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ORIGINAL PAPER

TRENDS IN HEALTHCARE EXPENDITURE IN EUROPEAN UNION COUNTRIES IN THE YEARS 2019–2023

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Abstract

This study is grounded in the premise that population health enhances the quality of one of the fundamental factors of production – human capital – and therefore justifies state intervention in the financing of healthcare expenditure. The aim of the study is to assess the evolution of healthcare expenditure across European Union Member States and to identify the determinants of cross-country variation in such expenditure. The analysis covers total healthcare expenditure across all EU countries, per capita healthcare expenditure, and the share of healthcare expenditure in each country's gross domestic product (GDP). The results indicate that the most important determinants of healthcare expenditure are macroeconomic in nature. The need to maintain a balanced public budget, combined with the multiplicity of competing fiscal priorities alongside healthcare spending, constitutes a significant financial constraint on the implementation of healthcare policy within the broader framework of national fiscal policy.

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KSZTAŁTOWANIE SIĘ WYDATKÓW NA OCHRONĘ ZDROWIA W KRAJACH UNII EUROPEJSKIEJ W LATACH 2019–2023

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Słowa kluczowe: wydatki na służbę zdrowia, ekonomia zdrowia, finanse publiczne, budżet państwa, Unia Europejska.

Abstrakt

W opracowaniu oparto się na tezie, że zdrowie społeczeństwa podnosi jakość jednego z podstawowych czynników produkcji – zasobów ludzkich, dlatego zasadna jest ingerencja państwa w finansowanie wydatków na ochronę zdrowia. Celem poniższego opracowania jest ocena kształtowania się tych wydatków w krajach Unii Europejskiej oraz zidentyfikowanie uwarunkowań ich zróżnicowania. Przeanalizowano całkowite wydatki na ochronę zdrowia we wszystkich krajach Unii Europejskiej, wydatki na ochronę zdrowia per capita oraz ich udział w PKB każdego z krajów. Wskazano, że najważniejsze uwarunkowania tych wydatków mają charakter makroekonomiczny. Konieczność zrównoważenia budżetu państwa, a przy tym wielość innych, istotnych celów obok wydatków na ochronę zdrowia, stanowi finansową barierę ich realizowania w ramach polityki fiskalnej państwa.

Introduction

Human capital constitutes one of the fundamental factors of production in a market economy. It is often treated as a homogeneous production factor and assessed primarily in quantitative terms. In reality, however, human capital is highly heterogeneous, resulting in substantial differences in productivity. Among the numerous determinants of labour productivity, population health plays a particularly important role. Better health enhances the productivity of human capital and generates measurable economic benefits (Scott, 2021; Lawrence, 2014). Consequently, health has been recognized as a key determinant of human capital quality and, therefore, as an important driver of economic growth (Frączek, 2023, p. 76).

For this reason, the protection and improvement of population health is not only an individual objective but also a public policy priority. Governments increasingly recognize health as a strategic asset that supports long-term economic growth and socio-economic development. A well-functioning public healthcare system contributes significantly to maintaining and improving population health (Piątkowski, 2021, p. 327). Where public healthcare provision is inadequate, private healthcare services may partially compensate for these shortcomings. However, in countries with lower standards of living, access to private healthcare

is often constrained by financial limitations. Consequently, in less affluent societies with underfunded public healthcare systems, individuals are more likely to postpone or forgo medical treatment, leading to poorer health outcomes, higher morbidity, and, in some cases, preventable mortality.

The objective of this study is to evaluate healthcare expenditure across European Union countries and to identify the factors underlying its cross-country variation. The analysis is based on the premise that higher healthcare expenditure enhances the productivity of human capital, thereby fostering long-term economic growth and socio-economic development. Nevertheless, establishing a causal relationship between population health and economic growth remains an important research challenge. This relationship is inherently difficult to verify empirically, as health represents only one of many factors influencing economic growth.

According to the premise adopted in this study, a healthier population promotes economic growth. However, the level of healthcare expenditure alone is neither the sole nor a sufficient determinant of improvements in the quality of human capital. Equally important are the efficiency and rational allocation of healthcare resources (Beylik *et al.*, 2022, p. 2). Research in health economics therefore seeks to identify strategies for containing, or at least slowing, the growth of healthcare costs while maintaining or improving the quality of healthcare services provided to the population (Markowska & Węglińska, 2019, p. 32).

A key element of healthcare policy is the selection of an appropriate healthcare financing model. In practice, four principal models are distinguished: the Bismarck model, the Beveridge model, the Semashko model, and the residual model (Paszkowska, 2017, p. 28). Most European Union Member States operate healthcare systems based primarily on the Bismarck model, which is financed through compulsory health insurance contributions, supplemented by central and local government funding (Kowalczyk, 2015, p. 142). However, this model is increasingly exposed to challenges arising from demographic trends, particularly population ageing, as well as broader systemic pressures (Stasiak & Stasiak, 2023, p. 101). Its performance is further constrained by the availability of financial resources. Consequently, the analysis of healthcare expenditure and its determinants remains an important area of research in health economics.

Research on the determinants of healthcare expenditure was initiated by Newhouse in 1977 (Newhouse, 1977). Since then, numerous studies have expanded this line of inquiry by examining the effects of population ageing, technological progress, population health status, healthcare supply, and institutional factors on healthcare spending (Baker & Wheeler, 1998; Gerdtham & Jonsson, 2000; Jonsson & Eckerlund, 2003; Christiansen *et al.*, 2006; Dybczak & Przywara, 2010; Jończyk, 2010; Moscone & Tosetti, 2010; Martín *et al.*, 2011; Strzelecka, 2011; Łyszczarz & Nojszewska, 2015; Wasiak & Szeląg, 2015; Piekut & Gutkowska, 2016; Łyszczarz, 2018; Dymek & Kolasa, 2024; Trzeszczoń, 2024; Traczyk, 2025).

Research methodology

The aim of this study is to assess healthcare expenditure across the European Union and to identify the determinants of its cross-country variation. To achieve this objective, the analysis first examines total healthcare expenditure in EU Member States. The study covers the period 2019–2023, with the European Union constituting the geographical scope and healthcare expenditure representing the subject of analysis. The research methods employed were descriptive analysis and comparative analysis. The study utilised secondary data from the Eurostat database concerning the level of healthcare expenditure. The rate of change was assessed (the relative increase in expenditure in 2023 compared with the base period, defined as 2019), average expenditure over the period under review (by calculating the arithmetic mean of the individual years between 2019 and 2023), as well as its share of GDP, and per capita healthcare expenditure. A comparative analysis method was used, as the above-mentioned data were compared across individual EU countries (27 countries).

In addition, the study identifies the principal determinants of healthcare expenditure across EU countries and highlights the factors that constitute the most significant barriers to the effectiveness of European healthcare systems.

Healthcare expenditure in European Union countries

The level of public healthcare expenditure varies considerably across European Union Member States, and this pattern has remained largely unchanged for many years (Frączek, 2023, p. 88). To assess the extent of these disparities, Table 1 presents data on total healthcare expenditure in the EU countries included in the study, together with the percentage change observed over the 2019–2023 study period.

Table 1

Total healthcare expenditure (millions of euro)

Country	2019	2020	2021	2022	2023	National average 2019–2023	Rate of change 2019–2023 (%)
Austria	42,045.1	43,405.4	49,500.3	50,289.7	52,778.9	47,603.9	25.5
Belgium	52,059.6	53,157.6	57,123.9	60,541.2	64,412.1	57,458.9	23.7
Bulgaria	4,363.9	5,225.7	6,124.5	6,575.3	7,499.5	5,957.8	71.9
Croatia	3,785.0	3,897.2	4,719.8	4,933.2	5,579.0	4,582.8	47.4
Cyprus	1,637.7	1,934.9	2,279.0	2,430.1	2,544.5	2,165.2	55.4

Country	2019	2020	2021	2022	2023	National average 2019–2023	Rate of change 2019–2023 (%)
Czechia	17,176.9	19,761.8	22,520.5	24,308.7	26,745.4	22,102.7	55.7
Denmark	31,424.5	33,372.9	36,787.5	36,220.4	35,809.3	34,722.9	14.0
Estonia	1,892.7	2,081.6	2,351.6	2,527.8	2,852.9	2,341.3	50.7
Finland	21,998.4	22,929.0	24,651.8	25,925.6	28,570.9	24,815.1	29.9
France	271,691.7	281,195.2	307,216.0	314,108.4	325,139.6	299,870.2	19.7
Germany	403,968.0	430,092.0	467,794.0	492,139.0	491,563.0	457,111.2	21.7
Greece	15,031.3	15,716.5	16,670.4	17,562.4	18,902.3	16,776.6	25.8
Hungary	9,206.1	10,047.1	11,367.6	11,237.8	12,603.8	10,892.5	36.9
Ireland	24,070.2	26,652.2	28,934.6	31,364.4	33,531.3	28,910.5	39.3
Italy	155,427.0	159,725.0	171,015.0	176,834.0	179,156.0	168,431.4	15.3
Latvia	2,029.1	2,193.5	3,038.1	2,925.7	2,865.5	2,610.4	41.2
Lithuania	3,419.5	3,727.7	4,382.5	4,886.3	5,401.0	4,363.4	57.9
Luxembourg	3,411.9	3,719.8	4,096.1	4,304.1	4,590.3	4,024.4	34.5
Malta	1,297.8	1,415.7	1,588.9	1,660.9	1,816.5	1,556.0	40.0
Netherlands	82,447.0	89,399.0	99,274.0	99,691.0	104,961.0	95,154.4	27.3
Poland	34,400.3	34,182.6	37,110.8	42,787.6	53,676.6	40,431.6	56.0
Portugal	20,395.2	21,150.1	24,291.3	25,735.6	26,866.3	23,687.7	31.7
Romania	12,810.1	13,727.9	15,631.8	16,337.2	18,518.3	15,405.0	44.6
Slovakia	6,534.2	6,659.3	7,776.1	8,476.3	9,105.0	7,710.2	39.3
Slovenia	4,124.9	4,435.4	4,956.3	5,478.5	5,947.5	4,988.5	44.2
Spain	115,534.3	121,896.3	127,799.9	132,966.7	138,155.3	127,270.5	19.6
Sweden	51,976.0	54,710.3	60,485.2	59,896.1	60,357.8	57,485.1	16.1

Source: Eurostat (2026).

The highest average healthcare expenditure during the study period was recorded in Germany, followed by France and Italy. In contrast, the lowest expenditure levels were observed in Malta, Cyprus, and Estonia. These findings confirm the well-established relationship between the size of an economy and the absolute level of healthcare spending whereby larger economies tend to allocate greater financial resources to healthcare.

However, the primary focus of this analysis is the growth rate of healthcare expenditure over the study period. Across the European Union as a whole, total healthcare expenditure increased by an average of 36.5% between 2019 and 2023. The most significant increases – over 70 per cent – were recorded

in Bulgaria. High growth rates were also observed in Lithuania and Poland (over 50 per cent). By contrast, the smallest increases in healthcare expenditure were observed in Denmark, Italy, and Sweden.

The analysis next examines healthcare expenditure on a per capita basis. The underlying data for this assessment are presented in Table 2.

Table 2

Total healthcare expenditure per capita (in euro)

Country	2019	2020	2021	2022	2023	National average 2019–2023	Rate of change 2019–2023 (%)
Austria	4,734.9	4,867.8	5,527.2	5,561.9	5,779.7	5,294.3	22.1
Belgium	4,531.3	4,606.9	4,930.3	5,183.2	5,467.9	4,943.9	20.7
Bulgaria	659.5	797.7	941.2	1,017.1	1,163.3	915.8	76.4
Croatia	958.0	995.9	1,217.2	1,279.2	1,446.7	1,179.4	51.0
Cyprus	1,827.2	2,129.8	2,471.4	2,586.8	2,656.9	2,334.4	45.4
Czechia	1,609.6	1,847.3	2,143.6	2,277.8	2,461.8	2,068.0	53.0
Denmark	5,404.6	5,723.0	6,281.2	6,135.9	6,021.5	5,913.2	11.4
Estonia	1,426.4	1,565.7	1,766.9	1,874.1	2,082.0	1,743.0	46.0
Finland	3,984.1	4,146.6	4,449.0	4,666.2	5,116.7	4,472.5	28.4
France	4,032.1	4,159.6	4,528.4	4,606.8	4,755.4	4,416.5	17.9
Germany	4,861.6	5,171.8	5,622.8	5,916.7	5,902.0	5,495.0	21.4
Greece	1,402.0	1,469.0	1,577.1	1,682.6	1,816.2	1,589.4	29.5
Hungary	949.6	1,039.0	1,180.3	1,170.0	1,314.0	1,130.6	38.4
Ireland	4,836.8	5,288.4	5,661.7	6,016.8	6,312.9	5,623.3	30.5
Italy	2,602.2	2,687.2	2,892.0	2,996.5	3,037.4	2,843.1	16.7
Latvia	1,060.2	1,154.2	1,612.1	1,556.7	1,521.2	1,380.9	43.5
Lithuania	1,216.4	1,326.4	1,560.5	1,725.6	1,880.8	1,542.0	54.6
Luxembourg	5,503.0	5,900.4	6,399.5	6,590.2	6,887.9	6,256.2	25.2
Malta	2,575.5	2,746.4	3,066.4	3,127.3	3,286.3	2,960.4	27.6
Netherlands	4,753.4	5,125.7	5,662.1	5,632.0	5,871.3	5,408.9	23.5
Poland	906.1	911.2	1,003.5	1,162.0	1,463.1	1,089.2	61.5
Portugal	1,969.7	2,036.6	2,334.0	2,458.3	2,539.8	2,267.7	28.9
Romania	661.3	712.6	817.5	857.7	971.5	804.1	46.9
Slovakia	1,198.0	1,219.9	1,427.5	1,560.5	1,677.8	1,416.8	40.0
Slovenia	1,975.2	2,109.7	2,351.1	2,593.9	2,804.8	2,366.9	42.0
Spain	2,452.0	2,573.9	2,693.7	2,782.5	2,857.3	2,671.9	16.5
Sweden	5,056.6	5,284.3	5,807.1	5,711.5	5,728.4	5,517.6	13.3

Source: Eurostat (2026).

When healthcare expenditure is expressed on a per capita basis, the lowest levels are observed in Romania, Bulgaria, and Poland. On average, annual healthcare expenditure amounts to approximately EUR 804 per person in Romania, compared with nearly EUR 1090 per person in Poland. At the other end of the distribution, the highest per capita healthcare expenditure is recorded in Luxembourg, followed by Denmark and Ireland. In Luxembourg, healthcare expenditure per capita is more than seven times higher than in Romania. These findings indicate a clear positive relationship between healthcare expenditure and the standard of living, as proxied by GDP per capita.

The growth rates of per capita healthcare expenditure exhibit a different pattern. Between 2019 and 2023, average per capita healthcare expenditure across the European Union increased by 34.5%. In Romania, the growth rate exceeded the EU average by 12.4 percentage points, while in Poland it was higher by 26.9 percentage points. Bulgaria recorded the highest increase among all EU Member States, with per capita healthcare expenditure rising by more than 76% over the study period. A substantial increase was also observed in Croatia, Czechia and Latvia. In contrast, the smallest increases occurred in Denmark, Sweden, and Spain, with Denmark's growth rate amounting to only about one-third of the EU average.

To further assess the relative importance of healthcare spending, healthcare expenditure as a percentage of gross domestic product (GDP) is calculated for each EU Member State. The results are presented in Table 3.

Table 3

Total healthcare expenditure (% of GDP)

Country	2019	2020	2021	2022	2023	National average 2019–2023
Austria	10.6	11.4	12.2	11.2	11.1	11.3
Belgium	10.9	11.5	11.3	10.8	10.7	11.0
Bulgaria	7.1	8.5	8.6	7.6	7.9	7.9
Czechia	7.5	9.0	9.2	8.5	8.4	8.5
Denmark	10.2	10.7	10.7	9.5	9.6	10.1
Croatia	6.8	7.7	8.1	7.3	7.1	7.4
Cyprus	7.0	8.7	8.9	8.2	7.8	8.1
Estonia	6.7	7.5	7.5	7.0	7.4	7.2
Finland	9.2	9.7	9.9	9.7	10.5	9.8
France	11.2	12.1	12.3	11.8	11.5	11.8
Germany	11.4	12.5	12.7	12.3	11.7	12.1
Greece	8.1	9.4	9.0	8.5	8.4	8.7
Hungary	6.3	7.2	7.3	6.7	6.4	6.8
Ireland	6.6	7.0	6.5	6.0	6.4	6.5
Italy	8.6	9.6	9.3	8.9	8.4	8.9

Country	2019	2020	2021	2022	2023	National average 2019–2023
Latvia	6.9	7.5	9.4	8.1	7.2	7.8
Lithuania	6.9	7.4	7.7	7.3	7.3	7.3
Luxembourg	5.5	5.8	5.6	5.6	5.6	5.6
Malta	8.9	9.9	9.5	9.2	8.7	9.2
Netherlands	9.9	11.0	11.1	10.0	10.0	10.4
Poland	6.4	6.4	6.4	6.5	7.1	6.6
Portugal	9.5	10.5	11.2	10.6	9.9	10.3
Romania	5.7	6.2	6.5	5.8	5.8	6.0
Slovakia	6.9	7.1	7.6	7.7	7.4	7.3
Slovenia	8.6	9.5	9.5	9.6	9.3	9.3
Spain	9.2	10.8	10.3	9.7	9.2	9.8
Sweden	11.0	11.4	11.3	11.0	11.3	11.2

Source: Eurostat (2026).

On average, healthcare expenditure accounted for almost 9% of GDP across the European Union during the study period. The lowest shares of GDP allocated to healthcare were recorded in Luxembourg and Romania. Healthcare expenditure as a proportion of GDP was also below the EU average in all Central and Eastern European countries, as well as in Ireland. By contrast, the highest shares were observed in Germany, where healthcare expenditure exceeded 12% of GDP, followed by France and Austria.

In terms of changes over time, the average share of healthcare expenditure in GDP across the EU rose by 0.3 percentage points between 2019 and 2023. The largest increase was recorded in Finland (up by 1.3), followed by the Czech Republic and Cyprus. By contrast, the share of healthcare expenditure in GDP fell in five countries: Belgium, Malta, Ireland, Italy and Denmark. It should be noted, however, that the period covered by the study includes the COVID-19 pandemic. Between 2020 and 2021, the share of healthcare expenditure in GDP rose in almost all countries, before stabilising at a slightly lower level in subsequent years.

Determinants of differences in healthcare expenditure across the European Union

Healthcare expenditure is influenced by a wide range of factors, which are discussed in this section. First, the level of healthcare spending is determined by the legal and institutional framework governing healthcare financing, including, among other elements, statutory health insurance contribution rates and the mandatory nature of health insurance contributions.

In the European Union, healthcare expenditure is regulated primarily by the national legislation of individual Member States. For example, in Poland, the minimum level of public healthcare expenditure is specified in Article 131c of the Act of 27 August 2004 on Healthcare Services Financed from Public Funds (Journal of Laws of 2024, item 146). Under this provision, public expenditure on healthcare must amount to no less than 6.0% of gross domestic product (GDP), calculated on the basis of GDP estimates published by the President of Statistics Poland.

Although Member States retain primary responsibility and sovereignty in determining the level and structure of healthcare expenditure, Article 168 of the Treaty on the Functioning of the European Union requires that a high level of human health protection be ensured in the definition and implementation of all Union policies and activities. At the same time, the Treaty explicitly excludes the harmonisation of national laws and regulations in the field of healthcare (Wrześniewska-Wal, 2016, p. 332).

While the European Union does not directly finance the public healthcare systems of its Member States, it administers several financial support instruments, including the multiannual EU4Health Programme, which provides funding for disease prevention, cross-border health infrastructure, and preparedness for and response to health crises (Samarasekera, 2021).

Legal determinants are closely intertwined with institutional factors, as the level of healthcare expenditure depends substantially on the healthcare financing model adopted by a given country. The Bismarck model, which finances healthcare primarily through compulsory health insurance contributions paid jointly by employers and employees, is implemented in Germany, Austria, France, Belgium, the Netherlands, and Switzerland. Another well-known approach is the market-based (residual) model, which relies predominantly on private health insurance and is exemplified by the United States (Mróz, 2012, p. 61). This model has not been adopted by European countries.

The Beveridge model, in which healthcare is financed mainly through general taxation and the state budget, operates in Denmark, Finland, Greece, Spain, Ireland, Portugal, and Sweden. A related approach is the Semashko model, characterised by the complete centralisation of healthcare financing and management at the state level. This model has likewise not been implemented in contemporary European countries (Wasiak & Szeląg, 2015, pp. 69-70).

Institutional determinants of healthcare expenditure also arise from the organisation and delivery of medical services, the education and training of healthcare professionals, and the efficiency of healthcare management. Shortages of physicians and other medical personnel, inefficiencies in healthcare delivery, inadequate management practices, and the ineffective allocation of financial resources may all contribute to rising healthcare expenditure without necessarily improving health outcomes.

Another important group of determinants of healthcare expenditure comprises macroeconomic factors. Gross domestic product (GDP) is widely regarded as the principal macroeconomic variable associated with healthcare spending (Akca *et al.*, 2017, p. 2). Economic growth increases the fiscal capacity to finance healthcare, while healthcare expenditure is, in turn, closely linked to economic performance. Over the long term, investment in healthcare may further stimulate economic development by improving the quality of human capital, one of the key productive resources in the economy.

During the study period, the highest levels of GDP were recorded in Germany, France, and Italy – the three largest economies in the European Union. These countries also reported the highest levels of total healthcare expenditure. Conversely, Malta, the smallest economy in absolute terms, recorded the lowest total healthcare expenditure. These findings indicate that the absolute level of healthcare expenditure tends to increase with the size of the economy.

In contrast, healthcare expenditure measured on a per capita basis is more closely associated with the standard of living, as reflected by GDP per capita, as already noted by Newhouse (1977, p. 123). Luxembourg recorded the highest GDP per capita during the study period and also exhibited the highest level of healthcare expenditure per capita. A similar pattern was observed in Ireland, which ranked second after Luxembourg in terms of GDP per capita, as well as in Denmark. At the opposite end of the distribution, Bulgaria recorded the lowest GDP per capita and was among the EU countries with the lowest healthcare expenditure per capita. Although Romania's GDP per capita was somewhat higher, its healthcare expenditure per capita remained the lowest in the European Union. Poland also exhibited relatively low healthcare expenditure per capita despite having a GDP per capita that was not among the lowest in the EU.

Healthcare expenditure is also influenced by other macroeconomic determinants, particularly tax revenues, which in many countries constitute a significant constraint on public spending. For instance, Poland recorded a persistent budget deficit throughout the study period and faced substantial challenges in financing various sectors of the economy, including healthcare. In Poland, the financial requirements of the National Health Fund (NFZ) considerably exceed revenues from health insurance contributions and must therefore be supplemented by direct transfers from the state budget. In an extreme scenario, by 2027 more than one-third of NFZ expenditure is expected to be financed through such budgetary transfers (Dudek *et al.*, 2025, p. 10).Początek formularzaDół formularza

This issue is not unique to Poland but affects a majority of EU Member States. In fact, nine countries – Austria, Belgium, Finland, France, Poland, Romania, Slovakia, Hungary, and Italy – were subject to the excessive deficit procedure, which limits their fiscal capacity to increase public healthcare spending (Dudek *et al.*, 2025, p. 24). By contrast, countries such as Denmark, Luxembourg,

Sweden, Ireland, and Portugal exhibited a more favourable fiscal position during the study period. These countries also recorded the highest levels of per capita healthcare expenditure.

In many European countries, inefficiencies in public healthcare systems have contributed to a growing reliance on private healthcare spending. The incidence of catastrophic health expenditure – defined as the share of households burdened by out-of-pocket healthcare costs – stood at approximately 8% in the European Union in 2019 and has shown an upward trend. The highest levels were observed in Bulgaria, Lithuania, and Latvia, while the lowest were recorded in Slovenia, Ireland, and Sweden (Aliński, 2025, p. 258).

Healthcare expenditure depends not only on a country's level of economic development but also on its fiscal policy (Wasiak & Szeląg, 2015, p. 73). Fiscal policy should be oriented toward increasing healthcare spending and achieving an appropriate balance between public and private financing within the healthcare system (Strzelecka, 2023). Although national economic policies are shaped by the priorities of incumbent governments and therefore vary across EU Member States, all EU countries operate within a broader framework of common health policy principles that influence national healthcare expenditure (Iwuoha & Jude-Iwuoha, 2020; Brooks *et al.*, 2023; Samarasekera, 2021). This framework promotes the exchange of best practices in healthcare and emphasises the relationship between the level of healthcare investment and population health indicators.

An additional group of determinants comprises unexpected shocks such as wars, natural disasters, and pandemics, which significantly affect healthcare expenditure. The COVID-19 pandemic, which began in 2020, substantially altered the role of healthcare systems and led to a marked increase in healthcare spending in subsequent years. In addition to the direct costs of treating infected patients, lockdown measures and the broader disruption of economic and social life contributed to a deterioration in mental health among the general population, while preventive screening programmes were widely postponed or suspended. Increased healthcare expenditure was also driven by the implementation of mass COVID-19 vaccination programmes (*Health at a Glance…*, 2022).

The highest number of COVID-19 cases per 100,000 inhabitants was recorded in Cyprus, Austria, and Slovenia, while the lowest incidence rates were observed in Latvia, Estonia, and Slovakia. The highest mortality rates were reported in Bulgaria, Poland, Hungary, the Czech Republic, and Slovakia, whereas the lowest were recorded in Sweden, Denmark, and Finland. As a consequence, the largest increases in healthcare expenditure in 2020 were observed in Bulgaria (19.7%), Cyprus (18.15%), and the Czech Republic (15%). In contrast, despite experiencing above-average pandemic impacts, Austria and Slovakia recorded relatively modest increases in healthcare expenditure, at 3.2% and approximately 1.9%, respectively (Tab. 1). In Poland, where mortality rates were particularly

high, healthcare expenditure initially declined slightly by 0.6%. On average, healthcare expenditure across EU countries increased by 7.1% as a result of the COVID-19 pandemic.

During the study period, significant migration flows were also observed in Europe. A substantial proportion of immigrants originated from non-European countries, which contributed to the emergence within the European Union of diseases previously absent or occurring only at a very limited scale in Europe. This development has also exerted upward pressure on healthcare expenditure.

The largest absolute number of migrants during the study period was recorded in Germany, Poland, Italy, and Spain. However, when expressed per 100,000 inhabitants, the highest levels of immigration were observed in Cyprus, Luxembourg, and Austria.

Another important group of determinants of healthcare expenditure comprises demographic factors, among which population ageing represents a key challenge across most European countries. The ageing of societies leads to an increasing prevalence of age-related diseases and thus to growing healthcare needs, even in contexts of declining total population size, while the number of contributors to health insurance systems decreases (Golinowska & Tabor, 2014; Eenoo *et al.*, 2016).

The most rapidly ageing populations in the European Union in 2025 were found in Italy, Bulgaria, Portugal, and Greece. In Italy, the median age exceeded 49 years, while in the other three countries it was above 47 years. Italy also recorded the highest proportion of individuals aged 80 years and over (approximately 8%). Similarly high shares (around 7%) were observed in Germany, Greece, and Portugal. Across the European Union, the share of the population aged 65 years and over increased from 17% in 2005 to 22% in 2025. The largest increase was recorded in Poland, where it rose by 8 percentage points (from 13% in 2005 to 21% in 2025). Although Poland reports one of the lowest levels of per capita healthcare expenditure in the EU, it also exhibits the highest growth rate in healthcare spending among the countries analysed.

The youngest populations in the EU are found in Ireland and Luxembourg, where the median age is below 40 years. Nevertheless, healthcare expenditure in these countries remains among the highest in the European Union.Początek formularzaDół formularza

The next group of factors influencing healthcare expenditure comprises social determinants. In most EU Member States, public awareness and knowledge regarding health and preventive care are steadily increasing. As a result, spending on health prevention is also rising. Although this trend increases short-term healthcare needs, it should be regarded as beneficial from a long-term economic perspective.

Social determinants also include the impact of globalisation, consumerism, and the increasingly fast-paced lifestyle of the average European citizen. These factors contribute to the growing prevalence of so-called civilisation diseases, including

depression, anxiety disorders, and social phobias, as well as metabolic conditions associated with an imbalance in work–life balance, poor and hurried dietary habits, insufficient physical activity, and increased consumption of stimulants. Collectively, these developments contribute to rising healthcare expenditure across Europe.

Considerable cross-country variation is also observed in health-related behaviours, including attitudes towards preventive care and participation in screening programmes. Dietary patterns differ significantly across EU Member States, despite ongoing globalisation processes. The Mediterranean diet is widely regarded as one of the healthiest dietary models in the world and is actively promoted internationally; however, geographical and climatic conditions limit the cultivation of certain fruits and vegetables in northern Europe. Moreover, established dietary habits vary considerably between countries and are not uniformly conducive to healthy outcomes.

Climate conditions also play a role in shaping population health. In particular, sunlight exposure has a significant impact on human health; southern European countries benefit from higher levels of solar radiation, which may positively influence health outcomes. These combined factors contribute to the relatively high health status observed in countries such as Italy and Spain, which are frequently ranked among the healthiest populations not only in the European Union but also globally.

By contrast, the lowest levels of population health are observed in Denmark and the Netherlands, despite Denmark being characterised by a highly developed healthcare system. At the same time, the analysis indicates that Denmark recorded the lowest growth rates in both total and per capita healthcare expenditure in the European Union.

In the contemporary world, including Europe, adverse climate change and environmental pollution are increasingly evident, contributing to the emergence of new diseases and a general deterioration in population health, which in turn drives higher healthcare expenditure. According to research by Dymek and Kolasa, the most polluted EU country is Poland, while Finland is the least polluted (2024, p. 58). Their findings also indicate that Sweden records the highest life expectancy in good health, whereas Latvia exhibits the lowest.

Countries also differ in their populations' attitudes toward paying health insurance contributions and taxation in general. Tax mentality can be understood as a set of generalised and socially shared tendencies within a given population regarding the perception, evaluation, emotional response to, and behavioural reactions toward taxes (Obłąkowska, 2023, p. 27).

The literature highlights geographical differences in responses to taxation and distinguishes between "southern" and "northern" tax mentalities. In countries characterised by a southern tax mentality (e.g. Greece, Italy, Spain), difficulties are typically observed in tax collection, particularly with respect to direct taxes. By contrast, countries with a northern tax mentality (notably Scandinavian

countries and Germany) tend to exhibit higher levels of tax compliance and fiscal discipline (Pasternak-Malicka, 2013, p. 89). Although these differences are gradually diminishing, they continue to influence the fiscal capacity of countries and, consequently, their ability to finance healthcare expenditure.

Maintaining a balance between the interests of the state and those of taxpayers in the design and implementation of tax law is essential for shaping an appropriate tax mentality – one that fosters voluntary compliance without perceptions of unfairness or incentives for tax avoidance or evasion (Skolimowska, 2023, p. 10).

Changes in the structure of healthcare expenditure are also driven by increasing levels of medical knowledge (Zachorowski, 2020, p. 93). The rapid development and widespread application of new medical technologies significantly affect healthcare costs, although in some countries such technologies remain inaccessible due to their high cost. Technological factors tend to exert a stronger upward pressure on healthcare expenditure in more economically developed countries (Łyszczarz & Nojszewska, 2015, p. 194).

At the same time, technological progress generates important external effects. On the one hand, it contributes to the development of highly processed food products, which may negatively affect population health and thereby increase healthcare expenditure. On the other hand, technological advancement improves access to information and enhances health literacy among the population. Another consequence of rapid technological development is the acceleration of the pace of life, which is associated with increased prevalence of mental health disorders. As previously noted, the incidence of such conditions has increased rapidly in recent years, contributing significantly to rising healthcare expenditure.

Conclusions

Health represents a qualitative attribute of human resources that enhances labour productivity and thereby stimulates economic growth and development. For this reason, healthcare should be regarded not only as an individual private need but also as an area in which the state plays an active role in financing and provision. Healthcare expenditure across EU Member States is clearly heterogeneous. During the study period, the highest levels of total healthcare expenditure were recorded in Germany, France, and Italy, confirming that healthcare spending increases with the size of an economy.

The fastest growth rates in healthcare expenditure were observed in Bulgaria, Cyprus, and Czechia. However, more meaningful indicators of state engagement in healthcare provision are per capita expenditure and its share of GDP. The highest per capita healthcare expenditure was recorded in Luxembourg, Denmark, and Ireland, while the lowest levels were observed in Romania,

Bulgaria, and Poland. Healthcare expenditure is therefore closely associated with a country's standard of living, as measured by GDP per capita. The highest shares of healthcare expenditure in GDP were observed in Germany, France and Austria, while the largest increase in this indicator over the study period was recorded in Finland.

The author identifies the following groups of determinants shaping healthcare expenditure across EU Member States: legal and institutional, macroeconomic, political, demographic, social, technological, and those arising from unexpected events. It is argued that the most important group of determinants is macroeconomic in nature. Healthcare expenditure depends directly on tax revenues, the fiscal position of the state, and the assumptions underlying national fiscal policy. One-third of EU Member States were subject to the excessive deficit procedure, which significantly constrains their capacity to increase healthcare expenditure. The second key determinant is GDP, which reflects the overall state of the economy at a given time and determines fiscal capacity.

The COVID-19 pandemic, which affected the entire world during the study period, also led to a sharp increase in healthcare expenditure across all EU countries in 2020. The largest increases were recorded in Bulgaria, which experienced the highest number of fatalities, and in Cyprus, which recorded the highest infection rates per capita. In subsequent years, all countries faced growing healthcare needs as a consequence of the pandemic.

Other important factors contributing to cross-country differences in healthcare expenditure include demographic conditions, particularly population ageing and migration flows. The author also identifies social determinants of healthcare expenditure, including health awareness and knowledge, lifestyle, dietary patterns, and tax mentality. In terms of legal determinants, healthcare expenditure in the European Union is primarily regulated by national legislation in individual Member States, although most EU countries operate similar healthcare financing models.

The final group of determinants comprises technological factors. It has been observed that new and costly medical technologies are adopted more rapidly in highly developed countries. The role of the state should therefore involve identifying these determinants in order to exploit emerging opportunities while eliminating or minimising barriers to achieving optimal levels of healthcare expenditure.

Translated by Author

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