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INNOVATSION TARAQQIYOT MODELIGA O‘TISH SHAROITIDA MAMLAKATLARNING BARQAROR IJTIMOIY-IQTISODIY RIVOJLANISH DARAJASINI BAHOLASH

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Annotatsiya. *Ushbu maqolada bugungi innovatsion taraqqiyot modeliga o‘tish sharoitida dunyo mamlakatlarining barqaror ijtimoiy-iqtisodiy rivojlanishini ta’minlash zamonaviy innovatsion g‘oyalar, ishlanmalar va ilmtalab texnologiyalar asosida amalga oshirishni taqozo etishini e’tiborga olgan holda, barqaror ijtimoiy-iqtisodiy rivojlanish omillarini aniqlash hamda uning Yevropa Ittifoqi mamlakatlaridagi darajasini baholash ko‘rib chiqiladi. Tadqiqotda o‘rtacha yechimdan uzoqlik (an evaluation based on distance from average solution (EDAS)) usulidan foydalanib, qaysi mamlakatlarda barqaror ijtimoiy-iqtisodiy rivojlanish darajasi yuqori va qaysi davlatlarda past ekanligi aniqlanadi hamda ushbu darajalar orqali mamlakatlar reytingi tuziladi. Shuningdek, maqolada baholash natijalariga tayangan holda, mamlakatlarning kuchli va zaif tomonlari aniqlanadi hamda kelgusida mazkur davlatlarning reytingdagi pozitsiyalarini yanada yaxshilash borasida xulosa va takliflar beriladi.*

Kalit so‘zlar: *barqarorlik, barqaror rivojlanish, ijtimoiy-iqtisodiy rivojlanish, innovatsion taraqqiyot, ilmiy tadqiqot va tajriba-konstruktorlik ishlari (ITTKI), inson kapitali va ilmiy tadqiqot faoliyati, qaror qabul qilishda ko‘p mezonlilik yondashuvi, o‘rtacha yechimdan uzoqlik.*

ОЦЕНИВАНИЕ УРОВНЯ УСТОЙЧИВОГО СОЦИАЛЬНО-ЭКОНОМИЧЕСКОГО РАЗВИТИЯ СТРАН ПРИ УСЛОВИИ ПЕРЕХОДА К ИННОВАЦИОННОЙ МОДЕЛИ РАЗВИТИЯ

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Аннотация. *В этой статье, учитывая то, что обеспечение устойчивого социально-экономического развития стран мира при условии перехода к модели инновационного развития требует реализации на основе современных инновационных идей, разработок и наукоёмких технологий, делается попытка определения факторов устойчивого социально-экономического развития и оценка их уровня в странах Европейского Союза. Используя в исследовании метод оценки отклонения от среднего решения (an evaluation based on distance from average solution (EDAS)), определяется в какой стране высокий уровень устойчивого социально-экономического развития, в какой – низкий, исходя из этих уровней составляется рейтинг стран. Также в статье, опираясь на результаты оценивания, определяются сильные и слабые стороны стран и даются заключения и рекомендации по дальнейшему улучшению позиций этих стран в рейтинге.*

Ключевые слова: *устойчивость, устойчивое развитие, социально-экономическое развитие, инновационное развитие, научно-исследовательские и опытно-конструкторские работы (НИОКР), человеческий капитал и научно-исследовательская деятельность, многокритериальный подход в принятии решения, отклонение от среднего решения.*

ASSESSMENT OF THE LEVEL OF SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT OF COUNTRIES IN THE CONDITIONS OF TRANSITION TO AN INNOVATIVE DEVELOPMENT MODEL

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Abstract. *This article discusses factors of sustainable socio-economic development and its level in the EU countries, taking into account that ensuring sustainable socio-economic development of the world in today's transition to an innovative model of development requires implementing of modern innovative ideas, developments and science-based technologies and evaluation was considered. The study uses evaluation which is based on a distance from average solution (EDAS) to determine which countries have the highest levels of sustainable socio-economic development and those having the lowest indicators, and to rank countries by these levels. The article also identifies the strengths and weaknesses of the countries based on the results of the assessment, and provides conclusions and recommendations for further improvement of the position of these countries in the ranking.*

Keywords: *sustainability, sustainable development, socioeconomic development, innovative development, research and development (R&D), human capital and research, Multi-Criteria Decision-Making (MCDM) approach, Evaluation Based on a Distance from Average Solution (EDAS).*

1. Introduction

Sustainable development is being analyzed by a large number of scientists. Many scholars study sustainable development in the context of the sustainable development goals (SDG) announced by the United Nations. The 17 announced goals cover three sustainability pillars: environmental, social, and economical [1]. However, many researchers state that the social and economic pillars should be analyzed in relationship. Hence, we examine those two pillars together to explore sustainable socioeconomic development.

Socioeconomic sustainability includes two sustainability pillars-social and economical; hence, first of all, it is crucial to understand them. Social sustainability refers to the improvement of living conditions for both current and future generations [2]. Economic sustainability could be defined as the ability of the economy to support and maintain economic growth, but at the same time, it requires that natural resources be used efficiently [3]. Hence, socioeconomic sustainability could be understood as the ability to ensure economic growth without undermining humans' interests and to meet their needs without harming nature. Also, in the context of the transition to an innovative development model, ensuring sustainable socio-economic development of the world requires the implementation of modern innovative ideas, developments and knowledge-based technologies. Of course, the key is to formulate, calculate, evaluate, analyze, and make appropriate decisions based on the new system of factors and indicators that emerge in the process.

In order to evaluate sustainable socioeconomic development, scientists use different factors. For instance, Claudia Lemke used net disposable income, the number of operating companies, the number of inhabitants with higher education, house prices, and unemployment rates [4].

Cubas-Díaz & Martínez Sedano extracted eight sustainability components as follows: activity and employment, utilization, productivity, economic welfare, efficiency, economic justice, and governmental services. They state that business and work, productivity and economic well-being are the most essential and significant components for economic sustainability compared with the eight elements listed above [5]. Waas, Hugé, Block, Wright, Benitez-Capistros & Verbruggen evaluated the effect of public R&D on private companies in context of socioeconomic sustainability. Performance indicators, such as value-added, sales, or productivity, reflect the competitiveness of companies and their socioeconomic sustainability. For this reason, they used the following indicators in the research: value-added, patents, and value-added per labour cost. According to scholars, one of the main engines of economic growth is R&D, and a higher amount of R&D means more innovations, which leads to higher competitiveness and sustainable economic growth [6].

Nadine Madanchi, Sebastian Thiede, Manbir Sohdi, Christoph Herrmann analyzed socioeconomic sustainability in a broader context based on the method of the Composite Sustainable Development Index. They used the Location Index (LI), the Hoover Coefficient of Concentration (CC), and the Sustainability subindex. The Location Index (LI) consists of two variables: national and regional employment, and national and regional population. The Hoover Coefficient of Concentration (CC) consists of six indicators: sectoral employment, national and regional employment, value-added costs, production value, and gross operating surplus. The sustainability subindex includes total profit, value-added factors cost, gross operating surplus, production value and sales revenue, an average monthly wage, average monthly employees and R&D. According to scientists, it is impossible to assess sector sustainability only by the evaluation of economic data related to economic sustainability [7].

Abbas Mahravan, Brenda Vale used the Index of Sustainable Economic Welfare (ISEW) for socioeconomic sustainability research, which is a complementary macroeconomic measure to describe the performance of the country realistically. The Index of Sustainable Economic Welfare is a monetary measure of sustainability and economic welfare that aims to overcome some of the limitations of the Gross Domestic Product (GDP). They use 20 different variables in the research. From the point of view of socioeconomic sustainability, they use personal consumption expenditures and net capital growth. According to the scientists, personal consumption and expenditure directly affect the economic welfare in a country, while net capital growth estimates the amount of annual capital that must be maintained over time to ensure socioeconomic sustainability [8].

Hakan Kalkavan and Serkan Eti as well as previous scientists, analyzed the Index of Sustainable Economic Welfare. The authors used eight variables. From a socioeconomic perspective, the authors used the adjusted personal consumption of durables, education expenditures, and net capital growth. They also adjusted personal consumption of durables by multiplying by the Gini coefficient and poverty index. Education expenditures include wages and salaries and exclude capital investment in buildings and equipment, while net capital growth represents the fixed capital accumulation [9].

Peter A. Wilderer, Martin Grambow, Michael Molls, Konrad Oexle pinpointed both qualitative and quantitative factors influencing sustainability. From the

socioeconomic sustainability perspective, they identified five leading indicators: land ownership, living conditions, food insecurity, personal wealth, and subjective change in wealth. According to scientists, direct economic benefits include land value increase, and indirect economic benefits include employment and local business vitality. All these factors have an impact on socioeconomic sustainability. Economic issues such as poverty and land scarcity are the primary factors that influence socioeconomic sustainability [10].

Bolcárová and Kološta distinguished five diagnostic variables proposed by Eurostat relating to socioeconomic sustainability. Diagnostic variables used for the assessment of socioeconomic sustainability are GDP per capita, which measures socioeconomic development, resource productivity, which measures sustainable production and consumption, people at risk of poverty or social exclusion, the unemployment rate of workers aged 55–65, and healthy life years and life expectancy [11]. Costanza, Daly, Fioramonti, Giovannini, Kubiszewski, Fogh Mortensen distinguished three elements of socioeconomic sustainability: social wellbeing, economic resilience, and good governance. The economic resilience element consists of profitability, the stability of production, the stability of supply, the stability of the market, risk management, private investment, and value creation [12].

To sum up, the assessment of socioeconomic development relies on both social and economic factors. So, on the basis of the above-analyzed scientific research, 13 factors (Table 1) were selected to assess the level of sustainable socio-economic development of the countries in our current study based on 14 indicators, and these indicators were divided into 2 groups (Figure 1).

SOCIAL DEVELOPMENT (SD)	
SD1:	Total general government expenditures on education (% of GDP)
SD2:	Population with tertiary education, 25–34 years old (% in the same age group)
SD3:	Intramural R&D expenditure (GERD) by sectors of performance and fields of science (EUR per inhabitant)
SD4:	Corruption Perception Index
SD5:	People at risk of poverty or social exclusion (%)

ECONOMIC DEVELOPMENT (ED)	
ED1:	Patent application to the European Patent Office (EPO) (thousand)
ED2:	GDP per capita (thousand EUR)
ED3:	Unemployment rate (% of active population)
ED4:	Adjusted gross disposable income of households per capita (thousand EUR)
ED5:	General government gross debt (% of GDP)
ED6:	Average wage per hour (EUR)
ED7:	Final consumption expenditure(% of GDP)
ED8:	Manufacturing gross value added (% of GDP)
ED9:	House price index (%)

***Source**: developed by author.*

Figure 1. Classification of the level of assessment indicators of sustainable socio-economic development of countries.

Table 1

Factors and indicators used in assessing the sustainable socio-economic development of countries.

№	Factors	Indicators (Factor Measurement)	Websites of Available statistics on indicators
1	**Education**	Total general government expenditures on education (% of GDP)	https://data.oecd.org/gga/general-government-spending.htm
		Population with tertiary education, 25–34 years old (% in the same age group)	https://data.oecd.org/eduatt/population-with-tertiary-education.htm
2	**Innovation and technology**	Patent application to the European Patent Office (EPO) (thousand)	https://www.epo.org/about-us/annual-reports-statistics/annual-report.html
3	**Economic performance and living standards**	GDP per capita (thousand EUR)	https://data.worldbank.org/indicator/NY.GDP.PCAP.CD
4	**Unemployment**	Unemployment rate (% of active population)	https://ec.europa.eu/eurostat/statistics-explained/index.php/Unemployment_statistics_and_beyond
5	**Disposable income**	Adjusted gross disposable income of households per capita (thousand EUR)	https://ec.europa.eu/eurostat/databrowser/view/sdg_10_20/default/table?lang=en
6	**Research and Development (R&D)**	Intramural R&D expenditure (GERD) by sectors of performance and fields of science (EUR per inhabitant)	http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=rd_e_gerdsc&lang=en
7	**General government gross Debt**	General government gross debt (% of GDP)	https://data.oecd.org/gga/general-government-debt.htm
8	**Cost of labour force**	Average wage per hour (EUR)	https://data.oecd.org/earnwage/average-wages.htm
9	**Government services**	Corruption Perception Index	https://www.transparency.org/en/
10	**Consumption**	Final consumption expenditure (% of GDP)	https://ec.europa.eu/eurostat/en/web/main/data/database
11	**Value added**	Manufacturing gross value added (% of GDP)	https://ec.europa.eu/eurostat/en/web/main/data/database
12	**House price index**	House price index (%)	https://ec.europa.eu/eurostat/en/web/main/data/database
13	**Poverty rate**	People at risk of poverty or social exclusion (%)	https://ec.europa.eu/eurostat/en/web/main/data/database

Source: *developed by author.*

2. Methodology

The methodology aggregates the joint performance of the country by ranking, assuming that a country with better sustainable socioeconomic development should be close to the top rank and far from the worst. Conversely, a country with the lowest sustainable socioeconomic development should be close to the lowest position and distant from the highest one.

Due to the research limitation (a lack of statistical information), not all European Union countries are included in the research. Countries involved in the study are Belgium, the Czech Republic, Denmark, Germany, Estonia, Spain, Italy, Latvia, Lithuania, Luxembourg, Hungary, the Netherlands, Austria, Poland, Portugal, Slovenia, the Slovak Republic, Finland, Sweden, and the United Kingdom. The present study uses

data that cover 2017–2019. The data were collected from the World Bank, Eurostat, OECD, and Transparency International Organization databases.

Multi-Criteria Decision-Making (MCDM) approach. MCDM refers to choosing the best alternative from among a finite set of decision alternatives. The MCDM method is characterized by the ability to handle multiple and conflicting data, as well as the ability to integrate values and perceptions, identify risks, and process vast amounts of information. MCDM can involve both quantitative and qualitative factors [13]. This method is based on the assumption that a country that has better sustainable economic development is closer to the best scores on indexes and far from the worst ratings and vice versa. The MCDM approach is based on the distance to two reference points—one is desirable, while the other is undesirable [14].

From this point of view, decision-making and in particular MCDM – multi-criteria decision-making – is a field that seems to be very good to choose the best of a discrete set of alternatives and to apply mechanism design for sustainability. Unlike usual methods of optimization that assume availability of measurements, the MCDM measurements are assumed to be derived or interpreted subjectively as indicators of preference and of the strength of preference [15]. MCDA consists of three application stages: decision context and structuring, analysis, and decision. In the first stage, it is necessary to determine goals, identify criteria and alternatives, and select the MCDA technique [16].

Assessment of counties was implemented using the Evaluation Based on Distance from Average Solution (EDAS) method . The EDAS method is based on the average solution for appraising of alternatives. Because of that, EDAS is very useful when there are some different criteria [17]. The Evaluation based on Distance from Average Solution (EDAS) method was introduced by Keshavarz Ghorabaee, Zavadskas, Olfat, and Turskis in 2015 [18–21]. The motivation for selecting the EDAS method as a tool for the current research is that the obtained results are based on the average solution that represents normalized data that significantly limit the chances of deviation from the best solution; this allows this technique to generate more accurate solutions in solving real-life problems. The steps for using the EDAS method are presented as follows [22]:

Step 1: Select the most important criteria that describe alternatives. Suppose that we have *n* alternatives and *m* criteria.

Step 2: Construct the decision-making matrix (*X*), shown as follows:

$$X = [X_{ij}]_{n\times m} = \begin{bmatrix} X_{11} & X_{12} & \cdots & X_{1m} \\ X_{21} & X_{22} & \cdots & X_{2m} \\ \vdots & \vdots & \vdots & \vdots \\ X_{n1} & X_{n2} & \cdots & X_{nm} \end{bmatrix}, \quad (1)$$

where X_{ij} – denotes the performance value of i – th alternative on j – the criterion.

Step 3: Determine the average solution according to all criteria, shown as follows:

$$AV = [AV_j]_{1\times m'} \quad (2)$$

where,

$$AV_j = \sum_{i=1}^{n} X_{ij}/n \quad (3)$$

Step 4: Calculate the positive distance from average (*PDA*) and the negative distance from average (*NDA*) matrixes according to the type of criteria (benefit and cost), shown as follows:

$$PDA = [PDA_{ij}]_{n\times m'} \quad (4)$$

$$NDA = [PDA_{ij}]_{n\times m'} \quad (5)$$

of ij – th criterion is beneficial,

$$PDA_{ij} = \frac{\max(0,(X_{ij} - AV_j))}{AV_j}, \quad (6)$$

$$NDA_{ij} = \frac{\max(0,(AV_j - X_{ij}))}{AV_j}, \quad (7)$$

and j – th criterion is non-beneficial,

$$PDA_{ij} = \frac{\max(0,(AV_j - X_{ij}))}{AV_j}, \quad (8)$$

$$NDA_{ij} = \frac{\max\ (0,(X_{ij} - AV_j))}{AV_j}\ , \qquad (9)$$

where PDA_{ij} – and NDA_{ij} – denote the positive and negative distance of i – th alternative from average solution in terms of j – th criterion, respectively.

Step 5: Determine the weighted sum of *PDA* and *NDA* for all alternatives, shown as follows:

$$SP_i = \sum_{j=1}^{m} w_j * PDA_{ij}\ ; \qquad (10)$$

$$SN_i = \sum_{j=1}^{m} w_j * NDA_{ij}\ , \qquad (11)$$

where w_j is the weight of j – th criterion.

Step 6: Normalize the values of *SP* and *SN* for all alternatives, shown as follows:

$$NSP_i = \frac{SP_i}{max_i\ (SP_i)}; \qquad (12)$$

$$NSN_i = 1 - \frac{SN_i}{max_i\ (SN_i)}; \qquad (13)$$

Step 7: Calculate the appraisal score (*AS*) for all alternatives, shown as follows:

$$AS_i = \frac{1}{2} * (NSP_i + NSN_i)\ , \qquad (10)$$

where $0 \le AS_i \le 1$.

Step 8: Rank the alternatives according to decreasing values of appraisal score (*AS*). The alternative with the highest *AS* is the best choice among the candidate alternatives. We can classify the alternatives according to this ranking.

3. Results

By using the EDAS method, the appraisal score (*AS*) of the level of sustainable socio-economic development of countries in 2017-2019 were calculated. According to the analysis of the calculations, Germany, Sweden, Denmark, the Netherlands and Luxembourg were the clear leaders. Austria, Finland, Belgium, the United Kingdom and the Czech Republic can be recognized as the top ten countries in this ranking in 2017–2019 (Table 2). Slovenia, Estonia, Poland, Italy and Liechtenstein also maintained their positions in the rankings. In addition, Slovakia, Hungary, Spain, Portugal and Latvia have been in the bottom of the rankings for three years.

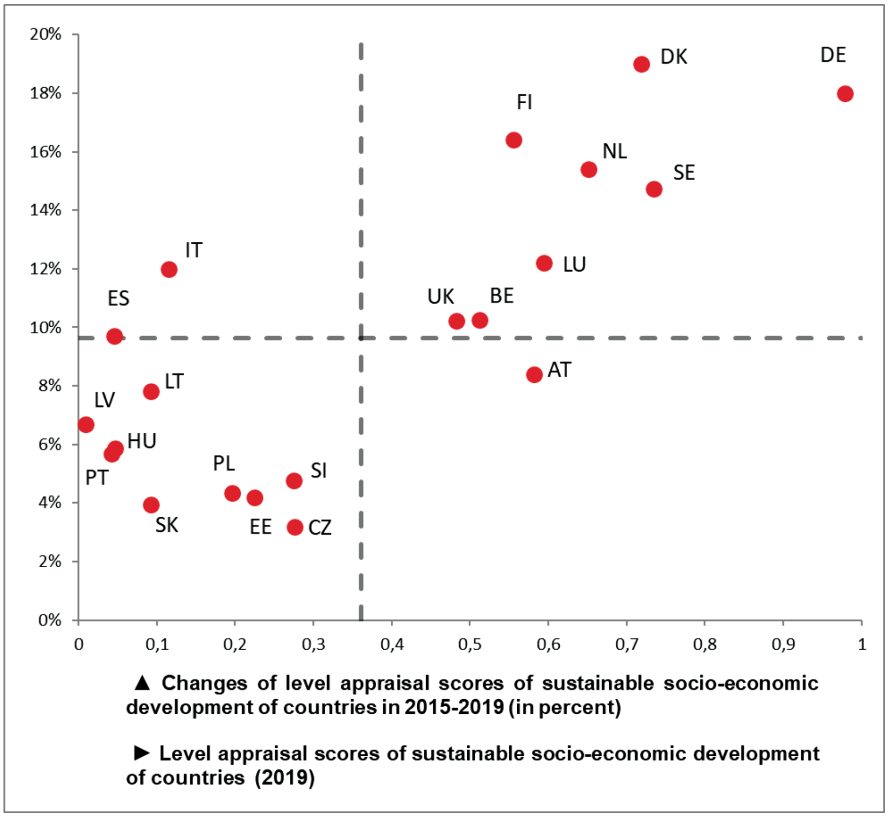
Table 2

Appraisal scores and ratings of the level of sustainable socio-economic development across countries (2017–2019)

Country	2017		2018		2019	
	AS_i	Rank	AS_i	Rank	AS_i	Rank
Austria	0,577	6	0,580	6	0,582	6
Belgium	0,487	9	0,499	8	0,512	8
Czech Republic	0,282	10	0,279	10	0,276	10
Denmark	0,657	3	0,687	3	0,718	3
Estonia	0,23	12	0,228	12	0,225	12
Finland	0,529	7	0,542	7	0,555	7
Germany	0,952	1	0,965	1	0,979	1
Hungary	0,076	17	0,060	17	0,047	17
Italy	0,173	14	0,141	14	0,115	14
Latvia	0,024	19	0,015	20	0,009	20
Lithuania	0,12	15	0,105	15	0,092	15
Luxembourg	0,577	5	0,585	5	0,594	5
Netherlands	0,605	4	0,627	4	0,651	4
Poland	0,196	13	0,196	13	0,196	13
Portugal	0,01	20	0,020	19	0,042	19
Slovak Republic	0,115	16	0,103	16	0,092	16
Slovenia	0,275	11	0,275	11	0,275	11
Spain	0,064	18	0,054	18	0,046	18
Sweden	0,692	2	0,713	2	0,735	2
United Kingdom	0,499	8	0,491	9	0,483	9

Source: *calculated by the author.*

The analysis of the dynamics of *AS* change in the EU countries in 2015–2019 shows that for the countries in Figure 2, the average *AS* growth in 2019 was 0.361, and the *AS* growth in the last five years was 9.64%. At the same time, the most significant growth during this period was in Denmark (ie, the growth of *AS* was 19.01%), followed by Germany (18%), Finland (16.4%), the Netherlands (15.4%) and Sweden. (14.75%). These countries also reported slightly higher than the 2019 *AS* average (0.357, 0.618, 0.194, 0.29, and 0.374, respectively) (Figure 2). While Austria is in the top ten in the rankings, it has been observed that *AS* has been slightly below average growth rates over the past five years. It can also be seen that the rate of change in *AS* in Spain and Italy in 2015–2019 is slightly higher than the average of the EU countries, but lags far behind in the overall ranking. In addition, in most countries where *AS* is below the EU average, the growth rate of *AS* has been much lower in the last five years. This is particularly the case in the Czech Republic, Slovakia, Estonia, Poland and Slovenia, where the *AS* growth rates were 3.2%, 3.95%, 4.2%, 4.34% and 4.76%, respectively.



Source: *author's development based on dates of the https://ec.europa.eu/eurostat/en/web/main/data/database and https://stats.oecd.org/ websites*

Figure 2 *. Dynamics of changes in the appraisal scores of sustainable socio-economic development of the EU countries in 2015-2019.

* **Note**: The names of the countries in the picture are abbreviated according to ISO 3166-2 of the International Organization for Standardization (ISO) and the full names of the countries are given below:

AT (Austria), **BE** (Belgium), **CZ** (Czech Republic), **DK** (Denmark), **EE** (Estonia), **FI** (Finland), **DE** (Germany), **HU** (Hungary), **IT** (Italy), **LV** (Latvia), **LT** (Lithuania**), LU** (Luxembourg), **NL** (Netherlands), **PL** (Poland), **PT** (Portugal), **SK** (Slovak Republic), **SI** (Slovenia), **ES** (Spain), **SE** (Sweden), **UK** (United Kingdom)**.**

4. Discussion

The study is aimed at assessing the sustainable socioeconomic development of the EU countries. For that purpose, socioeconomic development was defined as the ability to ensure economic growth without undermining humans' interests and to meet their needs without harming nature. To evaluate the level of socioeconomic development, the following factors were distinguished from the scientific literature: education, innovation and technology, economic performance and living standards, unemployment, disposable income, R&D, cost of the labour force, government services, consumption, value-added, changes in prices, and poverty rate.

Two indicators measured education: total general government expenditures on education, and the population with tertiary education 25–34 years old. The research findings revealed that in almost all of the countries in subject, the higher the government's expenditures on education are, the more young people who graduate from higher education institutions. This could be explained by the fact that expenditure on education increases affordability of higher education. In turn, tertiary education could have a positive impact on a country's economy. Governments should take this into account while planning the budget.

Innovation and technology were measured by patent applications to the EPO. The findings revealed that this variable is one of the most powerful forces of sustainable socioeconomic development. The highest value was found for Germany, which has the highest level of socioeconomic development according to the results obtained by the EDAS technique. In fact, many studies support this outcome. It is worth noting that innovation is one of the sustainable development goals.

Traditional indicators such as GDP per capita and the unemployment rate were also employed for evaluation of sustainable socioeconomic development. The results were entirely predictable, i.e., the GDP of countries with a higher level of sustainable socioeconomic development is higher. As for the unemployment rate, it is different for each country and it is challenging to find a general trend.

Disposable income, the cost of the labour force, and consumption could be analysed together. It is worth mentioning that the countries that are more socioeconomically developed have higher levels of disposable income and a higher cost of the labour force, which seems logical. In other words, those variables are directly proportional quantities. Regarding consumption, it is noted that the figures are almost the same in all the countries (Luxembourg is an exception); hence, it can be said that expenditure on final consumption is not a variable that has a relationship with the final results. However, it is worth noting that in other countries, final consumption could play a significant role in the rankings.

The countries that are more socioeconomically developed have higher R&D expenditure. The difference between the lowest and the highest value is more than 15,000 euros per inhabitant. Based on those results, it is highly recommended that local/regional governments encourage scientists should conduct high-quality research in order to develop their research skills and potential, which, in turn, will promote the sustainable socioeconomic development of a country/region.

Government service is a variable that could not be treated as having a close link with the level of a country's sustainable socioeconomic development in the analysed countries, i.e., it cannot be claimed that the level of sustainable socioeconomic development and government debt move in the same direction. The same situation is seen with manufacturing gross value added (% of GDP), which is used for measuring a country's value-added.

The house price index and poverty rate are similar in the investigated countries; hence, these variables could be treated

as significant when assessing the level of socioeconomic development in other countries or regions.

5. Conclusions

The present article reviewed sustainable socioeconomic development. The aim of the study was to determine relating factors and evaluate the level of sustainable socioeconomic development of the EU countries from 2017 to 2019. The identified factors were assigned indicators that were used for the quantitative representation. The results obtained by the EDAS method revealed that the most sustainably socioeconomically developed country is Germany, with the least being Portugal.

Moreover, the research findings highlighted that the countries that were assigned to the lowest sustainable socioeconomic development level had the highest rates of unemployment. Hence, unemployment is the social area that should be given the most government attention. The significance of that factor was supported by the outcome that Germany, which has the highest level of sustainable socioeconomic development, had one of the lowest unemployment rates. What is more, the findings emphasized that Germany had the highest R&D expenditure, which significantly contributed to its sustainable socioeconomic development. This means that the German government paid great attention to such areas as education, scientific development, and innovation. In fact, R&D could speed up the development of other areas, such as technology, which, in turn, could create new job opportunities. In other words, there is a connection between all the sustainable socioeconomic development factors. Hence, future studies should focus on establishing the relationships between the factors and determining their strength.

The results of this study which assessed the level of sustainable socio-economic development of the EU countries in the context of the above-stated innovative development allowed us to develop the following generalized scientific conclusions and practical recommendations for sustainable development of the socio-economic system of the country:

- By the 21st century, scientific and technological progress has become a crucial economic resource for sustainable socio-economic development compared to other factors of production. Advances in science and technology has provided countries with a major competitive advantage in the global economy;
- It is necessary to radically increase the technological level of processing industry for sustainable socio-economic development of the country in the conditions of innovative development;
- Encourage allocation of budgetary funds for research and development (R&D) in order to increase the reproduction of basic knowledge and improve the quality of “human capital”;
- It is important to further improve the innovative infrastructure to ensure competitiveness of research findings, including transformation of practical developments into market products in order to increase the share of capitalized outcomes;
- The use of public-private partnership mechanism in the field of innovation - the process of practical development and improvement of innovation infrastructure should be carried out with participation of the state, whereas technological modernization should be fulfilled with wider involvement of business structures.

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