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DEVELOPMENT OF PRIVATE HEALTH INSURANCE IN POLAND AND THE PUBLIC HEALTH CARE SYSTEM

In the light of OECD reports and Watch Health Care Foundation research, Poland is on one of the last places in Europe in terms of organization and financing of healthcare services. Due to the inefficiency of the public health care system related to the lack of doctors and the length of waiting for visits to specialists, additional health insurance is a method of improving the health protection standard of Poles. The study presents the condition of the Polish healthcare system and the most important factors influencing the development of private health insurance. As a result of the analysis with use of the zero unitarisation method, it was found that the places where private medical insurance will develop the fastest are Mazowieckie, Śląskie and Dolnośląskie, and it will be more difficult at the so-called eastern wall.

Keywords: private health insurance, health care system, private health care market, public health care, zeroed unitarisation method.

1. INTRODUCTION

Access to a properly functioning health care system is the constitutional right of every citizen. From art. 68 of the Constitution arises that the authorities are obliged to provide citizens, regardless of their material status, with access to healthcare, which is financed from public funds. Moreover, this access should be equal regardless of what model of the healthcare system would be introduced in the future (PIU, 2016). Therefore, it should be in the interest of the authorities to provide citizens with access to the highest quality medical services and to create an effective health care system. However, according to the data presented in 2018 in the OECD (OECD, 2018) report and in the Watch Health Care Foundation (WHC, 2019) research in 2019, Poland ranks one of the last places in Europe in terms of organization and financing of the healthcare system. In view of the inefficiency and increasing restrictions of the public health care system in Poland, private health insurance is not only an addition, but also a method for improving of health care. In the

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light of the "Risks That Matter" study conducted in 21 OECD countries in 2018, fear of falling ill has a large impact on the popularity of this type of insurance. 54% of respondents declared that they are most afraid of illness or disability.

The aim of the study is to analyze the current situation in the entire Polish health care system and identify voivodeships where the development of private medical insurance will be the fastest according to the zero unitarisation method.

2. LITERATURE REVIEW

The literature indicates that health care systems bear extremely important and continuous responsibility for human health throughout their lives. They are therefore necessary for the proper functioning and development of individuals, families and even entire societies. According to the World Health Organization (WHO), national healthcare systems should be oriented towards achieving three general goals. This should be the pursuit of good health as well as responding to population expectations and equity in financial contributions. Achievement of these goals depends primarily on the extent to which national health systems cope with the performance of four basic functions, which include the provision of services, resource generation, financing and management. Furthermore, the minimum requirements that the healthcare system should meet are set out. These include, above all, access to high-quality services, effective health promotion and disease prevention, as well as appropriate response to emerging new threats (Donev et al., 2013).

Public health systems in different countries vary in many ways. One of the factors enabling the introduction of certain models of healthcare systems is the financing method, which determines the nature of individual systems. Health care models distinguished on the basis of financing method and their most important features are presented in Table 1 (Borkowska, 2018).

The financing of the Polish healthcare system is based on similar principles to those resulting from the Bismarck model and is based on both compulsory and voluntary health insurance. However, the literature indicates that in the currently prevailing socio-economic realities, financing of the public health care system from one source only is insufficient, and the direct result is the inability to properly perform public tasks in the field of health care (Lenio, 2018). Economically effective and clinically effective funding for health services should be based on all possible sources of funding. In the case of Poland, it seems necessary to include a private source of financing (Nojszewska, 2015).

According to data from international institutions, the organization and financing of public healthcare in Poland ranks one of the last places. Although the influence of the National Health Fund is constantly growing, the Polish healthcare system still seems underfunded and inefficient. An aging society and the related growing need for access to medical services means that the current method of financing public health care may prove even more inefficient in the future. Therefore, private health insurance seems to be a method of improving the current situation and an opportunity to retrofit the financial care system without having to change tax rates (Płonka, 2017).

A similar opinion is expressed by I. Laskowska, claiming that the unfavorable tendency of the aging of the society will increase the demographic load indicators, which in turn will translate into a significant change in the relationship between persons paying premiums for universal health insurance and persons reporting the need for medical services. Commercial health insurance thus creates the opportunity to co-finance the public system, especially

considering the dynamic development of the private insurance market in Poland. The author points out, however, that a low level of society's wealth is a significant barrier to market development, and their dissemination will not be possible without legislative changes (Laskowska, 2017).

Table 1. Models of health care systems by financing method

Specification	Model character	Financing method	Main features
Model of Beveridge	budgetary	financing using fiscal tools, from general taxes	universal access to health care, bureaucracy, underfunding
Model of Siemaszko	centralized health protection	financing from the state budget, general taxes	similarly to the Beveridge model, however, there is more state control in management and financing
Model of Bismarck	insurance	financing from collections from compulsory social security, deducted from the payroll	both public and private service providers, but with dominant social ownership, the indirect role of the state in system regulation, difficult to control, high costs
Market model (USA, Israel)	residual	financed by voluntary private health insurance	healthcare is treated as a commodity where suppliers are private enterprises, poor state control

Source: Own study based on: (Donev et al., 2013; Jaworzyńska, 2016; Borkowska, 2018; Ostrowska-Dankiewicz, 2017).

M. Jeziorska, in turn, points out that, despite a significant increase in expenditure on the health care system over the last decade, this system remains ineffective, as evidenced by, for example, negative opinions of citizens. Co-financing of the healthcare system from public funds would certainly have an impact on the deterioration of the public finance sector balance or increase in the tax burden. However, the prospect of a significant increase in budget spending on healthcare in the coming years does not seem realistic. Therefore, it is necessary to search for solutions that would allow for co-financing of the health care system by means of private funds from the established instrument, and this may undoubtedly be commercial health insurance, which may be of a complementary, supplementary or substitution nature (Jeziorska, 2016).

As T. Schneider points out, private health insurance in Poland has excellent market and development opportunities and has grown over the public segment in recent years due to three main factors (Schneider, 2018):

- the speed of the service – which in the case of the public system is very slow, what is a huge opportunity, because it is one of the most important factors of customer satisfaction,

- quality of treatment – the low number of doctors per one patient in Poland compared to European standards may be a reason to believe that the quality of treatment in the public system is low,
- hospital treatment – a strong focus on hospital treatment results in a lack of ambulatory care and unmet needs of clients.

Increasing the use of private health insurance can have a positive impact on the entire healthcare system. Research conducted by P. Szybkiewicz has shown that countries, to a large extent, use health insurance to finance healthcare, in relative terms allocate more funds to healthcare than countries where the use of private insurance is marginal. Although the introduction of private insurance into the health care system is unlikely to significantly increase the state of health of the society, it can contribute to changes in the perception of the entire health care system (Prędkiewicz, 2014).

3. CURRENT HEALTH CARE SYSTEM IN POLAND FROM THE PUBLIC AND PRIVATE SIDE

3.1. Participation and importance of private health insurance in the Polish system

In the first half of 2019, Poles spent over PLN 430 million on private health insurance, which means an increase of 12% y/y. According to data from the Polish Insurance Association (PIU), private health insurance at the end of June this year was used by over 2.7 million people, i.e. 20% more than a year ago. Research indicates that Poles consider health care as a priority, hence their increased interest in this type of insurance. The number of people covered by this type of group insurance is also increasing. Employers want to provide their employees with wider access to medical services, which is caused on the one hand by their concern for their colleagues, and on the other by struggle for retaining an employee in the company – i.e. concern for the functioning of the business. More and more employers recognize the value of a healthy and satisfied employee. According to the Sedlak & Sedlak report "Additional benefits in the eyes of employees in 2019", an additional medical care package is also the most common additional benefit desired by employees. This is also confirmed by research conducted by PIU (PIU, 2019), which shows that private health packages are of great interest not only to employees but also employers. About 80% of respondents believe that the employer should provide employees with cyclical visits to the doctor, during which the general state of their health is examined and lifestyle recommendations are presented.

The most important reason for the development of private health insurance is the problem of access to public services. Therefore, patients are ready to pay for private treatment and thus shorten queues to doctors. Long waiting times for visits, crowds and queues in facilities are the main problems of the public health system. According to PIU, currently an average time of waiting for a visit to a specialist is 3.8 of month, what is caused by the amount of public spending on health care below the minimum level of safety.

Another problem that also seriously affects the development of private medical insurance is the lack of doctors. According to OECD and EC (OECD, 2018) data, Poland has the least in Europe. The European average is 3.8 per thousand inhabitants, in Poland it is 2.4. The advantage of private medical care is the fact that companies selling this type of service sign contracts with many facilities and can direct activity there where is the free space. An important argument in favor of private health insurance is also that they provide medical care throughout the country, without referrals and limits.

The private health insurance market is therefore becoming a kind of “safety cushion” for the overloaded public system and is assuming some responsibility for the health of an increasing number of Poles.

3.2. Situation in public health care

The public health care system in Poland is still not appropriate and does not actually provide 100% of patients' needs. Eurostat data show that European Union countries spend on a health care average one-tenth of the Gross Domestic Product. Poland against this background is performing poorly and is definitely below average. In terms of health care expenditure, France is the leader, which in 2016 allocated as much as 11.5% of GDP to this goal (European Union, 2016). Germany are second – 11.1% GDP, and Sweden on the third place – 11%. Austria, the Netherlands, Denmark and Belgium were also above the average of 9.9% average. Poland does not look good in this ranking, because only 6.5% of GDP was allocated to health care. Only Romania, Luxembourg, Latvia and Estonia spend less. Considering the absolute values, Germany was the country which spent the most on healthcare in 2016 – nearly EUR 352 billion. The French was second – around 257 billion euros, and third was the Great Britain – 233 billion euros. Poland was thirteenth with expenses of around EUR 28 billion. For comparison, Spain, which is the fifth in the EU in this respect, spent almost EUR 100 billion in 2016. This shows how much we still miss to European mediums.

According to the data of the Central Statistical Office published in the National Health Account for 2016, total expenditure on health care in 2016 amounted to PLN 121.1 billion and was higher than in 2015 by about PLN 6.6 billion. Current public expenditure on healthcare amounted to PLN 84.6 billion in 2016, that was 4.55% of GDP (compared to 4.46% in 2015). Therein 59.8% came from compulsory health insurance, and 10% was expenditure of local governments and the government of country. According to the same data, private expenditure amounted to PLN 36.5 billion, that was 1.96% of GDP (against 1.90% in 2015). Taking all expenses into account, private were 30.2% of the total. The largest stream of current expenditure on health care (both public and private) concerned health services – 57.3%, including mainly hospital treatment – 31.5% of total expenditure, and ambulatory treatment – 22.3%.

According to the report “Health at a Glance 2018” prepared by OECD and the European Commission, there is lack of at least 30,000 doctors in Poland. What is worse, their number is constantly decreasing, and the reason for this is: the elderly age of doctors, too little number of students admitted to Medical Universities, a huge problem with obtaining specialization - too little places for residents. In terms of the number of doctors, Poland ranks last in the European Union. The report “Health at a Glance 2018” also shows that the primary health care is in the most difficult situation, where the percentage of family doctors, compared to other EU countries, is very low and amounts to only 9% of all specialists. For comparison, less is only in Greece – 5%. Deficiency of doctors is not only a matter of patients who have problems with access to cabinets, but also the problem of the doctors themselves. According to the information contained in the report, the average number of patients for one doctor in the European Union per year is 2147, while in Poland the average is 3104 patients. In terms of workload, Poland ranks third place, after Hungary – 3457 and Slovakia – 3311. It looks even worse in the situation of primary care physicians, who give in Poland over 4,700 advices a year. The situation with access to specialists looks bad in Poland and is not improving. According to the Watch Health Care Foundation Barometer

survey, the average waiting time for an appointment with a specialist over the past 9 years has almost doubled, if you compare the situation between June 2012, when the average waiting time was 2.2 months, and January 2019, when time o waiting 3.8 months. This situation is exactly illustrated in Figures 1 and 2.

Figure 1. Change in the average waiting time for guaranteed health services in Poland (value in months) over a long-term horizon

Source: (WHC, 2019).

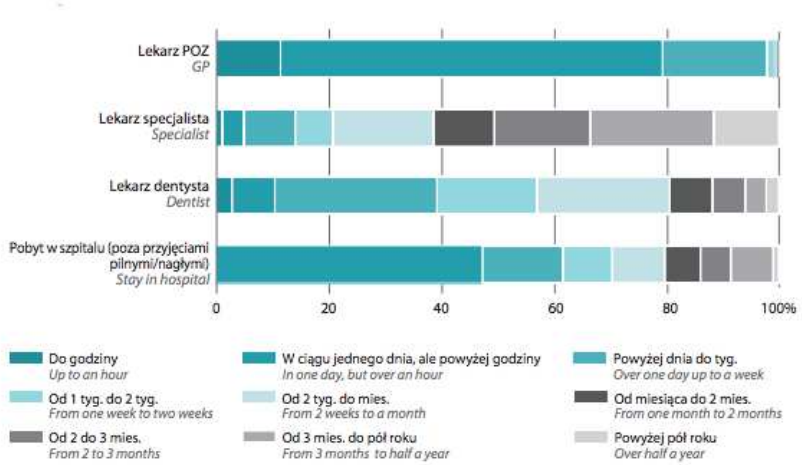

Figure 2. Waiting time for medical services in Poland in 2016

Source: (Central Statistical Office).

The presented situation in the Polish public healthcare system is not optimistic and indicates weaknesses that are determinants of the development of private health insurance.

3.3. Analysis of factors influencing the development of the Polish private health sector in terms of voivodeships

In this part of the discussion, the analysis will be carried out using the zero unitarisation method, which will allow to determine the potential for the development of private health insurance in individual vivodeships of Poland. From many factors influencing the development of the private health sector, 5 features were selected and used for the analysis. Those are:

1. indicator – health care expenditure,
2. indicator – Gross domestic product per inhabitant,
3. average monthly gross salary,
4. beds in general hospitals for 10,000 of the population,
5. doctors with the right to practice a medical profession per 10,000 population.

Table 2. Expenses for healthcare by vivodeships in 2010–2018

Województwo	gminy łącznie z miastami na prawach powiatu								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]
DOLNOŚLĄSKIE	124 472 585,92	100 121 327,73	94 116 722,94	109 393 238,93	110 289 075,31	112 556 247,63	107 130 130,18	118 306 300,35	134 062 021,34
KUJAWSKO-POMORSKIE	90 143 581,28	88 588 295,37	82 467 271,26	85 948 484,03	95 175 028,46	90 919 478,85	105 426 976,32	85 098 313,53	85 848 279,60
LUBELSKIE	53 282 468,54	51 610 105,43	52 567 508,28	51 976 263,80	55 128 611,62	52 384 777,32	52 643 308,06	50 265 276,51	49 545 951,87
LUBUSKIE	30 954 745,54	26 242 254,52	26 813 045,17	27 150 037,60	27 411 953,79	27 902 075,93	29 161 367,16	37 147 579,26	39 698 080,67
ŁÓDZKIE	84 854 483,28	164 826 097,20	87 449 648,57	97 087 931,44	103 805 443,05	94 944 769,28	106 478 682,82	101 490 288,76	95 147 996,14
MAŁOPOLSKIE	115 204 458,58	109 855 309,68	97 796 463,57	115 090 227,42	125 246 270,19	125 411 835,39	133 370 444,35	146 863 734,43	164 246 202,07
MAZOWIECKIE	403 097 976,71	356 965 657,29	293 329 080,44	383 525 552,62	381 501 856,25	371 484 894,67	310 656 140,13	418 893 108,02	457 304 170,62
OPOLSKIE	27 605 898,66	24 554 243,76	26 396 410,02	25 054 343,36	25 721 107,13	26 103 088,40	27 253 684,28	24 554 179,64	27 168 344,20
PODKARPACKIE	47 567 650,73	45 631 760,15	45 524 934,42	47 087 955,64	49 685 089,69	46 674 702,82	48 581 893,95	56 738 402,97	62 141 680,62
PODLASKIE	25 702 179,65	28 532 788,01	29 734 811,35	27 810 019,49	29 488 957,98	31 843 679,14	32 775 731,33	35 095 940,95	41 343 962,25
POMORSKIE	69 577 445,12	80 402 449,80	77 789 101,11	78 647 144,44	77 716 301,01	74 613 098,04	74 672 329,65	77 540 654,09	85 421 287,85
ŚLĄSKIE	280 557 865,86	256 356 305,11	261 444 785,79	316 289 153,33	295 941 728,52	311 117 470,92	268 482 981,48	285 857 260,60	296 759 629,31
ŚWIĘTOKRZYSKIE	36 880 955,53	33 435 705,39	34 809 460,33	35 117 043,80	36 507 753,24	34 050 968,84	32 875 236,91	33 605 098,65	42 941 264,61
WARMIŃSKO-MAZURSKIE	48 362 885,10	44 288 884,81	48 155 286,98	44 209 296,01	44 671 529,47	45 019 244,77	41 195 759,72	43 639 394,27	45 429 944,66
WIELKOPOLSKIE	126 021 666,72	105 181 387,23	81 129 804,13	86 467 720,27	93 876 911,65	107 871 886,04	118 501 763,45	105 014 804,05	116 727 294,02
ZACHODNIOPOMORSKIE	60 236 325,32	72 134 038,05	75 006 573,67	68 890 353,72	74 324 783,69	63 312 360,12	62 650 837,46	63 988 840,03	73 566 167,46

Source: (Local Data Bank, Central Statistical Office).

According to the conducted analysis, the greatest development opportunities for private health insurance in 2016 were in the Mazowieckie, Śląskie and Dolnośląskie voivodeships. These are areas belonging to the most economically developed places in Poland. It was also influenced by many factors, including well-developed medical facilities, large expenses for health care and an adequate number of working doctors, which allows the functioning of the public health service and dynamic development of private health insurance. The situation on the "eastern wall" of the country looks worse, where residents have a big problem with access to specialists and specialist tests. This is a big impetus for the development of private insurance in these areas, but the problem is the small number of doctors there, and thus private medical facilities. Lower incomes of society also do not help this situation.

Table 3. Gross domestic product per inhabitant by voivodeships in 2010–2016[3]

Województwo	2010	2011	2012	2013	2014	2015	2016
	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]
DOLNOŚLĄSKIE	42 295	46 296	47 986	48 179	50 061	52 237	53 659
KUJAWSKO-POMORSKIE	31 127	33 231	34 365	35 280	36 387	38 202	39 503
LUBELSKIE	25 875	28 282	29 648	30 449	31 192	32 077	33 371
LUBUSKIE	31 723	33 738	35 078	35 786	37 637	39 053	40 639
ŁÓDZKIE	34 747	37 620	39 403	40 145	41 869	43 790	45 199
MAŁOPOLSKIE	32 909	36 119	37 334	38 167	39 834	42 172	43 865
MAZOWIECKIE	59 666	64 473	67 389	69 028	71 715	74 738	77 359
OPOLSKIE	30 818	33 237	34 152	34 640	36 299	37 816	38 551
PODKARPACKIE	26 122	28 545	29 554	30 585	31 644	33 177	34 120
PODLASKIE	27 381	29 672	30 288	31 374	32 352	33 275	34 299
POMORSKIE	36 017	39 054	41 341	41 457	42 570	45 001	46 913
ŚLĄSKIE	40 201	43 693	44 863	44 796	46 511	48 686	50 184
ŚWIĘTOKRZYSKIE	28 968	30 957	31 642	31 392	32 643	33 844	34 633
WARMIŃSKO-MAZURSKIE	27 197	29 257	30 232	30 776	31 957	33 180	34 514
WIELKOPOLSKIE	39 454	42 753	44 774	46 150	48 015	50 821	52 844
ZACHODNIOPOMORSKIE	32 061	34 116	35 453	35 851	37 477	39 584	40 592

Source: (Local Data Bank, Central Statistical Office).

Table 4. Average gross monthly salaries by voivodeships for the years 2010–2018

Województwo	2010	2011	2012	2013	2014	2015	2016	2017	2018
	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]	[zł]
DOLNOŚLĄSKIE	3 412,37	3 587,25	3 709,32	3 868,86	4 042,86	4 204,24	4 385,84	4 654,51	4 942,39
KUJAWSKO-POMORSKIE	2 910,82	3 062,32	3 182,31	3 322,09	3 439,06	3 540,25	3 672,98	3 886,20	4 139,21
LUBELSKIE	3 099,60	3 257,14	3 382,66	3 488,61	3 605,03	3 699,48	3 815,95	4 020,25	4 260,71
LUBUSKIE	2 920,43	3 073,95	3 203,18	3 282,07	3 425,38	3 567,60	3 734,90	3 950,95	4 239,92
ŁÓDZKIE	3 066,02	3 245,97	3 383,30	3 510,20	3 618,63	3 790,76	3 925,10	4 141,94	4 441,29
MAŁOPOLSKIE	3 169,90	3 332,98	3 456,16	3 574,22	3 700,06	3 906,96	4 077,91	4 347,10	4 678,95
MAZOWIECKIE	4 279,55	4 504,66	4 637,58	4 773,41	4 927,34	5 098,55	5 240,86	5 523,65	5 888,90
OPOLSKIE	3 137,29	3 249,58	3 358,42	3 473,40	3 632,84	3 793,28	3 927,04	4 144,91	4 379,25
PODKARPACKIE	2 877,43	3 023,21	3 152,36	3 282,69	3 412,30	3 527,62	3 653,67	3 837,17	4 089,81
PODLASKIE	3 019,83	3 178,15	3 310,71	3 432,71	3 530,17	3 647,08	3 767,20	4 005,94	4 264,04
POMORSKIE	3 383,58	3 567,49	3 696,89	3 847,12	4 011,59	4 132,13	4 274,73	4 496,64	4 794,74
ŚLĄSKIE	3 528,19	3 794,62	3 855,26	4 022,80	4 100,51	4 221,45	4 295,29	4 481,57	4 825,28
ŚWIĘTOKRZYSKIE	2 971,58	3 137,91	3 250,94	3 349,81	3 435,93	3 580,62	3 669,57	3 911,49	4 171,17
WARMIŃSKO-MAZURSKIE	2 879,97	3 019,37	3 150,27	3 264,63	3 386,96	3 495,02	3 619,16	3 802,98	4 028,33
WIELKOPOLSKIE	3 126,36	3 284,41	3 397,25	3 515,31	3 597,69	3 723,69	3 894,10	4 124,13	4 382,96
ZACHODNIOPOMORSKIE	3 120,15	3 289,56	3 417,76	3 539,12	3 649,27	3 793,68	3 946,28	4 154,25	4 431,95

Source: (Local Data Bank, Central Statistical Office).

[3] Data for 2017–2018 are not yet available on the website of the Central Statistical Office.

Table 5. Beds in general hospitals per 10,000 population by voivodeships for 2010–2017[4].

Województwo	2010	2011	2012	2013	2014	2015	2016	2017
	[-]	[-]	[-]	[-]	[-]	[-]	[-]	[-]
DOLNOŚLĄSKIE	48,42	48,38	50,84	51,80	51,25	51,10	51,31	50,43
KUJAWSKO-POMORSKIE	42,97	43,00	45,35	46,08	47,33	47,20	47,31	47,02
LUBELSKIE	51,82	52,00	54,65	53,35	52,93	52,84	52,76	52,63
LUBUSKIE	40,96	41,24	44,34	43,75	43,55	43,24	42,73	43,28
ŁÓDZKIE	53,23	52,92	52,02	53,43	53,08	52,07	51,41	51,59
MAŁOPOLSKIE	42,78	42,91	44,58	44,24	44,46	44,06	44,11	44,19
MAZOWIECKIE	45,92	46,07	49,53	49,89	49,01	48,47	48,90	48,38
OPOLSKIE	43,13	43,21	49,23	49,08	48,53	46,22	47,74	46,15
PODKARPACKIE	44,91	44,89	47,42	47,81	48,32	48,17	48,61	48,00
PODLASKIE	49,61	47,45	48,81	48,96	49,44	49,91	50,77	50,35
POMORSKIE	38,27	37,41	39,60	41,20	40,54	41,19	39,38	39,82
ŚLĄSKIE	56,07	55,27	56,33	56,31	56,17	55,85	55,75	55,17
ŚWIĘTOKRZYSKIE	50,25	50,44	51,66	48,90	49,95	50,22	50,38	49,09
WARMIŃSKO-MAZURSKIE	41,17	43,25	46,18	46,13	45,98	46,32	47,04	46,79
WIELKOPOLSKIE	45,36	45,19	46,55	42,28	45,11	45,34	44,30	44,71
ZACHODNIOPOMORSKIE	45,17	44,96	48,72	48,89	48,69	48,34	47,85	46,29

Source: (Local Data Bank, Central Statistical Office).

Table 6. Doctors with the right to practice a medical profession per 10,000 population by voivodships for 2010–2017[5].

Województwo	2010	2011	2012	2013	2014	2015	2016	2017
	[osoba]	[osoba]	[osoba]	[osoba]	[osoba]	[osoba]	[osoba]	[osoba]
DOLNOŚLĄSKIE	37	38	38	39	40	40	41	42
KUJAWSKO-POMORSKIE	28	29	29	30	30	30	31	32
LUBELSKIE	36	37	37	38	38	39	40	41
LUBUSKIE	24	24	24	24	26	24	25	25
ŁÓDZKIE	41	42	43	44	44	45	46	46
MAŁOPOLSKIE	35	36	35	37	38	37	38	39
MAZOWIECKIE	46	46	47	47	48	48	49	50
OPOLSKIE	24	24	24	25	25	26	26	26
PODKARPACKIE	24	24	25	25	25	26	27	27
PODLASKIE	40	41	41	42	43	43	44	44
POMORSKIE	37	37	37	37	38	39	39	39
ŚLĄSKIE	36	36	36	37	37	38	38	39
ŚWIĘTOKRZYSKIE	27	28	28	29	29	30	30	31
WARMIŃSKO-MAZURSKIE	24	24	25	25	26	26	26	27
WIELKOPOLSKIE	31	31	31	32	31	32	32	29
ZACHODNIOPOMORSKIE	34	35	35	36	36	37	37	37

Source: (Local Data Bank, Central Statistical Office).

[4] Data for 2018 are not yet available on the website of the Central Statistical Office.
[5] Data for 2018 are not yet available on the website of the Central Statistical Office.

Table 7. Zero unitarisation method

kryterium		Wskaźnik 1	Wskaźnik 2	Wskaźnik 3	Wskaźnik 4	Wskaźnik 5
Rodzaj zmiennej diagnostycznej		S	S	S	S	S
Rok 2016						
Obszary i wielkości określające	DOLNOŚLĄSKIE	107130130,2	53659,00	4385,84	51,31	41
	KUJAWSKO-POMORSKIE	105426976,3	39503,00	3672,98	47,31	31
	LUBELSKIE	52643308,06	33371,00	3815,95	52,76	40
	LUBUSKIE	29161367,16	40639,00	3734,90	42,73	25
	ŁÓDZKIE	106478682,8	45199,00	3925,10	51,41	46
	MAŁOPOLSKIE	133370444,4	43865,00	4077,91	44,11	38
	MAZOWIECKIE	310656140,1	77359,00	5240,86	48,90	49
	OPOLSKIE	27253684,28	38551,00	3927,04	47,74	26
	PODKARPACKIE	48581893,95	34120,00	3653,67	48,61	27
	PODLASKIE	32775731,33	34299,00	3767,20	50,77	44
	POMORSKIE	74672329,65	46913,00	4274,73	39,38	39
	ŚLĄSKIE	268482981,5	50184,00	4295,29	55,75	38
	ŚWIĘTOKRZYSKIE	32875236,91	34633,00	3669,57	50,38	30
	WARMIŃSKO-MAZURSKIE	41195759,72	34514,00	3619,16	47,04	26
	WIELKOPOLSKIE	118501763,5	52844,00	3894,10	44,30	32
	ZACHODNIOPOMORSKIE	62650837,46	40592,00	3946,28	47,85	37

Macierz	x1	x2	x3	x4	x5	Q
MAZOWIECKIE	1,0000	1,0000	1,0000	0,5816	1,0000	0,9163
ŚLĄSKIE	0,8512	0,3822	0,4169	1,0000	0,5417	0,6384
DOLNOŚLĄSKIE	0,2818	0,4612	0,4728	0,7288	0,6667	0,5223
ŁÓDZKIE	0,2795	0,2689	0,1887	0,7349	0,8750	0,4694
MAŁOPOLSKIE	0,3744	0,2386	0,2829	0,2889	0,5417	0,3453
LUBELSKIE	0,0896	0,0000	0,1213	0,8173	0,6250	0,3307
PODLASKIE	0,0195	0,0211	0,0913	0,6958	0,7917	0,3239
WIELKOPOLSKIE	0,3220	0,4427	0,1695	0,3005	0,2917	0,3053
ZACHODNIOPOMORSKIE	0,1249	0,1642	0,2017	0,5174	0,5000	0,3016
POMORSKIE	0,1673	0,3079	0,4042	0,0000	0,5833	0,2926
KUJAWSKO-POMORSKIE	0,2758	0,1394	0,0332	0,4844	0,2500	0,2366
ŚWIĘTOKRZYSKIE	0,0198	0,0287	0,0311	0,6720	0,2083	0,1920
OPOLSKIE	0,0000	0,1178	0,1899	0,5107	0,0417	0,1720
PODKARPACKIE	0,0753	0,0170	0,0213	0,5638	0,0833	0,1521
WARMIŃSKO-MAZURSKIE	0,0492	0,0260	0,0000	0,4679	0,0417	0,1170
LUBUSKIE	0,0067	0,1652	0,0714	0,2046	0,0000	0,0896

Source: Own study.

4. SUMMARY

As it can be seen from the analysis, the private health insurance sector in Poland is constantly evolving, and their high increase y / y indicates a change in the approach to health protection of both society and employers. The situation in the public health care system has a huge impact on this, problem of which is among others bureaucracy, taking the doctor time that he could devote to the patient. The situation is also complicated by the decreasing

number of doctors, what hinders access to private healthcare. Long queues to get to specialists are forming, and benefits bought outside insurance – "out of pocket" - are becoming more and more expensive. According to CSO data, medical services in July 2019 were more expensive by 5.6% than the year before. Therefore, the fastest and easiest way to take advantage of private health services in large agglomerations, where at the turn of the last years a lot of non-public medical facilities have developed, providing access to most specialists without the long waiting to which the use of public health care forces.

To summarise, private health insurance is becoming increasingly important for the proper functioning of the public health care system in Poland. However, without appropriate legislative solutions, private health insurance will not be able to play a proper role in improving the functioning of public health care in Poland. The changing approach of employers should be used for this and the awareness of such change in the young generation should be shaped all the time.

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