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The development of health protection and social care services in Poland and in the countries of the European Union

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Abstract: Health is considered to be the greatest invaluable good. This article concentrates on the level of advancement of medical services in Poland and in certain countries of the European Union. This research uses such indicators as: expenditure on health care, the level of morbidity, mortality, sick leaves, number of doctors, hospitals, as well as the average life expectancy. Dynamic indices were used in the determination of developmental trends. To capture similarities and differences in the level of medical services advancement, multidimensional scaling method was applied. Results of the study allow stating that a significant advancement in the development of medical and social care services can be observed. However, Poland still lags behind other countries where development of these services remains on a high level.

Keywords: services, health protection, social care

JEL Classification: A11, C38

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1. Introduction

Development of society, changes in the age structure of population, and the increase in the average lifespan exert a significant influence on the demand for services related to health protection. Like most countries in the world, Poland faces an increase in the number of elderly people who require medical and care services. The advancement in the field of medical knowledge, as well as technological development enable the application of more innovative methods of recovering health

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and enhancing life quality. This causes an increase in costs of health protection services. Health is a particular good, and there is no market where one can simply buy it. In the market of health protection, one can only purchase goods and services which allow improving or maintaining the existing health condition. The objective of this article is to determine the level of development of medical services in Poland and selected countries of the European Union. Dynamics indices and the method of multi-dimensional scaling were used for the study.

The analysis of the dynamics made it possible to determine the dimensions and directions of the development (changes in time) of the analysed indicators. The use of multidimensional scaling was aimed at detecting unobservable variables that explain the similarities and differences between the examined objects (countries). The advantage of multidimensional scaling is that we can analyse any type of distance or non-similarity matrix. The disadvantage of this method is the possibility of using only quantitative variables and the necessity of having full data from experience (it cannot be used if we only have information about the similarity of objects). The dynamics indexes and the multidimensional scaling method were used for the study. The analysis of the dynamics. The use of multidimensional scales was to assess the differences between the examined objects (countries). The advantage of multidimensional scaling is that we can analyse any type of distance or non-similarity matrix. The disadvantage of this method is the possibility of using the same kind of objects. Choice of countries was based on data availability. Various indicators are used in the assessment of the development of medical services, e.g.: expenditure on health protection, the level of morbidity, mortality, sick leaves, number of doctors, hospitals, as well as the average life expectancy. The above-mentioned measures are based on statistical data and allow conducting analyses which concern an assessment of the medical and social services development. Nevertheless, a comprehensive assessment of medical services development would require an analysis of such services in the context of other economic sectors. We observe an interpenetration of many types of services in the medical services sector, e.g.: educational services, IT, telecommunication (online medical services), legal and financial services. Only such a broad view could provide a complete picture of the development of medical services.

2. Health protection and social care services

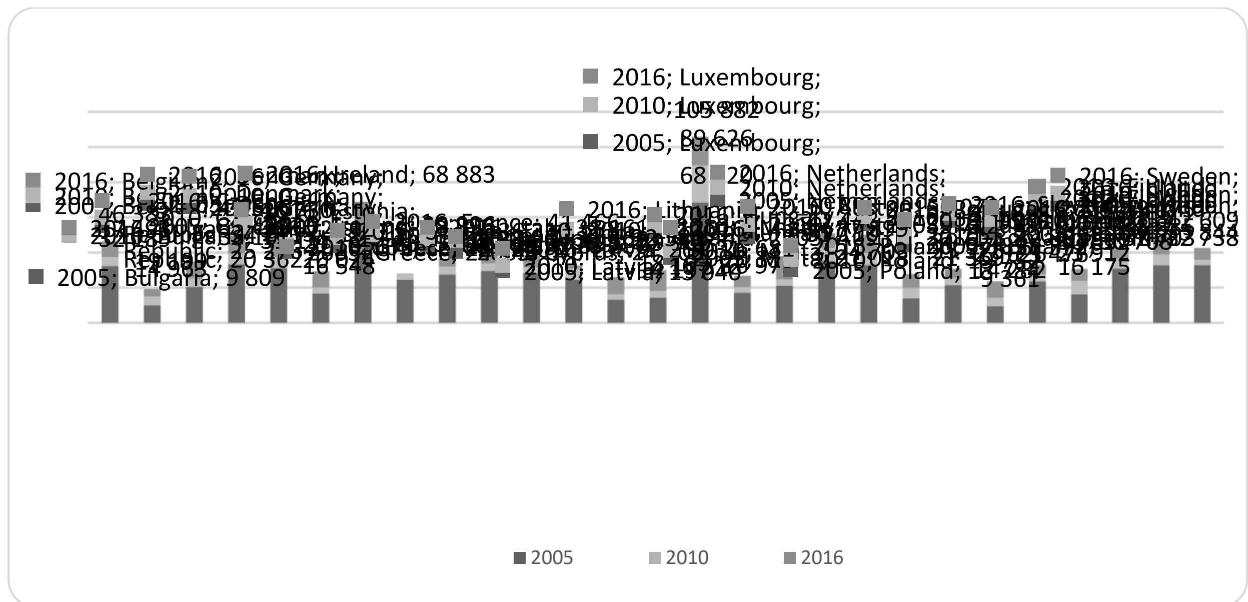
Health protection services and social care services belong to the group of services described as social services. Social services are defined as "operations directed at people, the objective of which is to develop and enhance their physical and intellectual abilities" (Janoś-Kresło, 2002: 7). Esping-Andersen (1999) includes also educational, health and care-related services under the umbrella of social services. Social services "... differ from the previous ones by their non-market characteristics. Social services are provided largely by the government, but also by non-profit organizations, private businesses and other professions. In the last cases they are usually subsidized by the government. The social services subsector contains four categories: government proper (civil and military), health services, educational services and miscellaneous social services" (Elfring, 1989). The present article analyses services related to health protection and social care. According to the Polish Classification of Goods and Services (PKWiU), Section 86, (https://stat.gov.pl/Klasyfikacje/doc/pkd_07/pdf/2_PKD-2007-schemat_2.pdf) "Services of Health Protection and Social Care" include services related to medical and hospital care of patients, and operations directly related to such a care undertaken by hospitals, treatment or diagnostic centres and other authorised facilities with a similar profile. These services include:

- services provided by hospitals (PKWiU 85.11),
- medical services provided by clinics and doctors' practices (PKWiU 85.12),
- dental services (PKWiU 85.13),
- other services in the field of human health protection (PKWiU 85.14), (services of midwives, nurses, emergency medical services, sanitary and epidemiology stations, medical laboratories, blood banks and banks of sperm and organs for transplantation, services in human health protection in facilities other than hospitals which provide accommodation for patients, services provided by physiotherapists and other people providing paramedical services).

Social care services fall under the PKWiU 85.3, which includes: services provided together with the accommodation of the elderly, disabled, children and young people or other people; services of rearing and social care for children and youth provided without accommodation; counselling services for children; ad-hoc and temporary services provided by institutions; services related to work adaptation. The development of the medical services sector depends on numerous factors which include: political and legal circumstances, demographic, economic and other conditions. When attempting to assess the development of services of medical nature, one should pay attention mostly to the gross domestic product (GDP) (Fig. 1) and the amount of expenditure

on health. In Poland, the gross domestic product per capita measured in purchasing power parities is an actual indicator of society's wealth and displays an upward trend. The most prosperous of the nations listed are: Luxembourg, the Netherlands, Ireland, Denmark, Sweden and Germany. Countries below Poland are: Bulgaria, Romania, Lithuania and Latvia. The data shows significant diversity in the level of prosperity among the analysed countries.

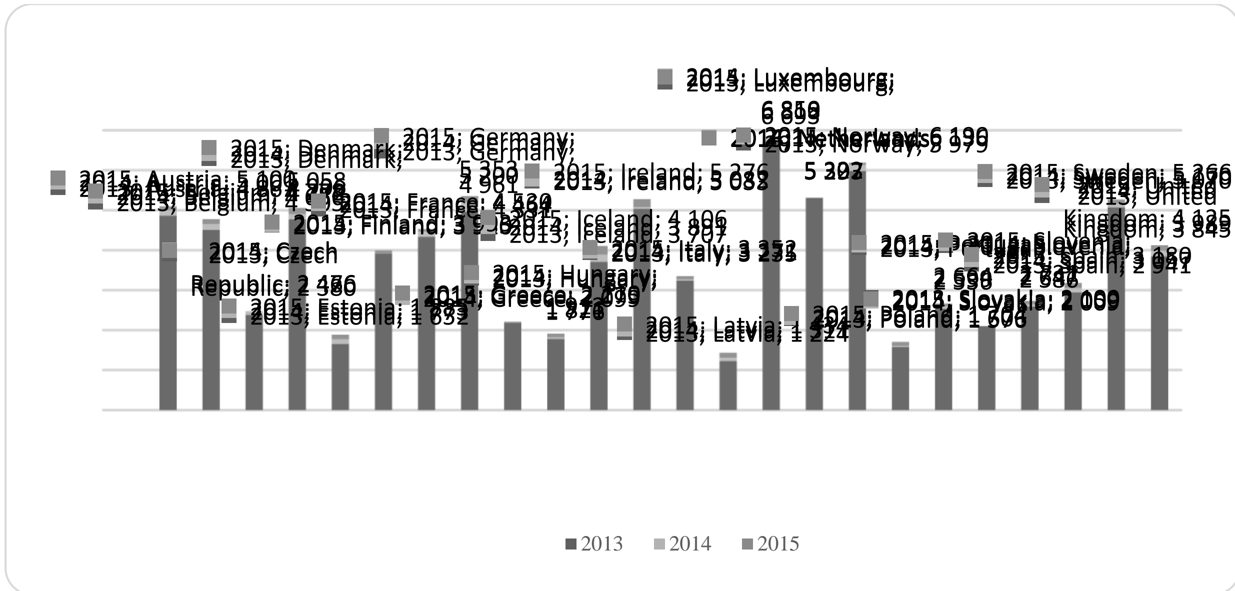
Figure 1. Gross domestic product per capita measured in purchasing power parities



Source: own study based on: Statistical Yearbook of the Republic of Poland 2017.

According to Grossman (1990), health has a positive effect on economic growth. It results from its impact on the quality and size of human capital as well as labour productivity. Likewise, Sorenson (2000) argues that good health, appropriate qualifications and skills affect human development, which translates into better economic security, better working conditions and higher incomes. The next noteworthy issue is the amount of expenditure each country incurs on health protection (Fig. 2).

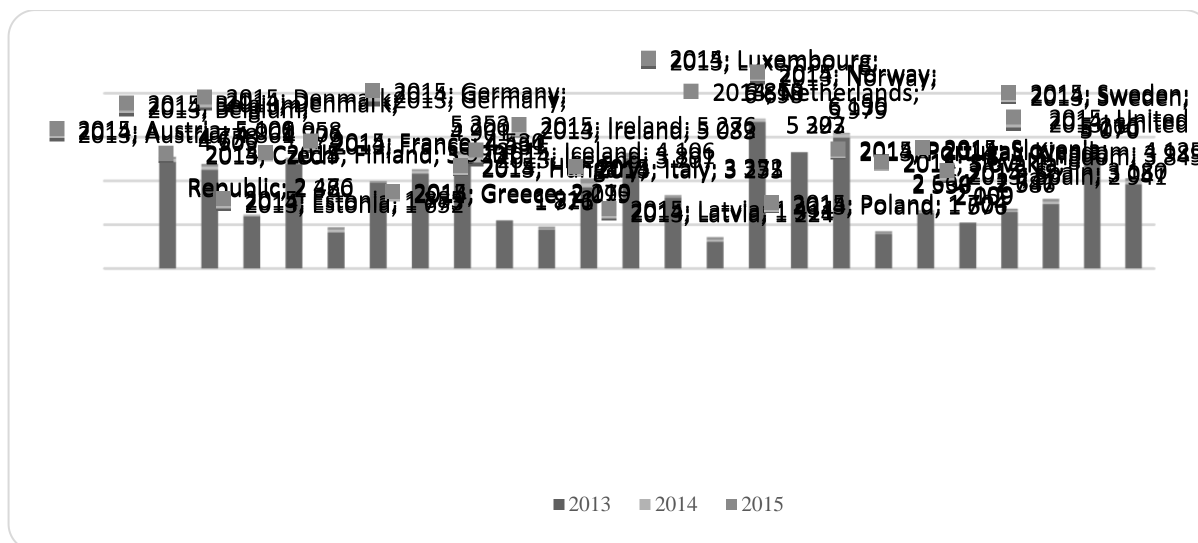
Figure 2. Spending on health protection



Source: own study based on "Health and health care in 2016"

When comparing the amount of GDP per capita and expenditure on health, we observe a strong correlation between these values. Despite its increasing tendency, the share of expenditure on health protection in Polish GDP is the lowest when compared to the other countries analysed. In the years 2003-2006, the share of the total expenditure on health protection in the GDP in Poland was on the level of 6.2%, then it kept continuously increasing until the year 2009, when it reached 7.21%. After that it fell to the level of 6.75% in 2012, which shows that in 2009 the growth rate of expenditure on health protection was lower than the growth rate of the GDP. In 2015, the expenditure on health protection accounted for 6.38% of the GDP (Fig. 3.) (compare: Health and health protection in 2013; 2016).

Figure 3. Expenditure on health protection as % of the GDP



Source: own study based on “Health and health care in 2016”

Among the analysed countries of the European Union, the worst situation in terms of the number of doctors is observable in Hungary, where year after year the number of doctors is declining (Table 1).The shortage of doctors is also visible in Italy, Latvia and Lithuania. From the point of view of medical services, the number of hospitals is also significant (Table 2).

Table 1. Dynamics of doctors working in Poland and the countries of the European Union

	04/03	05/04	06/05	07/06	08/07	09/08	10/09	11/10	03/11
Belgium	101	101	101	101	101	101	101	101	108
Czech Republic	100	101	101	101	100	101	101	101	106
Denmark	105	103	103	101	101	102	-	-	-
Germany	101	101	101	101	101	102	102	102	113
Estonia	101	-	-	-	103	100	102	102	138
Ireland	108	-	-	109	105	102	104	100	183
Greece	103	103	107	104	109	102	100	100	133
Spain	105	114	98	102	97	102	107	106	135
France	101	101	100	100	100	99	101	102	104
Croatia	103	100	101	105	100	100	104	102	115
Italy	102	95	101	103	100	101	101	67	69
Latvia	104	67	101	103	102	96	97	99	68
Lithuania	102	102	103	94	98	99	100	101	98
Luxembourg	-	-	105	104	103	101	104	102	-
Hungary	88	83	109	92	110	98	95	103	77
Malta	-	-	-	-	-	91	102	105	107
The Netherlands	102	102	103	100	103	102	102	-	-
Austria	103	103	104	102	102	102	103	101	122
Poland	**94**	**93**	**102**	**100**	**99**	**101**	**100**	**101**	**91**

Portugal	102	103	102	103	103	103	103	103	125
Romania	-	98	99	103	104	100	101	101	-
Slovenia	-	-	101	102	101	101	101	103	-
Slovakia	101	91	104	100	107	98	102	99	101
Finland	101	102	102	101	101	101	106	100	115
Sweden	102	103	103	103	102	103	102	-	-
United Kingdom	107	104	103	102	104	105	103	103	134

Source: Own calculations based on Eurostat

Compared to other countries of the European Union, Poland has a similar number of doctors, hospitals and hospital beds. There is, however, a lack of advanced medical equipment. In the case of hospital beds, the situation is unfavourable in most countries. The exception is Bulgaria and Croatia.

Table 2. Dynamics of hospital beds in Poland and the countries of the European Union

	04/03	**05/04**	**06/05**	**07/06**	**08/07**	**09/08**	**10/09**	**11/10**	**03/11**
EU 28	-	99	99	98	99	99	98	99	-
Belgium	100	99	99	99	100	99	100	100	96
Bulgaria	97	104	96	103	101	101	98	97	97
Czech Republic	97	99	99	99	99	99	98	96	87
Denmark	96	97	98	97	98	98	101	-	-
Germany	98	98	97	99	99	100	100	100	90
Estonia	97	90	103	96	101	94	96	102	80
Ireland	101	102	100	100	98	94	96	97	89
Greece	100	102	103	101	100	103	-	-	-
Spain	101	100	100	102	100	100	99	98	100
France	99	99	99	99	99	100	100	100	94
Croatia	101	99	100	100	100	98	104	99	103
Italy	96	100	98	97	97	97	99	96	83
Cyprus	100	92	102	102	102	102	98	101	98
Latvia	98	96	99	99	98	83	77	99	57
Lithuania	95	95	96	99	99	99	98	100	81
Luxembourg	-	92	100	100	100	100	100	-	-
Hungary	99	100	100	75	99	100	100	100	74
Malta	89	94	102	95	104	98	100	93	77
The Netherlands	100	98	111	100	98	99	107	103	118
Austria	99	99	100	100	99	99	99	99	95
Poland	**98**	**98**	**99**	**99**	**96**	**100**	**100**	**99**	**89**
Portugal	100	100	98	99	99	100	100	101	97
Romania	98	103	100	98	100	102	93	95	90
Slovenia	96	101	99	99	102	98	100	100	95
Slovakia	95	104	97	101	99	99	99	94	88
Finland	99	99	98	98	98	98	100	98	90

Sweden	100	98	98	100	99	99	100	100	95
United Kingdom	99	98	96	97	100	99	90	99	80

Source: Own calculations based on Eurostat.

Social care is an institution which aims at providing aid to people who struggle with difficult life circumstances. Social care expenditure includes job seeker's allowance, pensions, medical care as well as family and housing benefits. In all of the countries, pensions amounted to approximate 46% of the total expenditure. Considering job seeker's allowance, the lowest expenditure among the countries of the EU were incurred by Poland - 1.5% of the total expenditure. According to the Eurostat data published in late 2013, the average expenditure on social aid amounted to 29% of the GDP. The largest spending on social care was incurred by Denmark, France and the Netherlands. Poland spent 19.1% on social care in 2011. In 2013, there were 1599 stationary social assistance centres which accommodated over 104 thousand people. The lowest expenditure was incurred by Latvia - 15.1% of the GDP. Expenditures on social security in % of the GDP are presented in Table 3.

Table 3. Expenditure on social security in % of GDP

country\year	2005	2006	2007	2008	2009	2010	2011	2012	2014
Denmark	30.2	29.2	30.7	30.7	34.7	34.3	34.3	34.6	32.9
France	31.5	31.2	30.9	31.3	33.6	33.7	33.4	34.2	34.3
The Netherlands	27.9	28.8	28.3	28.5	31.6	32.1	32.3	33.3	31.9
Ireland	17.2	17.5	18	21.2	26.2	29	30.2	32.5	20.6
Greece	24.9	24.8	24.8	26.2	28	29.1	30.2	31.2	26.0
Finland	26.7	26.4	25.4	26.2	30.4	30.6	30	31.2	31.9
Belgium	27.5	27.1	26.9	28.3	30.6	30.1	30.4	30.8	30.3
Sweden	31.0	30.1	28.9	29.3	31.9	30.1	29.7	30.4	29.6
Italy	26.2	26.5	26.6	27.7	29.8	29.8	29.6	30.2	30.0
Austria	28.8	28.3	27.9	28.5	30.7	30.6	29.8	30.2	30.0
Germany	29.9	28.7	27.7	28	31.5	30.6	29.4	29.5	29.1
United Kingdom	25.8	25.6	24.7	25.6	28.3	27.9	28	28.8	27.4
Portugal	24.5	24.5	23.9	24.3	26.8	26.8	26.5	26.9	26.9
Spain	20.6	20.5	20.8	22	25.2	25.5	26	25.9	25.4
Slovenia	23	22.7	21.3	21.4	24.2	25	25	25.4	24.1
Luxembourg	21.7	20.4	19.3	21.4	24.3	23.1	22.5	23.3	22.7
Cyprus	18.4	18.5	18.2	19.5	21.1	22.1	22.8	23.1	23.0

Hungary	21.9	22.5	22.7	22.9	23.4	23.1	22.1	21.8	19.9
Croatia				18.8	20.8	21.1	20.6	21.1	21.6
Czech Republic	18.4	18	18	18	20.3	20.2	20.4	20.8	20.8
Malta	17.9	17.7	17.7	18.1	19.5	19.1	18.7	19.3	18.2
Slovakia	16.5	16.4	16.1	16.1	18.8	18.7	18.3	18.4	18.5
Poland	**20**	**19.7**	**18.5**	**19.4**	**20.6**	**20**	**19.1**	**18.1**	**19.1**
Bulgaria	15.1	14.2	14.1	15.5	17.2	18.1	17.7	17.4	18.5
Lithuania	13.2	13.3	14.4	16.1	21.2	19.1	17	16.5	15.2
Romania	13.4	12.8	13.6	14.4	17.2	17.6	16.4	15.6	14.8
Estonia	12.6	12.1	12.1	14.9	19	18	16.1	15.5	15.1
Latvia	12.8	12.7	11.3	12.7	16.9	17.8	15.1	14	14.5

Source: Eurostat (2018). Government expenditure on social protection. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_on_social_protection. Accessed 8 January 2018

The amount of expenditure per capita was also looked at (Table 4). These expenses look similar to the expenses on health protection: Luxembourg is on the first place, followed by Denmark, Ireland, Sweden and the Netherlands. Poland finds itself close to the bottom of the list, above Estonia, Latvia, Lithuania, Romania and Bulgaria. It is also worth noting that most of the countries observed a decline of social security expenditure in 2012. The data shows significant disparities in social care expenditure among the countries of the European Union.

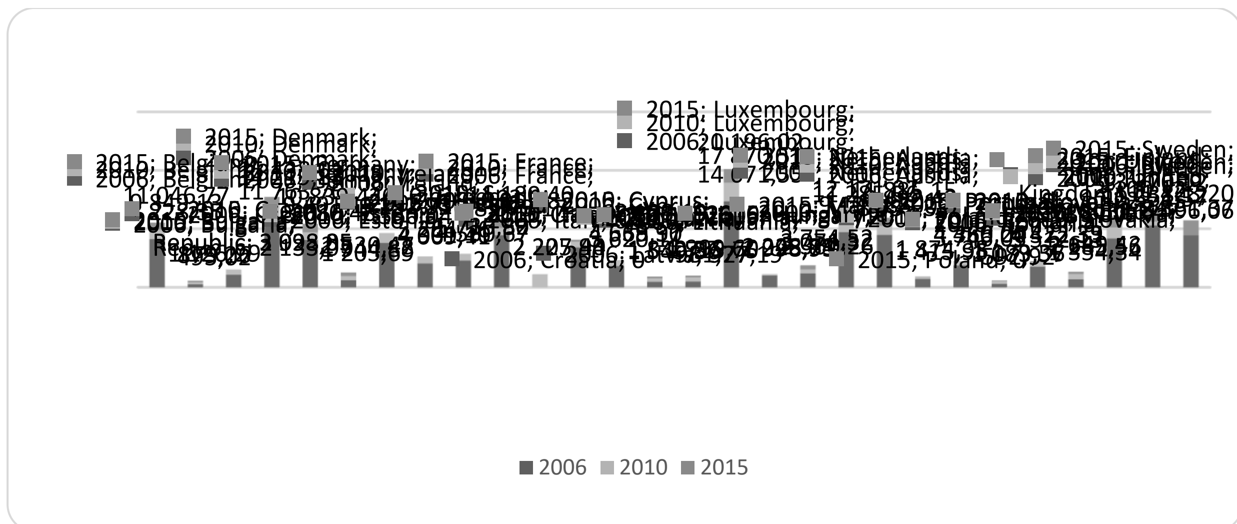
Table 4. Dynamics of the total social care expenditure per capita

Country/year	07/06	08/07	09/08	10/09	11/10	12/11	13/12	14/13	15/14	15/06
Belgium	103.5	107.7	105.6	101.7	103.4	101.1	102.4	102.2	102.4	134.3
Bulgaria	116.6	126.8	110.3	109.0	105.5	102.6	106.8	107.7	102.9	227.5
Czech Republic	111.0	117.4	102.9	104.8	104.6	100.1	96.4	96.7	103.5	142.0
Denmark	105.6	102.2	107.7	103.9	100.3	102.1	102.9	103.0	99.9	131.2
Germany	101.4	103.2	108.4	102.5	102.5	102.1	103.3	103.1	103.4	134.1
Estonia	120.4	124.9	109.8	97.7	100.9	103.7	104.7	106.6	111.3	209.9
Ireland	107.4	106.7	106.3	100.5	100.1	100.8	98.8	98.8	100.8	121.6
Greece	110.0	111.4	106.4	99.2	96.7	95.2	89.5	98.2	101.0	105.7
Spain	106.4	107.5	109.3	100.5	101.5	97.6	100.2	99.9	101.1	125.9
France	103.4	103.1	104.6	102.5	101.8	103.4	102.0	101.9	100.6	125.9
Croatia	-	-	104.5	100.4	97.8	100.9	103.2	97.7	101.6	-
Italy	103.8	104.7	103.6	101.8	100.8	100.8	100.0	100.5	101.9	119.3
Cyprus	104.1	112.6	104.0	105.1	107.7	100.6	101.1	88.1	102.0	126.2
Latvia	117.9	124.1	108.6	105.2	97.1	103.5	106.7	103.3	106.8	197.4
Lithuania	130.3	127.2	109.8	96.0	101.7	103.8	99.8	104.7	105.6	203.7
Luxembourg	102.8	108.3	106.2	102.9	101.5	104.0	104.8	101.8	100.3	137.7

Hungary	112.2	107.2	88.8	104.1	98.7	97.2	100.1	99.2	106.0	112.5
Malta	106.6	108.0	107.2	105.5	101.0	105.3	104.4	105.9	104.0	159.1
Netherlands	104.0	105.1	106.7	102.9	103.1	102.5	101.6	100.4	100.0	129.4
Austria	103.7	105.2	104.9	102.6	101.6	103.4	102.7	102.6	102.3	133.0
Poland	**107.2**	**122.3**	**91.0**	**110.9**	**99.6**	**103.4**	**104.2**	**102.8**	**-**	**-**
Portugal	102.4	103.4	107.9	102.4	98.0	98.3	106.4	99.4	99.8	119.1
Romania	136.7	120.6	102.2	108.5	100.1	94.2	105.0	103.8	105.8	198.9
Slovenia	103.9	107.9	106.9	102.7	102.0	98.8	99.8	100.3	102.6	127.3
Slovakia	121.2	117.4	113.8	104.2	102.0	103.8	103.6	103.5	102.1	195.6
Finland	103.8	106.1	107.5	103.9	103.2	105.3	104.8	103.1	100.8	145.5
Sweden	101.2	99.1	94.7	112.1	107.7	107.6	104.6	96.6	101.5	126.7
United Kingdom	102.0	91.3	95.5	107.8	101.7	109.8	95.7	106.1	118.6	129.0

Source: Eurostat (2018). Government expenditure on social protection. Available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_on_social_protection. Accessed 8 January 2018

Figure 4. Social care expenditure per capita



Source: Own calculations based on Eurostat (2018). Available at: http://appsso.eurostat.ec.europa.eu. Accessed 8 January 2018

The data analysis and literature studies allow us to state that health largely depends on the level of prosperity and state policy. Pole E. and Polak W. (2016) emphasize in their research that there is a positive correlation between the size and scope of expenditure on health care and the availability of medical services and treatment effects. The World Health Organization identifies 10 areas of inefficiencies that occur in most healthcare systems (WHO 2010). These include overpaying for medication, poor drug quality, improper use, abuse of procedures, inappropriate

management of medical staff, unnecessary and overlong stays in hospitals, mismatched hospital base size, medical errors, waste and fraud, and improper medical interventions. According to the "Healthy Savings" Report, an essential condition, but not sufficient to improve the quality of the Polish health care system, is to increase funding.

3. Application of the multidimensional scaling method

The multidimensional scaling method was applied in order to determine similarities and differences in the level of development of medical services. The Multidimensional Scaling (MDS) method consists in recreation of coordinates of points in a low dimensional space (e.g. the two-dimensional plane of a scatter plot) which displays objects on the basis of a set distance matrix between them. The recreation (visualisation) is conducted iteratively and is solved as a typical optimisation problem, where the computer attempts to minimise the cost function of between-object distances which is called Stress in MDS. The measure of quality of this approximation is Kruskal's Stress. It is assumed that if the stress is lesser than 0.1, then the acquired representation is faithful, whereas if it exceeds 0.3, then the representation is arbitrary since it is impossible to approximate the presented distances in such a low set dimension. The study used variables which were subjected to prior analysis. The choice of variables does not fully reflect the level of development of medical services, it was based on the availability of statistical data. Distances between objects were defined as Euclidean distance. Multidimensional scaling was conducted with the use of the metric method, i.e. distances between points are directly proportional to set distances between objects in dataset. In order to conduct a thorough analysis of the development of medical services, the method of multidimensional scaling was applied. This method was used to determine similarities and differences in the study of development of health protection services and social care services among the countries of the European Union. The reason for the application of this method is the fact that several aspects are looked at in this research, as well as a large number of objects (countries). The multidimensional scaling is a technique of data reduction of sorts, because its objective is to find such aggregation of points within a space of a small number of dimensions, which will constitute a good visualisation of the configuration of the studied objects of variables within multidimensional space.

Figure 5. Shape of the 2-dimensional configuration

Source: Own work

The map consists of points which represent different countries. Some points lie in a close aggregation, e.g. Denmark, Austria, Belgium, Finland, Netherlands, which signifies the similarity of the advancement of medical services. We can also see points representing other countries, which are significantly dispersed.

Table 5. Stress (measure of variation) of each element in the two-dimensional configuration shown on the scatter plot

No.	Object	Stress	Coordinate X	Coordinate Y
1	Cyprus	0.01892445	-0.3250	-0.0535
2	Italy	0.01848422	1.1515	-0.5269
3	Bulgaria	0.01822435	-0.1394	-0.0946
4	Germany	0.01262775	2.4241	0.5338
5	Greece	0.00844440	-0.1563	-0.2432
6	Sweden	0.00833468	-0.3840	-0.1025
7	Spain	0.00812602	0.5775	-0.3150
8	Croatia	0.00551750	-0.4888	-0.0498
9	France	0.00528110	1.1469	-0.0970
10	United Kingdom	0.00475929	0.7298	-0.5060
11	Denmark	0.00425929	-0.4392	0.1464
12	Malta	0.00413677	-0.5207	0.0231
13	Ireland	0.00385743	-0.4661	0.1165
14	**Poland**	**0.00315368**	**0.5156**	**0.1742**

15	Latvia	0.00300217	-0.4333	0.0006
16	Estonia	0.00262760	-0.4429	0.0249
17	Luxembourg	0.00254196	-0.4006	0.3958
18	Austria	0.00243117	-0.1556	0.1119
19	The Netherlands	0.00236840	-0.0675	0.0635
20	Romania	0.00228279	0.0885	0.0682
21	Slovenia	0.00226021	-0.4239	0.0527
22	Lithuania	0.00198720	-0.3652	0.0263
23	Hungary	0.00175510	-0.2024	0.0172
24	Finland	0.00154209	-0.3749	0.1203
25	Belgium	0.00152326	-0.1785	0.0876
26	Slovakia	0.00144152	-0.3136	0.0480
27	Czech Republic	0.00138279	-0.1391	0.0121
28	Portugal	0.00129048	-0.2170	-0.0344

Source: own calculations

The total stress is equal to the average stress of each point and is 0.0751. Rows of the table are organised in descending order.

4. Conclusion

The data analysis indicates a systematic increase in the expenditure on health protection and a decrease in the expenditure on social care. This observation also finds its confirmation in the results of the National Health Survey (http://stat.gov.pl/obszary-tematyczne/zdrowie/zdrowie/narodowy-rachunek-zdrowia-za-2012-rok,4,5.html). Observation of particular indicators shows that year after year there is an upward trend, which signifies the development of medical and social care services. Nevertheless, the fact remains that this sector of economy requires significantly greater financial resources. Countries which offer the highest quality of health services include: Germany, France, Spain and United Kingdom. The European Consumer Health Index (EHCI) (2017) shows that publicly funded healthcare systems are systematically improving. According to the report for 2016, 11 Western European countries obtained over 800 points out of 1000 possible. The leader is the Netherlands, followed by Switzerland, Norway, Belgium, Iceland, Luxembourg, Germany, Finland, Denmark, Austria, France, Sweden and the Czech Republic. The Czech Republic is the first country in Central and

Eastern Europe that is so close to the top. Poland, among 35 countries, was ranked the 31st, Romania being in the last place. The level of economic development has a determining influence on the advancement of medical services. Changes taking place in Polish economy have created favourable conditions for the expansions of the scope of provided medical services through an increase in their availability.

The report on the results of the WHC Barometer regarding access to guaranteed health services in Poland, prepared by the Watch Health Care Foundation, informs that the average waiting time for a single guaranteed health service (regardless of their nature) in Poland is high and amounted to 3 months in 2017. In comparison to the data from last year and previous years, the overall waiting time has not changed significantly, still remaining at a similarly high level. It has to be underlined that the main obstacle which impairs the access to many medical services are financial resources. Progress and development of the economic and social nature is possible only with the provision of adequate access to medical services and ensuring their quality.

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Rozwój usług ochrony zdrowia i opieki społecznej w Polsce i krajach Unii Europejskiej

Streszczenie

Zdrowie jest największym i bezcennym dobrem, dlatego w artykule została zwrócona uwaga na poziom rozwoju usług medycznych w Polsce i wybranych krajach Unii Europejskiej. Do badania wykorzystano takie wskaźniki jak: wielkość wydatków na ochronę zdrowia, poziom zachorowalności, śmiertelność, absencję chorobową, liczbę lekarzy, liczbę szpitali, czy też przeciętne dalsze trwanie życia. Do określenia tendencji rozwojowych wykorzystano indeksy dynamiki. W celu uchwycenia podobieństw lub różnic w poziomie rozwoju usług medycznych zastosowano metodę skalowania wielowymiarowego. Wyniki badań pozwalają stwierdzić, że obserwuje się znaczny postęp w rozwoju usług medycznych i społecznych, niemniej Polska pozostaje nadal w tyle za państwami, w których rozwój tych usług jest na wysokim poziomie.

Słowa kluczowe: usługi, ochrona zdrowia, opieka społeczna