

## COMPARATIVE ANALYSIS IN THE STRUCTURE OF THE EXPENDITURE OF THE „CENTRAL GOVERNMENT“ SUBSECTOR OF THE EU-26 AND BULGARIA

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### Abstract

*The periodic study of the expenditure of the „Central Government“ subsector by functions of COFOG allows revealing the state priorities in the provision of public goods during different time period, as well as the possibilities for implementing effective redistributive policies. The main purpose of the report is to examine the differences in the structure of the expenditure of the „Central Government“ subsector by the functions of COFOG between the EU-26 and Bulgaria for the period 1998 – 2020 and on this basis to reveal opportunities for redistribution that is more effective and increase of public welfare in Bulgaria.*

**Keywords:** government expenditure, dependencies, structure, redistributive policies, functions of COFOG

**JEL:** H50, C59

### Introduction

The amount of government expenditure determines government intervention in the economy and shows which part of the wealth created by the private sector is expropriate by the public sector. The author supports the widespread statement that government expenditure is a countercyclical government tool. The latter implies that an effectively conducted fiscal policy regulates its size, depending on the current economic conjuncture. Of particular importance is the expenditure of the „Central Government“ subsector by functions according to the classification of the functions of state government (COFOG). This type of expenditure is an important tool for neutralizing economic inequalities through the redistributive income policies their management helps earnestly to increase public welfare.

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## Theoretical and methodological foundations of the study

According to the European System of National and Regional Accounts 2010 (ESS, 2010), the „General Government“ sector is composed of all public institutions that are non-market producers and produce public goods for individual and collective consumption, including: social services, government maintenance, education, health-care, defence, internal order and security, etc. The „General government sector“ is composed of four sub-sectors: „Central Government“, „State government“, „Local Government“ and „Social Security Funds“ (Natsionalen statisticheski institute, 2022, Razhodi na sector „Dyrzhavno upravlenie“ po funktsii na klasifikatsiyata na funktsiite na dyrzhavno upravlenie (KOFOG); Eurostat, 2011). Expenditure of the „General government sector“ is grouped by function according to the classification of functions of general government (COFOG). It was created by the Organization for Economic Cooperation and Development (OECD) and is established as a standard in national accounts (Natsionalen statisticheski institute, 2022, Razhodi na sector „Dyrzhavno upravlenie“ po funktsii na klasifikatsiyata na funktsiite na dyrzhavno upravlenie (KOFOG); Eurostat, 2011). Expenditure of the „General government sector“ by functions of the COFOG are systematized into ten groups: General public services, Defence, Public order and safety, Economic affairs, Environmental protection, Housing and community amenities, Health, Recreation, culture and religion, Education and Social protection. The ten groups listed above are divided into the subgroups presented in table 1 (Tsoklinova, 2021, p. 162).

**Table 1:** Classification of the functions of General government

Groups of COFOG	Subgroups of COFOG
1	2
<b>General public services</b>	<ul style="list-style-type: none"> <li>• Executive and legislative bodies, finance and fiscal activities, foreign affairs</li> <li>• Foreign economic aid</li> <li>• General activities</li> <li>• Basic research</li> <li>• R&amp;D activity</li> <li>• General activities and other unclassified</li> <li>• Government debt transactions</li> <li>• Transfers of a general nature between different levels of management</li> </ul>
<b>Defence</b>	<ul style="list-style-type: none"> <li>• Defence and security</li> <li>• Civil protection</li> <li>• Foreign military aid</li> <li>• Defence R&amp;D</li> <li>• Defence and security not elsewhere classified</li> </ul>

*Continued*

1	2
Public order and safety	<ul style="list-style-type: none"> <li>• Police services</li> <li>• Firefighting services</li> <li>• Judicial activities</li> <li>• Prisons</li> <li>• R&amp;D activity, public order and security</li> <li>• Public order and security, not elsewhere classified</li> </ul>
Economic affairs	<ul style="list-style-type: none"> <li>• Economic, commercial and labour activities</li> <li>• Agriculture, forestry, fishing and hunting</li> <li>• Fuels and energy</li> <li>• Mining and processing activities, construction</li> <li>• Transport</li> <li>• Communications</li> <li>• Other industries</li> <li>• R&amp;D activity and economic activities</li> <li>• Economic activities not elsewhere classified</li> </ul>
Environmental protection	<ul style="list-style-type: none"> <li>• Waste management</li> <li>• Waste water management</li> <li>• Pollution reduction</li> <li>• Conservation of biodiversity</li> <li>• R&amp;D activity and environmental protection</li> <li>• Environmental protection, not elsewhere classified</li> </ul>
Housing and community amenities	<ul style="list-style-type: none"> <li>• Development of housing construction</li> <li>• Development of town planning</li> <li>• Water supply</li> <li>• Street lighting</li> <li>• R&amp;D activity and housing and urban planning policy</li> <li>• Housing and town planning policy, not elsewhere classified</li> </ul>
Health	<ul style="list-style-type: none"> <li>• Medical products, devices and equipment</li> <li>• Outpatient services</li> <li>• Hospital services</li> <li>• Public health services</li> <li>• R&amp;D activity and health care</li> <li>• Healthcare, not elsewhere classified</li> </ul>
Recreation, culture and religion	<ul style="list-style-type: none"> <li>• Recreational and sports services</li> <li>• Cultural services</li> <li>• Radio-television and publishing services</li> <li>• R&amp;D and entertainment, culture and religion</li> <li>• Entertainment, culture and religion, not elsewhere classified</li> </ul>

*Continued*

1	2
<b>Education</b>	<ul style="list-style-type: none"> <li>• Preschool and primary education</li> <li>• Secondary education</li> <li>• College education</li> <li>• University education</li> <li>• Ancillary services to education</li> <li>• R&amp;D and education</li> <li>• Education, not elsewhere classified</li> </ul>
<b>Social protection</b>	<ul style="list-style-type: none"> <li>• Diseases and disabilities</li> <li>• Elderly care</li> <li>• Benefits paid to heirs</li> <li>• Families and children</li> <li>• Unemployment</li> <li>• Supporting households</li> <li>• Social exclusion, not elsewhere classified</li> <li>• R&amp;D and social insurance and assistance</li> <li>• Social security and assistance, not elsewhere classified</li> </ul>

*Source:* Tsoklinova (2021).

A number of authors determine that government expenditure on COFOG functions is an important element of the fiscal policy and affects the size of aggregate demand, and hence GDP (Asenova, 2013, pp. 153-157; Hubenov, Boshnakov, 2010, pp. 80-98; Barman, Gupta, 2010, pp. 1109-1134). In scientific studies, the thesis is prevalent that their size reveals the government’s priorities in key areas of the public sector such as social services, education, health, public order and security, defence, culture, sports, etc. Examining expenditures COFOG by functions allows to compare the government priorities of different national economies and to draw conclusions about the similarities and/or differences between the pursued government policies. In the scientific space, researchers in this field are united around the claim that the amount of this type of expenditure is directly related to public welfare and through its ratio to total government expenditure or as a percentage of GDP, the main goals of governments in terms of economic growth, price policy, guided fiscal policy, etc. can be seen (Beev, Yotova, 2021; Yotova, Marholeva, 2017, pp. 352-364; Szarowska, 2013; Altunc, Aydın, 2013, pp. 66-75; Lupu et al., 2018, pp. 552-570). In addition, the decrease in economic activity and the unfavourable trends in the labour market have an impact on the state expenditures of the „Central Government“ subsector by functions of COFOG. For example, during the financial and economic crisis of 2007, the total expenditure of the „General Government“ sector relative to GDP was over 50% of EU GDP, the highest value since 1995 (European Commission, 2017). On the

one hand, the increased costs of social unemployment benefits and, on the other hand, the growing burden of interest on the debt of the „General Government“ sector contribute to this large percentage.

Based on the latest data from European statistics (Eurostat, 2022), total EU government expenditure in 2020 was 53.1% of GDP, a significant increase compared to 2019 when it was 46.5% of GDP. The emerged COVID-19 pandemic and the government measures taken to combat the pandemic have had an impact in the direction of increasing government costs and reducing GDP in absolute terms, the differences are as follows: €7,118 billion in 2020 compared to €6,521 billion in 2019, a difference of €598 billion (Eurostat, 2022). According to data from European statistics in the report „Government expenditure by function – COFOG, 2022 (Eurostat, 2022), in 2020, the expenditure on COFOG by the functions and type as a percentage of total expenditure and a percentage of GDP is as follows: with the largest relative share are expenditure on „social protection and support“ – 41.3% of total expenditure and 22% of GDP and „health“ expenditure – 15.1% of total expenditure and 8,0% of GDP, respectively; expenditure on „general government“ with 11.6% of total expenditure and 6.2% of GDP; expenditure on „economic affairs“, with 11.5% of total expenditure and 6.1% of GDP, respectively; „education“ expenditure with 9.4% of total expenditure and 5.0% of GDP. The state expenditure COFOG by functions, which have a smaller relative share in the total state expenditure and in the GDP, are: the expenditures for „public order and safety“ with 3.4% of the total expenditures and 1.8% of the GDP; „defence“ expenditure, 2.5% of total expenditure and 1.3% of GDP, respectively; expenditure on „entertainment, culture and religion“ at 2.3% of total expenditure and 1.2% of GDP; expenditure on „environmental protection“, respectively with 1.6% of total expenditure and only 0.9% of GDP; expenditure on „housing and urban planning policy“ at 1.2% of total expenditure and only 0.6% of GDP (Eurostat, 2022).

## **Results and Discussion**

The purpose of this article is to examine the differences in the structure of expenditures of the „Central Government“ sub-sector by function (COFOG) between the EU-26 and Bulgaria for the period 1998 – 2020 and, on this basis, to reveal opportunities for more effective redistribution and increase of public welfare in Bulgaria. The author uses data for the EU-27 and the values for Bulgaria were subtracted from the total cost of the EU-27. A variety of structural difference analysis methods have been used in the literature. Choosing the correct meter requires the correct definition of the type of structure that has been measured. The structures examined in the present study are defined as one-dimensional, formed by categorical (unmetered) characteristics, scaled on a nominal scale. To cor-

rectly determine the differences in similar types of structures, a meter that meets the following conditions is required (Gatev, 1987, p. 207; 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; Kolev, Kirov, 2011, p. 61):

$$(1) \quad \hat{E}_D = \sqrt{\frac{\sum_{i=1}^k (v_{i1} - v_{i2})^2}{\sum_{i=1}^k (v_{i1}^2 + v_{i2}^2)}}, \text{ or } \hat{E}_D = \sqrt{1 - \frac{2 \sum_{i=1}^k v_{i1} v_{i2}}{\sum_{i=1}^k (v_{i1}^2 + v_{i2}^2)}},$$

where  $v_{i1}$  and  $v_{i2}$  are the  $i^{\text{th}}$  relative shares of the two compared populations;

The expenditure structures of the „Central Government“ subsector by functions of COFOG for the EU-26 and Bulgaria for the period 1998 – 2020 are presented in the table 2 and table 3.

**Table 2:** Structure of the expenditure of „Central Government“ subsector by functions of COFOG for the EU-26 in the period 1998 – 2020

Expenditure by functions of COFOG	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
General public services	39,30	37,68	37,07	36,49	36,80	36,61	36,76	36,78	36,37	35,11	35,68	35,25
Defence	6,13	6,04	5,90	5,89	5,90	5,83	5,75	5,64	5,63	5,50	5,45	5,29
Public order and safety	4,27	4,21	4,34	4,34	4,51	4,61	4,57	4,59	4,63	4,64	4,67	4,55
Economic affairs	11,28	10,86	11,19	11,24	10,98	10,92	11,17	11,17	11,58	11,14	11,44	11,66
Environmental protection	0,44	0,48	0,59	0,66	0,65	0,64	0,60	0,61	0,67	0,65	0,66	0,67
Housing and community amenities	1,09	1,08	1,19	1,06	1,12	1,07	1,05	0,93	1,01	1,07	1,02	1,14
Health	4,30	5,19	5,10	5,55	4,44	4,45	4,22	4,22	3,64	5,64	5,78	6,26
Recreation, culture and religion	1,40	1,47	1,50	1,54	1,53	1,48	1,56	1,49	1,52	1,56	1,57	1,47
Education	10,57	10,46	10,65	10,69	10,79	10,87	10,67	10,76	10,74	10,52	10,27	9,87
Social protection	21,24	22,51	22,47	22,52	23,28	23,52	23,65	23,81	24,22	24,15	23,45	23,83

*Continued*

<b>Expenditure by functions of COFOG (continuation of table 2)</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
General public services	33,91	35,50	36,05	34,81	34,81	34,01	32,85	32,12	31,99	31,42	30,21
Defence	5,02	5,09	5,00	4,83	4,83	5,00	5,30	5,35	5,39	5,43	4,95
Public order and safety	4,42	4,60	4,41	4,55	4,55	4,60	4,64	4,66	4,78	4,85	4,37
Economic affairs	13,08	11,41	12,15	11,68	11,68	12,35	11,61	12,50	12,24	12,33	15,21
Environmental protection	0,64	0,72	0,70	0,69	0,69	0,68	0,66	0,69	0,74	0,77	0,74
Housing and community amenities	1,05	0,95	0,82	0,65	0,65	0,61	0,61	0,59	0,66	0,68	0,59
Health	6,60	5,76	5,51	6,00	6,00	5,82	6,41	6,50	6,74	6,62	7,23
Recreation, culture and religion	1,39	1,42	1,37	1,42	1,42	1,41	1,57	1,60	1,64	1,65	1,55
Education	9,47	9,83	9,62	10,09	10,09	10,20	9,97	9,98	10,31	10,35	9,19
Social protection	24,42	24,72	24,36	25,27	25,27	25,31	26,37	26,01	25,50	25,90	25,95

*Source:* Eurostat and Authors's Calculations**Table 3:** Structure of the expenditure of „Central Government“ subsector by functions of COFOG for Bulgaria in the period 1998 – 2020

<b>Expenditure by functions of COFOG</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
General public services	42,43	46,76	46,66	45,25	44,53	36,99	41,01	41,27	43,16	48,85	44,89	54,05
Defence	13,21	11,14	12,18	9,77	9,75	9,07	6,31	8,09	6,04	4,81	4,44	4,08
Public order and safety	7,63	7,76	7,58	10,15	9,55	9,83	10,15	10,27	10,51	9,34	8,92	9,20
Economic affairs	17,55	16,45	13,35	15,58	13,60	16,15	16,58	14,37	15,12	14,94	18,45	11,59
Environmental protection	0,49	0,54	0,94	1,03	0,67	0,84	0,07	0,49	1,52	1,45	0,43	1,75
Housing and community amenities	0,41	0,25	0,65	1,19	0,52	0,67	0,48	0,42	0,76	1,45	2,18	0,77
Health	5,94	6,03	5,99	7,14	10,05	11,18	13,74	12,45	8,30	7,72	7,85	6,28
Recreation, culture and religion	2,41	2,30	2,62	2,00	1,81	2,29	1,91	1,77	1,78	1,32	1,80	1,45
Education	5,82	6,32	7,33	5,91	5,56	6,73	6,32	7,14	6,60	5,73	6,30	6,23
Social protection	4,11	2,46	2,71	1,97	3,98	6,26	3,44	3,73	6,20	4,36	4,72	4,61

*Continued*

<b>Expenditure by functions of COFOG (continuation of table 3)</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
General public services	48,25	50,24	49,44	49,39	36,76	42,71	40,89	40,90	35,68	32,72	36,40
Defence	6,25	4,59	4,04	4,45	3,95	4,41	4,35	4,39	4,69	4,85	5,08
Public order and safety	9,13	8,99	8,47	9,23	8,61	9,31	8,96	9,98	9,82	10,83	9,40
Economic affairs	15,36	15,68	18,03	17,14	28,25	21,86	17,98	18,97	28,28	28,76	26,80
Environmental protection	0,38	0,43	0,44	0,96	0,34	0,47	0,48	0,49	0,55	0,57	0,44
Housing and community amenities	0,62	0,98	0,35	0,27	0,37	0,33	4,72	3,01	0,29	0,29	0,20
Health	8,36	7,46	7,83	7,18	7,43	8,20	8,93	7,74	7,69	8,00	8,89
Recreation, culture and religion	1,57	1,55	1,72	1,46	3,78	2,57	3,47	4,13	3,36	3,09	2,62
Education	5,32	5,30	4,95	5,22	5,18	5,11	5,11	5,08	4,67	5,31	4,75
Social protection	4,75	4,77	4,76	4,71	5,32	5,04	5,11	5,32	4,96	5,56	5,42

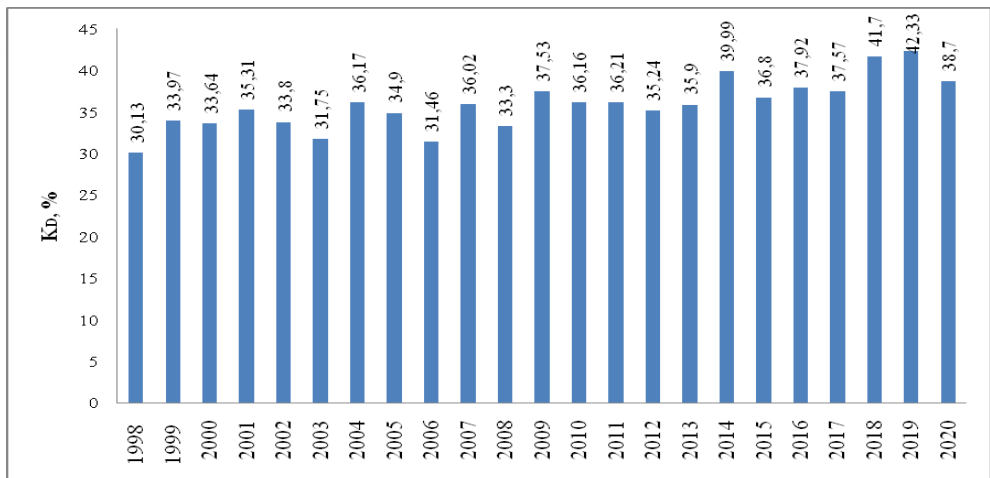
*Source:* Eurostat and Authors's Calculations

On the basis of relative shares of the expenditure of the „General government sector“ by COFOG function for the EU-26 and Bulgaria and formula (1), the integral coefficient of structural differences between the EU-26 and Bulgaria is calculated. The dynamics of its values is presented in figure 1. It is clear from it that during the studied period the coefficient of structural differences takes values in the range from 30.13% to 42.33%. The minimum value of the coefficient was found in 1998, and the maximum in 2019. The large value of the integral coefficient in 2019 is explained by the significant differences between the relative shares of the expenses for „Social protection“, „Education“, „Economic affairs“ and „Public order and safety“ in EU-26 and Bulgaria. In the EU-26, the relative share of the above-mentioned costs is respectively 25.90%, 10.35%, 12.33% and 4.85%, while for Bulgaria it is respectively 5.56%, 5.31%, 28.76% and 10.83% (see table 2 and table 3).

In addition to 2019, significant differences in the structure of expenditure by functions of 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 2 and table 3) and are explained by the differences in the relative shares of the



following costs 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 expenses for „Public order and safety”, „Economic affairs”, „Education“ and „Social protection”. In the EU-26, the relative share of the above costs 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 2 and Table 3). On the other hand, 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 costs is 25.27%, 11.68% and 10.09%, respectively, while for Bulgaria it is 5.32%, 28.25%, 5.18% respectively (see table. 2 and table 3). The large value of the integral coefficient in 2020 is explained by the significant differences between the relative shares of expenses 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 5.42%, 26.80% , 4.75%, 9.40% and 36.40% (see Table 2 and Table 3).



Source: Eurostat and Authors's Calculations

**Figure 1:** Values of the integral coefficient of structural differences in the period 1998 – 2020

## Conclusion

Based on the research carried out on the structural differences in the costs of the „Central Government“ subsector between the EU-26 and Bulgaria, the following conclusions can be drawn:

- During the studied period, the coefficient of structural differences takes values in the interval from 30.13% to 42.33%. The minimum value of the coefficient was found in 1998 (30.13%), and the maximum in 2019 (42.33%).
- At the beginning of the analysed period, the value of the integral coefficient is explained by the significant differences between the relative shares of expenditure for „Social protection“, „Education“, „Economic affairs“ and „Defence“. The differences in the relative shares of „Social protection“ expenditures are substantial, with the EU-26 accounting for about 22% and Bulgaria – about 3%.
- At the end of the analysed period, the value of the integral coefficient is explained by the significant differences between the relative shares of expenses for „Public order and safety“, „Economic affairs“, „Education“ and „Social protection“. In addition, at the end of the period, the differences in the relative shares of „Social protection“ expenditures remain large, with approximately 26% for the EU-26 and 5% for Bulgaria.
- Due to the conclusions drawn, the following recommendations can be formulated:
- It is necessary to rethink the redistribution policies regarding some expenditure, namely increasing the amount of expenses for „Social protection“, as during the entire analysed period in Bulgaria its relative share is small compared to the value of the EU-26.
- To reduce the amount of expenditure for „Economic affairs“ in Bulgaria, because it is too large compared to the value of the EU-26.
- To increase the amount of expenditure on „Education“ in Bulgaria, considering compared to the value of the EU-26, the differences are significant.

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