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THE PUBLICATION DEVELOPMENT OF SOCIAL PROTECTION AND CLIMATE CHANGE RESEARCH

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ABSTRACT

Social protection incorporates a variety of interventions, such as cash transfers, insurance mechanisms, and employment safeguards, designed to assist underprivileged households and enable them to cope effectively with various adversities resulting from climate change. Using datasets from the Scopus and Web of Science (WoS) databases, the current study seeks to examine publication trends on research on social protection and climate change. The software packages ScientoPy and VOSviewer are used to analyse the retrieved datasets. This study found that the number of papers on social protection and climate change published in Scopus and WoS since 2000 has increased substantially. The journal "Sustainability" has developed as a significant venue for disseminating research. The study's findings demonstrated cooperation among researchers from various geographical regions, highlighting the significance of knowledge sharing and the advancement of

global solutions. The top ten most used keywords in previous research are “climate change”, “adaptation”, “sustainability”, “welfare”, “animal welfare”, “food security”, “agriculture”, “resilience”, “sustainable development”, and “vulnerability”. The study outcomes provide significant implications for policymakers, researchers, or practitioners to guide decision-making or foster collaborations in social protection and climate change research.

Keywords: social protection, climate change, adaptation, sustainability, resilience

INTRODUCTION

In an era marked by increasing environmental challenges, the intersection of social protection and climate change has emerged as a critical field of study. As global temperatures rise, extreme weather events become more frequent, and vulnerable populations face heightened risks, understanding the dynamics between social safety nets and climate resilience becomes paramount. This research area seeks to explore how social protection mechanisms can effectively address the multifaceted impacts of climate change.

Social protection incorporates many measures such as monetary transfers, assurance products, and job security systems, to support underprivileged households and assist them in managing various challenges, including those linked to climate change (Aleksandrova, 2019). Climate change pertains to the alteration of typical conditions over an extensive duration and the increasing frequency and severity of extraordinary weather phenomena, which substantially impact livelihoods, primarily in developing nations (Carter & Janzen, 2018). The correlation between social protection and climate change stems from the observation that climate change disproportionately impacts impoverished and susceptible communities (Tripathi, 2017). These communities heavily depend on climate-sensitive industries like agriculture (Gunaratne et al., 2021).

Social protection measures might prove crucial in alleviating climate change’s impact on the most impoverished communities by furnishing them with assistance and assets to tackle and overcome climate-related difficulties (Giri et al., 2021). Integrating elements of vulnerability-targeted social protection such as subsidised insurance mechanisms, into current social protection systems, particularly in climate change, can reduce the magnitude and depth of long-term poverty (Johnson et al., 2013). The social protection systems aligned with the 2030 Agenda for Sustainable Development and the Paris Agreement can manage the increasing risks of enduring climate change incidents like biodiversity loss, sea level rise, and desertification (International Labour Organization, 2019).

The abovementioned systems can prevent poverty and social marginalisation by enhancing vulnerability and resilience through comprehensive strategies integrating climate concerns into national frameworks (Aleksandrova & Costella, 2021). Nevertheless, social protection measures tend to concentrate on short-term coping mechanisms instead of enabling long-lasting adaptation and transformational effects for recipients (Aleksandrova, 2019). Social protection instruments, including cash transfers, insurance products, and employment guarantee schemes, can support vulnerable households in adjusting to climate challenges (Tenzing, 2020). To achieve climate-responsive social protection, certain principles such as climate-aware planning, livelihood-based approaches, and resilient communities need to be well-thought-out, along with design features like scalable and flexible programs, climate-responsive targeting systems, investments in livelihoods, and promotion of better climate risk management (Asfaw & Davis, 2018).

Previous investigations and scholarly inquiries on social protection and climate change have primarily concentrated on the capability of social protection systems to tackle the impacts of gradual onset climate events and facilitate adjustment in less affluent nations (Aleksandrova & Costella, 2021;

Tenzing, 2020). The literature underscores the necessity for social protection measures to surpass fleeting coping tactics and enable long-standing adaptation while addressing the structural roots of vulnerability to climate change (Haug & Wold, 2017). The research proposes that all-encompassing, climate-responsive social protection strategies can endorse proactive measures to minimise the effects of gradual onset events on human health, livelihoods, poverty, and inequality (Chiang & Huang, 2016).

Nonetheless, additional inquiry and policy formation are necessary to take advantage of social protection's potential in addressing climate change-related loss and damage, incorporating social protection with more extensive climate and development policies, and creating original approaches to social protection (Lewis & Lenton, 2015). Additionally, the scarcity in the spread of knowledge and cooperation between the climate science and social science communities is an obstacle to formulating policy-relevant assessments of climate change and protection.

In this context, the researchers delve into the evolution, challenges, and opportunities associated with the development of social protection and climate change research. Through rigorous analysis and innovative approaches, this study strives to examines growth and publication trends and identifies research gaps and and create pathways toward a more resilient and equitable potential future directions in social protection and climate change. Consequently, the present study highlights the significance of investigating the following research inquiries:

1. How has the body of research on the intersection of social protection and climate change developed over time?
2. What are the titles of this field's most productive sources and countries?
3. What are the primary themes explored in the scholarly literature regarding the intersection of social protection and climate change?

METHODOLOGY

Bibliometric analysis is a research methodology characterised by its quantitative nature, which entails examining and interpreting patterns and trends within scientific publications (Donthu et al., 2021). The current bibliometric analysis used the Scopus and Web of Science (WoS) databases. The datasets were obtained on July 1, 2023, and a search strategy was implemented to investigate the correlation between social protection and climate change. These databases are chosen for their extensive coverage, stringent quality control measures, and reliable citation analysis capabilities, as Durán-Sánchez et al. (2017) highlighted.

The search parameters employed in this investigation included: ("social protection" OR "social security" OR "social assistance" OR "social insurance" OR "welfare" OR "crisis response" OR "safety net") AND ("climate change" OR "climate adaptation" OR "climate variability" OR "climate mitigation" OR "climate resilience" OR "climate justice"). The search procedure utilised the Title, Abstract, and Keywords. This comprehensive search inquiry encompasses a variety of social protection terms and various aspects of climate change. Utilising lexically interchangeable expressions guarantees an expanded scope of scholarly literature exploration concerning the investigated topic that incites the scholars' intellectual curiosity (Abdullah et al., 2023). The search encompasses literature from multiple languages, enabling a comprehensive analysis of global literary works. By excluding articles published after December 31, 2022, a specific temporal scope was established for the examination.

Datasets concerning social protection and climate change were thoroughly examined with the aid of ScientoPy and VOSviewer. ScientoPy, an esteemed Phyton software tool, is convenient in bibliometric analyses (Abdullah, 2023), whereas VOSviewer is a scientific visualisation instrument

(Majeed & Ainin, 2021). The principal objective behind the investigation was to comprehensively appraise global scientific production in social protection and climate change literature, as archived in Scopus and WoS. This endeavour entailed meticulously inspecting bibliometric indicators encompassing historical evolution, geographic distribution, chief sources, noteworthy authors and publications, recurring keywords, and citation patterns.

RESULTS

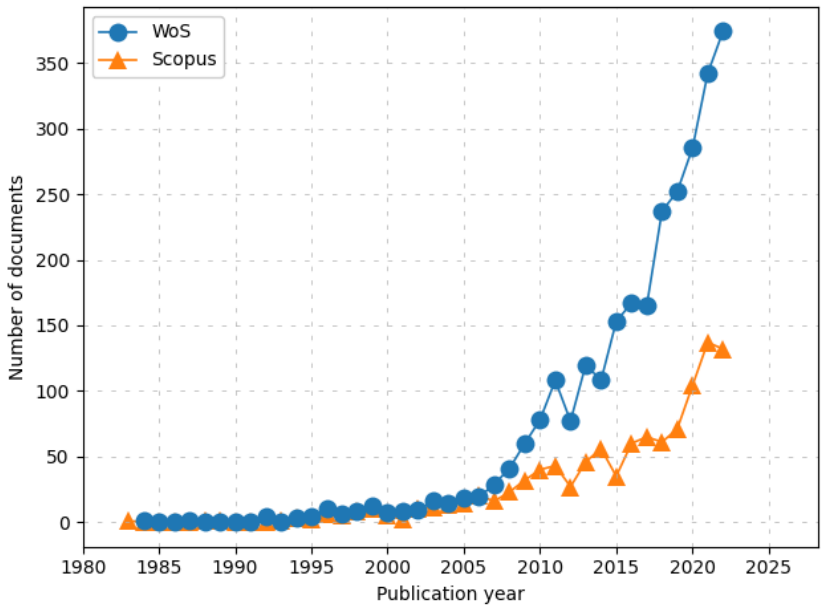
Publication Overview

The present study's publication overview expounds on merging datasets from Scopus and WoS databases. The elimination of duplicates is elucidated through sorting mechanisms utilising ScientoPy software. ScientoPy, a specialised software, incorporates Scopus and WoS datasets based on a field tags correlation table and identifies and eliminates duplicate documents (Ruiz-Rosero et al., 2019). The datasets obtained from both databases comprised 6825 publications. The inclusion criteria focused on document types such as articles, reviews, proceedings, book chapters, and conference papers, resulting in 5925 publications to be examined, with 2964 in Scopus and 2961 in WoS. Eliminating duplicates resulted in 4060 datasets, with 1112 from Scopus and 2948 from WoS. Accordingly, 1865 duplicate papers were excluded from the analysis.

Publication Growth

The data in Figure 1 demonstrate the number of papers in Scopus and WoS databases from 1980 to 2022. In 2000, the number of papers published in Scopus and WoS increased significantly. Based on Figure 1, WoS possesses more substantial papers than Scopus, implying that WoS has been utilised more extensively for academic publishing and encompasses a broader range of research articles.

Figure 1
Publication Growth



There has been a persistent rise in the volume of publications in WoS. The publication count started

from 0 in 1983 and grew steadily, with a noticeable growth observed from 1987 to 1993. This implies that the research output indexed in WoS has increased during this period. The evolution continued throughout the years, reaching 374 publications in 2022. This trend in WoS publications suggests a growing interest in publishing research on social protection and climate change covered by WoS.

In contrast, Scopus demonstrated a more fluctuating pattern. It commenced with only one publication in 1983 and experienced a gradual increase from 1988 to 2002, with some variations. This growth phase indicates a rising number of publications indexed in Scopus during this period. However, Scopus reached its peak of 137 publications in 2019 and experienced a slight decline to 132 publications in 2022. This decrement could be ascribed to diverse reasons like variations in exploration focus, transformations in publication trends, or the accessibility of substitute databases.

Productive Source Titles and Countries

Figure 2 illustrates the top ten productive source titles, where the journal "Sustainability" stands out as the most productive source title, with 93 papers published, 42% of which were published in the years 2021 and 2022 (PDLY). The journal "Sustainability" is an active and influential source in the field, consistently producing research and making recent contributions. Henceforth, scholars, lawmakers, and practitioners must take note of this origin for current and pertinent details on social security and global warming.

The journal "Environmental & Resource Economics" is ranked second, with 78 papers published and 6% of PDLY. The PDLY of 6% is relatively low compared to other sources. Recent observations suggest that the productivity of "Environmental & Resource Economics" may have experienced a decline in recent years despite its ongoing significance.

Another top journal is "Climatic Change", ranked third in the list of the most productive source titles, with 70 papers published, 14% of PDLY. It seems that sustainability research places great emphasis on the study of climate change. Hence, this indicates an active and current contribution to social protection and climate change literature. The modification of the climate is the main focused of Climatic Change, which renders it an essential resource for comprehending the repercussions, the techniques for alleviation, and the policy implications related to climate change.

The findings in Figure 2 suggest that the most productive source titles in this field are "Sustainability", "Environmental & Resource Economics", and "Climatic Change". These top three source titles collectively offer a comprehensive view of social protection and climate change from different perspectives. Thus, researchers and stakeholders interested in social protection and climate change should explore these top sources for relevant and timely research findings. These sources can help shape policies, drive sustainable practices, and contribute to the ongoing discourse in these critical areas.

In addition to considering the titles of productive sources, an examination was conducted on all documents on the intersection of social protection and climate change, considering the respective authors' country affiliations (refer to Figures 3 and 4). Figure 3 depicts the rankings of the top ten countries that have actively contributed to research on the intersection of social protection and climate change. Notably, the United States emerged as the most active country in this regard. The United Kingdom and Germany are subsequently ranked.

Figure 2
Productive Source Titles

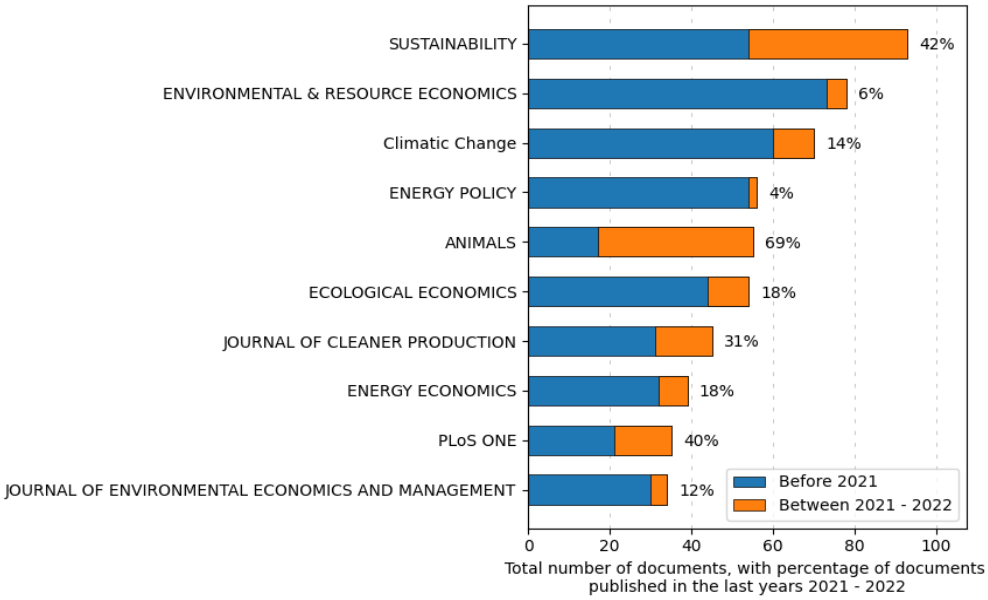
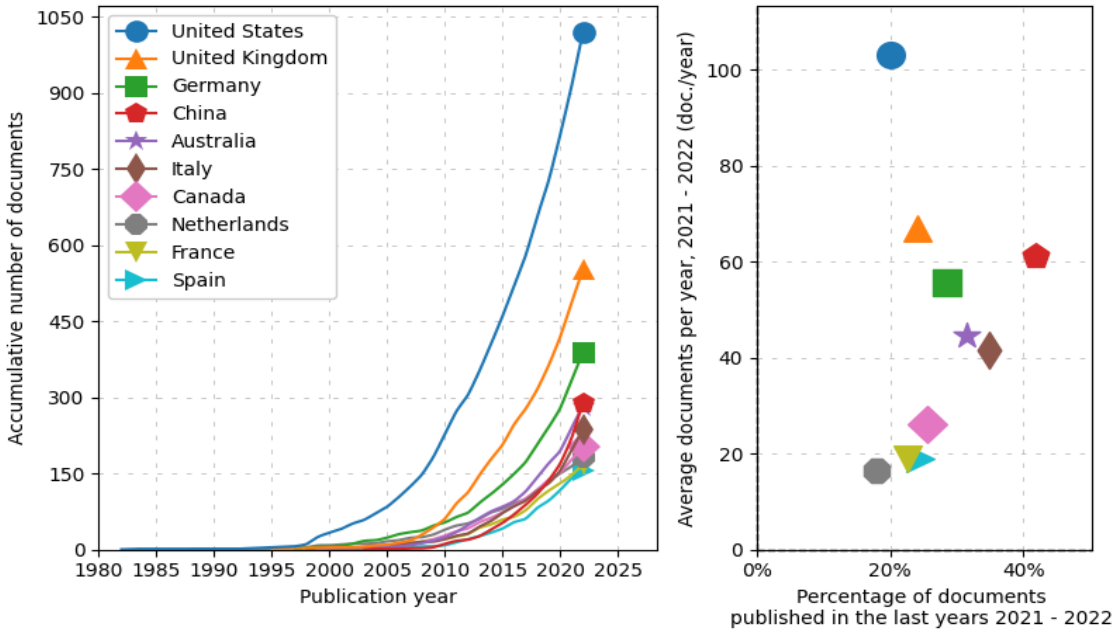


Figure 3
Productive Countries

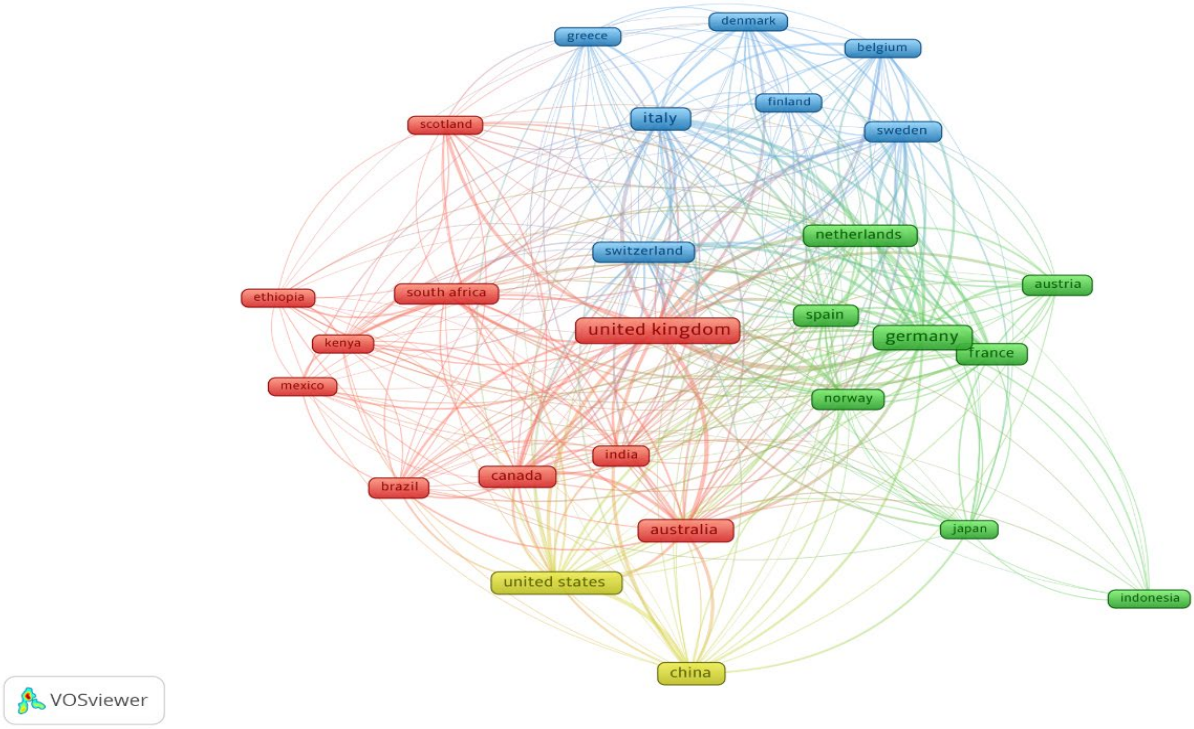


A bibliometric technique, co-authorship by country, is employed to visualise and analyse the co-authorship patterns among nations. This analysis was completed using VOSviewer. VOSviewer is a free and open-source software tool that can be utilised to scrutinise and visualise bibliometric data (Majeed & Ainin, 2021). The co-authorship analysis was based on a minimum number of 50 countries. Figure 4 reveals that countries closer to the network have collaborated more on research publications.

In Figure 4, there are four colour-coded clusters, with the blue cluster indicating that authors from

Germany and France have worked closely together on research in social protection and climate change. The red cluster, on the other hand, demonstrates that researchers in Ethiopia, Kenya, and Mexico have actively collaborated to seek solutions to social protection and climate change issues.

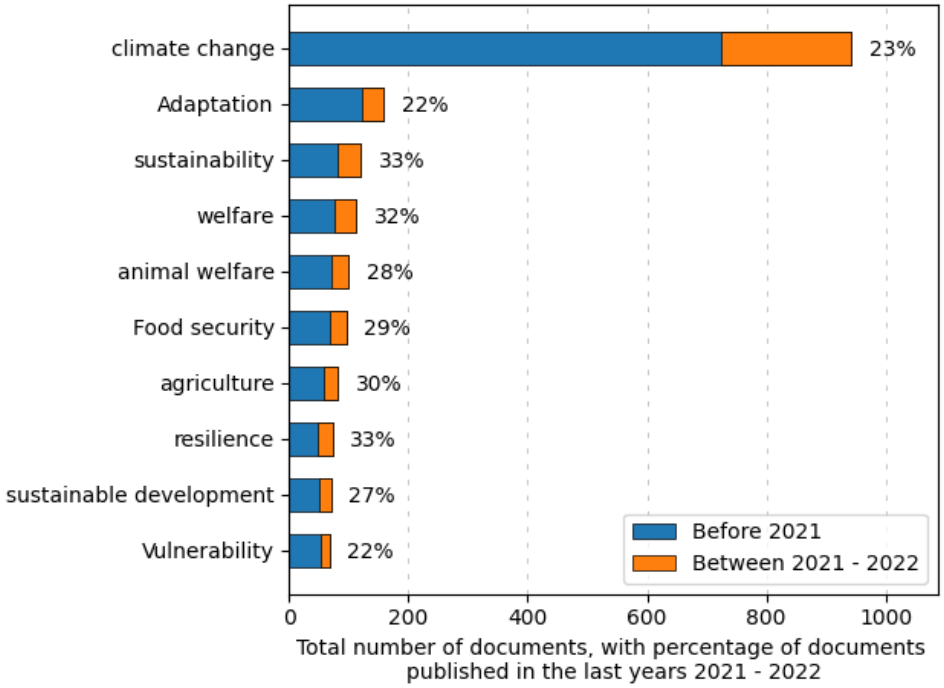
Figure 4
Co-authorship Network by Countries



Theme Analysis based on Previous Authors' Keywords

The present investigation examines the top ten most frequently utilised social protection and climate change research keywords. These themes have been determined through a meticulous analysis of the keywords employed in prior research publications. Such an analysis holds great significance as it enables researchers to identify the current trends and topical areas in this research. The knowledge obtained can be used to shape the design of upcoming research projects and pinpoint deficiencies in the contemporary literature. As illustrated in Figure 5, the top ten keywords, ranked according to the number of publications, are "climate change", "adaptation", "sustainability", "welfare", "animal welfare", "food security", "agriculture", "resilience", "sustainable development", and "vulnerability". Nonetheless, it is worth noting that the four most trending keywords in 2021 and 2022, each with a PDLY exceeding 30%, are "resilience" (33%), "sustainability" (33%), "welfare" (32%), and "agriculture" (30%). Consequently, we may conclude that these keywords are significant and denote the most pertinent research fields in social protection and climate change for 2021 and 2022.

Figure 5
The Top Ten Authors' Keywords



DISCUSSION

This current study uses Scopus and WoS databases to provide a comprehensive bibliometric concerning social protection and climate change research. It offers valuable insights into this vital field's publication landscape and emerging research trends. The study utilises a rigorous methodology to present dependable data and well-supported conclusions, adhering to the criteria expected by a prestigious journal with significant influence. The first question in this study emphasised how the body of research on the intersection of social protection and climate change has developed over time. Hence, based on research growth analysis, this study indicates a substantial increase in social protection and climate change publication in both databases since 2000.

Also, it is signified that the growth trend in WoS has experienced a significant surge since 2019. This phenomenon indicates that extensive research is paramount and has captivated numerous scholars. One possible explanation is that this underscores the significance of social protection in supporting climate change adaptation efforts in countries with lower incomes (Aleksandrova & Costella, 2021).

According to Aleksandrova (2019), the research emphasises the necessity of implementing social protection measures that extend beyond immediate coping strategies and facilitate sustainable adaptation. Also, policymakers have yet to completely exploit the potential of social protection in addressing the root causes of climate change vulnerability (Tenzing, 2020). Meanwhile, what is essential is that the integrity of social policy can serve as a robust foundation for addressing the climate emergency and promoting the sustainable transformation of society and the economy, as stated by Hirvilammi et al. (2023). Thus, the mentioned factors may be the reasons why recent years indicated that there has been a notable rise in the number of investigations aimed at acquiring a comprehensive understanding of the interplay between social protection and climate change.

The results pertinent to the second research question provide valuable insights into the most

productive source titles and countries in the field of sustainability research with a focus on social protection and climate change. Discussing these results can be impactful by highlighting the significance of specific journals and countries and identifying potential trends and collaborations shaping the research landscape. The top three source titles in this study, "Sustainability", "Environmental & Resource Economics", and "Climatic Change", devoted much to publishing the concern of social protection and climate change.

The fact that the journal "Sustainability" stands out as the most abundant source title, with 93 papers published, is remarkable. This journal's high productivity suggests that it plays a central role in disseminating research on sustainability, particularly in the context of social protection and climate change. Its contribution of 42% of papers published in the recent years 2021 and 2022 further highlights its current importance and relevance. This study supports the assertion made by Tang et al. (2018) that the journal "Sustainability" is a scholarly publication focused on the various aspects of environmental, cultural, economic, and social sustainability on human beings and civilisation. Hence, since being established in 2009, this journal has garnered significant interest from scholars and research institutions.

The observation of a decline in the productivity of the journal "Environmental & Resource Economics" despite its ongoing significance is a point of interest. Discussing potential reasons for this decline could lead to insights into shifting research trends or changes in the journal's editorial policies. It could also indicate the emergence of new competing journals or interdisciplinary outlets. Emphasis on climate change in the "Climatic Change" Journal makes it third among the most productive source titles, with 70 papers published and 14% of PDLY, highlighting the strong emphasis on climate change research. This finding may indicate the growing importance of addressing climate change challenges in the context of social protection policies and initiatives in "Climatic Change."

This study highlights the United States with the highest activity level in publishing research on the intersection of social protection and climate change. This statement implies that the United States has a significant influence in researching sustainability, contributing to global climate change and its repercussions on the nation. The United States holds a prominent position in sustainability research due to its robust research infrastructure, substantial funding support, and extensive network of multidisciplinary collaborations.

According to Baum and Bartkowski (2020), the multidisciplinary approach in sustainability research has a noteworthy influence as it underscores the distinct perspectives social science can offer in comprehending and addressing significant challenges. Moreover, it is worth noting that there has been a substantial rise in the frequency of sustainability research publications in the United States. These publications have particularly emphasised exploring multidisciplinary and transdisciplinary matters (Cano & Londoo-Pineda, 2020).

Furthermore, it has been emphasised that promoting productive conversation and nurturing diverse viewpoints are crucial in navigating the limited terrain of scientific and political discussions (Bodin, 2021). This statement underscores the existence of a well-developed and comprehensive research network within the United States. Furthermore, the current study demonstrates that the substantial contributions made by the United Kingdom and Germany underscore the significance of European nations in advancing knowledge in this particular domain. Germany's climate policy, which exhibits high ambition, enables the nation to enhance its economic and social objectives (Lutz et al., 2021).

Results pertinent to the collaboration clusters identified that identifying colour-coded clusters based on co-authorship analysis using VOSviewer provides valuable information on international collaboration patterns. This study disclosed a strong collaboration between researchers from Germany

and France and researchers from Ethiopia, Kenya, and Mexico (see Figure 4). Thus, it suggests that well-established research networks focusing on social protection and climate change across regions are crucial, influencing relational and systemic collaboration features (Cundill et al., 2019).

Also, these collaborations may have implications for knowledge transfer, sharing of best practices, and the development of global solutions (Dewaele et al., 2021). This statement holds significant importance due to the potential of collaborations to unlock a vast amount of knowledge, stimulate innovation, and effectively tackle global challenges. This indirectly offered potential readers and researchers some gist about reciprocal knowledge acquisition, disseminating exemplary methodologies, and collaboratively formulating resolutions to generate beneficial outcomes worldwide.

The results presented in this study also showcase a thorough examination of the top ten keywords within the realm of research on social protection and climate change. The findings of this study were in line with the research question posed in questions 3. The methodology employed for identifying prominent keywords is characterised by its rigorous and proficient execution. Including publication years from 2018 to 2022 guarantees that the analysis remains current, encompassing the latest trends and advancements in the field. Identifying the ten most commonly use keywords offers valuable insights into the prevailing trends and subject areas within the realm of research. The prominence of themes such as “resilience”, “sustainability”, “welfare”, and “agriculture” in the years 2021 and 2022 is evident from the emphasis placed on these concepts.

The prominent themes, “resilience”, “sustainability”, “welfare”, and “agriculture”, are essential for researchers and policymakers to understand the critical areas of research interest and focus on social protection and climate change. Researchers and policymakers prioritise the comprehension and resolution of challenges associated with climate change and promoting societal well-being due to their significant importance (Reser & Bradley, 2020). The attribute of resilience is widely recognised as having transformative effects on both social and ecological aspects, encompassing multiple normative dimensions (Copeland & Doorn, 2021). These dimensions include its recognition as an inherent environmental value and its association with a virtuous comprehension of the interplay between humans and nature.

Using sustainability and resilience thinking offers a shared interdisciplinary and policy framework for effectively addressing socio-environmental systems and the challenges posed by global environmental alteration (Pimm et al., 2019). The prioritisation of welfare underscores the significance of social and economic factors in attaining sustainable and nutritious diets for the entire population (Fróna et al., 2019). The agricultural sector is crucial in absorbing labour from various sectors during emergencies while providing avenues for reevaluating labour dynamics and local production (Gosling et al., 2021; Sunam et al., 2021). Hence, the themes mentioned above underscore the imperative of constructing robust and sustainable systems capable of effectively addressing the challenges posed by climate change and safeguarding the welfare of communities.

CONTRIBUTIONS

This study thoroughly examines the bibliometric of social protection and climate change research. It offers valuable insights into the publication landscape and identifies developing trends. A rigorous methodology guarantees the dependability of the data and findings, thereby establishing the study as a noteworthy addition to the academic community. The research expansion results, notable sources of information, and collaboration patterns provide valuable insights into the present condition of the discipline and its worldwide influence. Moreover, the discernment of topic clusters and prominent

keywords offers a more profound comprehension of the pivotal domains of study concentration, directing forthcoming inquiries and policy determinations.

LIMITATIONS

A potential limitation of this study pertains to its dependence on the Scopus and WoS databases for data acquisition. Although these databases are extensively utilised and offer a wide range of information, it is possible not to encompass all pertinent social protection and climate change publications. The potential for analytical gaps exists when significant research findings are published in databases or un-indexed journals.

CONCLUSION

The current study was conducted using bibliometric methods based on Scopus and WoS databases, which yielded significant findings regarding the publication landscape and rising research trends within this topic. This study highlights the crucial connection between social protection and climate change. In contemporary times, there is a growing recognition of the heightened significance attributed to the escalating unpredictability of climatic conditions and the intricate complexity associated with climate change. Climate change presents significant obstacles to human society and the natural environment, amplifying disparities and health consequences for marginalised groups.

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