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MULTIDIMENSIONAL COMPARATIVE ANALYSIS OF THE NUMBER OF STUDENTS IN POLAND WITH THE VIEW TO THE DEMOGRAPHIC CRISIS AND ITS IMPACT ON SOCIAL SECURITY

ABSTRACT

Purpose: The article presents the original a multidimensional comparative analysis of the number of students in terms of their population in Poland with the view to the demographic crisis and its impact on the acceptable level of social security. The demographic low that is currently occurring in Poland is one of the largest in the European Union and the largest after the Second World War. This is why the study of this area is so important for state policy on social security.

Results: In the research, primary data on the number of students were grouped into voivodeships, school types and compared with the population in particular age groups. Additionally, the human population was divided into two groups of dependent variables: the number of people in cities and rural areas – men and women in particular age groups. The research indicates that the largest number of students in Poland in the 2022/2023 semester studied in the Mazowieckie Voivodeship: 1 057 131 people, with the population of this region amounting to 5 510 600. As of December 31, 2023, the population of people in Poland was 37 636 508. At that time, there were more women in Poland (19 454 109) than men (18 182 399). The lack of a symmetrical distribution between the number of women and men in Poland is particularly visible in the group over 62 years of age.

Methodology: To analyze general concepts, the authors used the desk research method based on a review of publicly available information. It was assumed that the research would be based mainly on the analysis of available studies and materials enabling the review and organization of information concerning the demographic crisis, the transformation of the family model and the reorganization of the education system. The authors studied domestic and foreign scientific publications and available statistical data published on websites. Primary research focused on statistical analyzes of total fertility rate, including births and deaths, marriages and divorces, and the number of children in educational institutions.

KEYWORDS: *demographic crisis, social security, education, students, workforce.*

INTRODUCTION

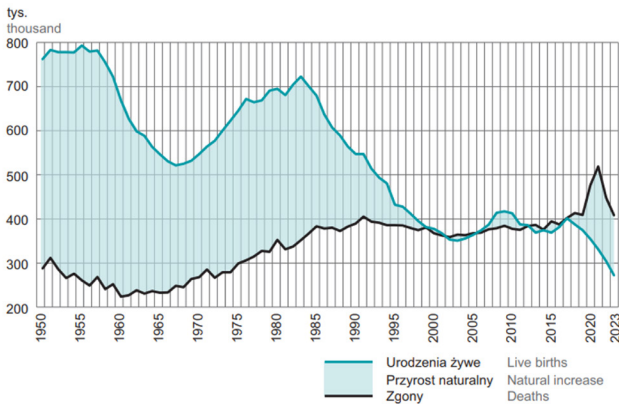
It is widely accepted that there are several fundamental factors that determine the power and prestige of a state, with one of the main places occupied by the demographic indicator a state has (Kleinowski, 2010). Many geostrategists single out the demographic factor as the first among the criteria for a state's strength or weakness, followed only by geographical, economic, historical, psychological-sociological, organisational and administrative and military factors (Hartmann, 1967). Poland in 2024 recorded the lowest birth rate

since the end of the Second World War among all EU countries. In addition, the Polish government's document on migration, entitled. 'To regain control. Ensure Security. Poland's Comprehensive and Responsible Migration Strategy for 2025-2030' points to the need to streamline a number of processes concerning the stay of immigrants in the country. They are supposed to fill the gap in the labour force recorded for several years on the Polish labour market. However, the admission of immigrants is associated with many challenges and even threats, as we observe in other EU countries. Poland also has its own experience with Ukrainian refugees following the outbreak of war in Ukraine. The need to conduct original research on the demographic crisis in the field of public education also arose.

The term *security* is an ambiguous and cross-curricular concept (Kozicki, 2022, p. 13; Mizura, Mitkow, Kozicki, 2023, p. 13-39), and means a state to which one strives, giving a sense of certainty and survival (Mitkow, Tomaszewski, Kozicki, 2021, p. 11). One of the types of security that constitutes the foundation of social life in the individual and collective dimension is the social security (Skrabacz, 2012). The literature focuses on the existential foundations of people's lives, ensuring the possibility of meeting individual needs (material and spiritual) and satisfying life aspirations by creating conditions for work and study, health care and pension guarantees (Skrabacz, Sulowski, 2021, p. 7). The accepted level of this area of security depends largely on the condition of families, which are the basic building blocks of society.

Over the centuries, the family, like any social group, has undergone transformations and even crises resulting from various conditions (Skrabacz 2017, Kotowska, 2014). Firstly, since the mid-1980s, there has been a steady trend of falling birth rates (figure 1). In 1999, for the first time since the end of World War II, the number of deaths in Poland equalled the number of births, and the natural increase rate reached zero and a negative birth rate has been recorded since 2002.

Secondly, until 2016, Poland recorded a negative migration balance (table 1). In the following years, this trend changed, as confirmed by data from 2022, which recorded a positive balance of +1 939 persons, of which the largest group of immigrants were citizens from Ukraine and Belarus [CSO, 2023].

Figure 1. Vital statistics of population

Source: Central Statistical Office, Demographic Yearbook 2024, <https://stat.gov.pl/>, as of 18.12.2024.

Table 1. Migration flows to/from Poland between 1966 and 2022 (permanent migration)

Year	Emigration	Immigration	Migration Balance
1966	28843	2228	- 26615
2014	28080	12330	- 15750
2015	No data	No data	No data
2016	11970	13475	1505
2022	13633	15572	1939

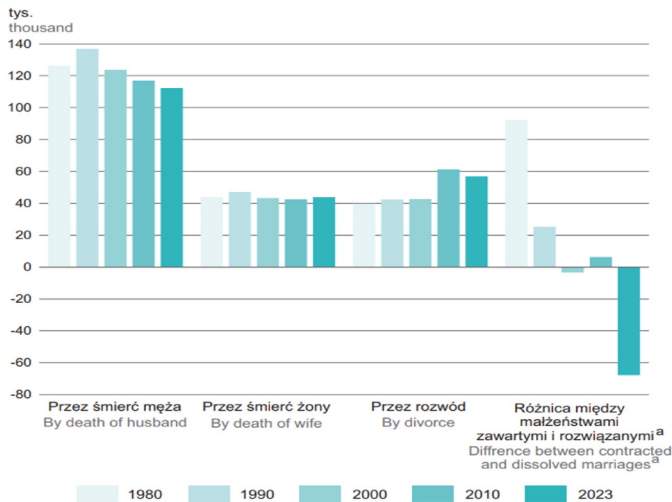
Source: own study based on data from the website: <https://stat.gov.pl/>, as of 28.05.2023.

The full-scale invasion of Ukraine by Russia on February 24, 2022, escalated this conflict into a humanitarian catastrophe of unprecedented proportions in modern European history. Millions of Ukrainians were forced to flee their homes, seeking refuge across Europe and beyond. Out of Ukraine's population of 41 million, approximately 7 million became internally displaced, while over 11 million fled the country, creating the largest refugee crisis in Europe since World War II. The scale and speed of this mass displacement have challenged the capacities of host countries, prompting significant policy responses across the European Union (EU) and other nations. In response to the massive influx of Ukrainian refugees, the EU activated the Temporary

Protection Directive in March 2022. Originally established in 2001 during the Western Balkans conflicts, the directive provides displaced persons with immediate access to residence permits, employment, housing, medical assistance, and education for children, thereby easing the strain on national asylum systems. Extended until March 2025, this directive continues to support 4.2 million Ukrainians as of September 2023. Germany, Poland, and the Czech Republic have taken in the largest numbers of refugees, with Germany hosting 1.19 million, Poland 958,655, and the Czech Republic 357,960. The UK has also seen a significant influx, with over 220,000 Ukrainian arrivals in early 2022 (Skrabacz, 2024, p. 237). The arrival of millions of refugees has presented both opportunities and challenges for host countries. While the influx has helped address labor shortages, it has also exposed weaknesses in integration policies. Poland, once a primary destination for Ukrainian workers, is now more of a transit point as many refugees move to wealthier Western European countries.

Thirdly, until recently, starting a family was a commonly accepted way of life. In the 1970s, approximately 90% of women and 85% of men aged 30-39 were married (GUS, 2023). In 2020, 145 thousand marriages were concluded and 51 thousand divorces were conducted. Observation of trends in this area allows the conclusion that the number of marriages concluded in Poland is systematically decreasing, while the number of divorces remains relatively stable (figure 2).

Fourthly, with the decline in the number of marriages, the model has changed, not only from large families to those with few children, but increasingly to people living alone or raising children alone. Research conducted by the Central Statistical Office in 2022 shows that every fourth child was born out of wedlock, and this percentage is higher in cities and amounts to 32%, while in rural areas it is 23%. The highest share of out-of-wedlock births is recorded in the western Polish voivodeships: Lubuskie (47%) and Zachodniopomorskie Voivodeship (45%), while the lowest one is in south-eastern Poland, in the Podkarpackie (16%) and Małopolskie Voivodeship (17%) (Gazeta Prawna, 2022).

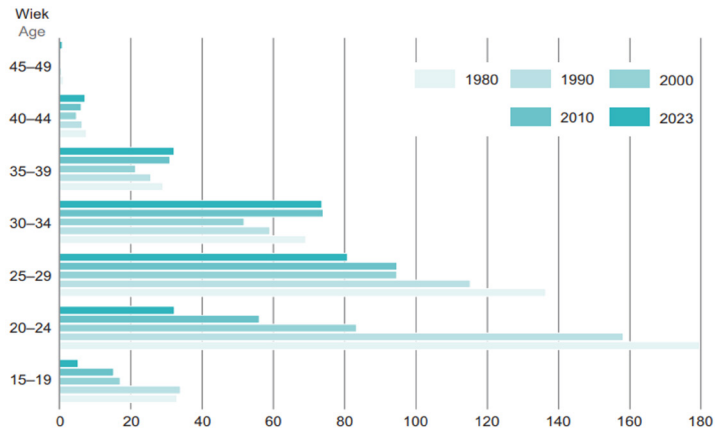
Figure 2. *Dissolution of marriages*

^a Po uwzględnieniu salda migracji zagranicznych i wewnętrznych osób pozostających w stanie małżeńskim.
 a Including net international and internal migration of married persons.

Source: Central Statistical Office, Demographic Yearbook 2024, <https://stat.gov.pl/>, as of 18.12.2024.

Fifthly, along with the family crisis, a parenting crisis also began, which has a tangible effect: a decline in the number of children born. In 2021, 332,000 births were registered, while in 2022, the number of live births decreased by approximately 27,000 from the previous year to 305,000, the lowest number of births recorded in the entire post-war period [Gazeta Prawna, 2022] (figure 3).

Compared to the European Union, Poland is one of the countries with the lowest birth rate. In 2013, a lower fertility rate than in Poland was recorded only in Portugal (1,21) and Spain (1,27). However, the highest fertility level is currently recorded in the countries of Western and Northern Europe – the highest was in France (1,99), then in Ireland (1,96), Iceland (1,93), Sweden (1,89), Great Britain (1,83), Norway (1,78) and Finland and Belgium (1,75). It should be noted that all these coefficients remain below the value defined as simple replacement of generations, which is 2,13-2,15 (Eurostat, 2016).

Figure 3. Live births per 1000 women at age specified

Source: Central Statistical Office, Demographic Yearbook 2024, <https://stat.gov.pl/>, as of 18.12.2024.

The transition from middle-childhood to low-childhood is associated with many factors. Just a few years ago, the factors determining fertility rate, in Bogusław Misztal's opinion, were: firstly, internal conditions, which included unemployment and the poor level of social benefits, and therefore the decision to procreate was postponed until later; secondly, the prospect of economic emigration, which also had a negative impact on families (Misztal, 2005). Currently, attention should be paid to: increased professional activity of women and their choice of a professional career instead of motherhood – the availability of contraceptives; choosing a comfortable, consumerist lifestyle (Skrabacz, 2015, s. 81). Hence, demographers predict that in the period 2022-2080, with such a low fertility rate, there will be a gradual decline in the population of Poland: in 2030 to 36,6 million, in 2050 to 34,1 million, and in 2080 the number of people in Poland it will probably amount to 28,2 million (Sobolewski, 2023).

Sixth, the consequence of the decline in the number of children born is undoubtedly the rapid aging process of Polish society (Mossakowska et al., 2012). This generates many economic and social problems and will impose burdens on people of working age that are difficult to bear. In addition to the requirement to increase the amounts allocated for pensions and disability benefits and

direct budget subsidies, the aging of the population may in the future constitute a source of intergenerational conflict, dividing society into a minority of those working and paying contributions and taxes, and the older majority as beneficiaries of the social security system (Kubiak, 2010, p. 188-189). Another problem is ensuring health protection and care for seniors. With fewer family members in their environment, older people will require help from the care services sector, which will result in increasing costs of such services (Skrabacz, 2023, s. 255). The collected empirical data confirm this thesis. They show that over half of seniors live married in single-family households, and 2/3 of them live without children. As many as 24,7% of seniors live alone and this percentage increases with age. After the age of 75, as many as 34% of women and 16% of men live alone (Czapiński, Błędowski, 2014). The phenomenon of population aging is not only a problem for Poland, it has been occurring for several years in Western European countries. In order to solve it, countries with negative natural growth offered favorable conditions for the settlement of foreigners (e.g. Sweden, Germany, France, Ireland) in order to stop the negative demographic phenomenon. As Michał Kubiak notes, increasing the inflow of immigrants may *refresh* the age structure, but the inflow of labour from third countries alone will not solve this problem (Kubiak 2010, p. 187). Currently, Western European countries are struggling with the problems of foreigners, including illegal immigrants, which, according to experts, result from cultural rather than economic reasons (Skrabacz, 2020). The arrival of immigrants in a culturally, linguistically, economically and politically different society is associated with both positive and negative consequences. The positive ones lead to an increase in the birth rate and economic strength of the state, progressive cultural diversity and social openness. Negative aspects include social isolation, the creation of communal ghettos, known as no go zones, lack of assimilation and social tolerance, and an increase in common and criminal crime.

The functioning of the family also involves a serious economic aspect. Gary Becker, who received the Nobel Prize in 1992 for creating the economic theory of the family, states that many human behaviors can be explained by economic rationality. "This also applies to the decision to have numerous offspring. Well, for centuries people have tried to have many children because they treated them as an investment in their future. The more children they had, the greater

their chance of financial security in old age (Becker, 2012, p. 22). Other causes of changes in the modern family in the literature on the subject include the processes of industrialization and urbanization; increase in spatial and social mobility; progress in the medicine; development of science, technics and technology; popularization of education; development of new social institutions; the spread of a new lifestyle (Kwak, 2006, p. 317). The family is therefore the first, primary and fundamental producer of, personal, social, economic and cultural security especially (Skrabacz, 2021, p. 30). Its crisis, manifested in the described demographic phenomena, has specific short – and long-term consequences, including, among others, the education system, which is undergoing a gradual process of reorganization resulting from a reduction in the number of students and, consequently, the number of teachers and support staff (Skrabacz, 2019, p. 20). The long-term effect of this process will be the changes in the labour market, which consequently affects the position of Poland in the European Union and internationally.

THE IMPACT OF THE NUMBER OF STUDENTS ON THE CONDITION OF THE POLISH EDUCATION SYSTEM

In the literature, many different interpretations of the term *education* can be found (Polish language dictionary, 2024; PWN, 2024). It is defined as a process of acquiring knowledge (Ortograf.pl, 2024), the aim of which is to change people, primarily children and youth, in accordance with the ideals and educational goals prevailing in a given society (Skrabacz, 2019). Education in Poland is based on the education system (PWN, 2024), i.e. the educational structure ensuring, in particular, the implementation of the right to education through learning, upbringing and care. The organizational structure of the education system in Poland includes: schools, centers for extracurricular education, centers for adult education, and centers for the dissemination of knowledge and culture, as well as universities (Eurydice, 2024).

Referring to the education system in Poland, attention should be paid to the meaning of the term *student*, i.e. a person studying in an educational institution, such as a primary school, junior high school, high school,

technical school or other types of schools, who is obliged to attend educational classes and acquire knowledge and skills in accordance with the curriculum (INFOR, 2024). One of the types of students are higher education students, i.e. a group of people studying for first-cycle, second-cycle or full master's studies (Central Statistical Office, 2024; Journal of Laws, 2018).

Currently, the education system in Poland faces numerous challenges, primarily (Edutorial, 2023): increasing financing, access to recent technologies, equal educational opportunities, motivation and increasing students' involvement in education. Another significant challenge since 2022 has been the migration of people from Ukraine to Poland (Kozicki, Lubiewski, 2024). That resulted in an increase in the number of children studying – mainly in kindergartens, primary and secondary schools.

An extremely crucial element related to education planning in Poland is the population of Polish people and its dynamic trends divided into voivodeships, counties, communes, cities and villages. The population of Poland at the end of 2023 was approximately 37,637 million people. That means a decrease by approximately 130,000 people compared to the previous year (RDC, 2024). A discussion of the causes of population decline in Poland can be found in many publications (Kozicki, Mitkow, 2020; Kozicki, Jaśkiewicz, 2021; Kozicki 2022, p. 11-13). They result mainly from the excess of human deaths over the births of children dynamically. The decline in births results from many aspects, such as the increase in the age of women who decide to give birth to their first child, the desire for professional development, greater freedom of life related to the lack of obligation to raise children, or lower expenses that do not have to be spent on raising children.

The above-mentioned information became the premise for conducting a multidimensional comparative analysis of the number of students in Poland with regard to the current population in terms of social security. Multidimensional comparative analyzes were used to conduct the analyses. They involve arranging a relatively homogeneous object in order to make decisions regarding the selection of an object or feature according to a pre-determined criterion (Łuniewska, Tarczyński, 2006, p. 10).

METHODS

The study outlines a research problem: in which voivodeships do the most students study compared to the Polish population and how will the current number of students affect the labour force sector in Poland in the future? The problematic situation for the research problem outlined in this way results from the demographic collapse observed in Poland for several years, which is influenced by such variables as the crisis of the family and its model change, the aging of society and the influx of immigrants. The above-mentioned factors and many others cause the fundamental foundations of social security in Poland to change and even be deregulated.

For the outlined problem situation and the adopted research problem, the purpose of the research was put forward: to conduct a multidimensional comparative analysis of the number of students and the population of people in Poland with the view to the demographic crisis and its impact on social security.

In terms of the adopted problem and the purpose of the research, the following research hypothesis was outlined – it is assumed that the greatest number of students per population of a given area study in the following voivodeships: Mazowieckie, Wielkopolskie and Pomorskie, and the decline in the number of students in particular age groups will deepen the demographic crisis in Poland and will affect the increase of the population of post-working age, which will consequently result in a reduction in the labour force sector of the Republic of Poland in the future.

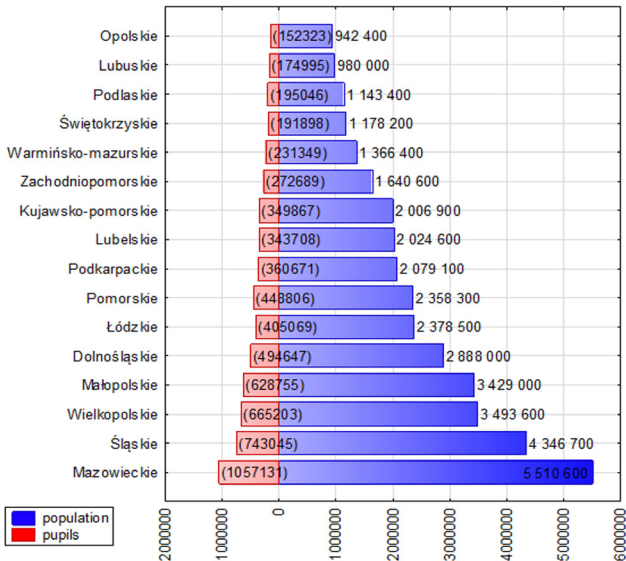
Research methods used in the article are: analysis and synthesis of the subject literature, generalization, comparison and inference. To analyze general concepts, the authors used the desk research method based on a review of publicly available information. It was assumed that the research would be based mainly on the analysis of available studies and materials enabling the review and organization of information concerning the demographic crisis, the transformation of the family model and the reorganization of the education system. The authors studied domestic and foreign scientific publications and available statistical data published on websites. Primary research focused on statistical analyzes of total fertility rate, including births and deaths, marriages and divorces, and the number of children in educational institutions.

The research began with a multidimensional comparative analysis of data regarding the number of students and the population of people in Poland dynamically, with regard to data obtained mainly from the websites of the Central Statistical Office.

RESEARCH RESULTS

The research began by compiling data on the total number of students in Poland in the 2022/2023 semester: 6 715 202 children of Polish citizenship were studying in Poland, and the population of Poland in 2022 was 37 766 300 people. Then, for research purposes, Figure 1 groups the considered data into respective Polish voivodeships along with the population number in the voivodeships.

Figure 4. Number of students in the 2022/2023 semester and population by voivodeship in Poland

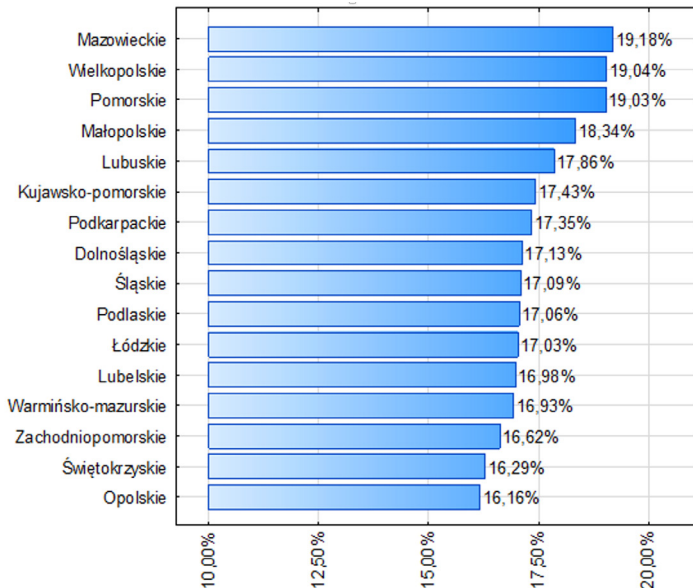


Source: <https://dane.gov.pl/pl/dataset/212,szkoy-i-uczniowie-wedug-organow-prowadzacych,stan-na-2.05.2024>; <https://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-demograficzny-2023,3,17.html>, as of 27.05.2024.

The data presented in Figure 4 indicate that the largest number of students are educated in Mazowieckie Voivodeship: 1 057 131, with a population of 5 510 600 people. In the second place there is Śląskie Voivodeship with the number of students amounting to 743 045, with a population of 4 346 700, and in the third place there is the Wielkopolskie Voivodeship, where there are 665 203 students, and the total number in this region is 3 493 600. The fewest children are taught in Opolskie Voivodeship (152 323 students), where the number of people is 942 400, and Lubuskie Voivodeship (174 995 students), where in 2022 there were 980 000 people.

Then, for research purposes, an index of the share of the number of students in the population of the same respective voivodeships was calculated. The research results are summarized in Figure 5.

Figure 5. Bar chart of the percentage of students in the population of respective voivodeships in Poland in 2022

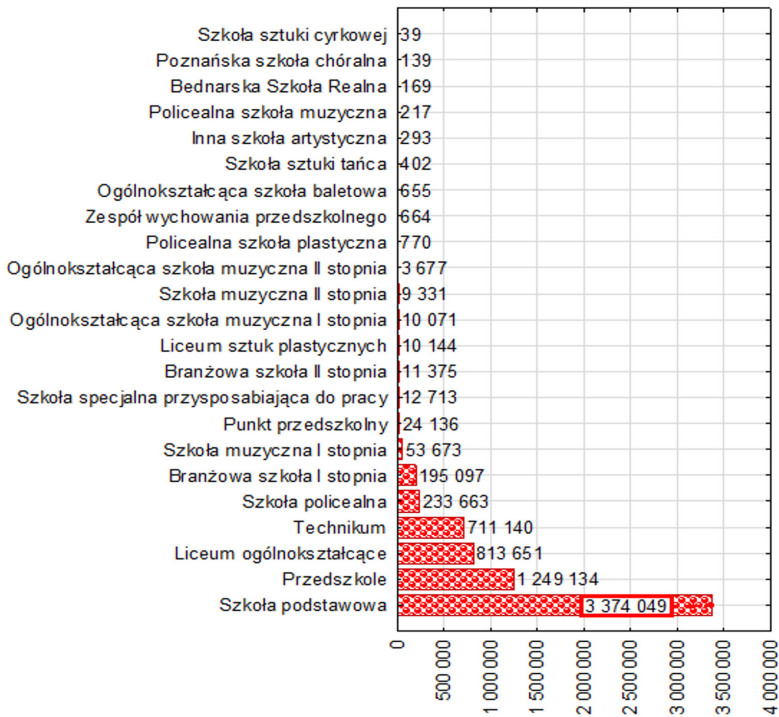


Source: <https://dane.gov.pl/pl/dataset/212,szkoy-i-uczniowie-wedug-organow-prowadzacych,stan-na-2.05.2024>; <https://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-demograficzny-2023,3,17.html>, as of 27.05.2024.

The highest percentage share of the number of students in the population of respective voivodeships was in the Mazowieckie Voivodeship in 2022 and amounted to 19,18 percent. The second place in the ranking was taken by the Wielkopolskie Voivodeship, with the share of students in the entire population of the voivodeship amounting to 19,04 percent. The third place was taken by the Pomorskie Voivodeship, where the index was 19,03 percent. The lowest index was recorded in the Opolskie Voivodeship: 16,16 percent.

Then, for research purposes, Figure 6 presents data on the number of students in Poland in the 2022/2023 semester, divided into types of schools.

Figure 6. Number of students in Poland in the 2022/2023 semester by school type

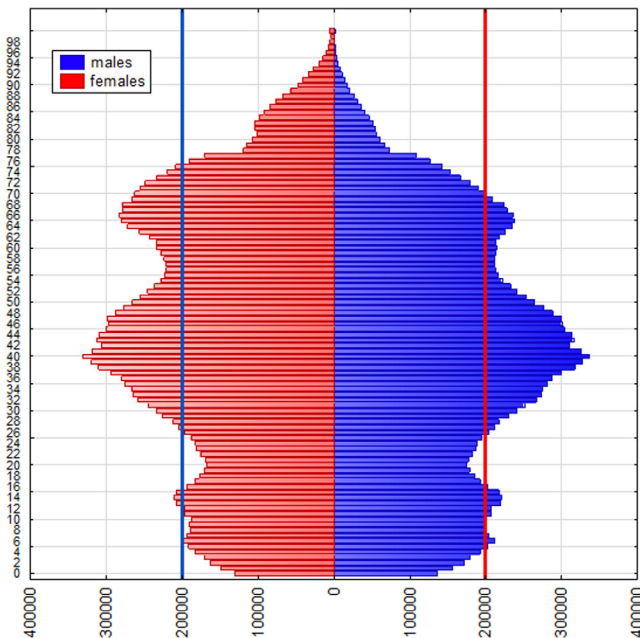


Source: own study based on data obtained from the website: <https://dane.gov.pl/pl/dataset/212,szkoy-i-uczniowie-wedug-organow-prowadczych>, as of 2.05.2024.

The observation of the data presented in Figure 6 shows that the largest number of Polish children in the 2022/2023 semester studied in primary schools: 3 374 049. The second place in the above ranking is taken by kindergartens, where 1 249 134 students studied. The third place in the ranking in terms of the largest number of students is taken by general secondary schools, with 813 651 students, followed by technical secondary schools: 711 140 students. A large number of graduates was also recorded in post-secondary schools (233 663 students) and in the first stage vocational schools: 195 097 students.

The last stage of the research was the analysis of the population of people in Poland divided into men and women in particular age groups as of December 31, 2023.

Figure 7. Pyramid chart of the human population in Poland as of December 31, 2023, divided into women and men



Source: own study based on data obtained from the website: <https://stat.gov.pl/obszary-tematyczne/ludnosc/ludnosc/ludnosc-stan-i-struktura-ludnosci-oraz-ruch-naturalny-w-przekroju-terytorialnym-w-2023-r-stan-w-dniu-31-12,6,36.html>, as of 28.05.2024.

As of December 31, 2023, the human population in Poland was 37 636 508 people. At that time, there were more women in Poland (19 454 109) than men (18 182 399). The research indicates that in the age group from 0 to 7 years (the period of education in nursery and kindergarten) there were 1 455 296 men and 1 380 316 women. However, during primary and secondary school education, there were 2 431 809 men and 2 308 303 women between the ages of 8 and 19. There were 11 490 874 men and 11 537 320 women in Poland aged 20 to 65. Also, as of December 31, 2023, there were 2 804 420 men and 4 228 170 women in Poland aged over 65.

To sum up, a positive difference between the number of women and men appears in the age ranges selected for the study only in the group over 65 years of age. That proves that the arithmetic mean of lifespan of men is shorter than that of women and the period of receiving retirement benefits is longer for women than for men. The loss of symmetry between the number of women and men in Poland is particularly visible from the age of 52. At that time, a stronger upward trend in male deaths is most likely visible.

Then, the population of people in cities in Poland was examined, divided into women and men in particular age groups. The research shows that there are more women (11 803 504) than men (10 573 043) in cities in Poland, and a total of 22 376 547 people live there. In the age group 0 to 7, there are more males (811 387) than females (770 197) in Polish cities. Similarly, more men (1 320 659) than women (1 258 553) were observed in the 8 to 19-year-old age group. However, in the age group from 20 to 65, there are more women (6 947 196) than men (6 660 511) in cities in Poland. There are also more women over the age of 65 in the population under consideration (2 827 558) than men (1 780 486). The lack of symmetry between the number of women and men in Polish cities is visible in the age group over 50. That is most likely due to the increase in the number of male deaths in Polish cities.

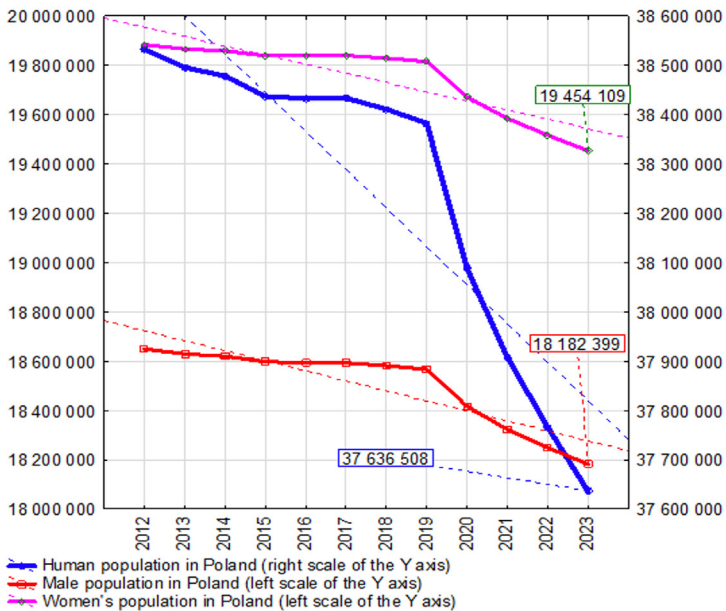
Then, the population of people in Polish villages was analyzed, divided into women and men in particular age groups. About 15 259 961 people live in rural Poland, including 7 650 605 women and 7 609 356 men. There are more men (643 909) than women (610 119) in the age group 0 to 7 years old. A similar pattern is visible in the age group from 8 to 19 years: 1 111 150 men and 1 049 750 women. More women (4 590 124) than men (4 830 363) live in the Polish

countryside at the working age of 20 to 65. Similarly, at retirement age, i.e. over 65: 1 400 612 women and 1 023 934 men.

To sum up, the distribution of data on the number of women and men in particular age groups is the closest one to symmetrical in the Polish countryside. The difference in symmetry appears here in the age group from 78 years of age – in this period there is a strong decreasing tendency in the number of men dynamically.

Then, for research purposes, the variability of human demography in Poland between 2012-2023 was examined.

Figure 8. Line chart of the number of people in Poland, divided into women and men between 2012-2023, with drawn trend lines (whole population in Poland – right scale of the Y axis; population of men and women in Poland – left scale of the Y axis)

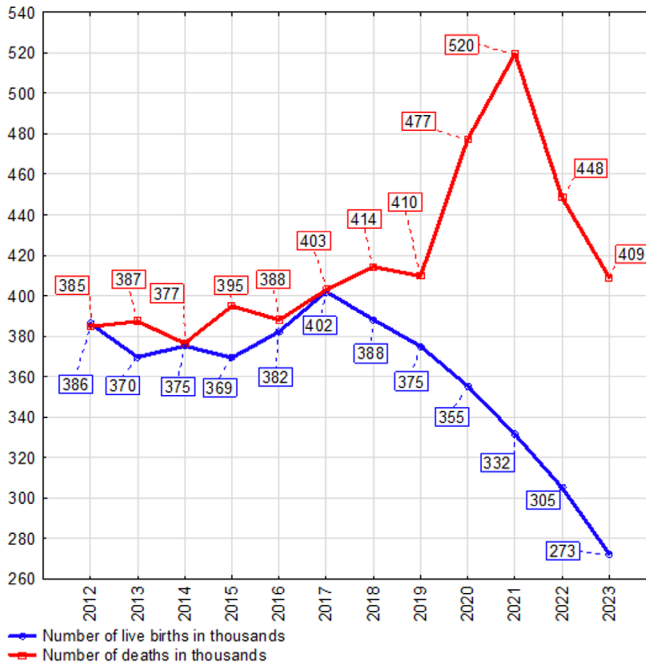


Source: own study based on data from the website: <https://stat.gov.pl/>, as of 28.05.2024.

The evaluation of the data presented in Figure 8 is that from 2012 (38 533 299) to 2023 (37 636 508) there is a visible decreasing trend in the number of people in Poland, which can be described by a linear trend function as $Y = 38758000 - 78118.9091 * x$. It can also be observed that in the Republic of Poland between 2012-2023 there are over 1 million more women than men. Both dependent variables (the number of women and men in Poland) show a decreasing trend, which is described by two separate functions as: (Men's trend line) $Y = 18765000 - 40665.1434 * x$; (Women's trend line) $Y = 19993000 - 37453.7657 * x$. To sum up, there is clearly a stronger decreasing trend in the number of men and women in Poland.

Then, Figure 9 presents data on births and deaths of people in Poland between 2012-2023.

Figure 6. Line chart of the number of births and deaths in Poland in respective years 2012-2023 in thousands

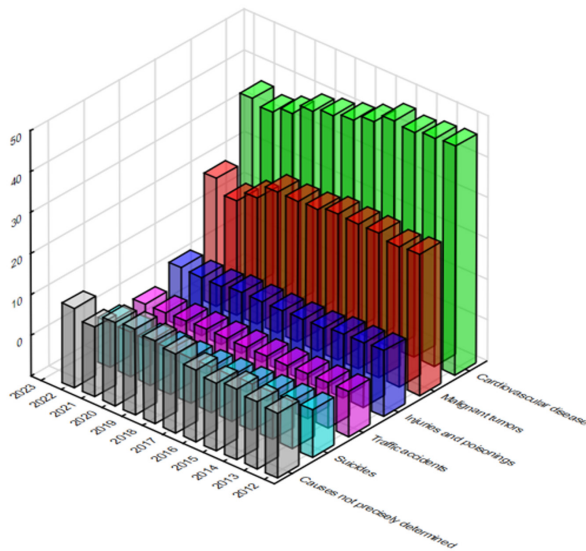


Source: own study based on data from the website: <https://stat.gov.pl/>, as of 28.05.2024.

The evaluation of the data presented in Figure 9 is that between 2012-2017 the difference between the number of births and deaths of people in Poland was of an irregular, alternating nature. From 2018 to 2023, there had been a strong trend of more people dying since birth. In 2023, this difference amounted to 136,000 people.

Then, for illustrative purposes, Figure 10 presents data in percentages showing the most common causes of death in Poland between 2012-2023.

Figure 10. 3D chart of the most common causes of death in Poland in particular years 2012-2023 in percentage



Source: own study based on data from the website: <https://stat.gov.pl/>, as of 28.05.2024.

The most common cause of human death in Poland is circulatory system diseases, the number of which shows a decreasing trend between 2012-2023, and in 2023 this type of disease was the cause of approximately 42% of deaths. The next group of the most common causes of death are malignant tumors. In Poland, in 2023 they were the cause of approximately 19% of all deaths. Other causes of death include: injuries and poisonings, traffic accidents, suicides and deaths

from unknown causes. The above-mentioned causes individually constitute approximately 10% of human deaths in Poland in each of the years 2012-2023. It is also worth emphasizing that between 2020-2021 there is a visible decrease in the number of deaths due to the circulatory system and cancer. The above-mentioned issue was influenced by the COVID-19 infectious disease pandemic.

CONCLUSION

The research shows that in the 2022/2023 semester, 6 715 202 children of Polish citizenship were learning in Poland, and the population of Poland in 2022 was 37 766 300 people. The largest number of students in Poland are educated in the Mazowieckie Voivodeship (1 057 131), with the population of this region amounting to 5 510 600. In the second place there is Śląskie Voivodeship with the number of students amounting to 743 045, with a population of 4 346 700, and in third place there is the Wielkopolskie Voivodeship, with 665 203 students and a total population of 3 493 600.

The article calculates the index of the share of the number of students in the population of respective voivodeships. The highest index values in percentage indicate that students are most willing to learn in the regions under consideration. The highest percentage share of the number of students in the population of respective voivodeships was in Mazowieckie Voivodeship in 2022 and amounted to 19,18 percent. The second place in the ranking was taken by the Wielkopolskie Voivodeship, with the share of students in the entire population of the voivodeship amounting to 19,04 percent. The third place was taken by Pomorskie Voivodeship, where the rate was 19,03 percent. The lowest rate was recorded in Opolskie Voivodeship: 16,16 percent. To sum up, most students are educated in three voivodeships: Mazowieckie, Wielkopolskie and Pomorskie.

Subsequent studies proved that most Polish children studied in primary schools in the 2022/2023 semester (3 374 049). The second place in the above-mentioned ranking was kindergartens, which educated 1 249 134 students. The third place in terms of the largest number of students was taken by general secondary schools (813 651), followed by technical secondary schools with 711 140 students.

The analysis of the population in Poland indicates that the number of children in particular years compared to adults, mainly of working age, has decreased significantly. In the future, that will result in a significant reduction in the number of people constituting Poland's labor force. This, will result in a decline in many sectors of the economy, as well. As of December 31, 2023, the human population in Poland was 37 636 508 people. At that time, there were more women in Poland (19 454 109) than men (18 182 399). The lack of symmetry in the distribution of the number of women and men in Poland is particularly visible from the age of 62. At that time, a stronger upward trend in male deaths is most likely visible. Considering Polish cities divided into dependent variables: women and men in particular age groups, it was noticed that there was no symmetry between the number of women and men in Polish cities in the age group over 50. When evaluating the population of people divided into women and men in particular years of life in the Polish countryside, it was noticed that the distribution of this group is more symmetrical than in the city. A visible lack of symmetry between the number of women and men appears in the age group from 78 years of age, during this period there is a strong decreasing tendency in the number of men dynamically. Out of the data presented in Figures 5 and 6, it can be observed that the smallest declines in the labour force in the future in Poland will be in the agricultural sector.

In Poland, between 2012-2023, there is a visible decline in the human population in Poland, which can be described by the function $Y = 38758000 - 78118.9091 * x$. The decline is also visible in the time series of the number of women and men in Poland in the same above-mentioned and years. The trend line for the decreasing number of men in Poland is as follows: $Y = 18765000 - 40665.1434 * x$; women: $Y = 19993000 - 37453.7657 * x$. That clearly indicates a stronger decreasing trend in the number of men and women in Poland. The greatest impact on the decline in human demography in Poland is the visible increase in the difference between births and deaths since 2018. In 2023, this difference amounted to 136 000 people. The largest causes of human death in Poland are circulatory system diseases (approximately 42% of human deaths) and malignant tumors (approximately 19% of human deaths).

To sum up, the visible decline in the number of students in particular age groups from 0 to 19 years in institutions such as kindergartens, primary and secondary schools compared to the current number of people constituting the Polish workforce in particular age groups from 20 to 65 years indicates a reduction in the number in the future employees in every sector of the economy. That, as a result, will have a direct impact on both state finances and the education system in Poland, which will be reduced by teaching staff and students dynamically. The migration of people from Ukraine caused by the war between Russia and Ukraine will reduce the scale of the decline in the human population in Poland. It should be emphasized that in 2023, 12 803 children of Ukrainian citizenship were born in Poland, and 257 294 children of Polish citizenship (X-kom, 2024). The above-mentioned observations regarding the decreasing trend in the population of people in Poland are extremely important and require continuous analyzes and evaluation in terms of taking action aimed at encouraging people to have children in order to try to change the trend into the growing number of people in the Republic of Poland. One of the priority actions taken to this end was the adoption in 2022 by the Council of Ministers of a resolution on the establishment of a public policy entitled ‘Demographic Strategy 2040’. The main objective of the strategy is to bring the fertility level in Poland closer to a level that will guarantee the replacement of generations. The strategy indicates that in order to enable Poles to realise their plans related to having children, 3 goals need to be achieved. These are to strengthen the family, which is the place where children come into the world, to remove barriers for parents wishing to have children, including ensuring good quality public education, and to improve the quality of management and implementation of policies at local and central government levels.

ACKNOWLEDGEMENTS

Artykuł został sfinansowany przez Wojskową Akademię Techniczną w ramach projektu UGB nr 760/2024 pn. *Odporność (resilience) państwa, w tym społeczeństwa na realne i potencjalne zagrożenia lokalne, regionalne (narodowe) i międzynarodowe.*
Kierownik projektu: dr hab. Aleksandra Skrabacz.

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