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SOCIAL EXPENDITURE MULTIPLIER: ASSESSMENT OF ECONOMIC EFFECT AND OPTIMAL VALUES

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ABSTRACT. The main aim of the study is to test the hypothesis that social expenditures are not only a source of social support and budgeting of the social sphere, but can be a significant lever of economic development, provided proper planning of their share and volume. In this regard, the authors have adapted the open-economy multiplier to assess the economic effect of social expenditures. Based on the correlation analysis of the relationship between the share of social expenditures (% of GDP) and the multiplier of social expenditures, conducted on the example of EU countries, two groups of countries are identified depending on the impact of social expenditure multiplier on GDP: the first one embraces those countries that are characterized by a growing economic return from social expenditures; the second one is where the return is declining. To determine the optimal levels of social expenditures, which can be expected to have a positive economic effect in the form of GDP growth, we have identified critical limits of the multiplier of social expenditures according to the principle: the maximum value is seen in the group of countries with positive impact; the minimal one is experienced in countries with inverse dependence of the share of social expenditures and their multiplier. As a result, the experience of financing social expenditures in the EU leads to the conclusion that the optimal share of social expenditures in GDP ranges from 28% to 30% – within these limits multiplier values exceed 1.0, i.e. there is a positive impact of social expenditures on GDP in the form of the growth of economic results over the resources consumed.

JEL Classification: H53, I38, O52

Keywords: social expenditures, GDP, open-economy multiplier, marginal return on social expenditures

Introduction

Government social expenditures are very often associated with actions to create and maintain a "welfare state", which accordingly attracts migration flows from countries with worse living conditions and social security, and also allows supporting population groups vulnerable to changes in the labour market, the disabled population, and all those who, for various reasons, need social protection in the form of financing various social programs. In the discussions regarding social and economic consequences of the development of social support programs, an unequivocal attitude has not yet been formed. Support or criticism of the influence of social spending of the state is actively discussed not only by scientists in the field of social economy, but also by political figures. As J. E. Stiglitz emphasizes in one of his studies, "Many politicians saying that the welfare state creates a culture of dependency, implicitly arguing that it changes the nature of the individual" (Stiglitz, 2018, p.3). Arguments for and against the expansion of social programs financed by the government are well known – some scientists support the opinion of the need for savings, especially in times of crisis, the negative impact on the motivation of economic behaviour, which, for example, is criticized in the already mentioned work (Stiglitz, 2018). Other researchers associate government social spending with social investment policies (Lessa Kerstenetzky & Pereira Guedes, 2021; Setiawan et al., 2021), which is an important resource for economic recovery (Wilson & Wilson, 2021).

In the works of supporters of social expenditures feasibility, where their positive long-term impact is explained, important theoretical justifications and practical evidence of the beneficial economic consequences of a well-thought-out national social policy are offered. But such evidence is justified mainly by taking into account certain partial consequences – for the labour market, investment capacity, etc. In the meantime, the well-known concept of the multiplier in economics is practically not used to assess the economic impact of social expenditures, which limits the understanding of their economic role and limits of expediency, taking into account not only social functions, but also national economic interests.

In this regard, the goal of our work is to assess the economic impact of social expenditures and determine their limits, under which they can be not only a lever for budgeting social programs, but also a lever for economic development.

We carry out such an assessment with the justification of social expenditure multiplier and its relationship with the share of social expenditures in the structure of GDP, which is a new scientific approach to the assessment of the economic role of government social expenditures. The practical application of the proposed approach in the budgeting of social programs will make it possible to justify important decisions regarding the financing of the social sphere not on the basis of political or other beliefs, but using economic logic and calculations.

The article is organised as follows: an overview of current scientific advances in understanding the role of social expenditures in economic development is provided in the Literature Review section; the Methodology section provides a description of the hypotheses and the appropriate tools for testing them; the main results of determination of the optimal levels of social expenditures which can lead to a positive economic effect are summarized in Results; the main research findings and possible directions for further research are formulated in Conclusions.

1. Literature review

Social expenditures, as one of the characteristic features of the welfare state, are perceived very differently. Some economists see their role in supporting basic needs, which is

why scientists support, for example, the concept of unconditional basic income (Baranowski & Jabkowski, 2021; Thomas, 2020). According to another approach, government social expenditures are understood in the context of intentions to bring the country closer to a certain ethical ideal, in which social justice will be ensured, and the idea of a "welfare state for liberty" is embodied (Béland et al., 2021, p. 23). In the mentioned work (Béland et al., 2021), the modern discourse of such views is considered quite thoroughly, as well as in other works containing a theoretical justification of the foundations of the welfare state, directions of its regulatory influence (Nelson et al., 2020; Wilson & Wilson, 2021), as well as empirical evidence of the effectiveness of relevant government programs (Kim & Ahn, 2020; Lessa Kerstenetzky & Pereira Guedes, 2021).

From the point of view of social impact on social processes, social expenditures and their feasibility are clear despite all the debates about the scope and target groups. One cannot but agree that without the protection of the state, there will be more individuals at the bottom, and the deprivations which they suffer will only be addressed by State action, providing further impetus for a twenty-first-century welfare state (Stiglitz, 2018, p.13). At the same time, J. E. Stiglitz is a convinced supporter of the idea that a well-designed welfare state would actually increase overall economic performance. However, the possibility of obtaining positive economic effects is argued in his work due to the indirect influence of social expenditures – due to positive social changes, the increase in the willingness of individuals to take risks due to the feeling of protection from the State in case of failure. In this case, with a modicum of social protection, individuals are more willing to accept change and openness (Stiglitz, 2018, p.27).

In this work, as in many others, which, due to the presence of positive changes in the economy, confirm the importance of social expenditures, attention is drawn to the mechanism of action of social programs. If they have a good design and orientation, then you can expect a return in the form of an increase in the quality of human capital in various manifestations – through knowledge and motivation of activity on the labour market.

Justifications for the expediency of social expenditures are often supported not only by the logic of social responsibility and the motivating effect on target groups. The economic effectiveness of such expenditures is also proven with the justification of the multiplier effect of the corresponding expenses – investments, government subsidies, etc.

For example, the substantiation of the expediency to subsidise the hospitals has been confirmed empirically – through the comparison of investments in different countries (Serbia, the USA, the Netherlands) and positive economic effects in the form of retail sales, tax collection, employment benefits, and wider economic services (Stuckler et al., 2017). As it has been proven, due to the correct planning of expenditures for the maintenance of hospitals and other socially significant objects, it is possible to obtain a positive economic effect that is amenable to cost measurement. The mechanism of its formation may be related to the motivational aspects of the behaviour of the beneficiaries, as well as to the final use of expenditures, through which consumer spending is ensured, and, accordingly, production and sales are revived.

In this regard, economists justify other types of multipliers depending on the research object – social, fiscal, employment, environmental multiplier, etc. (Stuckler et al., 2017). None of them has a permanent effect, only the mechanism of action is common. So, e.g., even Baltic countries that are very close in terms of economic level and structure of the economy have differences in the impact of fiscal multipliers on economic development and social benefits (Szymańska, 2022). Structural and resource factors can be taken into account in the search for opportunities to ensure the multiplier effect of government social expenditures, as, e.g., in the case of the search for "non-oil" growth opportunities (Abbasov et al., 2021). But more common are the studies of general market changes through the links of aggregate demand and social

development (Tung, 2020; Tvrdon & Verner, 2022), the impact of social programs and payments on the standard of living (Mishchuk et al., 2018), willingness to participate in formal relationships (Virak & Bilan, 2022) as well as the multiplier effect on the labour market, which is achieved through financing of the social protection system, including social security for the unemployed (Sabyrzhan et al., 2021).

To a greater extent, the multiplicative economic impact of social expenditures is estimated at the macroeconomic level, but also at the microlevel, there is numerous evidence of the effectiveness of social expenditures of enterprises (within CSR expenditures) with their impact on the growth of productivity indicators, (Garg & Gupta, 2020; Li et al., 2021; Meyer, 2018; Oliinyk, 2017), achieving a stable economic position in the market, high competitiveness of enterprises (Gallardo-Vázquez & Lizcano-Álvarez, 2020; Kim, 2022; Mishchuk et al., 2023).

Since our research object is the multiplicative effect of social expenditures at the national level, the basis of our approach will be the concept of open-economy multiplier, based on the works of Keynes (1954, p. 61), Samuelson and Nordhaus (2010, p. 569), Samuelson (1939).

An expanded multiplier-accelerator model with taxation added, presented in the study of Todorova & Kutrolli (2019) and Yurchyk et al. (2023), is most suitable for determining the effect of government expenditures in an open economy. This principle of calculation will be used in our work.

At the same time, we take into account different, sometimes ambiguous results of assessing the impact of government social expenditures on economic development, depending on the group of countries in which the research was conducted. Thus, some authors have confirmed the positive role of social spending in economic processes, in particular in GDP growth, at least due to education and health spending (Stuckler et al., 2017; Kutasi & Marton, 2020), although the total amount of government expenditure has a positive effect on GDP growth (Ahuja & Pandit, 2020). At the same time, the results were obtained indicating the absence of such a visible connection (Cammeraat, 2020), its different orientation even in relatively close countries (Szymańska, 2022), or a positive effect on real GDP in the medium term but a negative effect in the long run (Kim & Ahn, 2020).

In connection with the existing methodological foundations of the study of the multiplicative impact of social expenditures, as well as the ambiguity of their impact on economic development, our work is aimed at testing the following hypotheses:

H1: The EU countries, despite the high integration of economic systems and common market development conditions, can be divided into two groups according to the influence of the share of social expenditures: with positive and negative economic returns in the form of a multiplier of social expenditures;

H2: social expenditures have a positive multiplier effect in the form of increasing economic returns (estimated by the value of the multiplier) only up to a certain level, after which the economic return from social spending slows down or has an inverse relationship with GDP.

Within the scope of testing these hypotheses, we have identified the following research tasks:

RT1: assess the existence of a correlation between the share of social expenditures in GDP and the multiplier of social expenditures, on the basis of which to identify common dependencies and group countries according to the economic impact of the share of social expenditures;

RT2: determine the optimal limits of the share of social expenditures in GDP, in which their positive economic impact is ensured.

Solving the second task will allow using the author's methodology as a scientific basis for planning the share of social expenditures and forecasting their economic impact.

2. Methodological approach

To estimate the economic impact of social expenditures, we will use the government expenditures multiplier (GEM) formula given in the study by Todorova & Kutrolli (2019):

$$GEM = \frac{1}{1 + m - \beta(1 - \delta)} \quad (1)$$

β shows the share of income that is consumed, i.e. the marginal propensity to consume; δ is the income-tax rate; m is the marginal propensity to import.

Adapting this approach to the analysis of the multiplier of social expenditures, we used the statistics of the EU countries, in particular, data on:

- gross domestic product in market prices (GDP);
- final consumption expenditure in market prices (FCE);
- imports of goods and services (IGS);
- taxes on production and imports (TPI).

Relevant data for 2013-2023 were obtained from the Eurostat website (Eurostat, 2023). Based on the specified data, it was calculated β (FCE/GDP); δ (TPI/GDP) and m (IGS/ GDP). The data on social expenditures include state expenditures on social protection of the population, education, health care, as well as recreation, culture, and religion. These data were obtained from Eurostat (2023) too. Considering the inconsistencies in availability of data needed for social expenditures share in GDP calculation and multiplier calculations, the main findings are obtained by the authors using time range 2013-2022 when all required data are available.

Calculation of the Social Expenditure Multiplier (M_{se}) based on the above approach of GEM calculation will allow estimating the impact of government social expenditures on GDP. If $M_{se} > 1$, then there is a positive economic effect in the form of an increase in GDP in the amount greater than the sum of the corresponding expenses. That is, one monetary unit, which is directed to the financing of social expenditures, leads to a positive multiplier effect in the form of an increase in GDP by more than one monetary unit. Thus, it can be stated that social spending causes a positive economic effect in the form of GDP growth. If $M_{se} < 1$, it is vice versa (government expenditures for social purposes cause GDP growth, but to a lesser extent than the sum of the corresponding expenditures).

Further analysis was carried out using the correlation analysis in order to assess the relationship between the share of social expenditures and the multiplier and to identify countries with positive and negative relationships of these factors.

The next step of our research is the construction of scatter diagrams and trend lines between the multiplier of social expenditures and the share of social expenditures for EU countries, in which there is: a) a direct and close relationship; b) an inverse relationship between the relevant indicators. Therefore, the first group of countries can be identified as those that are characterized by growing economic returns from social spending; the second one, where the return is diminishing.

By combining the graphic dependences of the share of social expenditures and the multiplier in both groups of countries, we determined the range of values that reflect the interval of optimal shares of social expenditures, in which the maximisation of the multiplier of social expenditures is ensured.

3. Conducting research and results

The calculation of the social expenditure multiplier for the EU countries (*Table 1*) shows that not all of them have a positive economic effect as a result of social expenditure in the form of GDP growth. In particular, in such countries as the Netherlands, Lithuania, Cyprus, Czechia, Slovenia, Estonia, Belgium, Hungary, Slovakia, Ireland, Malta, Luxembourg, less than one monetary unit of GDP growth per unit of monetary expenditures for social purpose accounts for less than one monetary unit of GDP growth, and in such countries as Luxembourg and Malta, the corresponding value reaches only about 0.5. Such a low level of economic returns from social expenditures can be explained by the fact that most of the above countries have a very high marginal propensity to import ($m > 0.7$) and a relatively low marginal propensity to consume (for instance, for Luxembourg $\beta < 0,5$).

Table 1. Social Expenditure Multiplier for EU Countries, 2013-2023

Countries	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Mean value
A very high level of the social expenditure multiplier (value greater than 1.5)												
United Kingdom	1,75	1,77	1,79	1,75	1,69	1,68	1,67	-	-	-	-	1,73
Italy	1,74	1,71	1,7	1,71	1,66	1,63	1,63	1,72	1,56	1,41	1,49	1,63
Spain	1,7	1,65	1,61	1,62	1,57	1,54	1,55	1,66	1,54	1,39	1,47	1,57
Greece	1,81	1,71	1,7	1,68	1,59	1,47	1,46	1,59	1,35	1,14	1,29	1,53
France	1,56	1,54	1,52	1,53	1,49	1,46	1,45	1,55	1,47	1,35	1,42	1,5
A high level of the social expenditure multiplier (values greater than 1.2 and less than 1.5)												
Portugal	1,52	1,48	1,45	1,46	1,38	1,35	1,35	1,46	1,35	1,21	1,27	1,39
Finland	1,39	1,43	1,46	1,44	1,38	1,34	1,34	1,41	1,35	1,22	1,34	1,37
Romania	1,33	1,31	1,3	1,33	1,34	1,37	1,37	1,43	1,33	1,27	1,36	1,34
Norway	1,35	1,35	1,36	1,38	1,37	1,35	1,34	1,38	1,35	1,23	1,27	1,34
Germany	1,36	1,35	1,34	1,35	1,32	1,3	1,31	1,38	1,28	1,19	1,28	1,31
Iceland	1,26	1,25	1,22	1,27	1,28	1,26	1,32	1,5	1,41	1,25	-	1,3
Poland	1,32	1,28	1,27	1,24	1,21	1,18	1,19	1,21	1,1	1,04	1,16	1,2
A positive value of the social expenditure multiplier (a value greater than 1.0 and less than 1.2)												
Croatia	1,34	1,3	1,23	1,2	1,16	1,13	1,12	1,22	1,14	0,99	1,08	1,17
Sweden	1,23	1,21	1,19	1,2	1,17	1,14	1,13	1,19	1,15	1,04	1,05	1,15
Austria	1,14	1,14	1,14	1,15	1,12	1,1	1,1	1,15	1,07	1,	1,06	1,11
Denmark	1,15	1,15	1,14	1,15	1,13	1,1	1,09	1,12	1,07	0,97	1,	1,1
Bulgaria	1,02	1,02	1,03	1,06	1,01	1,02	1,03	1,13	1,06	0,95	1,1	1,04
Switzerland	0,99	1,06	1,08	1,04	1,04	1,03	1,03	1,02	0,99	0,95	0,97	1,02
A low level of the social expenditure multiplier (less than 1.0)												
Lithuania	0,93	0,99	1,0	1,04	0,98	0,96	0,96	1,04	0,91	0,82	0,95	0,96
Cyprus	1,16	1,08	1,04	1,0	0,94	0,94	0,93	0,89	0,83	0,78	0,81	0,95
Czechia	0,91	0,86	0,86	0,88	0,88	0,89	0,91	0,96	0,9	0,86	0,92	0,89
Netherlands	0,94	0,94	0,88	0,92	0,89	0,88	0,88	0,92	0,87	0,81	0,88	0,89
Slovenia	0,95	0,94	0,93	0,94	0,88	0,86	0,87	0,93	0,87	0,78	0,87	0,89
Estonia	0,82	0,84	0,89	0,89	0,89	0,89	0,91	0,92	0,83	0,8	0,88	0,87
Belgium	0,89	0,88	0,9	0,88	0,85	0,84	0,85	0,88	0,81	0,75	0,82	0,85
Hungary	0,83	0,81	0,81	0,83	0,82	0,81	0,82	0,84	0,81	0,73	0,84	0,81
Slovakia	0,81	0,82	0,8	0,8	0,79	0,78	0,8	0,87	0,81	0,75	0,83	0,81
Ireland	0,77	0,72	0,66	0,61	0,63	0,64	0,54	0,56	0,62	0,61	0,61	0,63
Malta	0,55	0,57	0,54	0,53	0,54	0,53	0,51	0,48	0,51	0,5	0,52	0,53
Luxembourg	0,5	0,48	0,46	0,47	0,46	0,45	0,44	0,45	0,42	0,43	0,42	0,45

Source: *authors' calculations based on (Eurostat, 2023).*

In the meantime, the social expenditure multiplier indicates the presence of a positive economic effect in the form of GDP growth in an amount greater than the sum of the corresponding expenditures in most EU countries. A particularly high level of the social expenditure multiplier (value over 1.5) occurs in such countries as Great Britain, Italy, Greece, Spain and France, which obviously should be considered as countries with the best practices of a social expenditures high return.

In order to find an answer to the question of the high / low level of return of social expenditures in different EU countries, we conducted a correlation analysis between the multiplier of their social expenditures and the share of social expenditures in % of GDP (*Table 2*). As we can see, in a significant number of EU countries, there is a fairly close and direct relationship between the share of social expenditures in GDP and the level of their multiplier effect. That is, an increase in the specific weight of social expenditures in GDP leads to an increase in the corresponding multiplier and vice versa. At the same time, a close and direct relationship between the above-mentioned indicators is observed not only in the countries with a high level of social expenditure multiplier, but also with a relatively low one (less than 1). In addition, there can be singled out a group of states (the vast majority) among the EU countries, which demonstrate the presence of a positive relationship (although not sufficiently tight) between the share of social expenditures in GDP and the level of their multiplier effect. It is also possible to single out a small group of states in which there is an inverse relationship between the above indicators.

Table 2. Correlation analysis of the relationship between the share of social expenditures (% of GDP) and the multiplier of social expenditures in the EU countries

Countries	Indicator	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Mean value	Correlation coefficient
Close relationship between the share of social expenditures and the social expenditure multiplier													
Denmark	M_{se}	1,15	1,15	1,14	1,15	1,13	1,10	1,09	1,12	1,07	0,97	1,11	0,955
	$S_{e\%}$	41,7	41,4	40,8	39,8	38,6	38,2	38,	39,5	37,4	33,6	38,90	
Ireland	M_{se}	0,77	0,72	0,66	0,61	0,63	0,64	0,54	0,56	0,62	0,61	0,64	0,822
	$S_{e\%}$	27,9	25,6	19,4	19,3	18,2	17,4	17,2	19,	17,1	15,5	19,66	
Finland	M_{se}	1,39	1,43	1,46	1,44	1,38	1,34	1,34	1,41	1,35	1,22	1,38	0,824
	$S_{e\%}$	40,3	40,7	40,3	40,1	38,6	38,4	38,3	40,5	39,6	37,8	39,46	
Sweden	M_{se}	1,23	1,21	1,19	1,20	1,17	1,14	1,13	1,19	1,15	1,04	1,16	0,939
	$S_{e\%}$	35,7	35,3	34,7	35,4	34,7	34,8	34,2	35,4	33,8	32,	34,60	
Iceland*	M_{se}	1,26	1,25	1,22	1,27	1,28	1,26	1,32	1,50	1,41	1,25	1,30	0,888
	$S_{e\%}$	26,8	27,	26,2	30,2	27,3	27,7	28,7	34,3	33,3	29,9	29,14	
Norway	M_{se}	1,35	1,35	1,36	1,38	1,37	1,35	1,34	1,38	1,35	1,23	1,35	0,9867
	$S_{e\%}$	31,2	32,5	34,6	36,3	35,2	34,1	35,5	39,2	33,	26,2	33,78	
Available sufficient relationship between the share of social expenditures and the social expenditure multiplier													
Hungary	M_{se}	0,83	0,81	0,81	0,83	0,82	0,81	0,82	0,84	0,81	0,73	0,81	0,596
	$S_{e\%}$	27,9	27,3	27,	27,2	26,8	25,8	24,9	28,6	26,8	25,3	26,76	
Netherlands	M_{se}	0,94	0,94	0,88	0,92	0,89	0,88	0,88	0,92	0,87	0,81	0,89	0,748
	$S_{e\%}$	32,	31,7	31,1	30,6	30,	29,6	29,5	32,	31,1	29,3	30,69	
Portugal	M_{se}	1,52	1,48	1,45	1,46	1,38	1,35	1,35	1,46	1,35	1,21	1,40	0,567
	$S_{e\%}$	32,4	31,5	30,6	29,8	28,8	28,7	28,8	32,	31,4	29,8	30,38	
Available insufficient relationship between the share of social expenditures and the social expenditure multiplier													
Czechia	M_{se}	0,91	0,86	0,86	0,88	0,88	0,89	0,91	0,96	0,90	0,86	0,89	0,465
	$S_{e\%}$	27,2	26,9	26,1	25,3	25,1	26,	26,4	30,1	29,8	29,1	27,20	
Estonia	M_{se}	0,82	0,84	0,89	0,89	0,89	0,89	0,91	0,92	0,83	0,80	0,87	0,397
	$S_{e\%}$	24,8	24,3	26,1	26,	25,6	26,4	26,7	29,7	27,9	26,4	26,39	

Croatia	M_{se}	1,34	1,30	1,23	1,20	1,16	1,13	1,12	1,22	1,14	0,99	1,18	0,414
	$S_{e\%}$	28,2	28,9	28,7	27,1	27,	27,1	27,6	31,7	29,1	27,	28,24	
Romania	M_{se}	1,33	1,31	1,30	1,33	1,34	1,37	1,37	1,43	1,33	1,27	1,34	0,394
	$S_{e\%}$	19,4	19,5	19,7	20,1	20,	20,3	21,4	23,9	22,9	22,4	20,96	
Slovenia	M_{se}	0,95	0,94	0,93	0,94	0,88	0,86	0,87	0,93	0,87	0,78	0,90	0,362
	$S_{e\%}$	34,4	32,8	32,2	31,2	30,4	29,9	29,9	33,7	33,2	32,3	32,00	
France	M_{se}	1,56	1,54	1,52	1,53	1,49	1,46	1,45	1,55	1,47	1,35	1,49	0,333
	$S_{e\%}$	39,7	39,7	39,2	39,3	39,1	38,6	38,4	42,8	40,7	39,5	39,70	
Slovakia	M_{se}	0,81	0,82	0,80	0,80	0,79	0,78	0,80	0,87	0,81	0,75	0,80	0,278
	$S_{e\%}$	27,3	26,9	26,9	27,1	24,7	24,8	25,3	27,4	28,1	27,6	26,61	
Bulgaria	M_{se}	1,02	1,02	1,03	1,06	1,01	1,02	1,03	1,13	1,06	0,95	1,03	0,123
	$S_{e\%}$	22,5	24,4	23,4	21,4	21,7	21,3	20,6	23,7	24,	23,4	22,64	
Greece	M_{se}	1,81	1,71	1,70	1,68	1,59	1,47	1,46	1,59	1,35	1,14	1,55	0,045
	$S_{e\%}$	30,7	30,7	30,7	31,2	30,7	30,9	30,9	35,3	32,8	29,9	31,38	
Spain	M_{se}	1,70	1,65	1,61	1,62	1,57	1,54	1,55	1,66	1,54	1,39	1,58	0,005
	$S_{e\%}$	29,6	29,3	28,7	28,3	27,8	28,	28,7	35,6	33,3	31,3	30,06	
Malta	M_{se}	0,55	0,57	0,54	0,53	0,54	0,53	0,51	0,48	0,51	0,50	0,53	0,082
	$S_{e\%}$	25,3	24,6	23,2	22,8	21,7	21,6	21,3	25,6	24,	22,	23,21	
Available inverse relationship between the share of social expenditures and the social expenditure multiplier													
Belgium	M_{se}	0,89	0,88	0,90	0,88	0,85	0,84	0,85	0,88	0,81	0,75	0,85	-0,048
	$S_{e\%}$	35,8	35,4	34,7	34,5	34,3	34,4	34,2	39,1	36,7	35,9	35,50	
Germany	M_{se}	1,36	1,35	1,34	1,35	1,32	1,30	1,31	1,38	1,28	1,19	1,32	-0,295
	$S_{e\%}$	31,5	31,3	31,5	31,9	31,7	31,8	32,3	36,	35,2	34,4	32,76	
Italy	M_{se}	1,74	1,71	1,70	1,71	1,66	1,63	1,63	1,72	1,56	1,41	1,65	-0,035
	$S_{e\%}$	32,8	32,9	33,0	32,5	32,2	32,2	32,6	38,1	35,1	33,9	33,5	
Cyprus	M_{se}	1,16	1,08	1,04	1,00	0,94	0,94	0,93	0,89	0,83	0,78	0,96	-0,200
	$S_{e\%}$	23,8	23,0	22,5	22,1	21,2	20,6	21,5	25,8	24,7	23,8	22,9	
Latvia*	M_{se}	1,05	1,04	1,06	1,09	1,06	1,04	1,06	1,08	1,00	0,92	1,04	-0,469
	$S_{e\%}$	22,6	22,8	23,0	22,4	22,7	23,0	23,5	25,2	27,0	24,6	23,7	
Lithuania	M_{se}	0,93	0,99	1,00	1,04	0,98	0,96	0,96	1,04	0,91	0,82	0,96	-0,043
	$S_{e\%}$	23,0	22,9	23,0	22,9	22,5	23,5	24,3	28,4	26,1	24,8	24,1	
Luxembourg*	M_{se}	0,50	0,48	0,46	0,47	0,46	0,45	0,44	0,45	0,42	0,43	0,46	-0,475
	$S_{e\%}$	28,8	28,3	28,0	27,4	28,3	29,0	29,6	32,6	29,7	30,4	29,2	
Austria	M_{se}	1,14	1,14	1,14	1,15	1,12	1,10	1,10	1,15	1,07	1,00	1,11	-0,077
	$S_{e\%}$	35,4	35,5	35,5	35,3	34,8	34,4	34,5	38,3	38,2	35,9	35,8	
Poland	M_{se}	1,32	1,28	1,27	1,24	1,21	1,18	1,19	1,21	1,10	1,04	1,20	-0,374
	$S_{e\%}$	27,6	27,3	26,8	27,5	27,3	27,2	28,0	29,9	29,2	27,9	27,9	
Switzerland	M_{se}	0,99	1,06	1,08	1,04	1,04	1,03	1,03	1,02	0,99	0,95	1,02	-0,113
	$S_{e\%}$	21,9	21,7	21,9	22,1	22,0	21,5	21,8	26,1	23,7	21,7	22,4	

M_{se} – *social expenditure multiplier*

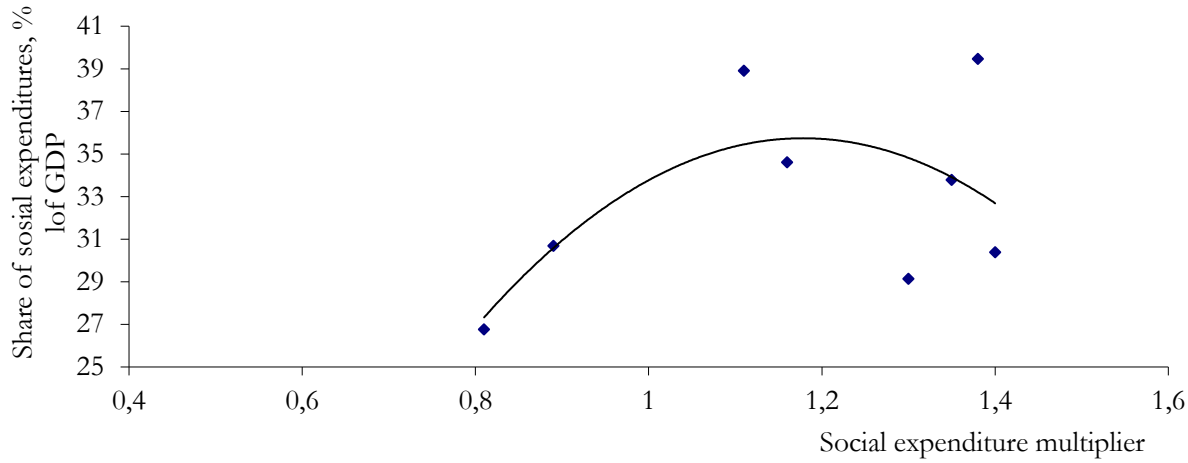
$S_{e\%}$ – *share of social expenditures, % of GDP.*

* *Corresponding values were removed when constructing the scatter diagram and trend line as statistical "outliers" that significantly deviate from the average values and may negatively affect the result*

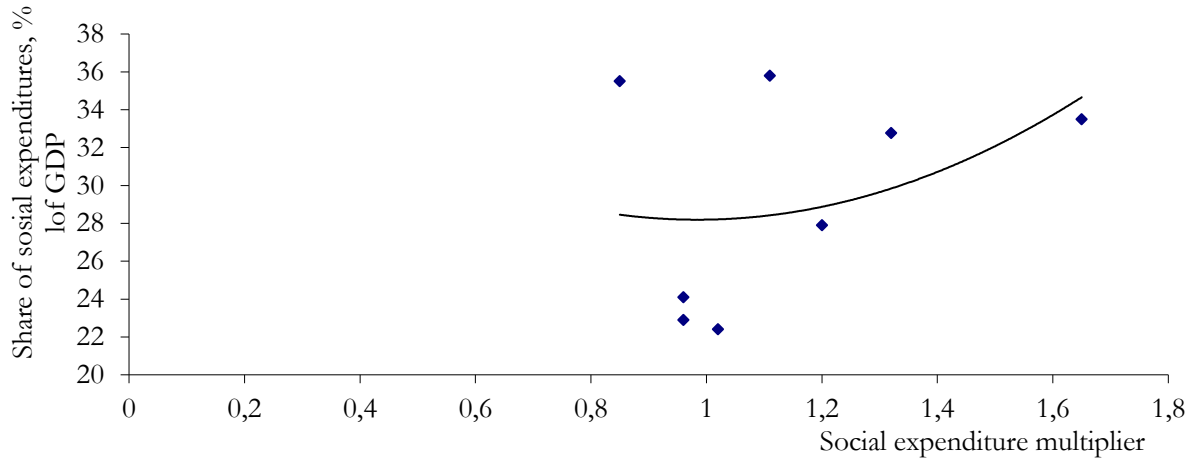
Source: *authors' calculations based on (Eurostat, 2023).*

In view of such results, the correlation analysis was supplemented with graphic studies in order to find the maximum level of return from social expenditures (*Fig. 1*).

On the basis of the average values of the social expenditure multiplier and their share in GDP for 2013-2022, a scatter diagram and a trend line were constructed, which, by approximating the corresponding points, reflects a certain regularity both for the EU countries, in which there is a direct and sufficiently close relationship between the corresponding indicators (*Fig. 1a*), and the inverse one (*Fig. 1b*).



a)



b)

Figure 1. Scatter diagram and trend line between the social expenditure multiplier and the share of social expenditures in % of GDP for EU countries, in which there is a) a direct and close relationship; b) inverse relationship between the relevant indicators.
Source: *authors' elaboration.*

Graphical analysis shows that the share of social expenditures in GDP affects the level of their multiplicative return. It is obvious that there are certain critical points at which the value of the social expenditure multiplier reaches its maximum or minimum at a certain value of the share of social expenditures in GDP (*Table 3*).

In the meantime, the change in the social expenditure multiplier can be described on the basis of two laws, which, as we suggest and using the familiar terminology, can be called: 1) the law of diminishing marginal returns of social expenditures; 2) the law of increasing marginal returns of social expenditures (*Fig. 1* and *Table 3*). The first law describes a regularity in accordance with which, when the share of social expenditures in relation to GDP increases, the

level of their multiplicative return first increases (up to a share of 30%), and then decreases (with a share of 31% and more). Meanwhile, the law of increasing marginal return of social expenditures describes a regularity according to which, as the share of relevant expenditures increases, the level of their multiplicative return first decreases, reaching a minimum at 23-24%, and then increases achieving the effective level of 28%, but not more than at a share of 34%.

Table 3. Justification of the share of social expenditures (in % of GDP), which ensures their minimum / maximum multiplicative return

Share of social expenditures in GDP, %	Social expenditure multiplier	Share of social expenditures in GDP, %	Social expenditure multiplier
for EU countries, where, between the social expenditure multiplier and the share of social expenditures in GDP, there is			
direct and close relationship (calculated on the basis of *Fig. 1a*)		inverse relationship (calculated on the basis of *Fig. 1b*)	
27	0,81	22	1,02
29	1,3	23	0,96
30	1,4 (max)	24	0,96
31	0,89	28	1,2 (min)*
34	1,35	33	1,32
35	1,16	34	1,65
39	1,11	36	0,85

* *effective minimum level after gap in effectiveness*
Source: *authors' calculations.*

So, combining these dependencies in order to define the most effective margins in both groups of countries, we could find that the maximum value of the social expenditure multiplier is provided by the share of social expenditures at the level, which is 30% of GDP on average (based on the tendency in group with direct relationship), and the minimum value is 28% of GDP (according to statistics of group with inverse relationship).

Of course, the social expenditure multiplier can take on other values, beyond the margins shown in Fig. 1 range of the share of social expenditures (22-39%). But according to the achieved dependencies in the EU, the range of shares of social expenditures in % of GDP, which will ensure the maximisation of the social expenditure multiplier can be defined from about 28 to 30% of GDP.

Discussion

Based on the above calculations, we can fully confirm hypothesis H1. As in the works of other researchers, e.g., Szymańska (2022), it was found that EU countries are very heterogeneous in terms of development trends and the influence of social content factors. There are two groups of countries: with a positive impact of social expenditures on economic development, as well as countries where negative dependencies are already observed, which may be a sign of the effect of declining efficiency as a result of the previously achieved very high level of social protection of the population due to the financing of national social programs. Today, such actions no longer give a positive economic return. For this group of countries, the conclusions obtained in the works of Kim & Ahn (2020) and Cammeraat (2020) are more typical. The conclusions obtained in other studies, in which the effect of the multiplier was

taken into account, cannot be compared with ours, since they refer to a certain group of countries in general, without division according to certain patterns (Ahuja & Pandit, 2020).

As for hypothesis H2, it is partially confirmed, namely in the group of countries with declining economic returns from social spending. As for the first group of countries, the effect of such a regularity may not be manifested in connection not so much with the share, but with the very valuable volume of expenditures per one conditional beneficiary (which, e.g., is higher in Germany than in Greece), as well as in connection with the possible dominant influence on the achievement of high GDP values of other programs focused on purely economic development – innovative, financial and credit, etc. Their influence is not the objective of testing in this study. Of course, the positive correlation between the share of social expenditures and their economic return in the countries of the first group can be explained by the action of the mechanism substantiated in the works of Keynes (1954), Samuelson (1939) and their followers. The same applies to the countries of the second group until the critical point at which the decline in the economic efficiency of social expenditures begins.

A significant difference of our study from many others in this field is the use of the total amount of social expenditures, without their detailing by areas of use – health care, education, social benefits of various types, etc. Perhaps, specifying the influence of individual programs with the calculation of their multiplicative effect, other dependencies could be obtained. But for the purposes of managing national social policy, including national budgets planning, the following approach is important: finding the optimal share of total social expenditures, and only then - their sectoral distribution.

The approach presented in this study to justify the share of social expenditures, which will ensure the maximisation of the relevant multiplier, is based on statistical analysis and reflects certain past average indicators of the EU states. Although this approach has disadvantages in the form of averaging past values, which may also change significantly due to unpredictable political and socio-economic changes. At the same time, at the level of groups of countries and in the perspective of the coming years (which, as a rule, is a sufficient range of forecasting budget expenditures even in strategic plans), such changes cannot significantly affect the dependencies of the analysed indicators, which were formed over a long period of time - decades in the analysed case. Therefore, we consider our approach not so much an alternative to expert judgments, which are often used with a similar purpose, but as an important analytical basis for justifying decisions, which can be adjusted using other methods, including expert ones.

Conclusion

Our analysis made it possible to confirm the existence of differences in the budgeting of social expenditures even in a relatively homogeneous group of countries in terms of economic development. At the same time, the changes in the shares of social expenditures in GDP and their multiplicative economic effect allowed identifying the ratio under which the optimal limit of social expenditures is their level in the range of 28-30% of GDP. Under these conditions, the maximum multiplicative economic effect is ensured both in the group of countries with declining efficiency of social expenditures, and in countries where such efficiency is increasing. In this way, it is possible to take into account the experience of countries of different groups that have very successful approaches to the construction of social policy, although they differ greatly in the nature of manifestation, absolute and relative values of social expenditures.

An important feature of our proposed approach is the possibility of determining the optimal margins of social expenditures, where the value of the multiplier is greater than 1.0,

i.e., there is a positive influence of social expenditures on the formation of GDP in the form of an increase in economic results over consumed resources. This approach, with its relative simplicity in application, allows confirming the economic importance of the government social expenditures. As we can see from the results presented, social expenditures can be not only a source of social support and budgeting of the social sphere, but a significant lever of economic development. This allows for the further development of the idea of a welfare state without conflict in the perception of the central idea – ensuring national social functions while simultaneously ensuring the economic return from the expenditures made.

An important applied issue that remains is only the correct planning of the share of such expenditures, under which the appropriate social consensus will be reached – decent conditions for social support and development, but with consequences in the form of such GDP growth, which ensures the expanded reproduction of consumed resources. It is obvious that when determining its own optimal level of social expenditures, each country must take into account the level and dynamics of its own economic development, as well as those social challenges and threats that need to be addressed. Such additional factors will allow forming a budget of social expenditures taking into account the economic logic of their influence and the need to solve current social problems.

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