СТЕПЕН НА РАЗЛИЧИЯ В СТРУКТУРАТА НА ДЪРЖАВНИТЕ РАЗХОДИ ЗА ПРЕДОСТАВЯНЕ НА КОЛЕКТИВНИ УСЛУГИ МЕЖДУ ЕС-26 И БЪЛГАРИЯ

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Резюме: Основна цел на настоящата статия е да се изследват различията в структурата на разходите на подсектор „Централно държавно управление" по функции от класификацията на функциите на държавно управление (КОФОГ) между ЕС-26 и България през периода 2007 г. – 2021 г. и на тази основа да се направи анализ на провежданите публични политики в областта на предоставянето на колективни услуги в полза на обществото, имащи за цел повишаване на общественото благосъстояние. За реализиране на поставената цел се използва интегрален коефициент на структурни различия. Получените резултати индикират, че през анализирания период се наблюдават съществени различия в структурата на определени разходи по функции на КОФОГ между ЕС-26 и България, което от своя страна е причина за диференциация в провежданите публични политики между ЕС и България.

Ключови думи: държавни разходи, структурни различия, конвергенция, публични политики, обществено благосъстояние

DEGREE OF DIFFERENCES IN THE STRUCTURE OF GOVERNMENT EXPENDITURE FOR THE PROVISION OF COLLECTIVE SERVICES BETWEEN EU-26 AND BULGARIA

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Abstract: The main goal of this article is to examine the differences in the structure of the expenditure of the "Central Gorvernment" sub-sector by functions of the classification of the functions of state government (COFOG) between the EU-26 and Bulgaria in the period 2007 - 2021 and, on this basis, to analyze the conducted public policies in the field of providing collective services for the benefit of society, aimed at increasing public welfare. To realize the set goal, an integral coefficient of structural differences is used. The obtained results indicate that during the analyzed period there are significant differences in the structure of certain expenditure by functions of the COFOG between the EU-26 and Bulgaria, which in turn is the reason for differentiation in the public policies implemented between the EU and Bulgaria.

Key words: government expenditure, structural differences, convergence, public policies, public welfare

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Introduction

The study of the structural differences of government expenditure at the EU level is a necessary mechanism of state government for several reasons: first, it indicates the degree of implementation of the fiscal rules laid down in European policies; second, it shows the degree of convergence or divergence in EU Member states's expenditure programs in the context of achieving smart, sustainable and inclusive growth; thirdly, it allows to analyze the dimensions of the EU member states' public policies related to generating growth and increasing public welfare; fourth, by studying the degree of convergence of government expenditure, the similarities and differences in the implemented government expenditure policies and the factors affecting their management mechanism are established not only at the national, but also at the supranational level. The management of government expenditure at the EU level is subject to compliance with fiscal rules present in the economic policies of all EU member states. These rules are defined in the Maastricht Treaty. Their goal is to ensure stability in the field of significant macroeconomic indicators, among which are: inflation (the average rate of inflation should not exceed by 1.5 percentage point (pp) the rate of inflation in the three EU member states characterized by the best results during the observed one-year period); the level of government debt (the deficit should not exceed 3% of GDP and the amount of government debt 60% of GDP); interest rates (the interest rate must not exceed by 2 pp the interest rate in the three EU member states characterized by the best results during the observed one-year period); the exchange rate (maintenance of a stable exchange rate, the limits of which are defined in the mechanism of exchange rates in the last two years) (https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html/maastricht_treaty.bg.html). As a continuation of European economic integration, EU member states strive to comply with the Stability and Growth Pact, which guarantees the maintenance of a balanced budget policy (https://www.ecb.europa.eu/ecb/educational/explainers/tell-me-more/html/maastricht_treaty.bg.html). The above is related to efforts to bring EU member states closer together in terms of significant macroeconomic indicators characterizing economic development. The latter indicates the need for periodic measurement of government expenditure for the provision of collective services for the benefit of society. Properly implemented public policies are associated with spending a certain amount of total resources, which in turn measures the amount of government intervention in the economy. Taking into account the general fiscal rules, which are mandatory for compliance by all EU member states, the question of their degree of difference is essential, regarding the structure of incurred expenditure by functions of the "Central Government" sub-sector - an institutional sector related to provision of collective services for public consumption. **The utility** of the study is

related to the possibility to highlight those functions of the state government of Bulgaria, where there is no convergence in relation to the public policies implemented at the EU level. **The object of research** is the government expenditure of the "Central Government" sub-sector by functions of COFOG. **The subject of research** is the structural differences in the expenditure of the "Central Government" sub-sector by functions of COFOG between the EU-26 and Bulgaria. **The main goal** of this article is to examine the differences in the structure of the expenditure of the "Central Government" sub-sector by functions of COFOG between the EU-26 and Bulgaria in the period 2007 - 2021 and, on this basis, to analyze the conducted public policies in the field of providing collective services for the benefit of society, aimed at increasing public welfare.

1. Review of the literature

The amount of government expenditure is directly related to the extent of government intervention in the economy, as well as to the implemented fiscal policy and the short-term effects on economic activity. In other words, the question is raised whether the EU member states have similar expenditure policies or whether there is still a process of a significant degree of national differences in terms of the composition and size of government expenditure. In this context, the authors J. Ferreiro, C. A. Carrasco and C. Gómez do research related to the convergence of government expenditure at the EU level and the possibility of applying a unified model of their management (Ferreiro, Carrasco and Gómez, 2014). The authors prove that there is a significant degree of difference in the EU member states regarding their national expenditure programs related to the composition of government expenditure and the absence of a unified model of their management, despite the efforts made by a number of European institutions (Ferreiro, Carrasco and Gómez, 2014). In addition, the authors highlight the move away of national expenditure programs at the EU level from the adopted uniform rules for a smaller amount of government expenditure and placing an emphasis on productive ones (Ferreiro, Carrasco and Gómez, 2014). The degree of convergence regarding functioning fiscal policies at the EU level largely depends on the way they are managed and the expected effects on the overall economic development of the countries.

Fiscal policy is based on goals related to achieving macroeconomic stability. In addition to the stable functioning of the economy and the generation of economic growth, fiscal policy can aim to increase public welfare by providing goods for collective consumption and income redistribution (Apergis, Christou and Hassapis, 2013). N. Apergis, Chr., Christou and Chr. Hassapis examine the convergence of government expenditure of selected EU countries for the period 1990-2012 in two directions: first: the convergence of total government expenditure as a percentage of GDP and second: the convergence of government expenditure disaggregated into separate groups (Apergis, Christou and Hassapis, 2013, p. 58). The authors conclude that there is convergence between the total government expenditure of the EU member states studied. When government expenditure is disaggregated into separate categories, the degree of convergence is significantly reduced (Apergis, Christou and Hassapis, 2013, p. 58). The achieved results of the research give the authors reason to conclude that, despite the recommendations for the convergence of European expenditure policies, a large part of the EU member states are characterized by the action of individual factors influencing the construction of their own differentiated

public policies related to significant functions of state government (Apergis, Christou and Hassapis, 2013, p. 58).

A number of authors focus their research interests precisely on establishing the relationship between the growth of government expenditure and the achieved economic growth (Barro, 1990; Garry, and Valdivia Rivas, 2017; Shelton, 2007; Martins, and Veiga, 2013; Ukwueze, 2015; Aluthge, Jibir and Abdu, 2021; Onifade, Çevik, Erdoğan et al. 2020; Bogere and Mukaaru, 2016; Aznan, Goh, Koong and Tan, 2022; Slaveeva, 2017; Raleva, 2020; Tanchev, 2021; Mavrov, 2007). In this connection is the article by J. Loizides and G. Vamvoukas, who study whether the amount of government expenditure (measured as a relative share in GDP) can be determined as a cause of change in the rate of economic growth or, on the contrary, the rate of change of GDP determines the amount of government expenditure (Loizides and Vamvoukas, 2005). The authors come to the conclusion that government expenditure is the cause of the growth of national income, with which the authors reject the thesis that the growth of government expenditure is associated with a decrease in the rate of economic growth (Loizides and Vamvoukas, 2005). In addition, J. Loizides and G. Vamvoukas prove that Greece (as one of the countries of research interest) fully confirms Wagner's Law (with the growth of GDP per capita, the share of government expenditure in its total share also increases), with similar results obtained for Great Britain, completing the model with inflation data (Loizides and Vamvoukas, 2005). Proper management of government expenditure allows economic stability and growth to be achieved. The latter is related to an increase in aggregate costs through government investments made in a number of significant areas of the socio-economic life of the state (Marinov, 2017).

In article of K. Asenova emphasizes that government expenditure are an important component in the formation of GDP (especially during economic crises), and on the other hand, through their size, the government largely limits the opportunities for capital formation in the private economy (Asenova, 2015). This dual role of government expenditure makes it necessary to constantly examine its size and identify the trends and factors driving its growth. The measurement of government expenditure allows to highlight the specifics of the functioning of the public sector, as well as to follow the development of government expenditure policies related to the effective utilization of limited budget resources and their ability to stimulate economic growth and public welfare. In addition, the dynamics of the economic conjuncture necessitates the need to study and analyze the current trends in the development of government expenditure, which in turn helps to realize the goals set in the macroeconomic policy of the state.

Government expenditure is an important tool of fiscal policy. They are an important macroeconomic indicator showing the size of the state quota in the economy (Tsoklinova, 2022). In the modern dimensions of government redistributive policies, government expenditure is one of the main mechanisms for internalizing externalities. The size of the public sector, measured by the relative share of government expenditure in GDP, is a frequently discussed issue in the scientific community. The discussion is related, on the one hand, to the amount of governement revenues and expenditure and their balanced management without allowing large budget deficits, a prerequisite for increasing the states' indebtedness, on the other hand, to the implementation of public policies aimed at creating conditions for economic growth and stability. At the heart of the discussion is the expenditure related to the institutional way of determining the amount of government expenditure

through the action of public choice, by means of which to generate effective results, embodying properly implemented public policies (Beev, 2010). The different views on the amount of government expenditure is also related to the degree of similarity in their structure and size at the EU level. As noted by N. Velichkov, the convergence between the member states of the Eurozone is a factor influencing its proper functioning and is related to the generation of stability and growth (Velichkov, 2019). The latter is related to the need to examine the convergence of government expenditure in the EU countries, especially with regard to the adopted fiscal rules and the recommendations for the convergence of the dimensions of the fiscal policies led by the EU member states. The degree of similarity is related to the possibility to compare the public policies implemented and their impact on economic growth and public welfare. In this context is the study of Kr. Petrova related to an analysis of trends regarding the degree of convergence and divergence between EU member states in terms of the amount of government expenditure (Petrova, 2014).

The theoretical review of the existing literature on the problem discussed in the present article shows the need to study the structural differences of the government expenditure of the EU member states. The assessment of the degree of the established differences is related to the formation of conclusions and recommendations related to the improvement of the management mechanism of this essential instrument of the fiscal policy of each country. The latter concerns the possibility of reorganizing a number of functions of the state government in the direction of eliminating economic and social inequalities in the EU member states. In other words, the dimensions of the implemented public policies in the field of general public services, education, health, defence, public order and safety, social protection, gorvenment support for economic activities strategic for the specific country are directly related to the current state of the economic situation and the opportunities to generate smart, sustainable and inclusive growth, as well as increase public welfare. In this regard, the subject of research in this article is the degree of difference in the government expenditure of the "Central Government" sub-sector by functions of the COFOG between the EU-26 and Bulgaria. It is precisely the established differences in the structure of governemnt expenditure for functions important to state government that allow optimizing the model of their management in the direction of generating greater efficiency and utility for society.

2. Research methodology

The aim is to examine the differences in the expenditure structure of the "Central Government" sub-sector by function (COFOG) between the EU-26 and Bulgaria. Different methods for analyzing structural differences are known in the literature. Choosing the correct meter requires the correct definition of the type of structure being measured. The structures investigated in the present study are defined as one-dimensional, formed by categorical (unmetered) features, scaled on a nominal scale. For the correct determination of differences in similar types of structures, a meter is needed that meets the following conditions (Gatev, 1987, p. 207; Stoenchev, 2016; Kolev, Kirov, 2011, p. 61): first, to vary within theoretical limits from 0 to 1 (from 0% to 100%); second, to reflect not only the differences between the relative shares, but also the size of those shares during the periods compared; third, to be sufficiently sensitive (selective). The specified requirements are satisfied by the integral

coefficient of structural differences (Gatev, 1987, p. 207; Stoenchev, 2016; Kolev, Kirov, 2011, p. 61):

$$K_D = \sqrt{\frac{\sum_{i=1}^{k}(v_{i1} - v_{i2})^2}{\sum_{i=1}^{k}(v_{i1}{}^2 + v_{i2}{}^2)}} \text{ , или } K_D = \sqrt{1 - \frac{2\sum_{i=1}^{k}v_{i1}v_{i2}}{\sum_{i=1}^{k}(v_{i1}{}^2 + v_{i2}{}^2)}} \text{ ,} \quad (1)$$

where v_{i1} и v_{i2} are i-th relative shares of the two compared populations;

3. Research results

Figure 1 presents the calculated values of the integral coefficient of structural differences (K_D) of the expenditure of the "Central Government" sub-sector by functions of COFOG for the EU-26 and Bulgaria during the period 2007 - 2021. As can be seen, the minimum value of the coefficient was found in 2008 (K_D = 33.3%), and the maximum value in 2019 (K_D = 43.33%). The fact that at the beginning (2008) and the end (2021) of the analyzed period, the value of the integral coefficient of structural differences (K_D) is of almost the same value - for 2007 - K_D is 36.02% , and for 2021 - K_D is 36.36%. The latter indicates sustainability in the degree of differences in the implemented government expenditure policies related to the provision of collective goods of high public value.
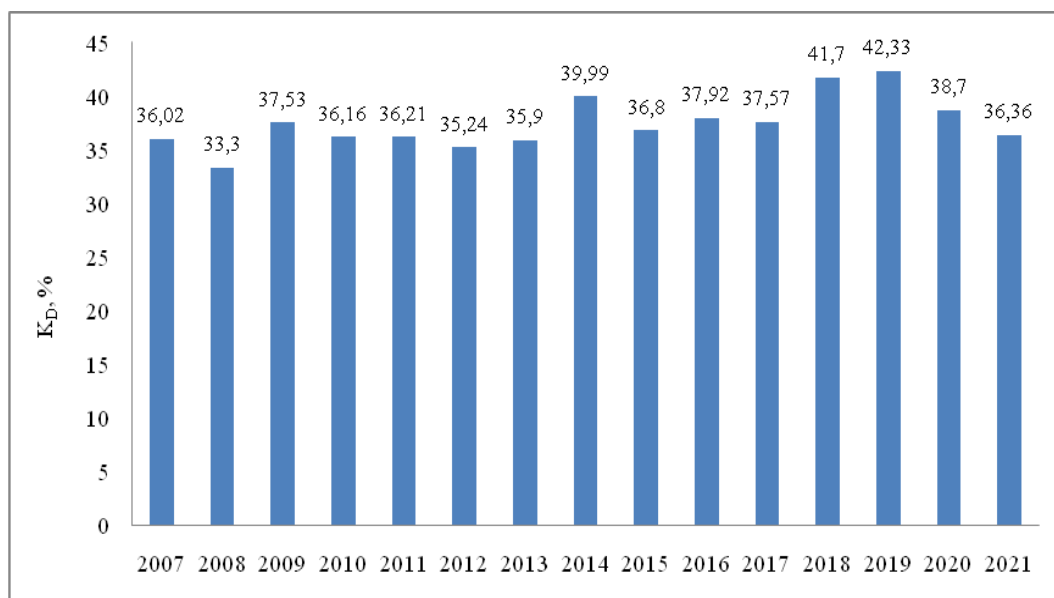

*Figure 1. Values of the integral coefficient of structural differences
for the period 2007 - 2021, %
Source: Eurostat and author's calculations*

The expenditure structures of the "Central Government" sub-sector by functions of COFOG for the EU-26 and Bulgaria during the period 2007 - 2021 are presented in the table 1 and table 2.

Table 1.
Expenditure structure of the "Central Government" sub-sector by functions of COFOG for EU-26 for the period 2007 - 2021, %

Expenditure by functions of COFOG	2007	2008	2009	2010	2011	2012	2013
General public services	35.11	35.68	35.25	33.91	35.5	36.05	34.81
Defence	5.5	5.45	5.29	5.02	5.09	5	4.83
Public order and safety	4.64	4.67	4.55	4.42	4.6	4.41	4.55
Economic affairs	11.14	11.44	11.66	13.08	11.41	12.15	11.68
Environmental protection	0.65	0.66	0.67	0.64	0.72	0.7	0.69
Housing and community amenieites	1.07	1.02	1.14	1,05	0.95	0.82	0.65
Health	5.64	5.78	6.26	6.6	5.76	5.51	6
Recreation, culture and religion	1.56	1.57	1.47	1.39	1.42	1.37	1.42
Education	10.52	10.27	9.87	9.47	9.83	9.62	10.09
Social protection	24.15	23.45	23.83	24.42	24.72	24.36	25.27

Source: Eurostat and author's calculations

Table 1.
Expenditure structure of the "Central Government" sub-sector by functions of COFOG for EU-26 for the period 2007 - 2021, % (continuation)

Expenditure by functions of COFOG	2014	2015	2016	2017	2018	2019	2020	2021
General public services	34.81	34.01	32.85	32.12	31.99	31.42	30.21	29.55
Defence	4.83	5	5.3	5.35	5.39	5.43	4.95	4.84
Public order and safety	4.55	4.6	4.64	4.66	4.78	4.85	4.37	4.24
Economic affairs	11.68	12.35	11.61	12.5	12.24	12.33	15.21	16.77
Environmental protection	0.69	0.68	0.66	0.69	0.74	0.77	0.74	0.69
Housing and community amenieites	0.65	0.61	0.61	0.59	0.66	0.68	0.59	0.77
Health	6	5.82	6.41	6.5	6.74	6.62	7.23	7.95
Recreation, culture and religion	1.42	1.41	1.57	1.6	1.64	1.65	1.55	1.53

Education	10.09	10.2	9.97	9.98	10.31	10.35	9.19	9.01
Social protection	25.27	25.31	26.37	26.01	25.5	25.9	25.95	24.65

Source: Eurostat and author's calculations

Table 2.
Expenditure structure of the "Central Government" sub-sector by functions of COFOG for Bulgaria for the period 2007 - 2021, %

Expenditure by functions of COFOG	2007	2008	2009	2010	2011	2012	2013
General public services	48.85	44.89	54.05	48.25	50.24	49.44	49.39
Defence	4.81	4.44	4.08	6.25	4.59	4.04	4.45
Public order and safety	9.34	8.92	9.2	9.13	8.99	8.47	9.23
Economic affairs	14.94	18.45	11.59	15.36	15.68	18.03	17.14
Environmental protection	1.45	0.43	1.75	0.38	0.43	0.44	0.96
Housing and community amenieites	1.45	2.18	0.77	0.62	0.98	0.35	0.27
Health	7.72	7.85	6.28	8.36	7.46	7.83	7.18
Recreation, culture and religion	1.32	1.8	1.45	1.57	1.55	1.72	1.46
Education	5.73	6.3	6.23	5.32	5.3	4.95	5.22
Social protection	4.36	4.72	4.61	4.75	4.77	4.76	4.71

Source: Eurostat and author's calculations

Table 2.
Expenditure structure of the "Central Government" sub-sector by functions of COFOG for Bulgaria for the period 2007 - 2021, % (continuation)

Expenditure by functions of COFOG	2014	2015	2016	2017	2018	2019	2020	2021
General public services	36.76	42.71	40.89	40.9	35.68	32.72	36.4	41.34
Defence	3.95	4.41	4.35	4.39	4.69	4.85	5.08	5.21
Public order and safety	8.61	9.31	8.96	9.98	9.82	10.83	9.4	9.19
Economic affairs	28.25	21.86	17.98	18.97	28.28	28.76	26.8	21.6
Environmental protection	0.34	0.47	0.48	0.49	0.55	0.57	0.44	0.57
Housing and community amenieites	0.37	0.33	4.72	3.01	0.29	0.29	0.2	0.23
Health	7.43	8.2	8.93	7.74	7.69	8	8.89	8.37
Recreation, culture and religion	3.78	2.57	3.47	4.13	3.36	3.09	2.62	2.95
Education	5.18	5.11	5.11	5.08	4.67	5.31	4.75	5.22

Social protection	5.32	5.04	5.11	5.32	4.96	5.56	5.42	5.3

Source: Eurostat and author's calculations

By applying the formula for calculating structural differences (formula 1) and based on the relative shares of the expenditure of the "Central Government" sub-sector by functions of the EU-26 and Bulgaria, an integral coefficient of structural differences between the EU-26 and Bulgaria is calculated, whose dynamics of its values are presented in figure 1. As can be seen from Figure 1, during the studied period the coefficient of structural differences took values in the interval from 33.3% to 42.33%. Accordingly, a minimum value of the coefficient was found in 2008, and a maximum value in 2019. The low value of the integral coefficient in 2008 is explained by significant differences between the relative shares of the expenses for "General public services", "Social protection" and "Economic affairs". The large value of the integral coefficient in 2019 is explained by the significant differences between the relative shares of expenditure on "Social protection", "Education", "Economic affairs" and "Public order and safety" in the EU-26 and Bulgaria. In the EU-26, the relative share of the above expenditure is 25.90%, 10.35%, 12.33% and 4.85% respectively, while for Bulgaria it is 5.56%, 5.31%, 28.76% respectively and 10.83% (see table 1 and table 2).

In addition to 2019, significant differences in the structure of government expenditure of the "Central Government" sub-sector by functions of the COFOG between the EU-26 and Bulgaria were also registered in 2018, 2014 and 2020. The values of the integral coefficient of structural differences in the three years are respectively 41,7%, 39.99% and 38.7% (see table 1 and table 2) and are explained by the differences in the relative shares of the following government expenditure by functions of the COFOG. In 2018, the large value of the integrated coefficient is due to the significant differences between the relative shares of expenditure for "Public order and safety", "Economic affairs", "Education" and "Social protection". In the EU-26, the relative share of the above expenditure is respectively 4.78%, 12.24%, 10.31% and 25.5%, while for Bulgaria it is respectively 9.82%, 28.28%, 4.67% and 4.96% (see table 1 and table 2). For its part, the large value of the integral coefficient in 2014 is due to the observed differences between the relative shares of expenditure for "Social protection', "Economic affairs" and "Education". In the EU-26, the relative share of the above expenditure is 25.27%, 11.68% and 10.09%, respectively, while for Bulgaria it is 5.32%, 28.25%, 5.18% respectively (see table. 1 and table 2).

The large value of the integral coefficient in 2020 is explained by the significant differences between the relative shares of expenditure for "Social protection", "Economic affairs", "Education", "Public order and safety" and "General public services". In the EU-26, the relative share of the above expenditure is respectively 25.95%, 15.21%, 9.19%, 4.37% and 30.21%, while for Bulgaria it is respectively 5.42%, 26.80% , 4.75%, 9.40% and 36.40% (see table 1 and table 2). In 2021, the integral coefficient of structural differences has smaller values compared to the previous year, namely 36.36%. However, there is a significant degree of differences in the implemented expenditure policies in the area of the provision of collective goods between the EU-26 and Bulgaria. The smaller value of the integral coefficient is due to the changes in the relative shares of expenditure for "Social protection", "Economic affairs", "Education" and "General public services" reported in 2021 compared to 2020. In 2021, in the EU-26, the relative share of the above expenditure

is respectively: 24.65%, 16.77%, 9.01% and 29.55%, while for Bulgaria it is respectively: 5.3%, 21.6%, 5.22% and 41.34% (see table 1 and table 2).

Conclusion

➢ The study of the differences in the structure of the expenditure of the "Central Government" sub-sector by functions of COFOG between the EU-26 and Bulgaria in the period 2007 - 2021 allows the following conclusions to be drawn regarding the implemented public policies in the field of providing collective services for the benefit of society:

➢ In the beginning (2008) and the end (2021) of the analyzed period, the value of the integral coefficient of structural differences (K_D) has almost the same value - for 2008 - K_D is 36.02%, and for 2021 - K_D is 36.36%, which shows the absence of a uniform expenditure policy between the EU-26 and Bulgaria in the field of providing collective services aimed at increasing public welfare. The analysis of the results during the considered period shows a sustainable trend of deepening the degree of differences between the EU-26 and Bulgaria.

➢ During the analyzed period 2007 - 2021, the minimum value of the coefficient was found in 2008 (K_D = 33.3%), and the maximum value in 2019 (K_D = 43.33%). The values of the integral coefficient of structural differences in 2008 show that in that year there is the greatest convergence in the relative shares of expenditure between the EU-26 and Bulgaria, while in 2019 there is the greatest divergence.

➢ In 2008, significant differences were noticed in the structure of the expenditure of the "Central Government" sub-sector by functions of COFOG between the EU-26 and Bulgaria in the relative shares of the expenditure for: "General public services" (for the EU-26 - 35 .68%, and for Bulgaria - 44.89%), "Social protection" (for EU-26 - 23.45%, and for Bulgaria - 4.72%) and "Economic affairs" (for EU-26 - 11.44%, and for Bulgaria - 18.45%). In 2019, there were significant differences between the relative shares of expenditure on "Social protection" (for the EU-26 - 25.9%, and for Bulgaria - 5.56%), "Education" (for the EU-26 - 10.35%, and for Bulgaria - 5.31%), "Economic affairs" (for EU-26 - 12.33%, and for Bulgaria - 28.76%) and "Public order and safety" (for the EU-26 - 4.85%, and for Bulgaria - 10.83%) in the EU-26 and Bulgaria.

➢ It is noted that during the period 2007-2021, the larger relative shares of government expenditure by functions of the "Central Government" sub-sector in the EU-26 are aimed at providing collective services related to social protection and education, i.e. the public policies of the EU-26 countries are characterized by a pronounced social orientation.

➢ In contrast to the EU-26, during the analyzed period in Bulgaria, the larger relative shares of state expenditure by functions of the "Central Government" subsector are aimed at providing collective services related to: general public services; economic affairs and public order and safety, i.e. the state expenditure policies of Bulgaria are related to the administration of various activities of the state government, as well as to the administration of general economic and commercial activities and policies, and support to individual sectors. The latter testifies to the implementation of public policies related to the provision of services for the administrative fulfillment of government obligations, and not those that satisfy social public needs.

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