



# Bibliometric measurement of the resource curse and its implication for sustainable development

Francisco Javier S. Lacárcel <sup>a,\*</sup>, P. González-Padilla <sup>b</sup>, Nelson Matos <sup>c</sup>, Marisol B. Correia <sup>d</sup>

<sup>a</sup> University Institute for Tourism Research, University of Alicante, Alicante, Spain

<sup>b</sup> Department of Business Economics, Rey Juan Carlos University, Móstoles, Spain

<sup>c</sup> Faculdade de Economia, Cinturs, University of Algarve, 8005-139, Faro, Portugal

<sup>d</sup> ESGHT, Universidade do Algarve & Centre for Tourism Research, Development and Innovation – CiTUR (10.54499/UIDB/04470/2020) & Research Centre for Tourism, Sustainability and Well-being - CinTurs & CEG-IST, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal

## ARTICLE INFO

### Keywords:

Sustainable development

Resource curse

Climate-friendly development

Eco-friendly development

Regenerative development

## ABSTRACT

The natural resource curse refers to the phenomenon in which certain resource-abundant countries face limited economic and social development. Inadequate management, corruption and poor governance are recurrent problems associated with it. The relevance of this area lies in its influence on economic and social policy-making in resource-abundant countries. These dynamics challenge the long-term viability of their economies and the equity of the distribution of benefits. Addressing this issue is crucial to mitigate environmental impacts and promote inclusive and sustainable growth in these nations. In this context, a bibliometric methodology is adopted to analyze the relationship between this curse and sustainable development. The analysis shows studies published since 2004 between Web of Science and Scopus. The results indicate three main categories; Environmental Studies, Environmental Science and Economics. The results contribute to the understanding of the relationship between natural resources and socio-economic development, highlighting the importance of addressing the situation in order to promote sustainable development in the countries concerned. Finally, theoretical and practical implications are presented.

## 1. Introduction

The phenomenon known as the “resource curse” has been the subject of extensive study and interest in the academic and political spheres (Ross, 2015). This curse, also referred to as the “curse of natural resources” or the “paradox of abundance,” refers to the paradox that, despite possessing abundant natural resources, some countries experience slow or negative economic and social development (Badeeb et al., 2017).

This phenomenon has attracted the attention of researchers, academics, and political leaders due to its significant implications in terms of economic growth, social stability, and long-term sustainability. Although the presence of valuable natural resources such as minerals, oil, gas, or forests could be considered an advantage for a country's development, the reality is that many resource-rich countries face significant challenges and difficulties in their pursuit of progress (Auty, 2007; Iqbal et al., 2022).

Instead of being an engine for development, the abundance of natural resources often becomes an obstacle that hinders economic and social growth (Papyrakis and Gerlagh, 2004). For example, excessive dependence on revenue generated from the exploitation of natural resources can lead to neglect of other economic sectors, resulting in a lack of diversification and vulnerability to fluctuations in international resource prices. As a consequence, Venezuela has become vulnerable to fluctuations in international oil prices, which have had a negative impact on its economy and contributed to its financial instability (Su et al., 2020; Tao et al., 2022).

The mismanagement of these resources, corruption, lack of transparency, and poor governance are often other problems associated with countries affected by the resource curse. These factors can lead to the erosion of institutions, political instability, and inequality, which in turn negatively affect economic and social development (Frankel, 2010). In contrast, countries lacking natural resources may be driven to seek alternatives and diversify their economy, focusing on sectors such as

\* Corresponding author.

E-mail addresses: [francisco@jlacarcel.net](mailto:francisco@jlacarcel.net) (F.J. S. Lacárcel), [paula.gonzalez@urjc.es](mailto:paula.gonzalez@urjc.es) (P. González-Padilla), [nmmatos@ualg.pt](mailto:nmmatos@ualg.pt) (N. Matos), [mcorreia@ualg.pt](mailto:mcorreia@ualg.pt) (M. B. Correia).

<https://doi.org/10.1016/j.resourpol.2023.104560>

Received 14 July 2023; Received in revised form 19 October 2023; Accepted 12 December 2023

Available online 26 December 2023

0301-4207/© 2023 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

technology, education, tourism, or agriculture. These nations often achieve greater development and sustainable progress by not relying solely on natural resources (Busse and Gröning, 2013).

In this context, this article focuses on exploring the connection between the resource curse and sustainable development using a bibliometric methodology. Bibliometric studies are based on the statistical analysis of previously published research in the corresponding thematic field. In this way, these studies pursue objectives such as problem-solving, information identification, and establishing correlations between authors and topics within that field of research.

Following the methodological approach proposed by Budd (1988), the authors, reference journals, and most relevant keywords in the literature, as well as the interconnections between them, are identified. Specifically, this bibliometric analysis uses techniques of bibliographic coupling, word co-occurrence, and co-citation analysis, as previously outlined by other researchers (Donthu et al., 2021; Coronel Pangol et al., 2022). These indicators are also applied in the present study.

The main objective of this study is to examine the current state of research on the resource curse and sustainable development, identifying trends, theoretical approaches, and the most relevant areas of research. Additionally, the study aims to analyze the possible solutions proposed in the literature to overcome this curse and promote more sustainable development. This study aims to improve understanding of the natural resource curse and sustainable development, with the intention of guiding research efforts, informing those decision-making processes, and supporting the dissemination of knowledge. It aims to contribute to creating more effective future policies and practices in managing natural resources and achieving sustainable development goals.

The results of this bibliometric analysis provide an overview of the current academic landscape in this field. This is of practical importance, as it helps to identify the main research trends and theoretical approaches. For policy makers and practitioners, this knowledge can guide decision-making processes related to natural resource management and sustainable development initiatives. It allows them to stay informed about the latest developments and academic consensus in the field, which is crucial for designing effective policies and strategies. In addition, the identification of knowledge gaps through bibliometric analysis is highly beneficial. It directs the attention of researchers to areas that require more research. This can lead to more targeted and impactful research efforts, ultimately benefiting communities affected by resource extraction. Ultimately, it contributes to more effective policies and practices in managing natural resources and achieving sustainable development goals.

The following article details the structure as follows: firstly, the theoretical framework is developed. Secondly, the methodology and the analysis processes are presented in detail. Next, the results are analyzed along with the discussion of their theoretical and practical implications, and finally, the conclusions are drawn, including the limitations of the study.

## 2. Theoretical framework

### 2.1. Definition of the concept of the natural resource curse

The natural resource curse is a concept that denotes a complex phenomenon that has been widely studied in academic and policy circles (Badeeb et al., 2017; Alexeev and Conrad, 2011; Rosser, 2006). It refers to the paradox that occurs in certain countries, those endowed with significant natural resource wealth, whose socio-economic reality does not reflect the potential inherent in these resources. Despite the expectations of prosperity and development that could be derived from the exploitation of these valuable resources, these countries often face difficulties that limit their economic and social growth (Borge et al., 2015).

This paradox has generated sustained interest for its ability to challenge conventional assumptions about the relationship between natural resources and development (Busse and Gröning, 2013). The natural

resource curse, also known as the “paradox of plenty”, has captured the attention of researchers and policy makers alike, who strive to understand the underlying complexities and find effective strategies to address this challenge (Cusato, 2020).

### 2.2. Effects contributing to the natural resource curse

The natural resource curse is a phenomenon that has attracted much academic and political interest because of its implications for countries' economic and social development. Despite having abundant natural resources, some countries experience slow or even negative development, which poses an intriguing paradox (Gebre Borojo et al., 2023). To better understand this problem, it is important to analyze the factors that contribute to this curse. In this regard, a number of effects have been identified as playing a key role. The table below highlights some of these effects.

Technological dependence highlights the importance of diversifying the economy and promoting investment in research and development to avoid continued dependence on natural resources Lampert (2019). On the other hand, income inequality and wealth distribution point to the social and economic challenges that arise when the benefits of resource exploitation are not shared equitably among the population (Fischer, 2010).

### 2.3. Implications for the environment and long-term sustainability of the natural resource curse

Intensive exploitation of natural resources, such as minerals, oil or gas, can lead to serious environmental impacts that compromise the health of ecosystems and the quality of life of local communities (Chidumayo and Gumbo, 2013; Lacárcel, 2022). One of the main negative effects is environmental degradation. Massive resource extraction can involve the destruction of natural habitats, water and air pollution, and the disruption of ecosystems (Bang and Trellevik, 2022; Fan et al., 2023).

This has a direct impact on biodiversity, putting the survival of species and the stability of ecosystems at risk. In addition, dependence on revenues from the exploitation of natural resources can lead to a lack of economic diversification (Boekhout van Solinge, 2014; González-Padilla, 2022). This means that countries become highly dependent on a single resource, making them vulnerable to fluctuations in international prices and future shortages of that resource (Barbosa et al., 2022; Saul, 2015). This lack of diversification makes it difficult to build a strong and sustainable economy in the long term. Furthermore, the exploitation of natural resources is often associated with unsustainable extraction practices, such as indiscriminate deforestation, overfishing or pollution caused by mining.

These activities can have negative consequences for the environment, compromising water quality, ecosystem health and the availability of natural resources for future generations. To address these issues, it is essential to implement environmental and natural resource management policies and practices that promote sustainability (Gilberthorpe and Papyrakis, 2015; J. R. Saura et al., 2023). This means adopting responsible approaches to resource exploitation, encouraging the conservation and restoration of ecosystems, or promoting economic diversification towards more sustainable sectors that are less dependent on natural resources (Kaš'áková et al., 2023).

### 2.4. Environmental and natural resource management policies and practices to promote sustainability

The proper management of natural resources has become essential to ensure a sustainable future (see Table 1). Irresponsible exploitation of natural resources, without adequate consideration of their conservation and sustainability, can have devastating consequences for both the environment and future generations (Allan and Ojeda-García, 2022;

**Table 1**  
Effects of the natural resource curse.

Effects	Effect development	Authors
Over-reliance on natural resource revenues	When a country is heavily dependent on a particular natural resource, it becomes vulnerable to price fluctuations and a lack of economic diversification, which limits its sustainable development.	Mueller (2021)
Inadequate management of resources	Poor management prevents the full benefits of resources from being realised and can lead to inequality in their distribution, eroding institutions and negatively affecting economic and social development.	Vasconcelos et al. (2001)
Impact on institutions and governance	The lack of strong institutions, political instability and social inequality are direct consequences of this phenomenon, which in turn negatively affects economic and social development.	Brunnschweiler and Bulte (2008)
Technological dependency	The exploitation of a country's natural resources may neglect investment in research and technological development. This limits its ability to diversify its economy and adapt to technological change, resulting in continued dependence on natural resources and stagnant economic development.	Chang et al. (2023)
Income inequality and wealth distribution	The benefits generated by resource exploitation are concentrated in the hands of a few, while the majority of the population does not share equally in the wealth generated. This can lead to social tensions, conflicts and aggravate poverty, hindering the country's economic and social development.	Mohtadi and Castells-Quintana (2021)

Source: The authors.

Barbosa et al., 2023). Table 2 shows practical examples from the current literature of some policies and practices that can be implemented for the benefit of sustainability.

### 3. Methodology

#### 3.1. Bibliometric analysis

In this study, a bibliometric analysis is carried out with the purpose of understanding the structure and the main interconnections present in the scientific literature on the concepts of resource curse and sustainable development. The journals indexed in the Journal of Citation Report (JCR) of the Web of Sciences (WoS) platform were examined and it was decided to evaluate the data collected in WoS, as it has a greater number of documents. According to Donthu et al. (2021), bibliometric analyses are studies that quantify bibliographic sources in relation to academic databases. Moral-Muñoz et al. (2020) explain that this type of analysis allows understanding the most relevant academic contributions to date, in addition to identifying maps that reveal the structure and changing characteristics of a field of research. Networks of papers, authors, journals and keywords can be identified, and by analyzing the connections between these indicators, their importance in terms of ranking is understood. The results help to present and classify clusters containing the main scholarly contributions in a specific area of study (Ellegaard and Wallin, 2015; Saura et al., 2021)

**Table 2**  
Environmental management policies and practices for the benefit of sustainability.

Policy and Practice	Description	Authors
Implementing environmental regulations	It may include the adoption of environmental standards, the prohibition of environmentally harmful activities and the promotion of good conservation practices.	Wang and Chen (2020)
Promoting the conservation and restoration of ecosystems	Support the protection of natural areas, such as national parks and biological reserves, to preserve biodiversity and ecosystem services. In addition, promote the restoration of degraded ecosystems to recover their functionality and productivity.	Fischer (2010)
Financial incentives for sustainability	Establish policies that reward businesses and communities that adopt sustainable practices to include tax incentives, subsidies or environmental certification programmes that encourage the adoption of clean technologies and responsible practices.	Tang et al. (2022)
Public participation and consultation	Active participation and public consultation can ensure that the interests of affected communities are taken into account and promote equity in benefit sharing and impact mitigation.	Phillips et al. (2016)
Environmental education and awareness-raising	The development of educational programmes, awareness-raising campaigns and training to promote responsible practices among the population, businesses and decision-makers.	Yang and Song (2019)
Monitoring and follow-up of environmental management	Establish monitoring and evaluation systems to oversee compliance with environmental regulations, the state of natural resources and the impacts of human activities.	Blöre and Smillie (2011)
International cooperation	Promote cooperation and exchange of knowledge and experience between countries to address global environmental and natural resource management challenges.	Havro and Santiso (2011)

Source: The authors

In the scientific literature, three types of analysis are carried out with the aim of enriching and guaranteeing the quality of a bibliometric study with scientific rigor (Ellegaard, 2018; González-Padilla et al., 2023). The first of these is known as co-citation analysis (i), which, according to Ferreira et al. (2016), is the most common and uses the bibliographic references of publications in a database to identify their intellectual structure. The second analysis is bibliographic linkage (ii), which is used to understand documents that share common references and, thus, identify sources of information relevant to the topic of study. Third, keyword concurrency analysis (iii) is used to identify the most frequent keywords in a database (Huang et al., 2020; J. R Saura et al., 2023).

As previously mentioned, this study focuses on conducting a bibliometric analysis involving three types of analysis. The main objective is to generate knowledge in areas with scarce published literature regarding the relationship of the concepts. Specifically, the study focuses on examining the current state of research on the natural resource curse and sustainable development. The purpose is to identify trends, theoretical approaches and the most relevant areas of research in this field.

Importantly, co-citation analysis of authors and references is used to identify the most influential authors in this field of research and to understand their contributions. In addition, bibliographic linkage analysis is used to identify the journals that have published relevant studies in this field of research. Authors such as Persson et al. (2009) point out that these techniques provide insight into the development of this field of

research both in the past and in the present, by analyzing the journal sources used to develop this concept.

In order to determine the main topics related to the object of study, it is important to highlight that the analysis of co-occurrence of keywords is used to determine. Through this analysis, it is possible to identify the most frequently used keywords and, in this way, to understand the topics that have been addressed most frequently and thus to identify the most relevant trends, theoretical approaches and areas of research.

In order to achieve this objective, VOSViewer software was used following the recommendations of Ribeiro-Navarrete et al. (2021) and Donthu et al. (2021). Version 1.6.18 (0) for Macintosh was used. This type of analysis involves generating networks by creating maps composed of nodes and links that are derived from data extracted from the datasets used in the study. These nodes are grouped into different clusters through the links, which the researchers must interpret in a coherent manner (Van Eck and Waltman, 2017; Saura et al., 2022a,b).

In this context, authors, journal publications and keywords are represented as nodes in which the concurrence between them is shown by lines, weight and relevance in the database. The closer two nodes are, the greater the relevance of the link between them. It is important to note that, according to Ribeiro-Navarrete et al. (2021), the fractional counting option is used in the VOSViewer software. This option allows the weight of a link to be divided into fractions. For example, if an author collaborates with 20 other authors on a document, each of the 20 collaborative links will have a weight of 1/20.

In addition, as Orduña-Malea and Costas (2021) point out, by using this software it is possible to visually interpret the results and generate tables of contents showing the metrics of each element. The authors emphasize the importance of links and connections between the main themes of the study. The higher the density and degree of the nodes that make up the identified neurons, the greater the relevance of the clusters and their content. It is important to mention that VOSViewer offers several options to identify neuron maps and data matrices. Thus, it is possible to perform different approaches based on the previously mentioned analyses (Shah et al., 2020; Saura et al., 2022a; Lacárcel and Huete, 2023).

### 3.2. Data sampling

In order to ensure the rigor and scientific quality of the study, the Web of Science (WoS) database has been selected for research on the natural resource curse and sustainable development. Through this choice, it will be possible to identify trends, theoretical approaches and the most relevant areas of research in this field. In addition, we seek to analyze the possible solutions proposed in the literature to overcome this curse and promote a more sustainable development, linking key concepts for this research.

It is important to highlight that the WoS database compiles the JCR index, which is the most prestigious worldwide ranking for academic journals, due to the high quality and classification of its publications. Therefore, this database was the only one used in this study. Authors such as Zhu and Liu (2020) point out that this practice is common in bibliometric studies, where data are collected and classified in a robust and consistent manner. To collect the data, the suggestions proposed by authors such as Paul-Hus et al. (2016) and Rogers et al. (2020) were applied. Upon identifying an emerging thematic, the database searches were adjusted in a structured manner, following classification, segmentation and debugging protocols. The Web of Science (WoS) database was searched using Boolean operators such as AND OR. The search performed was as follows: (All Fields) AND technological innovation (All Fields). The searches were carried out in May 2023, and a total of 77 academic contributions were obtained in WoS, and 63 in Scopus. As there is not an abundance of literature relating the terms that are the subject of this research, it was decided not to select a specific starting date for the contributions. Without the need to filter this data, the results show studies that have been published between 2004 and the most

recent in May 2023. Microsoft Excel was used to clean the data and prepare the database. VOSViewer software was then applied to process and analyze the data.

### 3.3. Sample description

In relation to the description of the sample obtained from the searches performed, it can be seen that there is no contribution in relation to the terms used until 2004. It is not until 2013 that more contributions begin to be published, with a variable number of documents in the following years. In 2022 is when there is a very considerable rise in the number of publications, taking first place as the year with the most literary contributions. It is followed, with a marked difference, by 2020 and 2021, followed closely by 2023, which, taking into account that we are in the middle of the year, may surpass the two years mentioned above (See Fig. 1). From 2020 onwards, there is a change in the number of publications, since until then the number of publications on this subject had not exceeded 10 per year. From that date onwards, in the scientific literature, it can be seen how studies have gradually been added year after year, until reaching more than 24 papers published in 2022. As can be seen in Fig. 1, this trend is increasing and hence the importance of this contribution, adding efforts to understand the relationship of the concepts mentioned throughout the study. In Fig. 1, the Y axis represents the total number of publications and the X axis the years ordered according to the number of publications.

In relation to the categories in which most studies have been published, the Environmental Studies category, with 50.64% of the contributions, is the one that contributes most to the development of the concepts studied. The next most relevant category, with 19.48%, is Environmental Science, followed by Economics, with 10.39%. It should be noted that the first category accounts for half of the contributions, and the second for almost 20%, so that the other categories are more evenly distributed in terms of percentage of contributions. Therefore, we see that Green Sustainable Science Technology is below with 7.79% and Business with 6.49%. It is followed by Energy Fuels and Management with 5.19% in both cases. Also, both, with 3.89%, we find Computer Science Information Systems and Development Studies. Finally, in last position in this Table 3, is Computer Science Artificial Intelligence with 2.59%. The rest of the subcategories that form part of the study are encompassed and classified within each of the parent categories that make up the study. These facts show that the relevant contribution that exists forms a potential of knowledge in relation to the concepts studied and to the importance of understanding the needs of the same. Thus, Table 3 presents the most relevant categories together with the number of records for each category, as well as the most cited authors in the results extracted from the WoS data.

## 4. Results of bibliometric analysis

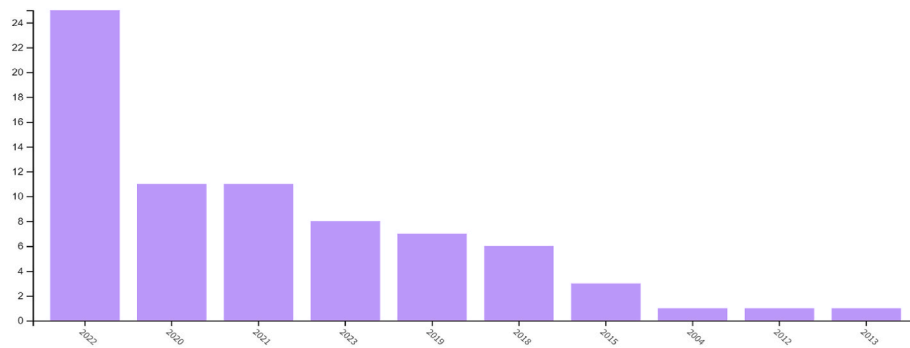
Next, as specified above, the results of co-citation analysis, bibliographic coupling, and keyword co-occurrence are presented.

### 4.1. Co-citation analysis

Table 3 presents the first 10 results based on the co-citation analysis of references and authors. The analysis of the references highlights the need for new studies linking the terms of interest, since, although there is separate literature, there is not yet a solid body of scientific articles addressing this growing trend. In addition, the “link strength” is shown, an indicator that reveals the consistency of the results with those references that have obtained a relevant number of citations. The most relevant reference is Sachs and Warner (2001) with 24 citations. This paper summarizes and extends previous research that has provided evidence of a natural resource curse.

It has been observed that countries with a wealth of natural resources tend to experience slower growth compared to those countries that lack





**Fig. 1.** Number of published articles.  
Source: WoS, retrieved May 2023

**Table 3**

WoS categories and percentage of records and most articles citations.

WoS C natural resource cursecategories	Number of records	% of total
Environmental Studies	39	50.649%
Environmental Science	15	19.481%
Economics	8	10.390%
Green Sustainable Science Technology	6	7.792%
Business	5	6.494%
Energy Fuels	4	5.195%
Management	4	5.195%
Computer Science Information Systems	3	3.896%
Development Studies	3	3.896%
Computer Science Artificial Intelligence	2	2.597%
Article	Author	Citations
The curse of natural resources	Sachs and Warner (2001)	24
Natural Resources: Curse or Blessing?	van der Ploeg (2011)	16
Natural resource abundance, technological innovation, and human capital nexus with financial development: A case study of China	Khan et al. (2020)	17
The evolution of the natural resource curse thesis: A critical literature survey	Badeeb et al. (2017)	16

Source: Adapted from WoS data

these resources. This result cannot be easily explained by other variables or by alternative measures of resource abundance. Furthermore, this study shows that there is little direct evidence to support the idea that omitted geographic or climatic variables explain this curse, nor that there is a bias caused by some other unobserved factor that discourages growth. Resource-abundant countries tend to have high-priced economies and, as a consequence, are likely to lose export-led growth momentum.

Fig. 2 below shows the references resulting from the analysis computed as reference co-citation analysis. The minimum number of citations established for the analysis was 16 out of 3848 cited references. A total of 4 references were considered. The total link strength was 26.00, with one cluster and 6 links. In order to simplify the analysis process in the reference network, those references that obtained the highest link strength were selected. Each label present in Fig. 2 represents a reference. The size of the letters is related to the number of citations received by that reference in the analyzed database. The distance between two references determines the probability that they are cited together. Therefore, when two references are closer together in the figure, the probability that they will be cited together increases.

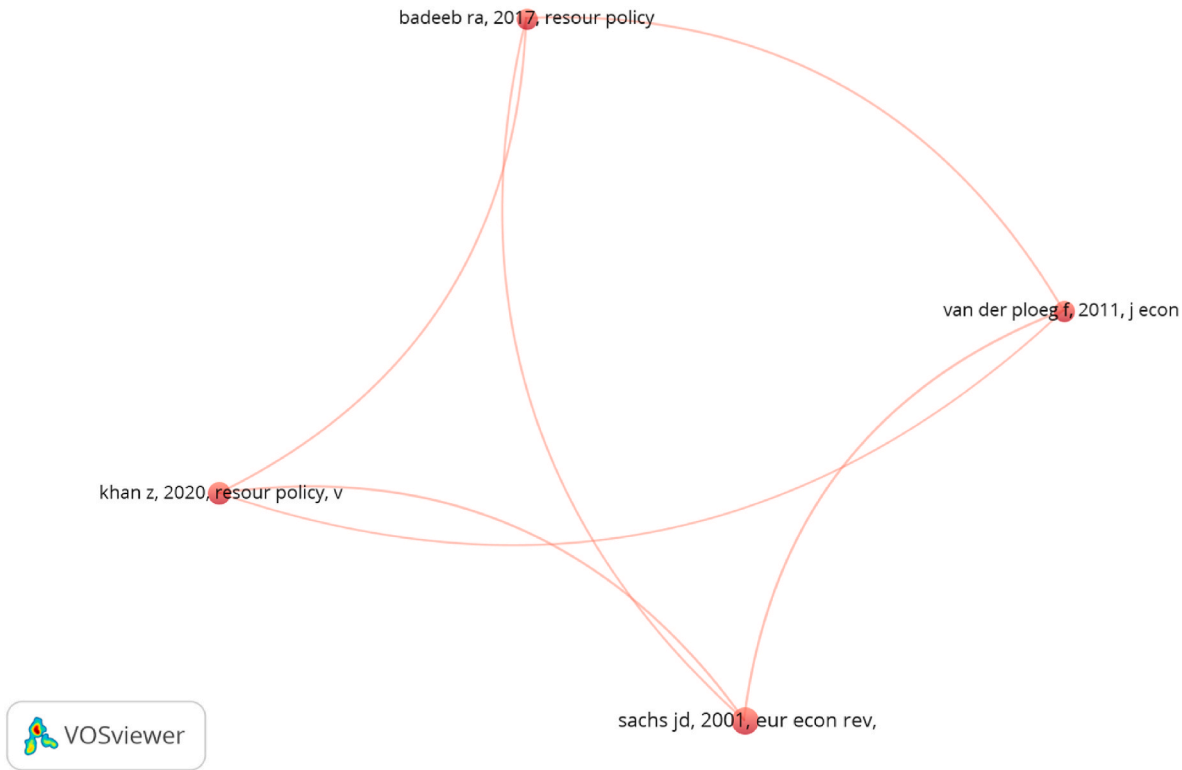
As can be seen in the figure below, there is 1 cluster where it can be seen through the network in red color how they are associated with a total of 4 papers (Badeeb; van der Ploeg, 2011; Khan; Sachs) focused on the study of everything related to resource curse and sustainability. This cluster contains the most important papers in terms of relevance identified in the database.

It is important to note that the co-citation analysis reveals the most cited authors in the database used. Normally, the top 10 cited references are considered. In this case, the scarce literature relating the two terms makes the results lower. Even so, we can see that the most cited author is Sachs and Warner with 24 citations and a link strength of 15.00. In second place is van der Ploeg with 16 citations and link strength of 13. He is followed by Khan with 17 citations and a link strength of 12, and finally Badeeb, with 16 citations and a link strength of 12, differing from van der Ploeg who, despite having the same number of citations, beats him in link strength. With the review of these documents, it is possible to understand the relationship between the concepts that are the subject of this research.

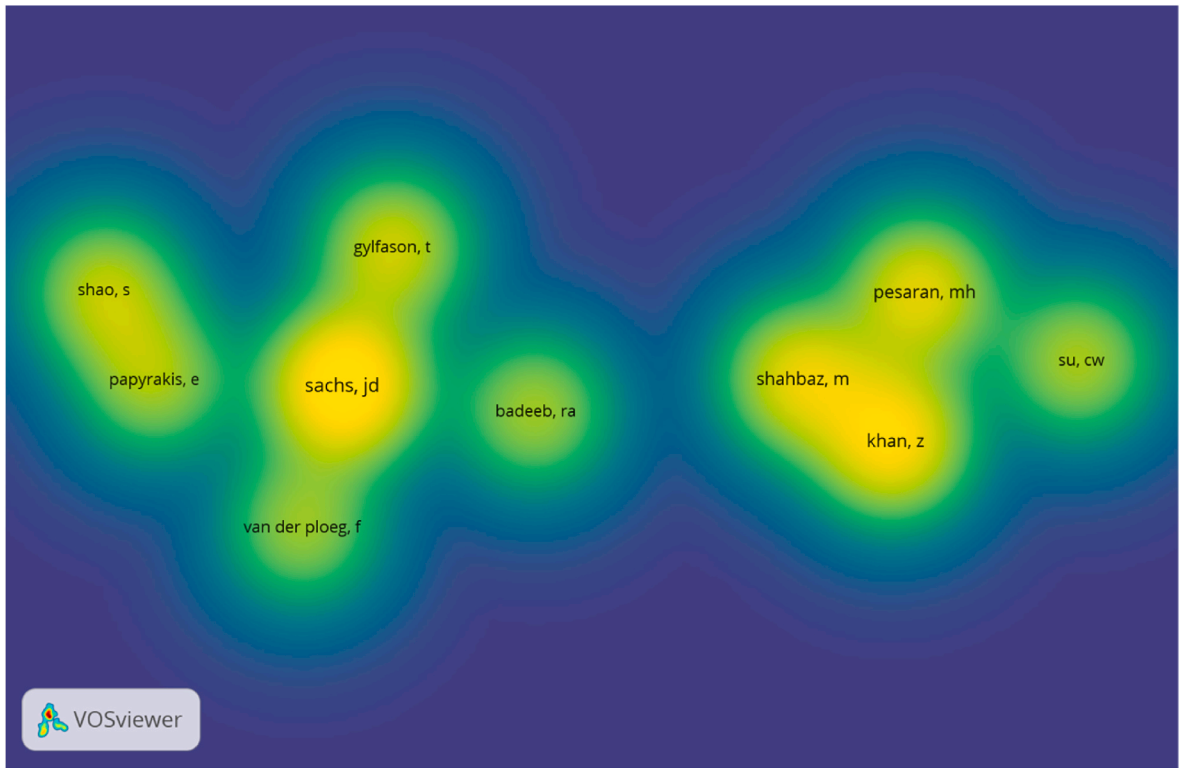
As can be seen in Fig. 3, the clusters obtained from the density analysis of the co-citation analysis of authors map are differentiated. The minimum number of citations of an author was set at 20, so 10 authors (out of the 2940) exceeding this 3 meet threshold. Therefore, a total of 44 links, 10 items, 2 clusters were obtained, which computed a total link strength of 117.69. In this context, it is relevant to highlight that a previous verification was carried out in order to avoid possible confusions derived from the presence of authors with similar names, which could have an impact on the results. However, in the case of this study, no discrepancies related to this issue were found.

To interpret the results presented in Fig. 3, a color scheme was used to highlight the clusters formed by the most cited authors. The clusters represented in dark red tones indicate those authors who have received a greater number of citations, while the clusters in yellow tones correspond to authors with fewer citations. The proximity and position of authors on the map reflect their relationship to each other. Thus, when two authors are close on the map, there is a higher probability that they will be cited together. Three clusters were identified that are characterized by their topics and areas of interest in this study. In particular, the cluster located to the right of the figure shows a more intense yellow tone than the other clusters, which indicates the presence of the most relevant authors in that group such as Shahbaz and Khan, being located near Pesaran. Here we evaluate the impact of natural resource endowment and its effect on financial development. The empirical results of one of the papers support the presence of the resource curse; that is, natural resources negatively affect financial development in China. However, technological innovations, trade openness and human capital positively affect financial development. The interaction of human capital and technological innovations is also positively linked to financial development.

The second cluster, which is stronger in tone and color, is located in the upper left part of the figure, with Sachs as the main author, forming a cluster with Gylfason and van der Ploeg. This cluster shows contributions focused on why some countries benefit and others lose from the presence of natural resources. These include that a resource bonanza induces real exchange rate appreciation, deindustrialization and poor growth prospects, and that these adverse effects are more severe in



**Fig. 2.** Reference co-citation analysis.  
Source: The author based on WoS data



**Fig. 3.** Density map of author co-citation analysis.  
Source: The author based on WoS data

volatile countries with poor institutions and lack of rule of law, corruption, presidential democracies and underdeveloped finances. The last important cluster to note is to the left of the last one just mentioned, also to the left of the figure. In this cluster we find Shao and Papyrakis.

#### 4.2. Bibliographic coupling of sources

In the map of journals that publish on the topics of this research, the minimum number of documents of a source was set at 20. The minimum number of citations was set to 0 in order not to penalize more recent publications (Ribeiro-Navarrete et al., 2021). As can be seen below, Table 4 shows the ranking of the most cited journals that are part of the selected database. The journal with the most published papers is Resources Policy. This journal presents the highest link strength with 85.62 and the highest number of citations with 742, and a total of 31 documents. In second place, with a total of 5 documents and 38 citations is Environmental Science and Pollution Research, although in the second position with a link strength of 55.29. In third position is Renewable Energy with 2 documents, 6 citations and a link strength of 22.00. Finally, and in fourth place, Sustainability appears, with 2 documents, 4 citations and a link strength of 13 (see Table 5).

Fig. 4 below shows the relationship between these journals. In a very visual way, it is possible to observe the great importance of the journal Resources Policy, which has concentrated its relevant publications in the years 2021 and 2022. In addition, it can be seen how the others surround it, finding other journals also mentioned in the table, such as Environmental Science and Pollution Research with publications around 2022, Renewable Energy concentrating publications in 2023, and finally Sustainability with publications in 2020.

#### 4.3. Author keyword co-occurrence

Fig. 5 shows a network of the keywords contained in the documents. In this case, a threshold of five occurrences was used. The network has a total of 153 links. The results indicate that the most repeated keyword is curse with a total of 26 occurrences and a link strength of 25. Next, a very important concept for this study appears as the word economic-growth with 21 occurrences and a link strength of 21, below we can visualize in the table the third position which is innovation with 19 occurrences and 18 of total link strength. In the same line we can observe the term resource curse, with the same link strength and a total of 24 occurrences. The keywords financial development, growth, and natural-resources, with 16, 15 and 15 occurrences respectively and link strengths of between 16 and 15, are close behind (see Table 6). They are closely followed by the term technological innovation, and it is after this

**Table 5**  
Bibliographic coupling of sources.

Source	Documents	Citations	Link strength
Resources policy	31	742	85.62
Environmental science and pollution research	5	38	55.29
Renewable energy	2	6	22.00
Sustainability	2	4	13.00

Source: Authors based on VOSviewer results.

that we find other related concepts such as China, natural resources, abundance, institutional quality, cointegration, or renewable energy.

These keywords highlight the main themes that accompany the processes of sustainable development and resource curse. The relation of the keywords on which this research is focused supports and evidences the need to investigate more on the key concepts and to look for efficient options for the good use of resources.

Finally, we can also highlight the last three words observed in the table. Consumption, with 6 occurrences and 6 of link strength, and efficiency and impact, with 5 occurrences and 5 of link strength each, bring us closer to a more specific vision of how to diversify the economy and optimize investment in research and development, avoiding continued dependence on natural resources.

## 5. Conclusion

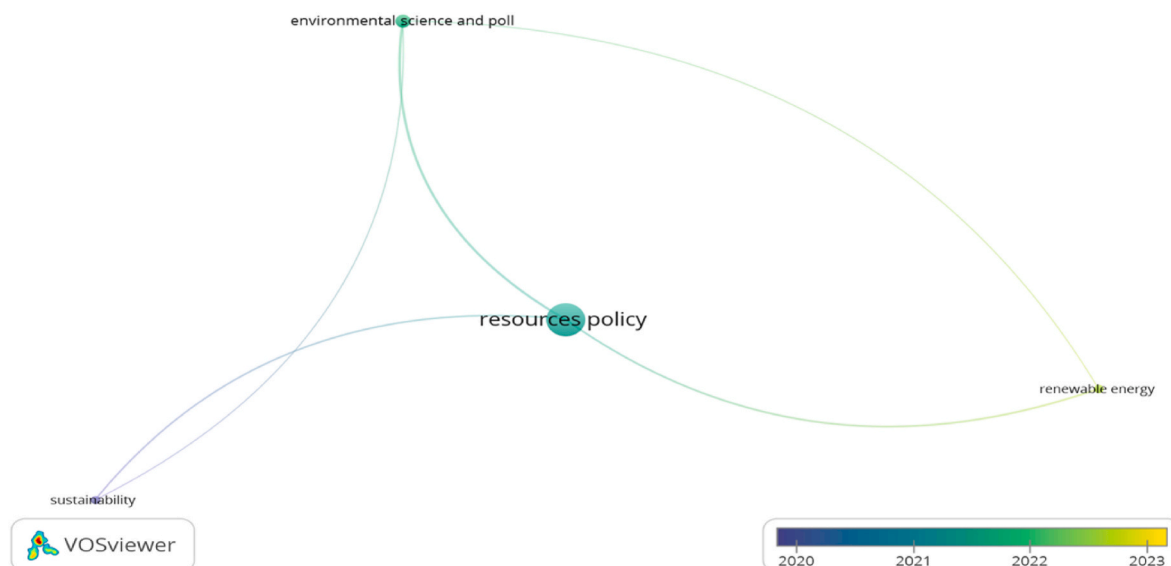
The “Resource Curse” is a phenomenon that has sparked considerable interest in academic and political circles. Some countries possess an abundance of natural resources, such as oil, minerals, or gas, yet paradoxically experience limited or even regressive economic and social development. This situation raises the fundamental question of how natural resources, which could be a source of wealth and prosperity, become a curse for certain nations (Abdulahi et al., 2019). Inadequate resource management, corruption, and poor governance have been identified as recurring problems associated with this “resource curse” (Adams et al., 2019). This paradox has been raised in research on how natural resources, instead of driving progress, become a burden on sustainable development.

To analyze the current academic situation, a bibliometric methodology was used to analyze the connection between the natural resource curse and sustainable development. The results obtained through the bibliometric analysis reveal important findings that contribute to the understanding and reflection on this issue. The results obtained through the application of the bibliometric methodology provide a

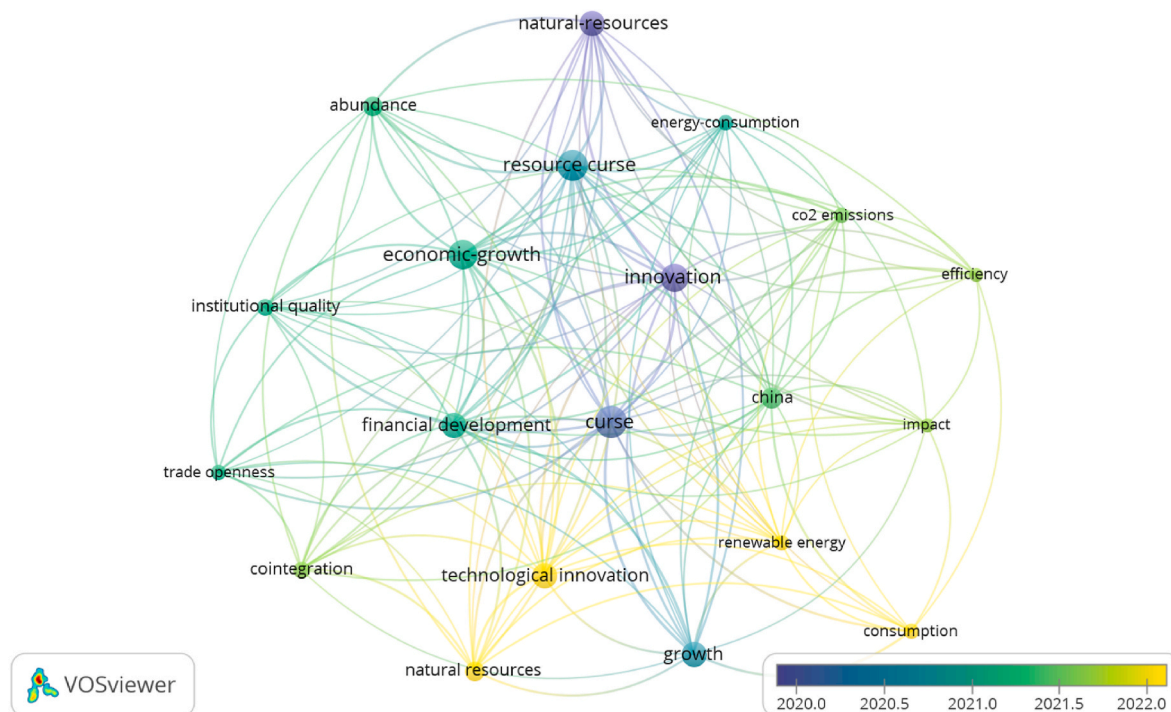
**Table 4**  
Reference co-citation and author co-citation results.

References co-citations				Author co-citation		
Title	Author(s)	Citations	Link strength	Author(s)	Citations	Link strength
The curse of natural resources	Sachs and Warner (2001)	24	15.00	Sacha, JD	51	36.85
Natural Resources: Curse or Blessing?	van der Ploeg (2011)	16	13.00	Khan, Z	40	29.30
Natural resource abundance, technological innovation, and human capital nexus with financial development: A case study of China	Khan (2011)	17	12.00	Gylfason, T	28	27.58
The theory of planned behavior	Badeeb et al. (2017)	16	12.00	Shahbaz, M	32	24.00
				Pesaran, MH	32	21.83
				Badeeb, RA	22	21.80
				Shao, S	25	20.96
				Papyrakis, E	22	18.04
				Su, CW	23	17.55
				Van der Ploeg, F	21	17.47

Source: The author based on WoS data



**Fig. 4.** Bibliographic coupling of sources by average year-old publication.  
Source: The author based on WoS data



**Fig. 5.** Author keyword co-occurrence by average year of publication.  
Source: The author based on WoS data

comprehensive and systematic overview of the field of study, making it possible to identify the main research currents, the predominant theoretical approaches and the gaps in existing knowledge.

Understanding the relationship between natural resources and sustainable development is crucial to addressing the socio-economic and environmental challenges facing many nations. This study provides a solid foundation for future research by identifying the thematic and methodological areas that require further attention and exploration. In addition, the use of bibliometric methodology will facilitate the identification of the most influential authors in the field, the academic journals of reference and the most relevant keywords, which contributes to

enriching the theoretical and conceptual frame of reference in this area of study. In summary, this study's use of bibliometric analysis has far-reaching practical implications. It enhances our understanding of the natural resource curse and sustainable development, guides research efforts, informs decision-making processes, and facilitates knowledge dissemination. Ultimately, it contributes to more effective policies and practices in the management of natural resources and the pursuit of sustainable development goals.



**Table 6**  
Author keyword co-occurrence.

Keywords	Occurrence	Total link strength
Curse	26	25.00
Economic-growth	21	21.00
Innovation	19	18.00
Resource curse	24	18.00
Financial development	16	16.00
Growth	15	15.00
Natural-resources	15	15.00
Technological innovation	15	13.00
China	11	10.00
Natural resources	10	10.00
Abundance	9	9.00
Institutional quality	7	7.00
Cointegration	7	7.00
Renewable energy	6	6.00
CO2 emissions	6	6.00
Trade openness	6	6.00
Energy-consumption	6	6.00
Consumption	6	6.00
Efficiency	5	5.00
Impact	5	5.00

Source: Authors based on VOSviewer results.

### 5.1. Theoretical contributions and implications

This research provides the opportunity for other researchers to focus on specific aspects of the natural resource curse, in addition to understanding its evolution over time. In addition, the methodology developed identifies the various processes proposed, allowing other researchers to replicate these approaches and link the concepts to an original and novel subject of study where there is a knowledge gap. The indicators identified as keywords in the authors' keyword concurrence analysis could be considered as variables or indicators in future quantitative studies that seek to establish significant relationships.

In addition, the importance of keywords identified in this study such as "Innovation" and "Technological innovation" raises questions about the potential role of innovation in mitigating resource-related challenges. This calls for theoretical investigations into how innovation, particularly in resource-rich contexts, can serve as a catalyst for economic development. In addition, the intricate relationship between "Financial development" and "Growth" warrants theoretical exploration. Researchers can delve into the mechanisms through which financial institutions influence economic prosperity, especially in resource-based economies, providing valuable insights into the theoretical aspects of this interplay.

Possible theoretical underpinnings between the balance of "renewables," "CO2 emissions," and "economic growth" should also be highlighted to gain a more solid understanding of how countries can achieve sustainable economic development while addressing environmental degradation. How institutional quality affects sustainable development outcomes could also be further explored. Researchers could explore the theoretical underpinnings underlying the influence of governance, rule of law and regulatory frameworks on economic growth and environmental sustainability. These theoretical implications offer a rich avenue for future research, providing a framework for further theoretical exploration in the context of resource-rich economies.

### 5.2. Implications for practice

By identifying the most relevant sources of information cited in the field of resource curse and sustainable development, it means that researchers can access the most important sources or expand their knowledge on the topic through this article. Furthermore, by knowing the most frequently used topics, keywords or sources, researchers can use the bibliometric methodology to plan future research. This allows them to identify areas where there is little research and contribute to

filling those knowledge gaps.

The results of this bibliometric analysis provide a comprehensive overview of the current academic landscape in this field. This holds practical significance as it aids in identifying the primary research trends and theoretical approaches. For policymakers and professionals, this knowledge can guide decision-making processes related to natural resource management and sustainable development initiatives. It enables them to stay informed about the latest advancements and academic consensus in this domain, which is crucial for designing effective policies and strategies. For example, if the analysis reveals a lack of studies on the socio-economic consequences of resource extraction in a particular region, it can serve as an incentive for researchers and funding agencies to prioritize research in that area. This, in turn, can lead to more focused and impactful research initiatives, ultimately benefiting communities affected by resource extraction.

In addition, the prominence of keywords such as "Innovation", "Technological innovation" and "Economic growth" underlines the importance of encouraging investment in research and development (R&D) and technological infrastructure. Policy makers can prioritize initiatives that promote innovation and entrepreneurship, especially in resource-dependent economies, to boost economic growth. Practical measures should encompass incentivizing renewable energy production, reducing carbon emissions and supporting research and development efforts within the renewable energy sector. These practical considerations provide a comprehensive framework for informed decision-making and policy formulation, with the aim of addressing the challenges and capitalizing on the opportunities in resource-rich economies.

### 5.3. Limitations and future research directions

There are several limitations in bibliometric studies that should be taken into account. It is important to note that there are conceptual or methodological limitations regarding the closeness between the publications identified and the co-citation and reference analyses performed. This is relevant because the relevance of the papers studied may be related to a multitude of factors that could be analyzed and linked to the subject of study. Even if the terms used in the databases are correct and have been carefully studied, there are common limitations in terms of the results obtained or the number of citations that a paper included in the study may have. It is important to emphasize that a certain degree of subjectivity is unavoidable when describing exploratorily and linking the concepts identified as relevant to the subject of study.

In the realm of future research directions, it is interesting to consider several key avenues for further exploration. One crucial aspect is the adoption of multidisciplinary approaches. Researchers should continue to embrace multidisciplinary to gain a more comprehensive understanding of the natural resource curse and its implications for sustainable development. By drawing insights from diverse fields such as environmental studies, economics, political science, and sociology, a holistic perspective on this complex issue can emerge.

Another aspect is extensive longitudinal analysis. Future studies could focus on conducting thorough longitudinal assessments to gauge the enduring impact of policies and interventions designed to mitigate the natural resource curse. Tracking the progress of resource-abundant nations over several decades can reveal hidden patterns and trends that shorter-term investigations might overlook.

Furthermore, a deeper exploration of governance and institutional reforms is warranted. Researchers should delve into the effectiveness of specific governance structures, anti-corruption measures, and policy frameworks within resource-rich countries. Understanding which reforms yield the most significant results in promoting sustainable development is of paramount importance.

Comparative studies between resource-abundant countries that have successfully addressed the natural resource curse and those still grappling with it can offer valuable insights. Identifying key differentiators in terms of policies, governance, and resource management can inform

best practices. Additionally, there is a growing need to assess the environmental impact of resource extraction and resource-driven development. Future research could prioritize the study of how resource exploitation affects ecosystems, biodiversity, and climate change.

In addition, exploring the potential of technological innovation in resource management and sustainable development is warranted. This exploration includes studying how technological advancements can enhance resource efficiency and mitigate the environmental impacts associated with resource extraction and exploitation. Evaluating the effectiveness of international agreements, initiatives, and partnerships in addressing the natural resource curse is vital. Gaining insights into how global actors can collaborate to support sustainable development in resource-rich countries can yield valuable policy recommendations. Lastly, continual evaluation of policies and interventions aimed at mitigating the natural resource curse remains crucial. Researchers must focus on assessing the real-world impact of these measures and providing evidence-based recommendations for policy improvements.

### Author-statement

We, the authors of this research article titled ‘Bibliometric measurement of the resource curse and its implication for Sustainable Development’, declare that we have no conflicts of interest that could have influenced the results or interpretations presented in this study. Furthermore, we confirm that each author has significantly contributed to the conception, design, data analysis, and drafting of this manuscript. All funding sources supporting this research are duly acknowledged in the Acknowledgments section of this article. We affirm that this manuscript represents original work and has not been published elsewhere, nor is it currently under review at any other publication venue.

### Declaration of competing interest

The authors of this research article, Nelson Matos, P. González-Padilla, Francisco Javier S. Lacárcel and Marisol B. Correia declare that they have conducted the study without any conflict of interest to disclose.

We certify that we have no financial, personal, or professional relationships that could influence the results, the analysis of the data, or the interpretation of the findings presented in this article. All aspects of the study have been conducted independently and objectively, without any external influence that could bias the results.

We thank the scientific community and readers for their attention and confidence in our work.

### Acknowledgements

The author(s) declared to have received the following financial support for the research, authorship and/or publication of this article: This work is supported by National Funds provided by the FCT-Foundation for Science and Technology through the project UIDB/04020/2020.

### References

- Alexeev, M., Conrad, R., 2011. The natural resource curse and economic transition. *Econ. Syst.* 35 (4), 445–461. <https://doi.org/10.1016/j.ecosys.2010.10.003>.
- Abdulahi, M.E., Shu, Y., Khan, M.A., 2019. Resource rents, economic growth, and the role of institutional quality: a panel threshold analysis. *Resour. Pol.* 61, 293–303. <https://doi.org/10.1016/j.resourpol.2019.02.011>.
- Adams, D., Adams, K., Ullah, S., Ullah, F., 2019. Globalisation, governance, accountability and the natural resource ‘curse’: implications for socio-economic growth of oil-rich developing countries. *Resour. Pol.* 61, 128–140. <https://doi.org/10.1016/j.resourpol.2019.02.009>.
- Allan, J., Ojeda-García, R., 2022. Natural resource exploitation in Western Sahara: new research directions. *J. N. Afr. Stud.* 27 (6), 1107–1136. <https://doi.org/10.1080/13629387.2021.1917120>.
- Auty, R.M., 2007. Natural resources, capital accumulation and the resource curse. *Ecol. Econ.* 61 (4), 627–634. <https://doi.org/10.1016/j.ecolecon.2006.09.006>.
- Badeeb, R.A., Lean, H.H., Clark, J., 2017. The evolution of the natural resource curse thesis: a critical literature survey. *Resour. Pol.* 51, 123–134. <https://doi.org/10.1016/j.resourpol.2016.10.015>.
- Barbosa, B., Saura, J.R., Zekan, S.B., Ribeiro-Soriano, D., 2023. Defining content marketing and its influence on online user behavior: a data-driven prescriptive analytics method. *Ann. Oper. Res.* 1–26. <https://doi.org/10.1007/s10479-023-05261-1>.
- Barbosa, B., Saura, J.R., Bennett, D., 2022. How do entrepreneurs perform digital marketing across the customer journey? A review and discussion of the main uses. *J. Technol. Tran.* <https://doi.org/10.1007/s10961-022-09978-2>, 2022.
- Bang, R.N., Trellevik, L.K.L., 2022. Perspectives on exploration and extraction of seafloor massive sulfide deposits in Norwegian waters. *Mineral Economics* 1–49. <https://doi.org/10.1007/s13563-022-00346-y>.
- Blöre, S., Smillie, I., 2011. Taming the Resource Curse: Implementing the ICGLR Certification Mechanism for Conflict-Prone Minerals.
- Boekhout van Solinge, T., 2014. The Illegal Exploitation of Natural Resources. <https://doi.org/10.1093/oxfordhb/9780199730445.013.024>.
- Brunnschweiler, C.N., Bulte, E.H., 2008. The resource curse revisited and revised: a tale of paradoxes and red herrings. *J. Environ. Econ. Manag.* 55 (3), 248–264. <https://doi.org/10.3929/ethz-a-005303746>.
- Budd, J.M., 1988. A bibliometric analysis of higher education literature. *Res. High. Educ.* 28, 180–190. <https://doi.org/10.1007/BF00992890>.
- Busse, M., Gröning, S., 2013. The resource curse revisited: governance and natural resources. *Publ. Choice* 154, 1–20. <https://doi.org/10.1007/s11127-011-9804-0>.
- Chang, L., Shi, F., Taghizadeh-Hesary, F., Saydaliev, H.B., 2023. Information and communication technologies development and the resource curse. *Resources Policy* 80, 103123. <https://doi.org/10.1016/j.resourpol.2022.103123>.
- Chidumayo, E.N., Gumbo, D.J., 2013. The environmental impacts of charcoal production in tropical ecosystems of the world: a synthesis. *Energy for Sustainable Development* 17 (2), 86–94. <https://doi.org/10.1016/j.esd.2012.07.004>.
- Coronel Pangol, K., Orden Cruz, C., Paule Vianez, J., 2022. Bibliometric Analysis of Alternative Financing for Entrepreneurship. <https://doi.org/10.5295/cdg.211559kc>.
- Cusato, E., 2020. International law, the paradox of plenty and the making of resource-driven conflict. *Leiden J. Int. Law* 33 (3), 649–666. <https://doi.org/10.1017/S0922156520000266>.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., Lim, W.M., 2021. How to conduct a bibliometric analysis: an overview and guidelines. *J. Bus. Res.* 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>.
- Ellegaard, O., 2018. The application of bibliometric analysis: disciplinary and user aspects. *Scientometrics* 116 (1), 181–202. <https://doi.org/10.1007/s11192-018-2765-z>.
- Ellegaard, O., Wallin, J.A., 2015. The bibliometric analysis of scholarly production: how great is the impact? *Scientometrics* 105, 1809–1831. <https://doi.org/10.1007/s11192-015-1645-z>.
- Fan, H., Zhang, N., Su, H., 2023. The effects of smart city construction on urban green total factor productivity: evidence from China. *Economic Research-Ekonomska Istraživanja* 36 (1), 2181840. <https://doi.org/10.1080/1331677X.2023.2181840>.
- Ferreira, J.J.M., Fernandes, C.I., Ratten, V., 2016. A co-citation bibliometric analysis of strategic management research. *Scientometrics* 109, 1–32. <https://doi.org/10.1007/s11192-016-2008-0>.
- Fischer, C., 2010. Does Trade Help or Hinder the Conservation of Natural Resources? <https://doi.org/10.1093/reep/rep023>.
- Frankel, J.A., 2010. The Natural Resource Curse: a Survey (No. W15836). National Bureau of Economic Research. <https://doi.org/10.3386/w15836>.
- Gebre Borojo, D., Yushi, J., Hongyu, Z., Xiao, L., Miao, M., 2023. A pathway to the green revolution in emerging economies: how does green technological innovation affect green growth and ecological sustainability? *Economic research-Ekonomska Istraživanja* 36 (1). <https://doi.org/10.1080/1331677X.2023.2167223>.
- Gilberthorpe, E., Papyrakis, E., 2015. The extractive industries and development: the resource curse at the micro, meso and macro levels. *Extr. Ind. Soc.* 2 (2), 381–390. <https://doi.org/10.1016/j.exis.2015.02.008>.
- González-Padilla, P., Navalpotro, F.D., Saura, J.R., 2023. Managing entrepreneurs’ behavior personalities in digital environments: a review. *Int. Enterpren. Manag. J.* 1–25. <https://doi.org/10.1007/s11365-022-00823-4>.
- González-Padilla, P., 2022. Tourist behavior and demand for digital disconnection: a review. *Journal of Tourism, Sustainability and Well-Being* 10 (3), 201–214. <https://doi.org/10.34623/tp23-a945>.
- Havro, G., Santiso, J., 2011. Benefiting the resource rich: how can international development policy help tame the resource curse? *IDS Working Papers* 2011 (355), 1–54. <https://doi.org/10.1111/j.2040-0209.2011.00355.2.x>.
- Huang, C., Yang, C., Wang, S., Wu, W., Su, J., Liang, C., 2020. Evolution of topics in education research: a systematic review using bibliometric analysis. *Educ. Rev.* 72 (3), 281–297. <https://doi.org/10.1080/00131911.2019.1566212>.
- Iqbal, N., Naem, M.A., Suleman, M.T., 2022. Quantifying the asymmetric spillovers in sustainable investments. *J. Int. Financ. Mark. Inst. Money* 77, 101480. <https://doi.org/10.1016/j.jintfin.2021.101480>.
- Kašáková, E., Kašáková, E., Luptáková, A., 2023. Identification of export potential in foreign trade: case of Slovakia in Kazakhstan. *Economic research-Ekonomska Istraživanja* 36 (1). <https://doi.org/10.1080/1331677X.2023.2179510>.
- Khan, Z., Hussain, M., Shahbaz, M., Yang, S., Jiao, Z., 2020. Natural resource abundance, technological innovation, and human capital nexus with financial development: a case study of China. *Resour. Pol.* 65, 101585. <https://doi.org/10.1016/j.resourpol.2020.101585>.
- Lacárcel, F.J., Huete, R., 2023. Digital communication strategies used by private companies, entrepreneurs, and public entities to attract long-stay tourists: a review. *Int. Enterpren. Manag. J.* 1–18. <https://doi.org/10.1007/s11365-023-00843-8>.

- Lacárcel, F.J.S., 2022. Main uses of artificial intelligence in digital marketing strategies linked to tourism. *Journal of Tourism, Sustainability and Well-being* 10 (3), 215–226. <https://doi.org/10.34623/mppf-r253>.
- Lampert, A., 2019. Over-exploitation of natural resources is followed by inevitable declines in economic growth and discount rate. *Nat. Commun.* 10 (1), 1419. <https://doi.org/10.1038/s41467-019-09246-2>.
- Mohtadi, S., Castells-Quintana, D., 2021. The distributional dimension of the resource curse: commodity price shocks and income inequality. *Struct. Change Econ. Dynam.* 59, 63–78. <https://doi.org/10.1016/j.strueco.2021.08.002>.
- Moral-Muñoz, J.A., Herrera-Viedma, E., Santisteban-Espejo, A., Cobo, M.J., 2020. Herramientas de software para realizar análisis bibliométricos en ciencia: una revisión actualizada. *Profesional de la Información* 29 (1). <https://doi.org/10.3145/epi.2020.ene.03>.
- Mueller, J.T., 2021. Defining dependence: the natural resource community typology. *Rural Sociol.* 86 (2), 260–300. <https://doi.org/10.1111/ruso.12357>.
- Orduna-Malea, E., Costas, R., 2021. Link-based approach to study scientific software usage: the case of VOSviewer. *Scientometrics* 126 (9), 8153–8186. <https://doi.org/10.1007/s11192-021-04082-y>.
- Papayrakis, E., Gerlagh, R., 2004. The resource curse hypothesis and its transmission channels. *J. Comp. Econ.* 32 (1), 181–193. <https://doi.org/10.1016/j.jce.2003.11.002>.
- Paul-Hus, A., Desrochers, N., Costas, R., 2016. Characterization, description, and considerations for the use of funding acknowledgement data in Web of Science. *Scientometrics* 108, 167–182. <https://doi.org/10.1007/s11192-016-1953-y>.
- Persson, O., Danell, R., Schneider, J.W., 2009. How to use Bibexcel for various types of bibliometric analysis. *Celebrating scholarly communication studies: A Festschrift for Olle Persson at his 60th Birthday* 5, 9–24.
- Phillips, J., Hailwood, E., Brooks, A., 2016. Sovereignty, the ‘resource curse’ and the limits of good governance: a political economy of oil in Ghana. *Rev. Afr. Polit. Econ.* 43 (147), 26–42. <https://doi.org/10.1080/03056244.2015.1049520>.
- Ploeg, F.V.D., 2011. Natural resources: curse or blessing? *J. Econ. Lit.* 49 (2), 366–420. <https://doi.org/10.1257/jel.49.2.366>.
- Ribeiro-Navarrete, S., Saura, J.R., Palacios-Marqués, D., 2021. Towards a new era of mass data collection: assessing pandemic surveillance technologies to preserve user privacy. *Technol. Forecast. Soc. Change* 167, 120681. <https://doi.org/10.1016/j.techfore.2021.120681>.
- Rogers, G., Szomszor, M., Adams, J., 2020. Sample size in bibliometric analysis. *Scientometrics* 125 (1), 777–794. <https://doi.org/10.1007/s11192-020-03647-7>.
- Ross, M.L., 2015. What have we learned about the resource curse? *Annu. Rev. Polit. Sci.* 18, 239–259. <https://doi.org/10.1146/annurev-polisci-052213-040359>.
- Rosser, A., 2006. *The Political Economy of the Resource Curse: A Literature Survey*.
- Sachs, J.D., Warner, A.M., 2001. The curse of natural resources. *Eur. Econ. Rev.* 45 (4–6), 827–838. [https://doi.org/10.1016/S0014-2921\(01\)00125-8](https://doi.org/10.1016/S0014-2921(01)00125-8).
- Saul, B., 2015. The status of Western Sahara as occupied territory under international humanitarian law and the exploitation of natural resources. *Global Change Peace Secur.* 27 (3), 301–322. <https://doi.org/10.1080/14781158.2015.1075969>.
- Saura, J.R., Ribeiro-Navarrete, S., Palacios-Marqués, D., Mardani, A., 2023. Impact of extreme weather in production economics: extracting evidence from user-generated content. *Int. J. Prod. Econ.* 260, 108861. <https://doi.org/10.1016/j.ijpe.2023.108861>.
- Saura, J.R., Palacios-Marqués, D., Ribeiro-Soriano, D., 2023. Exploring the boundaries of Open Innovation: evidence from social media mining. *Technovation* 119, 102447. <https://doi.org/10.1016/j.technovation.2021.102447>. January 2023.
- Saura, J.R., Ribeiro-Soriano, D., Palacios-Marqués, D., 2022a. Assessing behavioral data science privacy issues in government artificial intelligence deployment. *Govern. Inf. Q.* 39 (4), 101679. <https://doi.org/10.1016/j.giq.2022.101679>. October 2022.
- Saura, J.R., Dwivedi, Y.K., Palacios-Marqués, D., 2022b. Online user behavior and user-generated content. *Front. Psychol.* 13, 895467. <https://doi.org/10.3389/fpsyg.2022.895467>.
- Saura, J.R., Ribeiro-Soriano, D., Palacios-Marqués, D., 2021. Setting B2B digital marketing in artificial intelligence-based CRMs: a review and directions for future research. *Ind. Market. Manag.* 98 (October 2021), 161–178. <https://doi.org/10.1016/j.indmarman.2021.08.006>.
- Shah, S.H.H., Lei, S., Ali, M., Doronin, D., Hussain, S.T., 2020. Presumption: bibliometric analysis using HistCite and VOSviewer. *Kybernetes* 49 (3), 1020–1045. <https://doi.org/10.1108/K-12-2018-0696>.
- Su, C.W., Khan, K., Tao, R., Umar, M., 2020. A review of resource curse burden on inflation in Venezuela. *Energy* 204, 117925. <https://doi.org/10.1016/j.energy.2020.117925>.
- Tang, C., Irfan, M., Razzaq, A., Dagar, V., 2022. Natural resources and financial development: role of business regulations in testing the resource-curse hypothesis in ASEAN countries. *Resour. Pol.* 76, 102612. <https://doi.org/10.1016/j.resourpol.2022.102612>.
- Tao, R., Su, C.W., Naqvi, B., Rizvi, S.K.A., 2022. Can Fintech development pave the way for a transition towards low-carbon economy: a global perspective. *Technol. Forecast. Soc. Change* 174, 121278. <https://doi.org/10.1016/j.techfore.2021.121278>.
- Van Eck, N.J., Waltman, L., 2017. Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics* 111, 1053–1070. <https://doi.org/10.1007/s11192-017-2300-7>.
- Vasconcelos, P.F., Travassos da Rosa, A., Rodrigues, S.G., Travassos da Rosa, E.S., Dégallier, N., Travassos da Rosa, J.F., 2001. Inadequate management of natural ecosystem in the Brazilian Amazon region results in the emergence and reemergence of arboviruses. *Cad. Saúde Pública* 17, S155–S164.
- Wang, Y., Chen, X., 2020. Natural resource endowment and ecological efficiency in China: revisiting resource curse in the context of ecological efficiency. *Resour. Pol.* 66, 101610. <https://doi.org/10.1016/j.resourpol.2020.101610>.
- Yang, Q., Song, D., 2019. How does environmental regulation break the resource curse: theoretical and empirical study on China. *Resour. Pol.* 64, 101480. <https://doi.org/10.1016/j.resourpol.2019.101480>.
- Zhu, J., Liu, W., 2020. A tale of two databases: the use of Web of Science and Scopus in academic papers. *Scientometrics* 123 (1), 321–335. <https://doi.org/10.1007/s11192-020-03387-8>.