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Review article
UDK 332.142.2:338.2
DOI: <https://doi.org/10.25234/pv/24839>
Paper received on 9 January 2023
Paper accepted on 11 June 2023

BIBLIOMETRIC ANALYSIS OF LITERATURE ON REGIONAL DEVELOPMENT AND THE CENTER-PERIPHERY MODEL IN EUROPE****

Summary: *This paper investigates the effect of spatial divisions and their demarcations on the formation of networks and the inadequacies of specific policy implementations in mitigating marginalization processes. Despite the controversies surrounding numerous theoretical premises, the center-periphery model remains widely accepted. Implications of these ideas by synthesizing critical findings from a vast array of prior literature using a comprehensive bibliometric analysis have been clarified. Innovation and a readjustment of regional policy are required to address the disparities between the center and the periphery. Regional development policies of the European Union aim to reconcile the socioeconomic chasm between prosperous and peripheral regions. The localization theory of regional development provides insights into the spatial distribution of firms, the dispersion of economic prosperity, and the potential for future growth. These insights provide valuable perspectives on regional policies and the factors that influence the geographical distribution of economic activity.*

Keywords: *Center-periphery, regions, regional disparities, regional policy, bibliometric analysis*

1. INTRODUCTION

Relations between places are essential subjects for geographers, economists, and scholars concerned with territorial questions. These relationships operate mainly within the conceptual framework of the center-periphery approach. Since the 1970s, this seems to be a hegemonic

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**** We thank two anonymous reviewers for the useful comments and suggestions.

approach, the only helpful perspective to analyze relations between and within territories. This approach makes that distributions, and policies are proposed at different levels. Significant national and international institutions often use this approach in plans and economic policy documents. As a result, there has been considerable interest in the center-periphery model in current regional economics and policy literature as a dominant paradigm for understanding relationships between territories. However, there is a research gap in understanding the limitations of this approach and developing alternative models for analyzing spatial and geographical economic issues. Additionally, existing research primarily applies to a one-size-fits-all model to all regions without considering the specific characteristics of each region, country, or place.

Despite the broad policies and tactics discussed above, a reoccurring issue in the literature on regional development deserves special attention. This broad criticism is leveled at the 'one-size-fits-all' concept, which appears to have gained support in the literature.¹ A 'one-size-fits-all' approach comprises imposing uniform policies across all locations, regardless of their specific settings, economic systems, societal makeup, or demands. The model is frequently criticized for the implicit notion that what works in one area may be unilaterally effective in another.² However, growing regional discrepancies within the EU, particularly in the periphery, call this assumption into question. It emphasizes the importance of a context-specific approach that is tailored to area needs and circumstances.³ Examining regional differences across the EU reveals a pressing need to reassess this strategy.⁴

A growing body of research shows the benefit of examining non-economic factors such as social capital, trust, and reciprocity based on familiarity and face-to-face exchange to address these gaps.⁵ As well as providing a better understanding of regional spatial links, natural endowment, ecology, and economic processes, some scholars have used spatial econometric models to describe the effects of resource wealth on economic growth and to explain the heterogeneity of natural endowment, ecology, and economic processes. New models for predicting regional economic growth have been developed, including the Geographic and Regional Models and the Macroeconomic, Industry, Social, and Territorial Models⁶. This study aims to analyze the scientific literature on regional development and the center-periphery model in Europe using bibliometric methods. As part of the analysis, we will identify the limitations of the existing center-periphery paradigm, explore alternative models for understanding spatial and geographical economic issues, and examine how regional approaches and policies contribute

- 1 Fabrizio Barca, Philip McCann, Andrés Rodríguez-Pose, 'The case for regional development intervention: place-based versus place-neutral approaches' (2012) *Journal of regional science*, 52(1), 134-152. <<https://doi.org/10.1111/j.1467-9787.2011.00756.x>>.
- 2 Philip McCann, Raquel Ortega-Argilés, 'Smart specialization, regional growth and applications to European Union cohesion policy' (2015) *Regional studies*, 49(8), 1291-1302 <<https://doi.org/10.1080/00343404.2013.799769>>.
- 3 Andrés Rodríguez-Pose, 'The revenge of the places that don't matter (and what to do about it)' (2018) *Cambridge journal of regions, economy and society*, 11(1), 189-209. <<https://doi.org/10.1093/cjres/rsx024>>.
- 4 Mark Thissen, Thomas de Graaff, Frank van Oort, 'Competitive network positions in trade and structural economic growth: A geographically weighted regression analysis for European regions' (2016) *Papers in Regional Science*, 95(1), 159-180. <[10.1111/pirs.12224](https://doi.org/10.1111/pirs.12224)>.
- 5 Costis Hadjimichalis, 'Non-economic factors in economic geography and in 'new regionalism': a sympathetic critique', (2006) 30(3) *International Journal of Urban and Regional Research*, 690-704.
- 6 See Anna Shkuropat and V. M. Stepanov, 'Methodological approaches for inclusion of factors of a "green economy" into medium term forecasting models for regional development' (2019) 21(4-73) *Economic innovations*, 199-210; Sebastian Schulz, 'Ambitious or ambiguous? The implications of smart specialisation for core-periphery relations in Estonia and Slovakia' (2020) 9(4) *TalTech Journal of European Studies*, 49-71.

to equitable development across European regions. More specifically, the research project will analyze the limits of the center-periphery approach starting from current policies and propose a different approach to spatial and geographic economic issues. In this respect, a comprehensive review of the scientific literature on regional development and the center-periphery model will be conducted in Europe through bibliometric analysis. Since bibliometric analysis can systematically and quantitatively analyze large volumes of scholarly publications, it is appropriate to review the literature on this topic. This bibliometric analysis study will identify key trends, topics, and research gaps related to regional development and the center-periphery model.

As part of the initial phase of our study, we discuss regional development discourses and the center-periphery model in Europe. Then, using bibliometric techniques, we investigate the diversity of perspectives and sensitivities associated with these research topics (center-periphery analysis in Europe and related policies and interventions). This analysis generates results targeted and instrumental to the project's goals.

The primary objective of this research portion is to examine the relationship between sensitivities to particular topics and their spatial and temporal dimensions. By analyzing keywords in academic journals, we can determine some patterns of dissemination of specific concepts during different periods and their association with specific characteristics. Over the past several decades, the findings will be used to qualitatively assess the evolution of the debate on regional development and the center-periphery model. Our primary focus will shift upon completing this analysis to the role of the center-periphery debate, enabling us to identify and propose an approach that transcends the limitations of this conventional model.

This section's primary objective is to determine how specific topics acquire or lose significance over time and context. This will be accomplished by analyzing the utilization of keywords in academic journals. Thus, patterns in the geographical and temporal distribution of these topics can be identified. Using data collected over several decades, we will investigate the evolution of discussions regarding regional development and the center-periphery paradigm. This model examines the differences between central 'core' and peripheral 'peripheral' areas to benefit those unfamiliar with the terms. After analyzing the development of these discussions, we will examine the role of these concepts in the center-periphery debate. Here the scope is to propose an innovative way of thinking that goes beyond the conventional model.

Our research concludes that the European Union's (EU) policies are a notable example of this innovative methodology's practical implementation and advocacy. Consider adopting more sophisticated policies better adapted to revitalize central and peripheral regions and their respective resource endowments. Fundamentally, this implies that it is essential to tailor policies to various locations' specific circumstances, optimizing resource utilization.

2. SOME CONSIDERATION OF THE CENTER-PERIPHERY APPROACH AND THE ROLE OF LITERATURE

In order to analyze the relations between places, the center-periphery approach plays a central role. Its prevalence and often uncritical application make it the most common scheme

in territorial analysis at all levels. However, given recent economic and social international relations changes, it is possible to go beyond this approach. This proposal goes beyond the center-periphery approach and relative use.⁷ Theoretically, the possibility of ordering territories is at the forefront.⁸ In front of this idea's technical and conceptual limits, the main question refers to the ethics of a territorial ranking. In the center-periphery approach, local differences are not considered specificities to be highlighted and stimulated for global growth. However, they are considered a distance from a hypothetical benchmark.⁹ In this negative perspective, the role of policy is to eliminate them through normalization and standardization. Parameterization is another typical reason some scholars propose to go beyond this approach. As with all social phenomena, "reach" is not an absolute index but the result of the parameter chosen. So, much more than the presence or absence of a particular characteristic and the value in a particular rank, the center is the area that can determine the parameters. The center is a self-defined concept that creates the relative periphery.¹⁰ Thus, to be the center, that means to have the power to impose itself as the universal, appropriate economic and social model and to extend relative hegemony to a global level. In this (long) historical period, the "occidental" model is proposed as "the" model and, classifying different approaches as periphery, has created and maintained its hegemony.¹¹ Regardless of the parameters used, pursuing a center-periphery approach is a proponent of this struggle.

Another essential limit of the center-periphery approach is the role of partitions.¹² Spatial divisions are used to varying degrees in many areas. Even when all social activities continue in space, one can find an abundance of boundaries that create separations at every scale.¹³ Although the rhetoric of borders usually suggests their role in delineating homogeneous spaces, it is possible to emphasize their performative role in creating seemingly homogeneous societies. In some cases, these borders lead to differences (e.g., different laws between countries), but often (as in the case of regional borders), they are only formal borders that cannot be associated with a definite geographical difference.

7 See more in Brandy T Cullen and Michael Pretes, 'The meaning of Marginality: Interpretations and Perceptions in Social Science' (2000) 2 *The Social Science Journal*, 215-229; and Manfred Kühn, 'Peripheralization: Theoretical Concepts Explaining Socio-Spatial Inequalities' (2015) 23(2) *European Planning Studies*, 367-378.

8 Keren Aaron and Nurit Alfasi N, 'The geographical aspect of place branding: Interactions between place brands in the spatial hierarchy' (2022) 139, *Applied Geography*.

9 Jidut Timàr, 'Differences and Inequalities: the 'double marginality' of East Central European Feminist Geography' (2007) 49 *Documents d'anàlisi geogràfica*, 73-98.

10 See more in: Daniele Paragano, 'Dall'oscurità del giorno alla visibilità della notte: homelessness e geografie della marginalità urbana nella notte contemporanea' in Luc Gwiazdzinski, Marco Maggioli and Will Straw (eds), *Nighth Studies. Regards croisés sur les nouveaux visages de la nuit* (Elya Edition, Seyssinet-Pariset, 2020); Christopher S Browning and Pertti Joenniemi, 'Contending Discourse of Marginality: The Case of Kaliningrad' (2004) 9(3) *Geopolitics*, 699-730; Silvia Aru, Maurizio Memoli and Matteo Puttilli 'The margins 'in-between'' (2017) 21(2) *City*, 151-163.

11 Gilbert Rist, *The history of development. From Western origins to global faith* (Zed Books, 2014).

12 See more in: John and others (eds), *Rethinking the region* (Routledge, 1998); Vladimir Kolosov and Kira Morachevskaya, 'The Role of an Open Border in the Development of Peripheral Border Regions: The Case of Russian-Belarusian Borderland' (2020) 37(3) *Journal of Borderlands Studies*, 1-18.

13 See more in: Ángela Iranzo and Sergi Caballero, 'The periphery at the centre: an analysis of Latin American regionalism from the borders' (2020) 24(3) *Space and Polity* 346-361; James Anderson and Liam O'Dowd, 'Borders, border regions and territoriality: Contradictory meanings, changing significance' (1999) 33(7) *Regional Studies*, 593-604.

Furthermore, these borders create peripheries. However, one side can be considered the center, periphery, or both.¹⁴ The center and periphery cannot be considered from a dichotomous perspective, but paying attention to both center and peripheral places is essential. This approach is often related to different classifications and parameters; by changing the perspective, the same area can be in the center or the periphery. However, the same situation may also be associated with a different scaling.

Some areas may be on the periphery of a central division. The polarization of city one can catalyze these resources, negatively impacting city 2. For example, the divisions fragment the continuous process, and the inequalities within the divisions do the rest.

According to the cultural approach of social sciences and post-structural approaches, narratives are instrumental in the genesis and progression of the center-periphery approach.¹⁵ Relative effects transcend concrete application and become part of a social narrative and perspective. The normalization of this approach makes it hegemonic: it is considered the best and the only possible approach to analyzing territories. At the same time, it can be used outside the original sphere and become a way to analyze all social relations. Discourses can be analyzed in terms of their performative role (in terms of the ability to create theories and ideas) and as consequences (and index) of the development of the debate. All of us who use theories and linguistic terms know our power in constructing the debate and disseminating it (often in an implicit way). Nevertheless, we (like everyone involved in similar activities) are part of society. Our approach and the narratives we create result from the same debate we help to shape, and - we must be honest - sometimes the trend of the times.

3. IMPORTANCE OF ADJUSTED REGIONAL APPROACHES AND MODELS

It is essential to understand the problems of the underdeveloped regions compared to the developed ones, or the eastern and the western development, as it is already being accepted as the standard division. Using adjusted regional approaches and models can help understand the complexities of disparities between regions, such as center-periphery dynamics and spatial heterogeneity. These approaches and models can also aid in creating effective policies for regional development, taking into account the unique characteristics of each region. Moreover, such approaches also help identify a region's potential and resources, facilitating targeted investment and boosting economic growth.

However, those divisions are artificial, just like the core and periphery. Indeed, core and periphery have existed since the early days of the European Union, when different countries could be considered simultaneously as centers or peripheries. As cited by Friedman:¹⁶ “*Europe’s*

14 Silvia Aru, Maurizio Memoli and Matteo Puttilli, “The margins ‘in-between’” (2017) 21(2) *City*, 151–163.

15 Eli Avraham and Anat First, “Media, power and space: ways of constructing the periphery as the ‘other’” (2006) 7(1) *Social & Cultural Geography*, 71.–86.

16 George Friedman, “Notes from Europe’s Periphery, Geopolitical Futures” (2017) <<https://geopoliticalfutures.com/notes-europes-periphery/>>.

core since the late 19th century has been Germany, France, Belgium and the Netherlands. In some ways, this was Charlemagne's Europe, which was the organizing core of the European Peninsula. These countries, with the addition of Italy and Luxembourg, also established the European Coal and Steel Community, which eventually evolved into the European Union. Together they account for a substantial proportion of Europe's wealth. Europe's periphery consists of the countries and regions that surround this core: Scandinavia, the British Isles, Iberia, the Balkans and what used to be called Eastern Europe. A strong argument can be made that Italy also should be considered part of the periphery. Italy had been the centre of a great Mediterranean empire in the distant past, but it was never part of the Europe that Charlemagne created." From more contemporary perspectives, f. i. Cajas Guijarro and Perez-Oviedo emphasize that the capitalist economy consists of center-periphery structures, with higher structural power in major countries than in the periphery.¹⁷ The same opinion is confirmed by Klimczuk-Kochańska and Klimczuk's note: "The level of development shows a negative correlation with distance from the core."¹⁸ There is an economic divergence between the EU core and its southern and eastern periphery and its relationship to the emerging political divergence within the EU.¹⁹ At the same time, Bin Zubair, Javed, and Naeem provide insight into the globalization effects of Western countries and the failure of political-cultural globalization. Therefore, it is visible that collaboration would be a good solution instead of the continuous creation of a "new center-periphery".²⁰ Moreover, one of the most common mistakes in the least developed areas of the East-West division, or even within the national division of center and periphery, is using a single model for all without considering the specifics of a place, region, or country. However, as Rodriguez-Pose and Ketterer point out, a few things are essential when it comes to the government's ability to influence regional economic performance:²¹

1. *"The quality of government is important for the regional growth;*
2. *Relative improvements in the quality of government are a powerful driver of development;*
3. *One-size-fits-all policies for lagging regions are not necessarily the answer;*
4. *Improvements in the quality of government are critical for low-growth regions;*
5. *In low-income regions, lack of basic amenities is still the biggest obstacle to the development."*

Marošević highlights that regional Gross Domestic Product per capita (GDP per capita) disparities are widening in the EU 28 in PPS for 2017 compared to 2010. Although GDP per capita is not the most appropriate measure of development, it is still the most commonly used due to its availability. However, geographic, comparative, and competitive advantages should

17 John Cajas Guijarro and Wilson Amadeo Perez-Oviedo, 'A Center-Periphery Structures and Dependency: A Theoretical and Methodological Proposal' (2019) <https://ssrn.com/abstract=3488904>.

18 Andrzej Klimczuk and Magdalena Klimczuk-Kochańska, 'Core-Periphery Model' in Scott N. Romaniuk, Manish Thapa and Péter Marton (eds), *The Palgrave Encyclopedia of Global Security Studies* (Palgrave Macmillan, Cham, 2019) 1–8. (p.1) <https://doi.org/10.1007/978-3-319-74336-3_320-1>.

19 Tanja A. Börzel and Julia Langbein, 'Core-periphery disparities in Europe: is there a link between political and economic divergence?'(2019) 42(5) *West European Politics*, 941–964. <10.1080/01402382.2018.1558534>.

20 Hassan Bin Zubair, Noveen Javed and Ahmad Naeem, 'The World Is Divided Into Center-Periphery Structures: Mohsin Hamid's Exit West Presents The Fiasco Of Western Grand Narrative Of Globalization' (2021) 58(5), 2842–2849.

21 Rodriguez-Pose A and Ketterer T, 'Institutional change and the development of lagging regions in Europe'(2020) 54(7) *Regional Studies*, Decentralization after the Great Recession, 974–986.

be considered when developing an appropriate regional policy approach.²² Most Central and Eastern European Countries (CEECs) do have the “inherited path” of the prosperous Western neighbouring countries. Usually mentioned problem is visible in a *one-fits-all policy* approach, which might not apply to less developed areas.

It should be remembered that except peripheries as areas of a national economy primarily relying on the part of a national economy next to the borders, there are examples of some national economies long distanced from Europe as a continent but being a part of an EU – called *EU & Outermost Regions*²³ which are also referred as peripheries. Besides, according to ESPON (European Observation Network for Territorial Development and Cohesion), EU, a critical issue is that inner peripheries are pretty much entirely new in the European policy arena and, therefore, not addressed in national policies and are going through heterogeneous interpretations. By the document source of ESPON, EU, Inner Peripheries - national territories face difficulties in obtaining essential services that are of public interest: “*Inner peripheries are an issue of growing political concern at EU level and in many member states, and more regionalized information is needed to consider developing specific territorial policy measures.*”²⁴ Considering that certain parameters and region boundaries are artificial, it should be borne in mind that specific changes could make a difference. Considering the Croatian case of earlier changed regionalization as one of CEEC’s, significant differences were made on the NUTS 2 level even more. Therefore, the new change was proposed again with more regions due to inner differences in the national territory.²⁵ The inner differences are an incentive to create a new model of territorial divisions in order to reduce or remove inner peripheries. Looking at the idea of divisions, only by taking the criterion of boundaries on the NUTS 3 level is it evident that the boundary lines of national economies are usually less developed.

Furthermore, the west-east²⁶ division predominantly comprises more and less or least developed. Therefore, Gräbner and Hafele emphasize that core-periphery relation has been almost a rule and that the divergence of individual country characteristics also has its reasons in relationships between countries.²⁷ Therefore, policies and adequate measures according to the developmental level of an area are usually an answer for the developmental plan for future activities.

22 Katarina Marošević, ‘Regionalni razvoj i neravnoteže u Republici Hrvatskoj’(Pravni fakultet Osijek, Osijek 2021), 124.

23 More about EU & Outermost Regions see at: https://ec.europa.eu/regional_policy/en/policy/themes/outermost-regions/, January 20, 2022.

24 ESPON, EU ‘Inner Peripheries - national territories facing challenges of access to basic services of general interest’ (2020) <<https://www.espon.eu/sites/default/files/attachments/Inner%20Peripheries%20-%20national%20territories%20facing%20challenges%20of%20access%20to%20basic%20services%20of%20general%20interest.pdf>> accessed 20 January 2022. p. 1.

25 About changes of territorial division of Republic of Croatia, see more in: Katarina Marošević, *Regionalni razvoj i neravnoteže u Republici Hrvatskoj* (Pravni fakultet Osijek, 2021).

26 In detail about eastern periphery of the European Union can be seen in: Samary, Catherine (2011). The eastern periphery of the European Union faced with the global crisis. In: Onaran, Ozlen (ed), *Capitalist Crises and alternatives*, Resistance Books, London. http://www2.euromemorandum.eu/uploads/background_paper_samary_eastern_periphery.pdf, January, 20, 2022.

27 Claudius Gräbner and Jakob Hafele, ‘The emergence of coreperiphery structures in the European Union: A complexity perspective’, ZOE Discussion Papers, No. 6, 17 ZOE (Institut für zukunftsfähige Ökonomien, Bonn 2020) <<https://www.econstor.eu/bitstream/10419/224134/1/172895116X.pdf>>.

4. BIBLIOMETRIC ANALYSIS: DATA AND METHODOLOGY

4.1. BIBLIOMETRIC ANALYSIS IN MODERN SCIENCES: WHY IS IT RELEVANT?

In the “Big Data” era, bibliometric analysis is growingly critical in research nowadays. In particular, it is possible to note the growth of bibliometric approaches to synthesize existing results in various fields of literature. Bibliometrics has become one relevant tool in business and economic analysis, considering the richness of data accessible nowadays.²⁸ In this respect, a bibliometric analysis considers three relevant words. Bibliometric techniques have been employed to support the statistical analysis of scientific articles.²⁹ Second, the bibliometric analysis is based on constructing a corpus of literature, which can be considered publications on a specific topic and subject.³⁰ The corpus of literature is typically analyzed using various statistical methodologies to extract and synthesize specific literature’s relevant contents and findings. At the same time, the analysis of the citations is particularly relevant to bibliometric analyses because it allows an understanding of the networks of content relationships between different works (networks of citations); in this respect, it is possible to define the citation networks serving as the fundamental concept of bibliometric analysis.³¹ In this respect, network analysis techniques are particularly relevant because they allow us to identify the most central works in the literature.³²

So it is possible to characterize the relevant works considering other relevant characteristics that can be observed in the literature. For instance, a strong pattern of co-citations by groups of different papers which are significantly connected could be considered a “community”.³³ Consequently, the approach of analysis of the networks can be applied to the co-occurrence of relevant keywords between articles. In this sense, the articles on the network share the exact keywords, so it is possible to find relevant literature themes that synthesize and unify the relevant literature. The approach is very relevant because it detects the relevant “semantic cores” in literature.³⁴ In this respect, observing the relationships of different relevant

28 See more in: Carlo Drago, Andrea Gatto and Matteo Ruggeri M, ‘Telemedicine as techno innovation to tackle COVID-19: A bibliometric analysis’ (2021) *Technovation*; Carlo Drago and Gentian Hoxhalli, ‘Bibliometric Big Data Analysis in Economics’, (2020) September 2020, Conference: IFKAD 2020 – 15th edition of the 15th edition of the International Forum on Knowledge Asset Dynamics – “Knowledge in Digital Age”; Andrea Gatto, Carlo Drago, Matteo Ruggeri, ‘On the frontline—sustainability and development research amidst the COVID-19 pandemic’ (2020) <https://assets.researchsquare.com/files/rs-103974/v1/ebe43fe5-3ffe-49aa-814a-03460477db02.pdf?c=1631861680>.

29 Ole Ellegaard and Johan A. Wallin, ‘The bibliometric analysis of scholarly production: How great is the impact?’ (2015) 105(3) *Scientometrics* 1809–1831. <<https://doi.org/10.1007/s11192-015-1645-z>>.

30 Donthu N and others ‘How to conduct a bibliometric analysis: An overview and guidelines’ (2021) 133 *Journal of Business Research* 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070> and Ole Ellegaard and Johan A. Wallin ‘The bibliometric analysis of scholarly production: How great is the impact?’ (2015) 105(3) *Scientometrics* 1809–1831. <https://doi.org/10.1007/s11192-015-1645-z>.

31 Anthony F. van Raan, ‘Advances in bibliometric analysis: research performance assessment and science mapping, *Bibliometrics Use and Abuse in the Review of Research Performance*’ (2014) 87, 17–28.

32 See in this respect Carlo Drago and Fabio Fortuna, (2023) “Exploring the Intersection of Technology, Digitization, and Innovation in Sustainable Knowledge Management: A Bibliometric Network Analysis” Conference: IFKAD Conference “Managing Knowledge for Sustainability” Matera, Italy 7–9 June 2023, Matera, Italy.

33 Santo Fortunato, ‘Community detection in graphs’ (2010) 486(3–5) *Physics reports*, 75–174.

34 See more in Carlo Drago and Andrea Gatto, ‘Identifying the research advances on COVID-19, the economy and the environment: network-bibliometric analysis and statistical validation’ (2021) Working Paper; Carlo Drago and Angelo Bertelli A, ‘Predictive

keywords in different papers is also possible. Simultaneously the centrality and the different characteristics of the communities can be observed, and they can inform in some way about the relevance of the results in the literature. At the same time, the communities of the relevant keywords in the paper can be analyzed with relevant analytical approaches. These communities allow us to understand the “structure” of literature results.³⁵ The interconnections between the different keywords and the possibility of new linkages allow insights into possible evolutions of the future literature in the field. Another relevant aim of the bibliometric approach is to map the relevant works using techniques related to multivariate analysis. These maps allow us to represent the literature in an easily observable way. Moreover, the distance on the maps between the different publications’ keywords, for instance, simultaneously allows for identifying similar topics and discovering relevant insights from the literature (some core concepts jointly considered by near works³⁶).

4.2. DATA AND METHODOLOGY

The bibliometric dataset constructed is based on a relevant query considering the work’s research question. Therefore, the research string used to search the bibliometric database SCOPUS is TITLE-ABS-KEY (regional AND economy AND regional AND development AND center-periphery OR eastern AND Europe OR eu27). The search was performed on 30-3-2021, and we collected 413 observations. In this way, we have started constructing the bibliometric database, which considers the publications in the years range 1960³⁷–2021. The keyword selection criteria aim to create a bibliometric database to be analyzed, including all the relevant works in the literature. Our study’s keywords have been carefully selected to align with the primary focus of our research, which entails a comprehensive analysis of the literature on the European center-periphery model. Therefore, the selected keywords play a crucial role in identifying relevant publications and sources within the academic literature to provide a deeper understanding of the various aspects, dimensions, and debates surrounding this topic.

The program used for the bibliometric analysis is R. The package used is Bibliometrix.³⁸ We performed a first descriptive and explorative data analysis from the initial data to analyze the general characteristic of the data. In this respect, we analyze the citations for each author, paper, and general features to explicitly detect the data about the literature development we are considering. Then we move to analyze the network of the keyword co-occurrences. In this sense, we observe the centrality of the different specific keywords addressed by the literature

Marketing: A Bibliometric Analysis Using a Symbolic Data Analysis Approach Keywords – Community - Based’ (2021) <https://ssrn.com/abstract=3738294>.

35 See for instance Carlo Drago, ‘Exploring the Community Structure of Complex Networks’ (2015) *Annali MEMOTEF* No. 2016; and Carlo Drago ‘Clustering Communities Using Interval K-Means’ in Alessandra Petrucci, Filomena Racioppi and Rosanna Verde (eds), *New Statistical Developments in Data Science (SIS 2017)*. Springer Proceedings in Mathematics & Statistics, Vol 288. Springer, Cham 2019) https://doi.org/10.1007/978-3-030-21158-5_3.

36 Marco Gherghi and Carlo N. Lauro (2004). *L’Analisi Multidimensionale dei Dati*. *RCE Multimedia*.

37 Keep in mind that around 1960’s there was beginning of the regional economies research. Therefore, 1960 was taken for the starting year.

38 See more in: Aria Massimo and Corrado Cuccurullo, ‘Bibliometrix: An R-tool for comprehensive science mapping analysis’ (2017) 11(4) *Journal of Informetrics* 959-975. <<https://doi.org/10.1016/j.joi.2017.08.007>>.

authors. Different keywords allow for the identification of the most relevant themes of the articles. Finally, we can see the multidimensional structure of the data by mapping different results of the multiple correspondence analysis in two dimensions. In this respect, results help map different articles.

In this sense the present study employs a bibliometric approach, wherein a systematic methodology is employed to facilitate a comprehensive understanding of the interrelationships among various keywords and concepts in the extant literature.³⁹ This involves an analysis in different phases that enables a detailed examination of the underlying patterns in the data.

The initial stage involved the visualization of the network comprising co-occurring keywords.⁴⁰ This entails an analysis of the co-occurrence of keywords within the literature. The present visualization can exhibit the connection patterns of related keywords and help identify central or recurrent themes within the corpus of literature.

We consider multiple correspondence analysis and visually represent the keywords on the concept map.⁴¹ The aforementioned statistical methodology identifies and illustrates latent patterns within a given dataset. Within this particular context, the act of mapping the concepts found within the literature onto a two-dimensional plane proved to be a beneficial exercise. The aim is to determine the optimal approach for visually depicting intricate interrelationships among diverse keywords in a condensed, two-dimensional format. Using the map makes it possible to discern the proximity of keywords, as their co-occurrence is visually represented.

Through multiple correspondence analyses, it is feasible to discern the co-occurrence patterns of keywords within the scientific literature. The adjacency of keywords on the graphic representation denotes their concomitant appearance within the corpus of scholarly works. The co-occurrence phenomenon can yield valuable insights regarding the interrelationships between various themes and topics in a given corpus of literature. The ultimate phase of our methodology encompassed a hierarchical clustering of the keywords. The current statistical approach was employed to construct a hierarchical arrangement of clusters. The outcome of this analysis is a collection of clusters, wherein each cluster denotes a cohort of keywords that commonly co-occur within the literature.

So, overall, the systematic literature analysis was achieved by visualizing the keyword network, conducting multiple correspondence analyses, and utilizing hierarchical clustering. This approach enabled the identification of key themes, their interconnections, and their temporal evolution.

39 Naveen Donthu, Satish Kumar, Debmalaya Mukherjee, Nitesh Pandey, Weng M. Lim, 'How to conduct a bibliometric analysis: An overview and guidelines' (2021) 133 *Journal of Business Research*, 285–296. <<https://doi.org/10.1016/j.jbusres.2021.04.070>>.

40 See more in: Nees J. van Eck, Ludo Waltman (2014). 'Visualizing Bibliometric Networks'. in Ying Ding, Ronald Rousseau, Dietmar Wolfram (eds) *Measuring Scholarly Impact*. Springer, Cham 2014) 285-320. <https://doi.org/10.1007/978-3-319-10377-8_13>; Stanley Wasserman, Katherine Faust (1994) 'Social network analysis: Methods and applications' Cambridge University Press. <<https://doi.org/10.1017/CBO9780511815478>>.

41 See more in: Michael Greenacre, Jorg Blasius (eds), 'Multiple correspondence analysis and related methods' (2006) CRC press <<https://doi.org/10.1201/9781420011319>>; Aria Massimo, Corrado Cuccurullo 'Bibliometric: An R-tool for comprehensive science mapping analysis' (2017) 11(4) *Journal of Informetrics*, 959–975. <<https://doi.org/10.1016/j.joi.2017.08.007>>; Carlo Drago and Fabio Fortuna (2023), "Exploring the Intersection of Technology, Digitization, and Innovation in Sustainable Knowledge Management: A Bibliometric Network Analysis" Conference: IFKAD Conference "Managing Knowledge for Sustainability" Matera, Italy 7–9 June 2023, Matera, Italy.

4.3. RESULTS

Starting from the theoretical approach in the paper, we first review and summarize the existing literature on center-periphery models and approaches in Economics. The results are in Table 1. After that it is proceeded to the bibliometric analysis to identify the most relevant literature topics and findings represented by the clusters that could be extracted from the bibliometric database. The clusters are essential because they are keywords belonging to different works in literature and tend together to be considered and indicated. Starting from the table, in this respect, the clusterings or the partitions represent the most relevant research lines in the literature, which economically leads to original policy innovations. Afterward, the center-periphery literature in Economics was reviewed by examining the most relevant approaches. A body of literature looks at the disparities in economic development among different regions and countries and resource distribution among them. Each framework is briefly described in the following list of relevant topics:

1. A Core-Periphery Model was introduced by Krugman⁴² and is based on monopolistic competition and increasing returns to scale. Due to their distance from core regions, peripheral regions experience less development, resulting in a self-reinforcing process of spatial economic agglomeration.
2. New Economic Geography: Fujita, Krugman, and Venables⁴³ investigated how spatial distribution impacts regional disparities by expanding on the Core-Periphery Model. This approach incorporates economies of scale, transportation costs, and knowledge spillovers to determine the geographical concentration of production and innovation.
3. The Wallerstein⁴⁴ Framework examines the historical development and structure of the world economy through the lens of world-systems analysis. In shaping global development patterns, it emphasizes the impact of political and economic power dynamics on the world's core, semiperipheral, and peripheral regions.
4. According to Prebisch,⁴⁵ dependence is a theory that explains peripheral countries' persistent underdevelopment. The theory argues that peripheral countries cannot achieve self-sustaining growth due to their inequalities in trade relations and control of financial and technological resources.
5. An examination of the economic forces that drive the growth and development of cities through a center-periphery perspective was provided by Henderson⁴⁶ using the concept of center-periphery. This approach explores the trade-offs between agglomeration economies and congestion costs by exploring both agglomeration economies and congestion costs and the influence of public policies on urban spatial patterns.

42 Paul Krugman, 'Increasing returns and economic geography' (1991) *Journal of Political Economy*, 99(3) 483–499.

43 Masahisa Fujita, Paul Krugman, Anthony J. Venables (1999). 'The spatial economy: Cities, regions, and international trade' MIT Press.

44 Immanuel Wallerstein, 'The modern world-system I: Capitalist agriculture and the origins of the European world-economy in the sixteenth century' (1974) Academic Press.

45 Raúl Prebisch, 'The economic development of Latin America and its principal problems' (1950) United Nations.

46 J. Vernon Henderson, 'Urban development: Theory, fact, and illusion' (1998) Oxford University Press.

6. Gereffi and Korzeniewicz⁴⁷ introduced this framework to analyze global production networks and their implications for development. As a result, inequalities between core and peripheral regions can persist due to inequalities in the distribution of value-added activities across countries.

As we better understand these frameworks, we can analyze and address the disparities between core and peripheral regions regarding economic development and resource distribution.

The findings of this bibliometric examination can be deemed coherent for the interpretation provided in this work. Utilizing a structured and systematic approach in the analysis minimizes the likelihood of biased or arbitrary outcomes in examining the literature. Through a rigorous methodology involving the systematic visualization of the keyword network, implementation of multiple correspondence analysis, and execution of hierarchical clustering, the outcomes obtained indicate authentic patterns within the literature. Subsequently, every stage of the analysis process functions to substantiate and enhance the conclusions drawn from the preceding stages.

Network visualization generates the first initial evidence of the keyword co-occurrences in literature, followed by a further examination through multiple correspondence analysis. The technique of multiple correspondence analysis is employed to create a conceptual map of the different literature themes and then identify clusters of keywords that exhibit a high degree of interrelatedness in literature. In this respect, the multiple correspondence analysis is followed by hierarchical clustering to identify the relevant patterns between the themes in the literature. The utilization of an iterative process serves to enhance the consistency and reliability of the resultant findings. The employment of established statistical techniques, including but not limited to multiple correspondence analysis and hierarchical clustering, enhances the validation of the findings related to the existing literature. The techniques above are widely acknowledged and employed in scholarly investigations due to their ability to identify and depict patterns within intricate data sets.⁴⁸

The bibliometric analysis follows three specific steps in the analysis. In the first part of the work, we map the relevant contents of the literature using multiple correspondence analysis. The concept map allows us to identify the most relevant concepts in the literature and their relationships with each other (Figure 2). We also compute the convex hull on the map to better visualize the relevant groups of keywords that appear together in the literature. We can visualize the dendrogram from the hierarchical clustering of the relevant keywords (Figure 3). Finally, we can substantially confirm the latter results from the co-occurrence network as a sensitivity analysis (Figure 4). The main results of the work come from the interpretation of the work. In this respect, these clusters adequately synthesize essential elements to be discussed. Therefore, we interpret the table on the keywords considering the most relevant ones in the literature. We can interpret the different clusters identified by considering the different results. In particular, this interpretation can be made for the first cluster, which comprehends all the relevant concepts from Table 1. In this respect, this cluster represents the literature

47 Gary Gereffi, Miguel Korzeniewicz (eds), 'Commodity chains and global capitalism' (1994) Praeger.

48 See, for instance, Naveen Donthu, Satish Kumar, Debmalaya Mukherjee, Nitesh Pandey and Weng M. Lim, 'How to conduct a bibliometric analysis: An overview and guidelines' (2021) 133 *Journal of Business Research* 285–296. <<https://doi.org/10.1016/j.jbusres.2021.04.070>>.

on center-periphery and their findings. This cluster is less attractive than the other two because these two clusters are more specific. So we have considered the second one as keywords: eastern hemisphere, western Europe, world, and the United Kingdom. Several key themes and issues specific to each region of Eastern Europe, Western Europe, and the United Kingdom emerge from the bibliometric analysis of center-periphery literature in these regions. A comprehensive understanding of economic development and disparities in these regions can be gained by relating these themes to the various approaches outlined in Table 1. In Eastern Europe, the analysis emphasizes the significance of transition economies, post-communist transformations, and EU integration. The Dependency Theory and the Uneven and Combined Development Theory can explain economic disparities in the region. Eastern Europe's regional disparities and economic convergence can be understood from a Core-Periphery Model and New Economic Geography perspective.

There is a strong focus on economic integration, innovation hubs, and regional policies in Western Europe. Using the frameworks of New Economic Geography and Global Value Chains, we can better understand the dynamics of economic integration, knowledge spillovers, and agglomeration economies. In addition, an understanding of the spatial distribution of economic activity and regional policy implications can be gained from the Core-Periphery Model and Centre-Periphery in Urban Economics. According to the analysis, Brexit, regional inequality, and London-centric development are essential factors in the United Kingdom. Brexit's impact on the UK's global economy can be understood using the World-Systems Analysis and Global Value Chains approaches. In addition, the Core-Periphery Model and New Economic Geography can explain regional inequality, the North-South divide, and the urban-rural divide. Finally, center-periphery in Urban Economics provides valuable insights into the spatial dynamics of the UK's knowledge-based economy and the concentration of economic activity in London. Accordingly, the bibliometric analysis reveals regional themes in the center-periphery literature that can be explored and explained using the various approaches shown in the table. Moreover, these approaches can facilitate understanding the complex dynamics of economic development and disparities across different geographic regions.

Finally, the third cluster is related to "innovation", "regional planning" and "sustainable development". Innovation is the key to productivity and competitiveness, so it plays a crucial role in economic development. Center-periphery in Urban Economics and New Economic Geography emphasizes the importance of innovation hubs, knowledge spillovers, and agglomeration economies in shaping economic distribution. For addressing regional disparities and promoting economic convergence, it is crucial to understand factors that promote or hinder innovation in core and peripheral regions. In order to guarantee long-term growth and well-being, sustainable development must encompass economic, social, and environmental factors. World-Systems Analysis and Dependency Theory shed light on the structural barriers that peripheral regions face in achieving sustainable development, such as unequal trade relations, resource exploitation, and a lack of access to technology. Therefore, global economic systems must be rethought and policies implemented to foster equitable and sustainable growth to address these barriers.

Developing and implementing regional planning strategies can be vital in promoting balanced and sustainable growth within a region. In addition to offering valuable insights into the factors contributing to regional disparities, the Core-Periphery Model and New Economic

Geography also suggest the potential role of regional policies in fostering spatially balanced growth. Including innovation and sustainable development goals in regional planning can contribute to a region's resilience, inclusivity, and environmental sustainability. As a result of the bibliometric analysis, it becomes apparent that key themes are also present in the center-periphery literature when analyzing innovation, sustainable development, and regional planning. As a result of these themes, regional disparities and sustainable development are emphasized, as well as targeted policies and integrated regional planning.

Finally, we can analyze the network that can be considered related to the different occurrences and maps obtained by the multiple correspondence analysis and the cluster analysis. So, we consider the network analysis from the affiliation network constructed of keywords where we can observe and visualize the network in Figure 3. It is possible to observe two groups of nodes that are maximally connected. First, a group of nodes and concepts (considering a first scenario in which we have considered 30 nodes) is found. Then, if we consider a scenario with 40 nodes, we can identify three relevant groups of nodes. The most exciting fact is that it is possible to observe the role of economic and regional growth in different geopolitical zones of Europe. In particular, it is possible to note the high relevance of regional sustainable development approaches. In this respect, it is essential to note that in this literature, relevant, sustainable development long-term strategies need to be supported by regional policies, which can also lead to higher integration (in this sense, it could be observed as a cluster considering Figure 2 and Figure 3). The results between the two distinct analyses seem to be consistent in that result.

4.4. POLICY DISCUSSION

Center-periphery policy relies heavily on innovation and regional planning. According to the literature, regional innovation policies can be appropriately translated into a regional setting.⁴⁹ Likewise, scholars have recognized that peripheral areas are undergoing innovation, and this emerging area needs to be critically examined. Through its regional development policy, the European Union seeks to reduce socioeconomic disparities between its most developed and less developed regions. In Estonia and Slovakia, smart specialization is being investigated in core-periphery relations.⁵⁰ The localization theory of regional development can explain economic prosperity and the future development potential of firms.⁵¹ It is essential to notice the influence of sustainable development and circular economy on regional development in this literature, particularly in traditional and contemporary topics. Even though the circular economy is the primary focus of these regional and regional development evaluations in Europe,

49 Roberto Camagni, Roberta Capello, 'Regional innovation patterns and the EU regional policy reform: towards smart innovation policies' in Roberta Capello (eds), *Seminal Studies in Regional and Urban Economics: Contributions from an Impressive Mind* (2017, Springer Link, 313–343).

50 Sebastian Schulz, 'Ambitious or ambiguous? The implications of smart specialisation for core-periphery relations in Estonia and Slovakia' (2020) *TalTech Journal of European Studies*, 9(4), 49–71. <<https://doi.org/10.1515/bjes-2019-0037>>.

51 Kamila Tureckova, 'Localization theory of regional development and agglomeration effects: A case study of the ICT sector in the Czech Republic' (2018) *Geographia Technica*, 13(1). <[10.21163/GT_2018.131.11](https://doi.org/10.21163/GT_2018.131.11)>.

a gap in the research has been identified that is often not addressed in the literature.⁵² Some refer to that work as a method rather than just a message, which is to be considered.

The scientific literature has established various connections between the keywords “innovation”, “sustainable development” and “regional planning” and the concept of a “circular economy”. The practical implementation of a circular economy necessitates substantial innovation. The phenomenon above can be attributed to utilizing novel technologies, methodologies, and commercial frameworks that optimize resource utilization while minimizing waste generation.⁵³ Innovation is crucial in developing products designed to endure, facilitate repair, and promote recyclability.⁵⁴ Furthermore, novel commercial frameworks, such as collaborative consumption or rental-based approaches instead of possession-based ones, can effectively bolster the principles of a circular economy.⁵⁵

The implementation of a circular economy facilitates the promotion of sustainable development. The circular economy is a theoretical framework that endeavours to disentangle economic expansion from resource consumption and ecological repercussions, thereby promoting the durability of progress.⁵⁶ The circular economy model supports the environmental dimension of sustainable development by implementing waste reduction, recycling, and reuse practices. Concurrently, generating novel commercial prospects and employment opportunities can bolster sustainability’s economic and social facets.⁵⁷ Implementing a circular economy is contingent upon the criticality of regional planning. Henceforth, it can be inferred that the trio, as mentioned earlier, of keywords bear a substantial correlation to the concept of a “circular economy”. Upon joint consideration, these elements furnish a comprehensive structure for comprehending the execution, repercussions, and preparatory necessities of a circular economy and its potential to foster sustainable, inventive advancement at the regional scale.

Given that the message of sustainable development may be understood as an aspiration for a European scenario, this point of view is not necessarily consistent with the economic policy approach. Therefore, it is more appropriate to view sustainable development as a path and a result of development than a special message, and it is often not considered a regional issue.⁵⁸ We must emphasize the significance of information about the circular economy growth and the creation of economic models at this point. As a result, it is often considered a narrowly

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- 52 H H Chu, D Q Song, ‘Research on Model-Constructing of Regional Industrial Competitiveness Based on Circular Economy’ (2010) 8 Commercial Research.
- 53 Patrizia Gisellini, Catia Cialani, Sergio Ulgiati, ‘A review on circular economy: the expected transition to a balanced interplay of environmental and economic systems’ (2016) *Journal of Cleaner production*, 114, 11–32. <<https://doi.org/10.1016/j.jclepro.2015.09.007>>.
- 54 Nancy M. P. Bocken, Ingrid de Pauw, Conny Bakker, Bram van Der Grinten, ‘Product design and business model strategies for a circular economy’ (2016) *Journal of industrial and production engineering*, 33(5), 308–320. <<https://doi.org/10.1080/21681015.2016.1172124>>.
- 55 Arnold Tukker, ‘Product services for a resource-efficient and circular economy—a review’ (2015) *Journal of cleaner production*, 97, 76–91. <<https://doi.org/10.1016/j.jclepro.2013.11.049>>.
- 56 Martin Geissdoerfer, Paulo Savaget, Nancy M. P. Bocken, Erik Jan Hultink, ‘The Circular Economy – A new sustainability paradigm?’ (2017) *Journal of cleaner production*, 143, 757–768. <<https://doi.org/10.1016/j.jclepro.2016.12.048>>.
- 57 Martin Geissdoerfer, Paulo Savaget, Nancy M. P. Bocken, Erik Jan Hultink, ‘The Circular Economy—A new sustainability paradigm?’ (2017) *Journal of cleaner production*, 143, 757–768. <<https://doi.org/10.1016/j.jclepro.2016.12.048>>.
- 58 ‘2030 Agenda for sustainable development: A new path for development’ (UN, 2017) <<https://www.un.org/ecosoc/sites/www.un.org/ecosoc/files/files/en/2017doc/ecosoc.pdf>> accessed 23 December 2022.

focused economic viewpoint on development unsuitable for a more comprehensive understanding. A worldwide audience should pay attention to the relevance of the circular economy.

While explaining the global effects of sustainable development, it is suggested that the themes important to the regions and regional planning in Europe should be emphasized as much as possible.⁵⁹

Even though the circular economy promotes sustainable development for the whole globe, regional development is essential for areas in the circular economy. The circular economy is a relevant element of regional development in all areas, as stated by Taranic,⁶⁰ regardless of the percentage of economic sectors engaged or the GDP of the regions in question. Regional development is often seen as being higher than national development. One of the reasons for this is the sheer scale of the facility.⁶¹ Therefore, there is an obvious significance not just for regional development in Eastern Europe (as shown in the following image) but also for regional policy in general.

Table 1. Different Approaches in Centre-Periphery Framework in Economics

Approach	Scientific Paper & Link
Core-Periphery Model	Paul Krugman 'Increasing returns and economic geography' (1991) <i>Journal of Political Economy</i> , 99(3) 483-499.
New Economic Geography	Masahisa Fujita, Paul Krugman, Anthony J. Venables (1999). 'The spatial economy: Cities, regions, and international trade' MIT Press.
World-Systems Analysis	Immanuel Wallerstein 'The modern world-system I: Capitalist agriculture and the origins of the European world-economy in the sixteenth century' (1974) Academic Press.
Dependency Theory	Raúl Prebisch 'The economic development of Latin America and its principal problems' (1950) United Nations.
Centre-Periphery in Urban Economics	J. Vernon Henderson 'Urban development: Theory, fact, and illusion' (1998) Oxford University Press.
Global Value Chains	Gary Gereffi, Miguel Korzeniewicz (eds) 'Commodity chains and global capitalism' (1994) Praeger.

59 See Maili Marjamaa, Hanna Salminen, Johanna Kujala, Riikka Tapaninaho, Anna Heikkinen 'A Sustainable Circular Economy: Exploring Stakeholder Interests in Finland' (2021) 10(1) *South Asian Journal of Business and Management Cases*, 50–62. <https://doi.org/10.1177/2277977921991914>.

60 Igor Taranic, Arno Behrens, Corrado Topi, 'Understanding the Circular Economy in Europe, from Resource Efficiency to Sharing Platforms: The CEPS Framework' (2016) CEPS Special Reports, No. 143 <<https://papers.ssrn.com/abstract=2859414>>.

61 See Yupeng Fan, Chuanglin Fang, 'Circular economy development in China-current situation, evaluation and policy implications' (2020) 84 *Environmental Impact Assessment Review* <<https://doi.org/10.1016/j.eiar.2020.106441>>.

Figure 1. Conceptual map of the relevant literature concepts

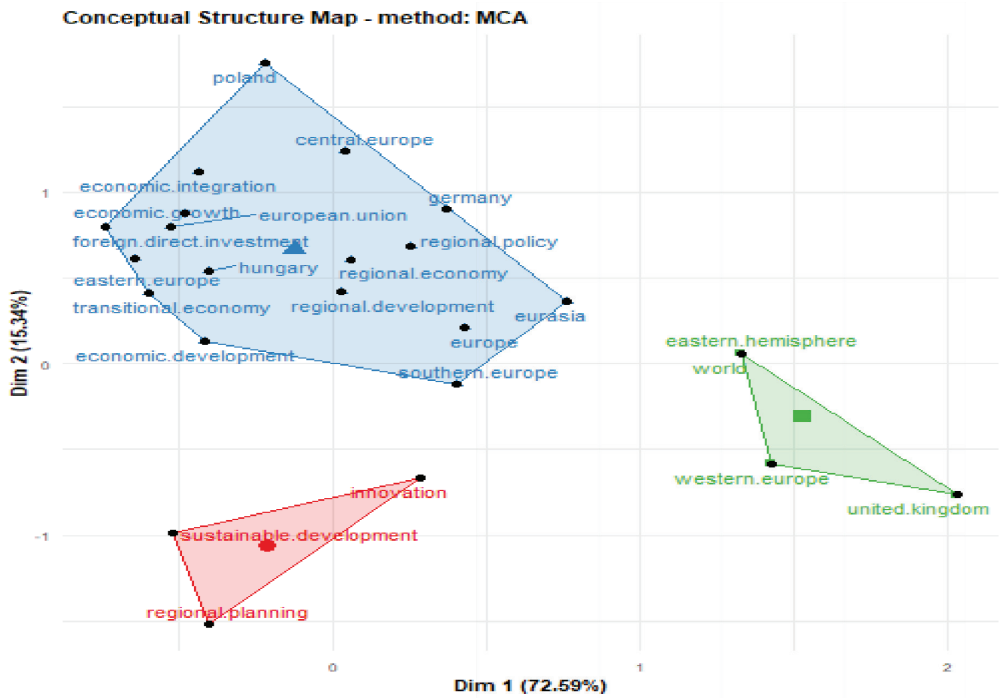


Figure 2. Clustering of the relevant concepts of the literature considered

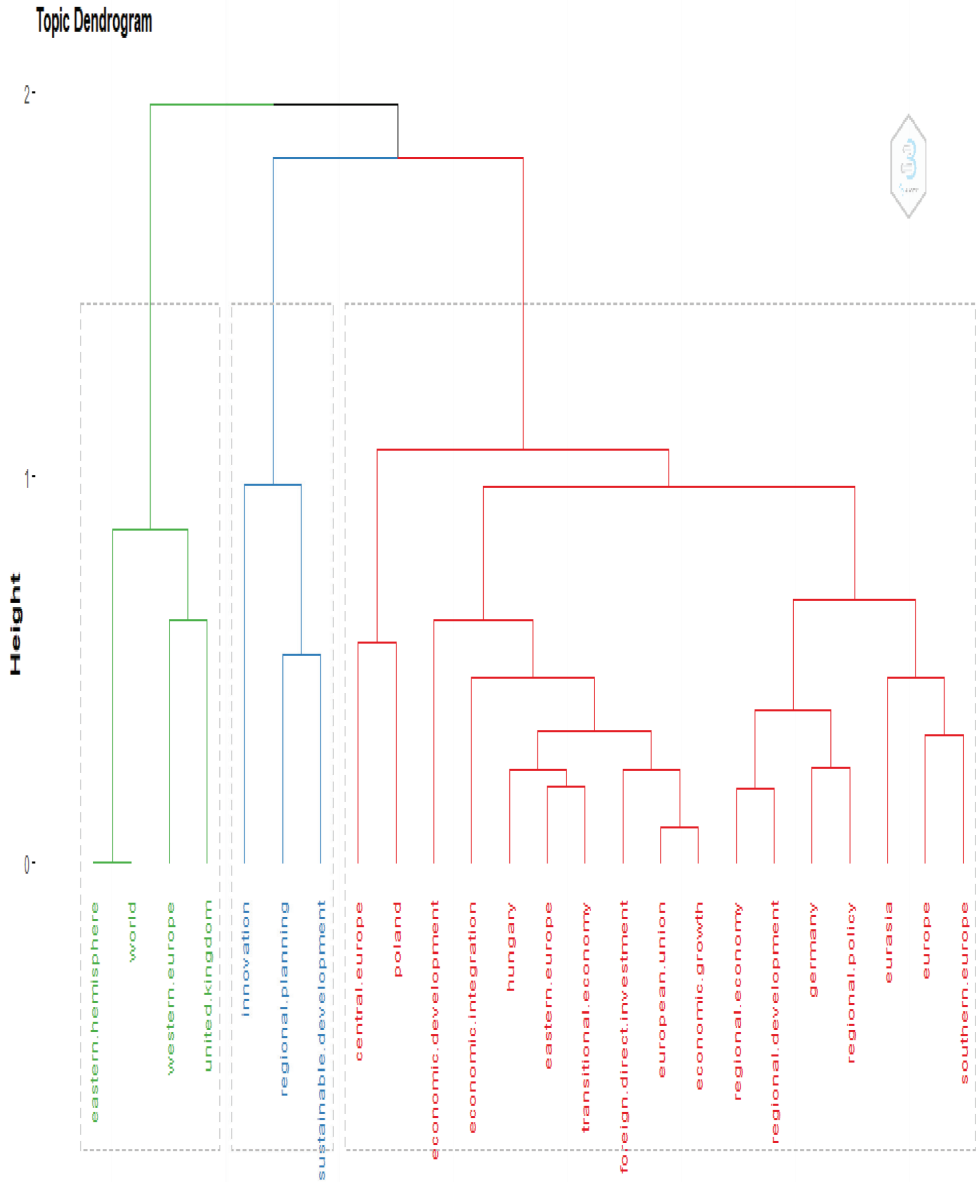
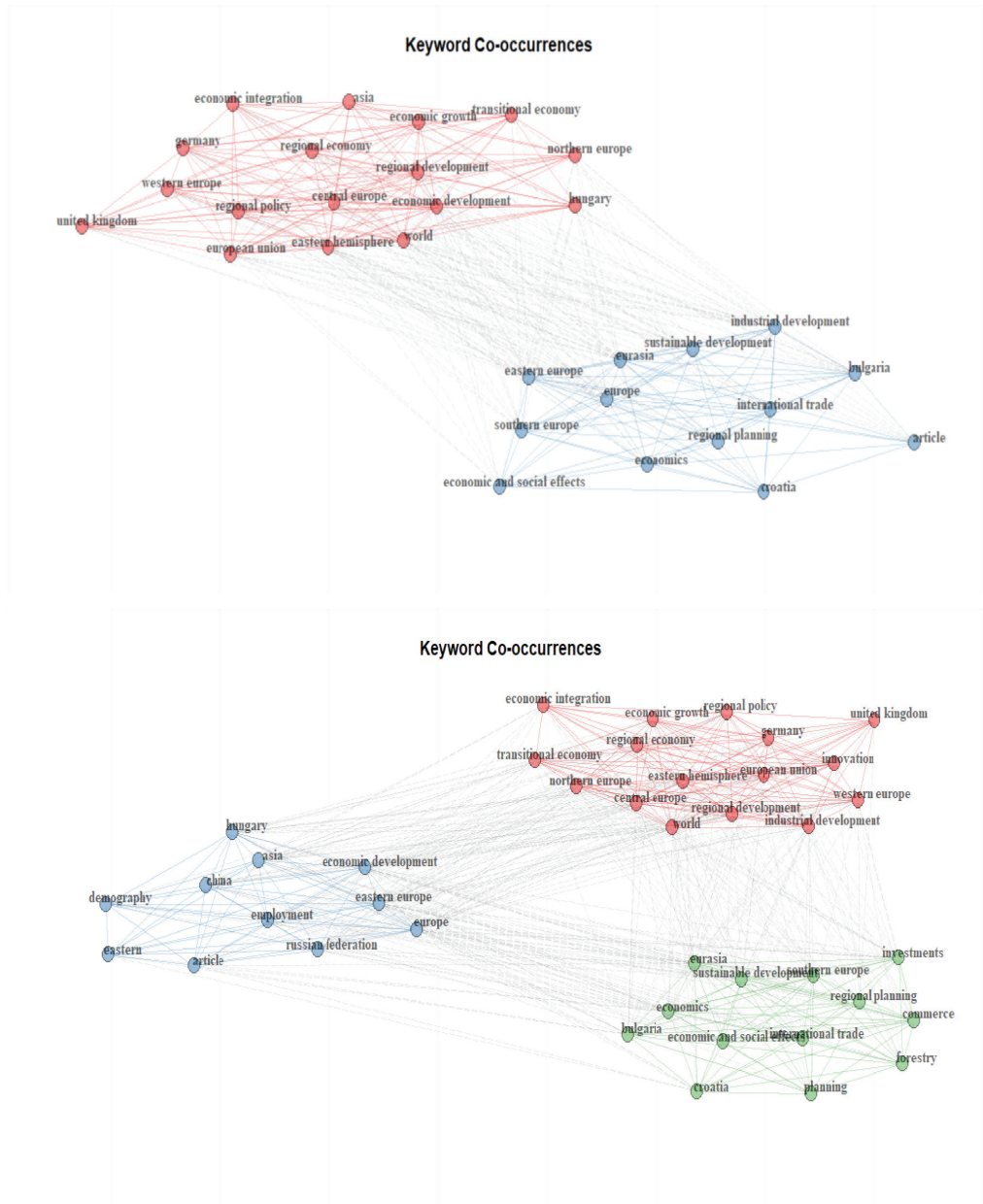


Figure 3. Keyword Co-occurrence



4. CONCLUSION

The literature covers a wide range of topics on center-periphery and economic policies in economics, including changes in the international distribution of economic and military power, austerity policies, monetary policy, and spatial development issues. According to the studies, interregional interactions can significantly impact the periphery when economic policies are implemented in the core. Therefore, institutions should support interregional interactions to ensure regional success.

According to the primary research topic, this paper aimed to analyze some of the narratives related to the center-periphery approach in the EU literature by performing a bibliometric analysis of crucial words from 431 articles from 1960–2021. The analysis moved around the main research themes (center-periphery; Europe; EU27; development) to observe how the literature can produce different perspectives on these themes and how these themes are related to other keywords. Even if the differences are not too significant, it is possible to notice a concentration of keywords around some groups related to different topics of spatial observation. When research is focused on different European spaces, it is possible to hypothesize a connection between different development approaches. We note that more current topics, such as the circular economy, form a cluster with little interaction with other parts of the literature. These considerations help address the next steps of the research, where the role of divisions and the limits of the center-periphery approach can be analyzed in depth. To resolve the center-periphery disparities, innovation and regional policy are essential. According to the literature, regional innovation policies can be tailored to the specific contexts of regional settings. This emerging field of study requires a thorough examination due to the presence of innovation in peripheral regions. EU regional development policies aim to reduce socioeconomic disparities between affluent and peripheral regions. The localization theory of regional development provides a basis for understanding the firm distribution of economic prosperity and future development potential. In terms of regional policies and the factors influencing the spatial distribution of economic activity, this theory provides valuable insights.

These findings indicate that innovation and regional policies can significantly reduce the gap between the center and the periphery. In order to achieve more equitable and sustainable development across the whole territory, it is necessary to foster economic development in peripheral areas through tailored policies and targeted investments.

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BIBLIOMETRIJSKA ANALIZA LITERATURE O REGIONALNOM RAZVOJU I MODELU CENTAR-PERIFERIJA U EUROPI

Sažetak

Ovaj rad istražuje učinak prostornih podjela i njihovih razgraničenja na formiranje mreža i nedostatke provedbe specifičnih politika u ublažavanju procesa marginalizacije. Unatoč suprotnim shvaćanjima oko brojnih teorijskih premisa, model centar-periferija i dalje je široko prihvaćen. Korištenjem sveobuhvatne bibliometrijske analize pojašnjene su implikacije ovih ideja sintetiziranjem kritičkih nalaza iz golemog niza prethodne literature. Potrebne su inovacije i prilagodba regionalne politike kako bi se riješile razlike između centra i periferije. Politike regionalnog razvoja Europske unije imaju za cilj pomiriti socioekonomski jaz između prosperitetnih i perifernih regija. Lokalizacijska teorija regionalnog razvoja daje uvid u prostornu distribuciju poduzeća, disperziju ekonomskog prosperiteta i potencijal za budući rast. Ovi rezultati pružaju vrijedne perspektive o regionalnim politikama i čimbenicima koji utječu na geografsku distribuciju gospodarske aktivnosti.

Ključne riječi: center-periferija, regije, regionalne nejednakosti, regionalna politika, bibliometrijska analiza



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