a professor in Poland includes only the minimum values, it should be verified how the level of salary of academic staff is shaped depending on the scientific discipline (social, humanities, science, etc.), as well as at what level of professors' salaries (and thus the entire academic staff) are formed at private universities in relation to public universities.

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- Act of 20 July 2018 Law on Higher Education and Science (Journal of Laws 2018, item 1668).
- Announcement of the Marshal of the Sejm of the Republic of Poland of 13 November 2020 on the publication of the uniform text of the Act on the minimum remuneration for work (Journal of Laws of 2020, item 2207).
- Regulation of the Council of Ministers of 10 September 2019 on the amount of the minimum remuneration for work and the amount of the minimum hourly rate in 2020 (Journal of Laws of 2019, item 1778).
- Regulation of the Council of Ministers of 11 September 2013 on the amount of the minimum remuneration for work in 2014 (Journal of Laws of 2013, item 1074).
- Regulation of the Council of Ministers of 11 September 2014 on the amount of the minimum remuneration for work in 2015 (Journal of Laws of 2014, item 1220).
- Regulation of the Council of Ministers of 11 September 2015 on the amount of the minimum remuneration for work in 2016 (Journal of Laws of 2015, item 1385).
- Regulation of the Council of Ministers of 11 September 2018 on the amount of the minimum remuneration for work and the amount of the minimum hourly rate in 2019 (Journal of Laws of 2018, item 1794).
- Regulation of the Council of Ministers of 12 September 2017 on the amount of the minimum remuneration for work and the amount of the minimum hourly rate in 2018 (Journal of Laws of 2017, item 1747).
- Regulation of the Council of Ministers of 13 September 2011 on the amount of the minimum remuneration for work in 2012 (Journal of Laws of 2011, No. 192, item 1141).
- Regulation of the Council of Ministers of 13 September 2022 on the amount of the minimum remuneration for work and the amount of the minimum hourly rate in 2023 (Journal of Laws of 2022, item 1952).
- Regulation of the Council of Ministers of 14 September 2012 on the amount of the minimum remuneration for work in 2013 (Journal of Laws of 2012, item 1026).

- Regulation of the Council of Ministers of 14 September 2021 on the amount of the minimum remuneration for work and the amount of the minimum hourly rate in 2022 (Journal of Laws of 2021, item 1690).
- Regulation of the Council of Ministers of 15 September 2020 on the amount of the minimum remuneration for work and the amount of the minimum hourly rate in 2021 (Journal of Laws of 2020, item 1596).
- Regulation of the Council of Ministers of 9 September 2016 on the amount of the minimum remuneration for work in 2017 (Journal of Laws of 2016, item 1456).
- Regulation of the Minister of Education and Science of 2 January 2023 amending the regulation on the amount of the minimum monthly basic salary for a professor in a public university (Journal of Laws of 2023, item 16).
- Regulation of the Minister of Science and Higher Education of 11 December 2013 on the conditions of remuneration for work and other work-related benefits for employees of a public university (Journal of Laws of 2013, item 1571).
- Regulation of the Minister of Science and Higher Education of 2 December 2016 on the conditions of remuneration for work and granting other work-related benefits for employees of a public university (Journal of Laws of 2016, item 2063).
- Regulation of the Minister of Science and Higher Education of 25 September 2018 on the amount of the minimum monthly basic salary for a professor at a public university (Journal of Laws 2018, item 1838).
- Regulation of the Minister of Science and Higher Education of 5 October 2011 on the conditions of remuneration for work and other work-related benefits for employees of a public university (Journal of Laws of 2011, No. 243, item 1447).

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