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FOCUSING ON DEVELOPMENT GAPS AND SOCIO-ECONOMIC DISPARITIES TOWARDS A SUSTAINABLE REGIONAL DEVELOPMENT. A BIBLIOMETRIC ANALYSIS

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Abstract:
The economic development is heterogenous, being not able to minimize the socio-economic disparities. In the literature, atuhtors debate about the factors that influence the evolution of these gaps and the polarization of development. The realities of EU regional gaps and Cohesion Policy offers field of manifestation for regional science and economics, in general. To this challenges, the sustainable development is another important direction to follow, impacting not only the environment, but also the society and the economy. On the way in which we relate to the sustainable development, it depends our future. This article is a bibliometric analysis of works approaching development gaps, regional development, sustainable development and socio-economic disparities. The subject of regional development gaps and sustainable development is a complex one, the literature including various points of view and geographical diverse studies from all over the world. The analysis based on Web of Science data reveals a highly increased number of works published in the latest decades, as well as highly cited works. We show the main thematics and we present the most cited works. The approaches are not only diverse, but also interdisciplinary, covering a wide range of subjects, which is a cantitative and qualitative progress for the field.

Key words: bibliometric analysis, development gaps, socio-economic disparities, regional development, sustainable development.

JEL classification: A14, C80, Q01, R10

1. INTRODUCTION

The historical data show that the economic development is heterogenous and the progresses often come together with major gaps among different areas. This thematic is being approached by the researchers which focus on the causes, reveal the effects and draw solutions. In the present times socio-economic disparities are still recorded, despite the unprecedented economic development and technological progresses from the latest decades. We also face other challenges, those of sustainability, this is why the development must be sustainable.

The aim of this work is to analyze the literature focusing on four key words: development gap(s), socio-economic disparities, regional development and sustainable development. The first part is a general overview of literature, starting with the heterogenous development towards sustainable development, while the second part focuses on a bibliometric research using the data from Web of Science database and containing the works published in the period 1975-2025.

2. THEORETICAL BACKGROUND

Market mechanisms and the grow potential influence the spatial disparities, but, for the development of the poor regions, there have been created methods such as models and projects based on concepts of exogenous, endogenous and neo-endogenous development (Dudek & Wrzochalska, 2017). The divergence of global economic competitiveness can be determined by many factors, the most important being: different historical legacies, economic policies and institutional structures (Manic, 2016). The development gaps cannot be decreased by the market forces, these rather being involved in leading to polarization and divergence (Iancu, 2007). This kind of polarization can be found all over the world, even in some developped countries and continents. Analysing disparity

indices in the EU, Kostadinovic et al. (2025, p.539) find increasing polarization and regional gaps, nevertheless, according to convergence measures, underdeveloped regions seem to catch up on average.

The theory of endogenous regional growth supports the opinion of Nijkamp et al. (2023), that socio-economic well-being can be determined, in some proportion, by people, through creative knowledge, new technology, entrepreneurship, ecological attitudes or social and cultural capital. Moreover, these authors highlight that interconnections of the "region-people-knowledge triangle" bring challenges for regional science, and state that this triangle is important in the process of sustainable development at different levels of the spatial economy. The analysis of the challenges of social polarization finds field of manifestation in the frame of fundamental economics, here alternative theories on innovation, elements from political science on increasing the quality of governance and from the field of environmental sustainability can also add value (Hansen, 2022).

A lot of studies focus on the issue of regional socio-economic development gaps in the European Union. There has been registered a faster increase of the EU regions with an initially low level of social welfare, compared to the ones with high levels, which does not surely mean that the social welfare gap will disappear (Rodríguez-Pose & Tselios, 2013, p.50). In the opinion of Nahtigal (2022, p.1186), complex development strategies for stagnant European regions should include "institutional innovations, regulatory reforms and policy space, and more policy instruments". Various solutions have been elaborated and some of the results have been revealed in diverse analyses and studies, new proposals being made. In order to increase the impact of EU funds, Czudec et al. (2019, p.466) propose changes in the structure of using them, such as higher amount allocated on entrepreneurship and creation of jobs. Kostadinovic et al. (2025, p.539) underline that same policy instruments can produce different effects from region to region and in the evaluation of convergence trajectories, policymakers should also consider, besides GDP, education levels, investment flows, and human capital dynamics.

The latest decades witnessed never seen before economic development and technological progress, which, besides prosperity, also brought unwanted externalities, some with signifiant impact, such as those related to the environment. Under these circumstances, the concept of sustainable development emerged, new policies, programs and development strategies taking more and more into account its principles.

According to the World Commission on Environment and Development, *Sustainable development* responds to current generations needs without destroying the chances of future generations to meet their own needs. Thus, development can lead to prosperity, on condition that it regenerates resources and protects the environment (World Commission on Environment and Development, 1987, p.43). The generic model of sustainable development has three independent elements, that have some interdependence: environment, society and economy (Hopwood, 2005). The UN General Assembly adopted in 2015 the United Nations 2030 Agenda for Sustainable Development, which includes economic, social and environmental targets in 17 Sustainable Development Goals, bringing a reorganization of the intersection way of issues such as poverty, education and climate change (Nilsson, 2016).

There is no general solution for societies to become resource-efficient, sustainable and prosperous, and for solving the sustainable development problems, just as there is no full knowledge about global environmental risks. Griggs et al. (2013) state that "the protection of Earth's life-support system and poverty reduction must be the twin priorities for the Sustainable Development Goals", and according to the results of an increasing number of researches, only a stable functioning of the Earth's ecosystems can assure the existence of a prosper global society.

The attention for environmental sustainability in less developed nations is lower than in advanced and stable ones, as Udo and Jannson (2009) observe, so that simultaneous social sustainability and technological sustainability could bring long-term environmental sustainability. Sustainable development is also supported by cross-border co-operation, and Okroznik et al. (2024) state that it could contribute to the equilibrated dependency distribution of economic sectors, leading

to social sustainability in regions. The link between sustainable development and economic growth remains a subject of high interest.

3. BIBLIOMETRIC ANALYSIS OF LITERATURE

The thematic that we analyse is quite widely reflected in the literature. An overview and a sytnhetization of the publications in the field can be obtained through an bibliographical analysis, so we elaborated one, based on the Web of Science database. The query included the use of any two of the following four key words: *development gap(s)*, *socio-economic disparities, regional development* and *sustainable development*, and the time period considered was 1975-2025.

We focused on the occurence frequence of the key words in the works and the number of their citations, the result of the query showing 2421 results. There has been a signifiant increase of number of the works published, especially in the periods 2009-2010, 2017-2021 and 2024-2025, proving development and a growing attractivity for these fields. The number of citations showed a little slower increase until 2018, after that the progress being higher (Figure no. 1).

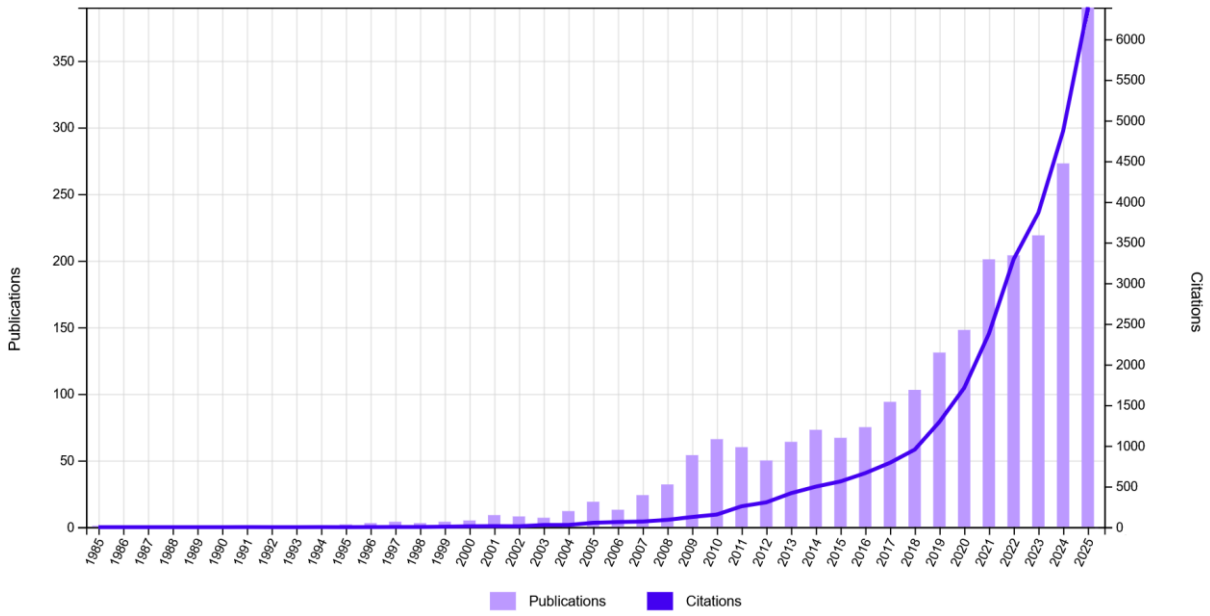

Figure no. 1. Number of articles and citations in the Web of Science database that contain at least two of the keywords *Development gap(s)*, *Socio-economic disparities, Regional development* and *Sustainable development*

Source: own elaboration based on data from Web of Science (https://www.webofscience.com)

The occurence intensity of the key words was analysed, starting from the minumum 5. We used the VOSviewer soft, finding in this way 8647 key words, from which 536 respect this criterion, and it was analysed the intensity of co-occurences determined by the number of documents in which the words appear together. As a result, one can see the the words with the higher intensity of links and also a network with various terms related with the field.

The graphical representation shows the terms and the corresponding circles in different sizes, which means the occurance frequency, and the relative link and the similitude of thematics is reflected by the distance. The most frequent appearances are those of the words: sustainable development, sustainability, innovation, economic growth, growth, model, ecosystem services, management, performance, environment, system, water. In the word cloud also appear word such as: disparities, regional economy, economic growth, cohesion policy, local development, entrepreneurship, energy efficiency, convergence, regional disparities și regional planning (Figure no. 2). There is an organization in 11 clusters each coloured distinctly, grouping similar thematics and having links with the others.

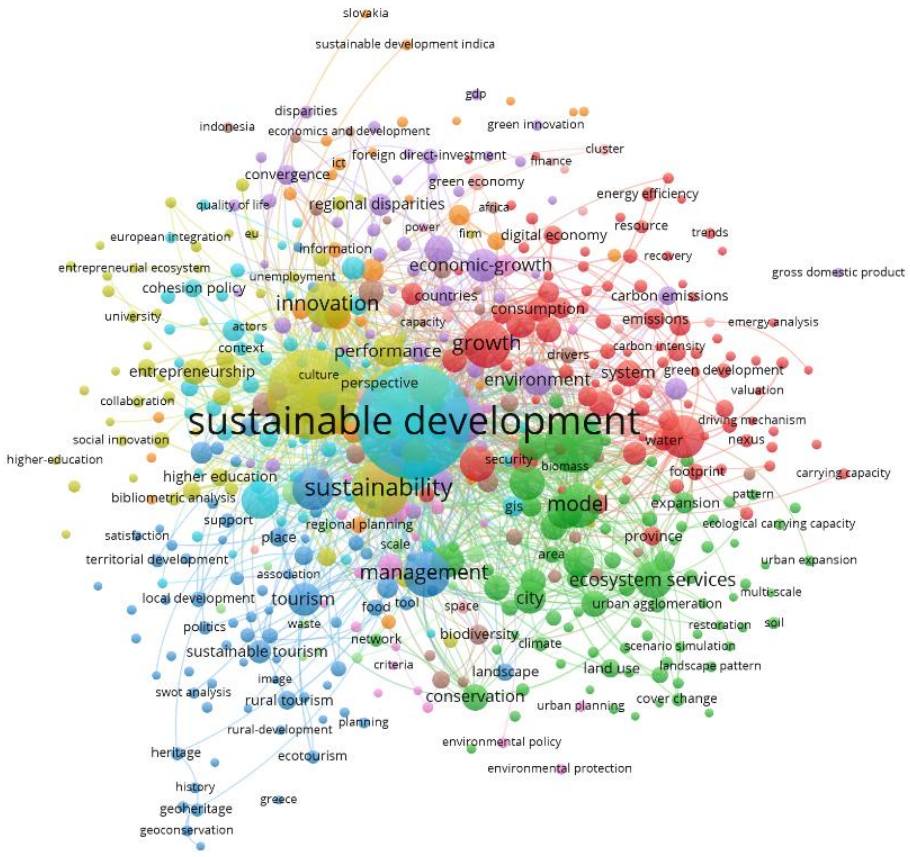

Figure no. 2. Graphical representation of the network based on the simultaneous appearance of at least two of the key words *Development gap(s)*, *Socio-economic disparities, Regional development* and *Sustainable development*

Source: own elaboration with VOSviewer based on data from Web of Science (https://www.webofscience.com)

In the words cloud, one can see the big dimension „sustainable development", meaning that it is the main concept in the frame of the analyzed field. The term „sustainability" is clearly highlighted and indicates its importance from the theoretical and practical point of view. The high frequency of the words „innovation", „economic growth" and „growth" reveals that the economic side is often taken into account when talking about sustainable development, being also a focus on linking economic growth with innovation. The terms „model", „ecosystem services", „management", „environment", „system" și „water" show the interest to ecological dimension, natural resources administration and ecosystemic services monitorization. The aspect of the words cloud reveals an interdisciplinary approach, including and linking the economic, ecologic and managerial dimensions of sustainable development.

One of the proofs of the value and international recognition of a paper is the number of citations that other researchers make. Considering that, we also analysed citations of the works in the field, starting with 1 as miminum number of citations. Thus, we found 1776 works (of the 2421), passing this threshold and there are highlighted the 1000 documents with the largest number of links. The graphical representation is showed in the Figure no. 3.

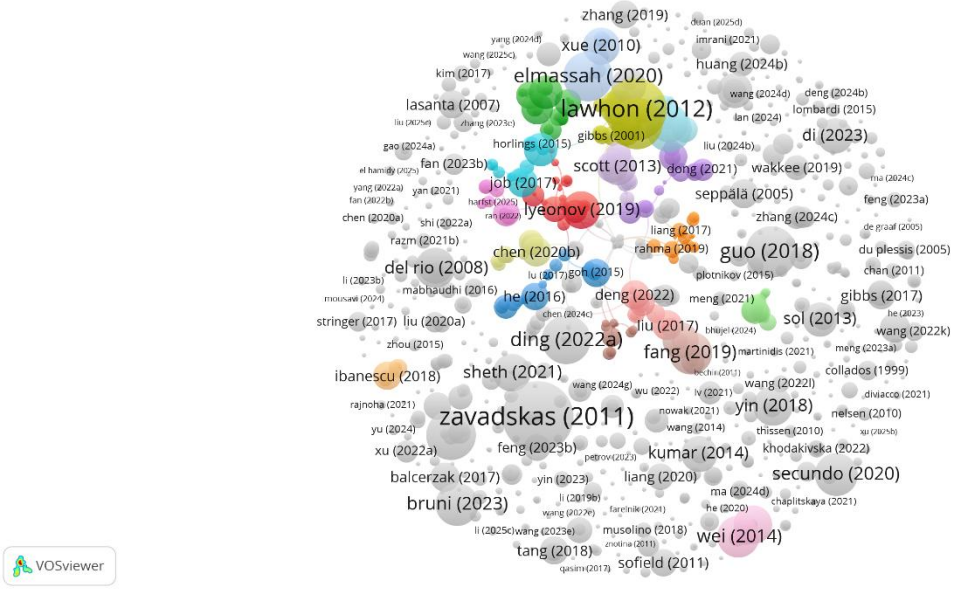

Figure no. 3. Intensity of citations

Source: own elaboration with VOSviewer based on data from Web of Science (https://www.webofscience.com)

We focused on the top 5 most cited works in the field, which are found in the Table no. 1. The thematics of these works are: decision making methods, socio-technical regime and sustenability transitions, green technology, sustainable regional development and sustainable economic development.

Table no. 1. The five most cited works in the field

No.	Publication	Average per year	Total
1.	**Multiple criteria decision making (mcdm) methods in economics: an overview** Zavadskas, EK and Turskis, Z Technological and economic development of economy, 17(2), pp.397-427, Jun 2011	36.19	575
2.	**Socio-technical regimes and sustainability transitions: Insights from political ecology** Lawhon, M and Murphy, JT Progress in human geography, 36(3), pp.354-378, Jun 2012	29.93	442
3.	**Environmental Regulation, Government R&D Funding and Green Technology Innovation: Evidence from China Provincial Data** Guo, YY; Xia, XN; (...); Zhang, DP SUSTAINABILITY, 10(4), Apr 2018	33.89	301
4.	**From sustainable development to carbon control: eco-state restructuring and the politics of urban and regional development** While, A; Jonas, AEG and Gibbs, D Transactions of the institute of british geographers, 35(1), pp.76-93, Jan 2010	17.76	301
5.	**Towards the progress of ecological restoration and economic development in China's Loess Plateau and strategy for more sustainable development** Li, YR; Zhang, XC; (...); Liu, YS Science of the total environment, 756, Feb 20 2021	48	279

Source: own elaboration based on the Web of Science data (https://www.webofscience.com)

The decision making methods are approached by Zavadskas and Turskis (2011), synthetising the most signifiant aspects from the last five years and revealing recent developments of multiple criteria decision making methods.

Lawhon and Murphy (2012) refer to the comprehending the space, time, and scalar characteristics of sustainable development of one main direction of socio-technical transition theory, „the multi-level perspective on socio-technical regime transitions".

Guo et al. (2018) focus on green technology innovation, analyzing the effects of environmental regulation and government R&D funding, and studying the role of environmental regulation in green technology innovation, the promotion of green technology through direct government funding and tax incentives, and the effects of the interaction between environmental regulation and government R&D.

Low-carbon policy developments are highlighted by While et al. (2010), with the reflection on possible implications for the regulation of economy–environment links in the urban and regional context.

Li et al. (2020) analyse the way in which an area in China registered ecological restoration and economic development, show the status of sustainable development, bringing into discussion a strategy for more sustainable area.

As we can see, the approaches are highly diverse, showing a dynamic literature and covering a wide range of subjects in a scientific world without borders.

4. CONCLUSIONS

Socio-economic disparities continue to be a problem, despite the high economic growth recorded in the latest decades. There are several factors that led to this situation and the market forces cannot erase the gaps. In spite of some progress recorded, signifiant gaps still remain. Regional science and fundamental economics can focus on the development polarization phenomenon, brigning new solutions. Beyond some good results, there are still challenges to overcome. The development is increasingly taken into account in a sustainable way. Sustainable development model has three components: evironment, socitety and economy. It all starts with the natural ecosystems, but decreasing the poverty gain more and more attention. The approach towards sustainable development depends also on the development stage, the three components of it influencing each other.

Regarding the analysis of the publications indexed in Web of Science database, we observe a a spectacular increase in the latest two decades. The main concept is „sustainable development", followed by „sustainability", which are often regarded also in the economic context. Other words frecquently used are: innovation, economic growth, growth, model, ecosystem services, management. There are also connections between economic growth and innovation. The ecological dimension is highlighted, this being linked of the economic and managerial dimensions of the sustainable development. The works from this field are cited, some of them reaching a high level and cover diverse themathics.

We remark the diversity of approahes and the interdisciplinarity, covering various thematics and from different geographical spaces, fact that leds to progresses in this field of science.

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