



DETERMINANTS OF HEALTH CARE EXPENDITURE IN POLAND IN THE YEARS 2014-2023

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Abstract

This study aimed to assess the development of healthcare expenditure in Poland and identify its determinants. Changes in the structure of this expenditure were analysed, as was its share of Gross Domestic Product (GDP), and the amount of healthcare expenditure per capita in Poland between 2014 and 2023 was calculated and evaluated. During the period under review, healthcare expenditure in Poland was growing, but both its share of GDP and its per capita level were lower than the average in other EU countries. The determinants of healthcare expenditure in Poland were identified, dividing them into: legal, macroeconomic, political, unexpected events, demographic, social, environmental, technological, systemic and those resulting from globalisation processes. Determinants were divided into those dependent and independent of the state, pointing to possible ways of dealing with them. The biggest barrier to the growth of healthcare expenditure in Poland is macroeconomic in nature, as it results from the country's GDP. Other significant problems related to the development of healthcare expenditure result from the ageing of the population and systemic errors. During the analysed period, the Covid-19 pandemic was also a significant factor in the development of healthcare expenditure in Poland.

UWARUNKOWANIA WYDATKÓW NA OCHRONĘ ZDROWIA W POLSCE W LATACH 2014-2023

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Abstrakt

Badania teoretyczne i empiryczne prowadzone w ramach ekonomii zdrowia wskazują, że wysokość wydatków na ochronę zdrowia ma wpływ na stan zdrowia populacji i jakość oferowanej opieki zdrowotnej. W ocenianym okresie wydatki na ochronę zdrowia w Polsce były rosnące, zarówno jednak ich procentowy udział w PKB, jak i ich wysokość per capita, były w Polsce niższe niż średnio w innych krajach UE. Autorka zidentyfikowała uwarunkowania kształtowania się wydatków na ochronę zdrowia w Polsce, dzieląc je na: prawne, makroekonomiczne, polityczne, wynikające z niespodziewanych zdarzeń, demograficzne, społeczne, środowiskowe, technologiczne, systemowe oraz wynikające z procesów globalizacji. Podzieliła je też na zależne oraz niezależne od państwa, wskazując na możliwe sposoby radzenia sobie z nimi. Największa bariera wzrostu wydatków na ochronę zdrowia w Polsce ma charakter makroekonomiczny, gdyż wynika z wypracowanego PKB w kraju. Inne istotne problemy związane z kształtowaniem się wydatków na ochronę zdrowia wynikają ze starzenia się społeczeństwa oraz błędów systemowych. W analizowanym okresie pandemia COVID-19 była także istotnym uwarunkowaniem kształtowania się wydatków na ochronę zdrowia w Polsce.

Introduction

Health and its protection are fundamental goals for every individual, but they should also be a priority for society as a whole. Other factors also influence the health of society, but a well-functioning healthcare system contributes significantly to maintaining and improving the health of the population (Piątkowski, 2021, p. 327). A healthy society, on the other hand, is an important determinant of economic growth and development. A scientific discipline called health economics has developed in economics, which arose as a reaction to the rising costs of healthcare and increasingly frequent problems with its financing. This discipline deals with interpreting and explaining economic processes related to the production and exchange of medical goods and services, and research in this area attempts to identify ways to reduce or at least slow down the growth of healthcare costs (Markowska, 2019, p. 132). In the practical activities of healthcare entities, the use of market economy elements is also becoming increasingly visible, which allows for a more effective and rational use of public funds allocated to healthcare (Beylik *et al.*, 2022, p. 2).

The main problem that every healthcare system has to face is finding appropriate and sufficient sources of funding. The starting point is therefore the selection of the most appropriate healthcare financing model. Over the years, four main healthcare models have emerged in practice: the Bismarck model, the Beveridge model, the Siemaszko model and the residual model (Paszowska, 2017, p. 28). In Poland, the adopted healthcare system operates under the Bismarck model, based on a system of compulsory health insurance contributions. The system is financed by compulsory health insurance contributions paid to the National Health Fund, but also from the state and local government budgets (Kowalczyk, 2015, p. 142). A similar system in Europe operates in the Czech Republic, Austria, Switzerland, Germany, Belgium, the Netherlands and France. It is vulnerable to certain risks due to current demographic and systemic forecasts (Stasiak, 2023, p. 101). It is also greatly limited by the available financial resources. Therefore, research on healthcare expenditure and its determinants is an important issue in economics. Research into the determinants of healthcare expenditure was initiated in 1977 by Newhouse, who considered GDP to be the most important factor. Over the following years, other determinants of healthcare expenditure were also studied, such as population ageing, technological factors, the health status of the population, the supply of healthcare and institutional factors (Martin *et al.*, 2011; Łyszczarz & Nojszewska, 2015; Łyszczarz, 2018; Piekut & Gutkowska, 2016; Strzelecka, 2011; Jończyk, 2010; Wasiak & Szelağ, 2015).

The aim of this study was to assess the development of healthcare expenditure in Poland and to identify the factors influencing it. To achieve this objective, the first step was to identify and assess healthcare expenditure in Poland. The study encompassed the period from 2014 to 2023, with a geographical focus on Poland and a subject scope that encompassed healthcare expenditure. Both public and private expenditure trends during the study period were analysed. The dynamics and structure of these expenditures were assessed, and their share in GDP was calculated and evaluated, as well as the amount of healthcare expenditure per capita in Poland. In addition, it points out the main determinants of healthcare expenditure in Poland and those that constitute the greatest barriers to the effectiveness of the healthcare system.

Determinants of Healthcare Expenditure

Healthcare expenditure depends on many factors, which have been analysed by numerous authors for several decades. Over the years, researchers have often focused on analysing individual categories of these determinants, assessing their impact on the formation of healthcare expenditure in a given country. The author of this study has attempted to take a comprehensive look at the determinants of healthcare expenditure. She has divided them into the following categories:

1. Legal conditions: The amount of expenditure on healthcare is regulated by Article 131c of the Act of 27 August 2004 on healthcare services financed from public funds (Dz.U. z 2024 r., poz. 146). According to the regulations, no less than 6.00% of GDP, as specified in the announcement of the President of the Central Statistical Office, should be allocated to healthcare financing. There are also other legal provisions that affect healthcare expenditure, e.g. intra-EU regulations (*Health at a Glance*, 2016). The amount of health insurance contributions and their mandatory nature are also important legal determinants of healthcare expenditure.

2. Macroeconomic conditions: Healthcare expenditure depends on the amount of revenue collected by the state budget, which is a significant constraint in Poland – throughout the entire period under review, there was a budget deficit and numerous problems with financing various areas of the economy, including healthcare. The main factor correlated with healthcare expenditure is GDP (Akca *et al.*, 2017, p. 2). Economic growth therefore contributes to increasing the possibilities of financing healthcare, and these expenditures are positively correlated with economic growth. In the long term, they also stimulate the country's economic development by improving the quality of the basic resource in the economy, which is human resources.

3. Political conditions: Since healthcare spending depends on public finances, it follows that it is also conditioned by the fiscal policy pursued and the priority objectives of the government currently in power. Poland also implements the EU's common health policy, which determines national healthcare spending (Iwuoha & Jude-Iwuoha, 2020; Brooks *et al.*, 2023; Samarasekera, 2021). This policy assumes the use of other countries' experiences in the field of healthcare and also draws attention to the amount of healthcare expenditure, which is linked to public health indicators.

4. Conditions resulting from unexpected events such as wars, disasters, natural disasters or pandemics. In 2020, the COVID-19 pandemic began, which significantly changed the role of healthcare in society in the following years and forced a significant increase in healthcare spending. According to an OECD report, the COVID-19 pandemic has led to a reduction in average life expectancy in the EU by more than a year in 2021 compared to pre-pandemic levels. By the end of October 2022, more than 1.1 million deaths from COVID-19 had been reported in the 27 EU countries, mainly among the elderly. However, the pandemic also had an impact on the mental and physical health of young people due to disruptions in their education and social activities. The number of cases of depression among young people increased, their level of physical activity decreased, their eating habits deteriorated, and in some countries there was an increase in overweight and obesity among children. The pandemic also disrupted the continuity of cancer screening programmes and specialist consultations, resulting in cancer patients being diagnosed at a later stage. Rising healthcare

expenditure was also due to the launch of the COVID-19 vaccination programme (*Health at a Glance*, 2022).

5. Demographic conditions: On the one hand, there is a decline in population (which should lead to a reduction in healthcare expenditure), but on the other hand, Poland and many other countries are experiencing an ageing population, so the number of age-related diseases is increasing – for this reason, healthcare needs in society are growing, despite the decline in population. Since 2011, the increase in life expectancy has slowed significantly (*Health at a Glance*, 2018). On average, in EU countries, the percentage of the population aged over 65 has increased from less than 10% in 1960 to almost 20% in 2015, and is expected to rise to almost 30% by 2060 (*Health at a Glance*, 2016). This results in growing health needs and fewer people paying contributions (Golinowska & Tabor, 2014; Eeno *et al.*, 2015). After 2022, a large wave of migrants from Ukraine arrived in Poland, which also increased the demand for health services. On the one hand, technological progress over the years has improved the health of the population, but on the other hand, in recent years there has been a massive increase in so-called lifestyle diseases, which require large financial outlays that were not previously necessary, such as metabolic or mental illnesses. In previous decades, there were not so many depressive and anxiety disorders, for example, but today this is a major problem, contributing to an increase in healthcare spending.

6. Social conditions: Over the years, knowledge and social awareness about health and healthy lifestyles have grown, which means that people regularly and often preventively use health services, which in the short term increases healthcare spending. However, in the long term, prevention and greater attention to health should contribute to a reduction in healthcare expenditure. Among the behavioural determinants of the increase in healthcare expenditure, the negative impact of stimulants on human health should also be mentioned. Although the consumption of both tobacco and alcohol declined during the period under review, their consumption remains the largest behavioural risk factor for health, accounting for approximately 780,000 deaths per year in the EU in the case of cigarettes and 300,000 in the case of alcohol (*Health at a Glance*, 2022). Mental health problems are also a significant issue. In 2015, more than 84,000 people died from mental health problems across Europe, and the total costs resulting from mental health problems are estimated at over EUR 600 billion per year (*Health at a Glance*, 2018).

7. Environmental conditions: Climate change and environmental pollution pose another threat to the modern world, leading to the emergence of new diseases and deteriorating public health, which results in increased healthcare spending. In most European countries, pollution levels have remained above WHO guidelines over the past two decades. This is particularly true in large cities (*Health at a Glance*, 2020). It is estimated that more than 300,000 people in the EU died from air pollution caused by fine particulate matter in 2019 (*Health at a Glance*, 2022). Polluted water, air and soil have a direct negative

impact on human health and also indirectly affect the quality of the food we consume as a species.

8. Systemic conditions: these result from the organisation of medical services, the appropriate system of medical staff training and the effective organisation of work in healthcare. Unfortunately, there are indications of shortcomings in this area in Poland – shortage of doctors, an inefficient healthcare system, poor management and the ineffective use of healthcare funds.

9. Technological conditions: The new technologies mentioned above are being used more and more intensively in medicine, which improves the health of the population. Thanks to modern medical equipment, diseases are detected at earlier stages of their development and are treated more effectively. However, the external effects of technological progress also include the development of highly processed foods, which reduce health levels and contribute to rising healthcare costs. On the other hand, technological progress provides greater access to information, raising the level of health literacy among the population. Another consequence of intensive technological development is the so-called fast pace of life, which is the source of many mental illnesses. As already mentioned, their number has been growing rapidly in recent years, increasing the necessary healthcare expenditure.

10. Conditions resulting from globalisation: these lead to the standardisation of people's needs on a global scale, but also increase the openness of economies. In the context of the impact of this phenomenon on healthcare spending, it is worth mentioning the increasingly intensive travel of Poles, which often results in the introduction of various tropical diseases and others that were previously unknown in our country. This is a factor contributing to the increase in healthcare spending.

In consideration of the aforementioned factors, the subsequent sections of this article will analyse the development of healthcare expenditure in Poland, with a view to identifying the most significant factors influencing this development.

Healthcare Expenditure Trends in Poland in 2014-2023

High healthcare spending is not a sufficient condition for the population to enjoy a high level of health and for the quality of healthcare services to be satisfactory, but it is a necessary condition. However, it is widely known that the level of expenditure in the Polish healthcare system is too low in relation to social needs and expectations (Piątkowski, 2021, p. 320). Table 1 shows the level of expenditure in Poland in 2014-2023. In order to assess their development in the period under study, the dynamics of changes in healthcare expenditure were also calculated (% change year-on-year), as presented in Table 2.

Table 1

Healthcare expenditure in Poland in 2014-2023 (in PLN million)

Years	Total current expenditure on health care	Public spending	Private expenses
2014	110,575.2	79,046.0	31,529.2
2015	114,142.4	79,886.6	34,255.8
2016	121,106.7	84,591.5	36,515.2
2017	130,140.4	90,446.0	39,694.4
2018	134,244.4	95,977.1	38,267.3
2019	147,838.5	106,113.9	41,724.6
2020	151,873.5	109,752.7	42,120.8
2021	169,418.4	122,767.2	46,651.3
2022	196,205.1	144,639.4	51,565.7
2023	241,617.4	197,818.2	43,799.2

Source: based on Announcements regarding the National Health Account for 2014-2023 (2023).

Table 2

Dynamics of changes in health care expenditure in Poland in 2014-2023 (in %)

Years	Current expenditure on health care	Public spending	Private expenses
2015/2014	3.23	1.06	8.65
2015/2016	6.10	5.89	6.60
2016/2017	7.46	6.92	8.71
2017/2018	3.15	6.12	-3.60
2018/2019	10.13	10.56	9.03
2019/2020	2.73	3.43	0.95
2020/2021	11.55	11.86	10.76
2021/2022	15.81	17.82	10.53
2022/2023	23.15	36.77	-15.06
2023/2014	118.51	150.26	38.92

Source: own calculations based on the Announcement on the National Health Account for 2014-2023 (2023).

Healthcare expenditure in Poland grew in each of the years examined between 2014 and 2023. The rate of expenditure growth was also mostly increasing. A notable year was 2017, when total healthcare expenditure increased by just over 3% compared to 2016, compared to over 7% growth in the previous year. In that year, private healthcare expenditure fell by over 3.5%. Another notable year was 2020, when healthcare expenditure increased by less than

3% compared to the previous year. This represented a decline in the growth rate of the expenditure examined by more than 7%. Starting in 2021, the rate of change in healthcare expenditure in Poland increased year on year. The largest increase in expenditure occurred in 2023, when it rose by over 23% compared to the previous year, mainly due to an increase in public expenditure (over 36%), while private expenditure fell by over 15%. Throughout the entire period under review, healthcare expenditure in Poland increased by over PLN 130 million in nominal terms, which represents an increase of over 118%. This increase was mainly due to an increase in public healthcare expenditure, which amounted to over PLN 118 million (over 150%). Private healthcare expenditure in Poland increased by only slightly over PLN 12 million (almost 39%). In addition, Table 3 shows the structure of the expenditure examined.

Table 3

Share of public and private in healthcare expenditure in Poland in 2014-2023 [%]

Years	Public spending	Private expenses
2014	71.49	28.51
2015	69.99	30.01
2016	69.85	30.15
2017	69.50	30.50
2018	71.50	28.50
2019	71.78	28.22
2020	72.27	27.73
2021	72.46	27.54
2022	73.72	26.28
2023	81.87	18.13

Source: own calculations based on the Announcement on the National Health Account for 2014-2023 (2023).

In the initial period of the analysed time frame, public expenditure accounted for approximately 70% of total healthcare expenditure in Poland. Since 2018, this structure has been changing towards an increase in public expenditure, with a gradual decline in private expenditure, reaching a distribution in 2023 where public expenditure accounted for over 80% of total healthcare expenditure, while private expenditure accounted for just over 18% of the total. When assessing the development of private healthcare expenditure, it is pointed out that healthcare is treated as a basic good (Łyszczarz, 2018, p. 152). This means that as the population's income increases, demand for healthcare increases, but its growth rates are declining. In order to deepen the discussion on the development of healthcare expenditure in Poland, its share in GDP was assessed and its amount per capita was calculated (Tab. 4).

Table 4

Share of health care expenditure in GDP [%] and health care expenditure per capita in Poland in 2014-2023 (in PLN)

Years	Share of healthcare expenditure in GDP	Health care expenditure per capita
2014	6.40	2,874.0
2015	6.31	2,970.0
2016	6.49	3,151.0
2017	6.52	3,386.0
2018	6.25	3,495.0
2019	6.39	4,178.0
2020	6.43	3,987.0
2021	6.37	4,469.0
2022	6.33	5,195.0
2023	7.07	6,420.0
Mean	6.46	4,012.5

Source: own calculations based on the Announcement on the National Health Account for 2014-2023 (2023) and data from Bank Danych Makroekonomicznych (2025).

During the period under review, healthcare expenditure in Poland averaged 6.46% of GDP. A decline in this indicator was recorded in 2015 (the share of the analysed expenditure in GDP fell by 0.9% at that time), in 2018 (a decrease of 0.27%), in 2021 (a decrease of 0.06%) and in 2022 (a decrease of 0.04%). In the remaining years, the share of healthcare expenditure in GDP was growing, exceeding 7% in 2023. Compared to the EU average, which was 10.4% in 2022, this is not a high result. Poland is still one of the EU countries that spends relatively the least on healthcare.

Between 2014 and 2023, the population declined, which is why healthcare expenditure per capita in the country increased in most of the years studied, averaging over PLN 4,000 per Pole. Only in 2020 did this expenditure fall slightly compared to the previous year. The largest increase in per capita healthcare expenditure was recorded in 2023, when it rose by PLN 1,225 (an increase of over 23% compared to 2021). For comparison, in 2022, the average annual healthcare expenditure per EU citizen was EUR 3,685, an increase of 38.6% since 2014 (in Poland, it was approximately EUR 1,000).

Summary

During the period under review, healthcare expenditure in Poland was on the rise. The largest increase was recorded after 2021. Its structure also changed, with private expenditure being replaced by public. During the period under review,

healthcare expenditure in Poland accounted for an average of 6.46% of GDP, which is below the EU average. Per capita healthcare expenditure in Poland was also lower than in the EU. The determinants of healthcare expenditure were divided into those dependent and those independent (or only slightly dependent) on the state. Factors dependent on the government include macroeconomic, systemic, political and legal factors. The biggest barrier to achieving optimal healthcare expenditure is that resulting from macroeconomic conditions. It has been estimated that by 2027, there will be a shortfall of PLN 60.5 billion to achieve the desired level (*Monitor Finansowania Ochrony Zdrowia*, 2024).

Another problem highlighted in Poland is staff shortages and systemic errors. The rates of avoidable hospital admissions are among the highest in Europe. In Poland, the rates of hospitalisation for conditions that could be effectively treated on an outpatient basis are among the highest in the EU. This is primarily due to the lack of primary and specialist outpatient care services (Stasiak, 2023, p. 106). It would therefore be advisable to develop a system of reforms to improve the functioning of the healthcare system in Poland. It is also important to take measures to prevent the outflow of highly specialised medical staff from our country.

Another important issue that affects healthcare spending is economic policy, especially fiscal policy. In 2014, Poland was still ruled by a coalition of the PO and PSL parties, but in September of that year, power was taken over by the right-wing PIS party, which remained in power until the end of the period under review. The right-wing views of those in power may have influenced the shape of the state budget – it was during this time that, for example, the 500+ programme was introduced, which placed a significant burden on the state budget, which may have caused problems with financing other areas of economic and social life (in 2018, there was a noticeable slowdown in the growth of healthcare spending). Fiscal policy should be focused on increasing healthcare spending and on finding the right mix of public and private funding for healthcare (Strzelecka, 2023).

During the period under review, there were also circumstances over which the state had little influence. First and foremost, this was the outbreak of the Covid-19 pandemic, which led to an increase in healthcare spending. Other factors beyond the state's control in the short term include environmental and technological factors, as well as those resulting from globalisation and European integration (common directives over which a single country such as Poland has no influence). At this point, it is also worth mentioning the migration crisis, one of the consequences of which is the influx of diseases that either never existed in Poland or had already been permanently eradicated thanks to the internal vaccination system. This leads to an increase in healthcare expenditure.

The social conditions surrounding healthcare spending are also important. On the one hand, there is an increasing level of public knowledge and awareness about health, which, in theory, could result in a reduction in healthcare expenditure in the long term. It is also important to consider the so-called “tax

mentality”, which is characterised by a reluctance to pay taxes and similar health insurance contributions. This exacerbates the crisis in healthcare financing. Consequently, there is a prevailing necessity for ongoing public education initiatives and systemic enhancements in healthcare systems, with the aim of fostering increased willingness to contribute financially to health insurance.

Demographic problems also constitute a significant barrier to achieving optimal healthcare spending. Compared to other European Union countries, Poland is still perceived as a demographically young country, but the rate of ageing of Poles is higher than in other countries, and therefore the long-term effects of an ageing population will be greater in Poland than in other EU countries. A systemic solution based on a pay-as-you-go mechanism may prove ineffective in the long term because the change in the ratio between the working-age and post-working-age populations poses a serious threat to the stability of the system. It is suggested that in the long term, the pay-as-you-go mechanism should be partially replaced by a capital mechanism, in which each generation would be individually responsible for securing the financial resources for the benefits it uses. In the short term, however, ad hoc solutions are needed to improve the financial situation of the healthcare system as quickly as possible (Stasiak, 2023, p. 109).

In view of the above, further research on the determinants of healthcare expenditure in Poland seems necessary in the context of the desired changes in healthcare financing in the country.

Translated by Author

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