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## Commons, property law and management: A bibliometric study

Bens comuns, direito de propriedade e gestão: Um estudo bibliométrico

Bienes comunes, derecho de propiedad y gestión: Un estudio bibliométrico

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#### Nélida Reis Caseca Machado

https://orcid.org/0000-0001-9975-2832 Professor and Researcher at the Formiga University Center.

PhD student in Business at the Federal University of Layras. nelidacaseca@gmail.com

#### José Roberto Pereira

https://orcid.org/0000-0003-1570-2016



Tenure Professor in Public Administration and Social Management at the Federal University of Lavras.

Post-Doctor in Social Sciences at the Center for Social Studies of the University of Coimbra. jrobertopereira2013@gmail.com

#### **ABSTRACT**

In this bibliometric review, with data from the Web Of Science (WOS), the main characteristics of scientific articles published in international journals on Common Goods, Property Law and Management are specified. The result returned 146 works and it was analyzed in 12 categories: temporal evolution of scientific production; temporal evolution of the number of article citations; production by countries; production by networked countries; categories of publications; association between authors and categories, most cited works; citation network; clusters by title; top citations in the category Government and Law, publications in Brazil. There is a growing interest of the scientific community in the matter and from this study other may arise.

**Keywords:** bibliometric review; common goods; property law; management; evolution.

#### **RESUMO**

Nesta revisão bibliométrica, com os dados da Web Of Science (WOS), são descritas as principais características dos artigos científicos publicados em periódicos internacionais sobre Bens Comuns, Direito de Propriedade e Gestão. O resultado retornou 146 trabalhos e foi analisado em 12 categorias: evolução temporal da produção científica; evolução temporal do número de citações de artigos; produção por países; produção por países ligados em rede; categorias das publicações; associação entre os autores e as categorias, trabalhos mais citados; rede de citação; clusters por título; maiores citações na categoria Goverment & Law, publicações no Brasil. Verifica-se um crescente de interesse da comunidade científica na temática e a partir deste estudo outros poderão ser desenvolvidos.

Palavras-chave: revisão bibliométrica; bens comuns; direito de propriedade; gestão; evolução.

#### **RESUMEN**

En esta revisión bibliométrica, con datos de la Web Of Science (WOS), se describen las principales características de los artículos científicos publicados en revistas internacionales sobre Propiedad Común, Derecho de la Propiedad y Gestión. El resultado devolvió 146 artículos y se analizó en 12 categorías: evolución temporal de la producción científica; evolución temporal del número de citas de los artículos; producción por países; producción por países vinculados en red; categorías de publicaciones; asociación entre autores y categorías, artículos más citados; red de citas; clusters por título; mayores citas en la categoría Goverment & Law, publicaciones en Brasil. Se comprueba un creciente interés de la comunidad científica por el tema y a partir de este estudio se podrán desarrollar otros. Palabras clave: revisión bibliométrica; propiedad común; derecho de la propiedad; la gestión; evolución.

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#### 1 INTRODUCTION

The history of the 20th century shows that the market, as a second sector, took precedence over the first and third sectors, the State and society, respectively, by focusing on the commodification of collective life (Santos, 2020) and on the privatization of common goods (health, education, water, electricity, postal and telecommunication services, social security). In fact, "both the State and society began to be managed by the logic of the market and profitability criteria, both in public services and in social solidarity services" (Santos, 2020, p.31/32). And what little was left in the perception of the common good, in general, was institutionalized and relegated to the State, because it would be responsible for the production of the common good, since it protects the community and acts in accordance with the public interest.

Thus, in theory, the public interest would converge with the interests of everyone. That is, the common end is constantly highlighted to give everyone the feeling of a collective work to be carried out from the institutional perspective (Correia, 2015). However, since the publication of the article The Tragedy of the Commons, a work in which Garrett Hardin pointed out the human being as one who thinks only about himself and his performance (Hardin, 1968; Ramis, 2017), numerous questions about the common good have emerged. In Hardin's perspective, man would act only to compete and maximize his gains and, in this way, would put at risk of destruction and disappearance countless goods, so that everyone would lose out in the context of shared things (Ramis, 2017), that is, remaining in the logic of the commons, individuals would bring universal ruin (Cruz, 2017).

To avoid this, the solution brought by Hardin would be to abandon the idea of the commons and follow privatization or strong state regulation of these goods. In the first case he recognizes that private property has its problems, but privatization would be a way to guarantee the regulation of collective use, which would prevent excessive exploitation and, in the second, he claims that strong state regulation would impose economic sanctions that make exploration is more costly than preservation (Hardin, 1968).

Twenty-two years later, in the book Governing the commons: the evolution of institutions for collective action, Elinor Ostrom, unlike Hardin, but starting from the same concern, verifies that neither the State nor the market have managed to maintain natural resources and develop designs for the management of the set of common resources (CPR), arguing that communities, through a system of self-organization and cooperation, perform a more efficient management of resources than when they follow imposed rules from some external agent (Ostrom, 1990).

Ostrom (1990), political scientist, studied practical cases of commons management and left a legacy of empirical studies developed at the institute he founded. The community, for Ostrom (1990), through the system of self-

organization and cooperation, is responsible for a more efficient management of resources than when it follows imposed rules from some external agent.

Ostrom's (1990) economic analysis culminates in experiences of managing the common, without a complex analysis of the historical processes of enclosing the common generated by the process of capitalist accumulation (Dowbor et al., 2018), that is, without facing the history of property regulations.

Likewise, for Ostrom (1990) commons coexist with the public and private spheres (Saidel, 2017a), which generates criticism for being insufficient to think about the political potentialities that can be extracted from a revitalization of the commons in anti-capitalists terms (Saidel, 2017b) and, more specifically, regarding the questions of this research, without pointing out exactly how they would legally fit into the concept of public or private property, which points to a gap in an interlocution with the legal system. That is, in his research and surveys, Ostrom (1990) did not focus specific attention on the form of acquisition or constitution of the commons in a legal form, but within capitalist systems property is regulated by law and the community's access to the common is made through access to property and the right to property.

It is not the object of this work to make a history of how the concept of property was built over time in the legal systems that inspired the Brazilian, nor to make a definition of all the institutes that involve or derive from property, but it is, nowadays an intrinsic element in the construction of capitalism and its regulation greatly interferes with the management of the common. On the other hand, the community as manager of the common good, in the words of Boaventura de Sousa Santos, would be a new articulation, with "an epistemological, cultural, and ideological turn that supports political, economic, and social solutions and that guarantees the continuity of human life being on the planet (Santos, 2020, p. 31/32).

After all, the legal system solidifies its bases in property, especially in individual property or, in more sporadic cases, property with the fewest people to avoid conflicts and, therefore, facilitates all acts for the extinction of collective property. The initial hypothesis is that, for the management of the common by the community, property and property rights in Brazil should be revised, as, in the current mold, there is no structure to accommodate the new perspectives of the commons and, of consequently, their management. On the contrary, the current regulation of property could restrict or hinder the collective administration of the common good.

This hypothesis engendered the questions that guided this research: are there investigations with legal perspectives based on the right to property and other reformulations of the right to property from the perspective of the commons? That is, are there records in the literature of how what was regulated by private property or the state becomes legally common? If there is research, upon which theories would they be based?

Thus, the objective was to describe the main characteristics of scientific articles published in international journals on the subject in a bibliometric analysis on the Common Goods, Property Law and Management, through the temporal evolution of scientific production; temporal evolution of the number of article citations; production by countries; production by networked countries; categories of publications; association between authors and categories, most cited works; citation network; clusters by title; highest citations in the category Government & Law, publications in Brazil. Since future studies on the commons in Brazil may have implications for the legal definition of property and its regulation, this research is justified since knowledge about the panorama of international scientific publications on the subject may enrich discussions and bring relevant contributions to researchers in the field.

This work was then structured in five sections, this introduction being the first, the second presents the theoretical foundation, the third the methodological procedures adopted, the fourth the results and discussions, and the last presents the final considerations.

#### 2 THEORETICAL FRAMEWORK

In this part, the theoretical foundations of Common Goods, Property Law and Management are presented. The theoretical basis presented here grounded the research questions and can guide the analysis and discussions of the work.

#### 2.1 Common Goods

Common Goods is not a new concept. It has been used in the social sciences, mainly in the Anglo-Saxon world, for over 50 years, by authors from different currents (Silveira & Savazoni, 2018). In Spain, currently, it has been used to explain the social movements that emerged from the 2011 protests and, in other European countries, the concept is used to organize public policies that can be composed of a wide range of demands: "participatory tools for democracy"; "laws for the common"; "currency and common financing"; "right to the city"; "data from the common and the collaborative city"; "productions of the common: food, health, and leisure"; and "solidarity as a common: migrants and refugees" (Silveira & Savazoni, 2018), elevating the common goods to socio-economic paradigms, with many reinterpretations, including through the rereading of Marx (Ramis, 2017).

The Anglo-Saxon commons are communal lands, which correspond to goods shared among all that precede the process of organizing private property and mark the beginning of capitalism. This origin, meaning, and translation of the term do not reflect the experiences and cultural conceptions of the country, which did not experience these communal lands in the same way, however, the issue has been changed in light of the studies that have been carried out in these lands (Silveira & Savazoni, 2018), even

as a reflection of what has been debated in the world from the reinterpretations carried out.

In fact, the discussion about the common goods is found in several fields, such as politics, legal, and socio-environmental, with foundations that are close to or exclude each other, depending on the approach adopted, which points to difficulties in identifying what would be the common goods. Sometimes they would be pointed out as being natural resources, necessary for all, sometimes as linking the notion of bien común de la humanidade, as Leonardo Boff (Ramis, 2017) does, with the specific definition of the open resource, instead of limiting it by defining it.

Even by leaving the definition of the resource uncluttered, common goods can represent much more than trees, rivers, lakes, as common resources include landscapes, water, air, ideas, science, radio waves and the internet and social relations, education and civic commitment as sustained by Dardot & Laval (2015). That is, the common would not be an adjective, but a noun, which is not exactly a good, because it is not an object to be owned or constituted, but a political principle from which common goods must be built and to which they must report to preserve them, expand them and give them life, in a principle that defines a new regime of struggles on a global scale (Dardot & Laval, 2015, 2017; Saidel, 2017a) and would not be directly related to Property Law (Borges & Carlessi, 2018).

Considering the references brought, the option was made, in this work, to embrace the common good as "things shared by a community" (Vieira, 2014) or "everything, territory or property, which is shared socially and is available to everyone" (Martins, 2011), or refers to "goods, spaces, and resources that are shared, used and managed collectively through practices managed by the community itself, outside the scope of the State and the market" (Tonucci, 2017) and, finally, "the combination of a resource, a community and a set of social practices", which could be classified as subsistence common goods, common goods of traditional and indigenous communities, social and civic common goods, digital, cultural, common goods of knowledge and urban common goods. (Cruz, 2017).

It is necessary to apprehend the concept as something that is not reduced to the idea of subject-object, as it does not fit into the qualification of private or public goods, and, under these conditions, it could not be reduced to the language of property (Cruz, 2017).

It is important to emphasize that common goods have a character of historical construction and, as such, it is up to the society to which it is linked, to debate and decide what types of goods, production or territory should be included in this sphere, including to ensure its development, also ensuring that the concepts do not make the issues universal or immutable, generating the need for them to be reformulated in each new economic and sociocultural context (Martins, 2011).

#### 2.2 Right to property

The Right to Property guarantees, today, that it is possible, within the limits of the law, to acquire, dispose, and relish a property, as well as determine what is done with it. In other words, it guarantees the possibility for people to own goods. Despite having the impression of being a Law less subject to change, because it is understood as absolute, imprescriptible, and inalienable based on the affirmation of this right in constitutional charters: US Constitutional Charter, derived from the Philadelphia Convention of 1787, and in the Declaration of Rights of Man and Citizen, of 1789, in France (Assis, 2008), the Right to Property was constituted and changed over time, as it is a legal concept that stems from a historically constructed social practice, whose characteristics vary according to different historical moments and social contexts.

In the Ancient Age, private property and the process of internal exchange developed, initially in Roman Law, but in a very different guise from the idea of capitalist private property today. Roman private property was common (communal) and not a commodity and, only after capitalism, with the emergence of bourgeois private property, did property become a commodity in the exchange process (Andrade, 2018).

Likewise, in the Middle Ages, feudal private property was owned by the lord and used by the vassal, since it was based on loyalty and, also, it was not considered a commodity and could not be exchanged. The constitution of property as a commodity emerged with the French Revolution that abolished feudal private property and instituted capitalist private property and, through bourgeois law, became absolute and exclusive, as an absolute right, stable and protected by law, by the police and by the courts (Andrade, 2018).

Thus, only with the emergence of capitalism is it possible to speak of private property in the current mold. Once capitalist private property was instituted, land monopolization was instituted, considering property as an absolute and exclusive power over a specific thing, separating the State from civil society (Andrade, 2018). Capitalism, now neoliberal, operated/operates from two logics about commons: expropriation and configuration (Dowbor et al., 2018; Saidel, 2017a), which are movements accumulation that reconfigure capital independently of their natures, and allow us to better define and understand their reality, as well as their intrinsic connection with the ownership and management of the common good.

Expropriation is linked to the accumulation of wealth and the mercantile logic in areas that were not previously appropriated/used, which proceeds to the privatization of public and communal resources. Often linked to violent processes, through extra-economic coercion, whether in its military or legal aspect, and refers to the notion of original accumulation, which Marx used to think of in the prehistory of capitalism, having the British model as a paradigm (Saidel, 2017a).

Through this accumulation, the lands that were still open to community use are now fenced/enclosed and, at the same time, the collection of firewood, wild fruits, and others is declared robbery. Concomitantly, laws against vagrancy are initiated, causing different categories of rural workers, servile or relatively independent, to migrate to cities and join the emerging industrial production (Saidel, 2017a).

It is important to clarify that dispossession, an old model of primitive accumulation, is not a historically outdated type, but a permanent form of capital accumulation which, in financial capitalism, tends to become the dominant mode and explains the new explosion of enclosures. That is, accumulation by dispossession is an increase in value that is produced not through the classic endogenous mechanisms of capitalist exploitation, but through the set of political and economic means, which allows the ruling class to take possession - if possible, without cost - of what belonged to no one or what was up to then public property or collective cultural and social heritage (Dardot & Laval, 2015).

So much so that the commodification and privatization of land and the forced eviction of peasant populations, with the conversion of various forms of property rights (communal, collective, state, etc.) into exclusive private property rights, as well as the suppression of rights on common property, the commodification of the labor force and the elimination of alternative modes of production and consumption, the colonial, neocolonial and imperial processes of appropriation of goods and, finally, usury, the indebtedness of the nation and the use of the system of credit as a drastic means of accumulation by expropriation (Saidel, 2017a), remain, generating expropriation.

Added to these mechanisms are other techniques such as extracting income from patents and intellectual property rights, reducing or canceling common property rights such as state pensions, paid vacations and access to education, health and security and defense functions, that is, the privatization and commodification of goods and services previously considered common goods, for the opening of new domains for the accumulation of capital. Finally, it includes the privatization of genetic material that gave rise to biopiracy, while the commodification of nature leads to the destruction of the human habitat itself, all with the help of the State which, through its monopoly of violence, plays a fundamental role in promoting these processes (Saidel, 2017a).

This movement of expansion on common goods creates new relations of dependence on submission, due to the modification of social relations, identities, and subjectivities, in a transformation subject to the expanded reproduction of capital, through the general norm of competitiveness (Saidel, 2017a), in a new configuration of all elements of the population's life (Dardot & Laval, 2015). All these movements, expropriation and configuration, in full swing, point out that the Property Law, instituted in the capitalist molds, favors the growth of capitalism with the creation and expansion of new goods and markets, it does

not exactly protect society from its possessions, in a tension between the production of the common and enclosures (Saidel, 2017b).

In the dominant economic theory, goods are distinguished according to the precepts of rivalry, when individual use occurs to the detriment of the use of others, and exclusivity, when it is possible to prevent free access to the resource through property. In this configuration, goods, according to their intrinsic nature, can be divided into private, which are rivals and exclusive; and public, non-rival and non-exclusive goods (Dardot & Laval, 2017).

However, from 1970 onwards, this classification of goods was found to be insufficient to understand all economic goods because it excluded mixed goods. Making a new category of goods, according to their nature, mixed goods were included: club goods, which are exclusive and at the same time non-rival, and common goods, which are not exclusive but rivals (Cruz, 2017; Dardot & Laval, 2015).

Ostrom proposed a classification of property based on exclusivity and rivalry, by a framework of four types of property regime: open access, private property, communal property, and state property (Ostrom, 1990; Saidel, 2017b). Open access is the one with the absence of defined property rights, without access regulation, being free to all; private property implies the right to exclude third parties from the use of the resource, generally protected by the State; in communal ownership the resource is held by the community of interdependent users who regulate the use and exclude those who do not belong to it and within the community the rights to the resource is of equal access and use, and finally state property, which leaves the rights to resources in the hands of the State, which decides access and modes of exploitation, with coercive powers to implement them (Saidel, 2017b).

According to it, the same good can be in any of the quadrants at the same time, it should be noted, however, that open access goods can favor the tragedy of the commons, not the common goods (Ramis, 2017). The definitions of economic theory help in the search for a better property system for the common good, favoring the management of these goods and bringing society closer to the common goods. Vieira (2014) argues that the property that best conforms to the act of sharing, a concept adopted for the common goods in this work and that comes closest to the needs of a common good, is common property, which differs greatly from strict private property and of the strict state-owned company.

However, this author maintains that although the form of property can constrain or facilitate the practices of the common good, property does not represent an absolute impediment nor an automatic guarantee for the success of a common good. According to him, some goods can be defined in the legislation as private or public and actually fit as common, some do not become common goods just because they fit in the property right that best reveres the common good (Vieira, 2014).

This is because the Right to Property is composed of a complex of Rights that, in the mentioned examples of property misconfiguration according to its concepts, potentially place the legal/repressive forces of the State in favor of the property holder. It would make it difficult to maintain the common good in the first example and facilitate the maintenance in the second example (Vieira, 2014). That is, in case of problems in the management of the common good, whether arising from internal or external issues to the common good, the need for a precise definition of the Right to Property that encompasses the common good would be evident.

Finally, it is important to point out that, in the current situation, the common good is not initially constituted as property. It mainly results from certain institutional practices and rules and, subsequently, there is a difficulty in recognizing it in institutional provisions (Saidel, 2017a) and, in the same way, fitting it into legal institutes and, consequently, giving it protection. In fact, if there is a material/social substrate that allows us to sustain that something should be understood as common goods, it will depend on institutional arrangements, legal norms, available technologies and social practices that regulate them (Saidel, 2017a).

#### 2.3 Management

It is important to clarify, at the outset, that the management of the common goods is not a matter of economic efficiency, but a social and political one. With regard to enclosures, what was evident was not the search for economic destruction through the universalization and homogenization of individual private property, but the destruction of autonomy and the capacity for self-management of resources and, indirectly, of representative bodies, formal and informal institutions, cultures, values, and practices (Saidel, 2017b).

Unlike what happens with private property, in the face of common goods, no one has exclusive control over the use and disposition of any of the resources. Instead, any member of a group can use or dispose of the resources, according to rules created by the group (Saidel, 2017a). In other words, the use of goods is done according to the rules of the groups.

As mentioned in the introduction, in empirical research, Ostrom (1990) portrays the management of finite natural or artificial resources, which are not governed by a traditional property regime (public or private) through CPR (Cruz, 2017). Her work points out that it is possible to manage and produce common goods through the creation of new institutions (Ostrom, 1990), more precisely, because it takes into account the institutional arrangements that ensure that the common goods are preserved and managed together and the interest common would be the resource shared over time, which could be improved and/or increased (Saidel, 2017b).

Ostrom (1990) identifies, based on successful cases of common property management, eight principles for the

good institution of CPRs: exclusion principle - clearly defined limits, delimiting which resources and who can use them. By not doing this, the community may become extinct; context principle - congruence between the rules of appropriation and the provision of local conditions, that is, the rules of appropriation that can be restricted are related to local conditions and with the rules of supply and, if not so, it can decrease the level of commitment to the initially established rules; principle of participation - collective election agreements, relates to the participation of people in making the rules and changing the rules and this generates greater legitimacy and, if not, the issues have to be resolved by external authorities; principle of fair control - monitoring of what is done by the community itself based on clear rules, under penalty of not finding free riders; principle of fair and incremental sanctions - graduated sanctions, fair sanctions that are gradually applied so that non-compliances are not generalized; principle of conflict resolution - conflict resolution mechanisms, quick access to conflict resolution, assuming that people are interested in honoring their commitments, so that the systems can continue to function; principle of self-organization - minimal recognition of organizational rights, the community must have autonomy and recognition vis-à-vis third parties, without resorting to superior or external authority, and issues must be resolved within the organization itself; principle of property at various scales - nested entities, as a response to complex relationships arising from various rules (Cruz et al., 2018; Ramis, 2017).

The principles of good governance of commons by Ostrom (1990) are essential for users of commons to engage in collective actions that lead to the sustainable management of resources and point out that, in environments where the systems were long lasting, they were present, and absent in systems that have collapsed (Cruz et al., 2018). Investing in the management of resources by the interested parties is not just a commitment to a technically more effective alternative than private or state management: it is politically investing in expansion to expand social cooperation, different from exploration, inventing and instituting practices that enable the ownership and collective management of strategic resources for the reproduction of social life. This does not necessarily mean that the market and the state become irrelevant or disappear (Saidel, 2017b).

In this perspective, management would be focused on people's political autonomy. Not only because the organized working class is able to influence the public and the market, but because political representation is committed to the current system of power and, in this way, imposes that the future of humanity depends on the construction of new forms of self-government and of ecologically and socially sustainable management of shared resources, that is, the ability to jointly decide on one's own destiny (Saidel, 2017b), aware that this governance can change reality and can generate different implications in every location in the world.

#### **3 METHODOLOGY**

In the outline of the research, the characteristics of the bibliometric review are pointed out, as well as the parameters and steps used for the development of the work. It is important to clarify that bibliometric studies were initially aimed at measuring the number of editions and copies of books, as well as their number of words, and then were expanded to other formats of bibliographic production (including journal papers) to later occupy also from the productivity of authors and the study of citations. It is currently used to analyze academic production through elements such as citations, authorship, co-authorship, journals, bibliography growth and distribution (Araújo, 2006).

Through it, it is possible to observe the important data in the field: most cited authors, most productive authors, research fronts, geographical origin of the bibliography and most cited journals (Araújo, 2006) besides being possible to highlight the measurement indicators, which include the density of relationships, degree of connectivity of a network, which is expressed by the ratio between the number of existing relationships with the total possible relationships, with the types of connection between the relationships, which can be connected or isolated, without connection, more central, and their relationships with others.

The observations of social networks are useful to the academic area as they point out paradigm influences and changes, helping to understand how knowledge in a given area is socially constructed (Berger & Luckmann, 2004) and, in fact, would be the first condition to do new research, as it makes it possible to investigate gaps and opportunities, both in theoretical constructions and empirical research (Prado et al., 2016).

The searches were carried out on July 23, 2020, in the Web of Science database. The Web of Science - Main Collection (Clarivate Analytics) database was used between 1945 and 2020 to delimit the scope, as it is a database that prioritizes articles from the Anglo-American community, but which has high potential, in addition to presenting several options for the exporting of results. Furthermore, it is widely used for the dissemination of scientific research and covers journals with a higher impact factor compared to other databases, that of Scopus, for example.

For the search string, the following keywords were adopted in the title: common\_good OR common\_theory and in the summary and keywords the words: property\* OR law OR ownership OR human\_rights OR rights OR possession\* OR property OR land OR right\_of\_ownership OR property\_right OR ownership\_rights OR management\*.

The symbol ("\*") was added after each term to cover the words also in the plural, the ("\_") for the words to be searched together and the "OR" for finding at least one of the entered terms. Several tests were performed with the inclusion of words in Portuguese, French, and Spanish, but it did not change the result. The position of the keywords was also varied, including and excluding terms, and the best

result, with a greater number of data, was the one recorded above.

Searches on the Web of Science, including the year 2020, returned a sample of 231 items, with publications from different nationalities. There was no initial time cut, due to the small number of articles found. Then, the result was filtered to include only articles and reviews, in all areas and languages by indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI. No area of study or language was defined.

After filtering, papers and review, the number was 158 works, including the year 2020. References were exported to the EndNote® software, downloaded in spreadsheet format for data tabulation and in text format.

Data were analyzed using CiteSpace, which is, according to Chen (2006), a tool that allows the visualization of new trends in the scientific literature, through which it is possible to detect intellectual turning points, the mode of occurrence of the evolution of a given area, amid ruptures (when a given knowledge makes room for the emergence of scientific novelties) and explosions (times when there is a significant increase in the publication of works on the same topic), and interconnections between the different research fronts, using database composed of a large number of articles (Chen, 2006).

Microsoft Excel was also used, which helped in checking duplications, as well as some elements of observation of the research.

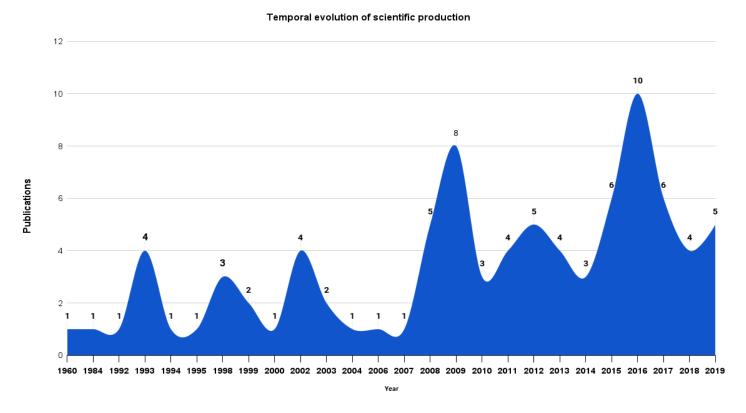
After organizing and classifying the data in an electronic spreadsheet, the tables added to the study were

generated. For the analysis, we opted for works up to 2019, excluding the year 2020, as it is the current year during the course of the research, without the total publication of that year. Thus, the analyzed sample consisted of 146 works.

In order to measure and evaluate the data found, the study was separated into the following 12 categories: temporal evolution of scientific production; temporal evolution of the number of article citations; production by countries; production by countries networking; categories of publications; association between authors and categories; most cited works; citation network; clusters by title; major citations in the category Government & Law, publications in Brazil, in order to understand the intrinsic meanings of the graphics generated by CiteSpace.

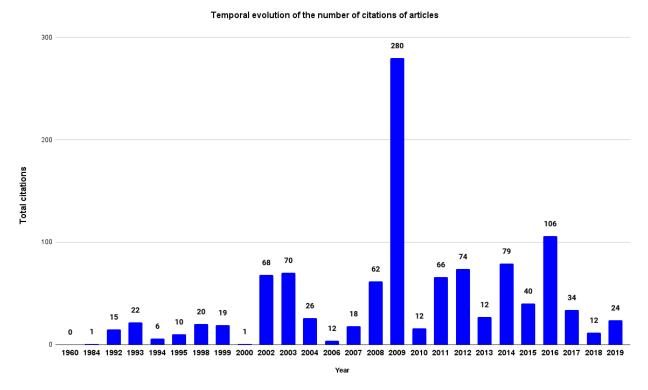
#### **4 ANALYSIS AND DISCUSSION OF RESULTS**

In order to measure and evaluate the data found, the study wThe oldest article found in the research refers to the work of Garrett Hardin, The Tragedy of the Commons, published in 1968. It appears that there was a hiatus of publications between 1960 and 1984 (24 years) and a new hiatus until 1992 (8 years), after maintaining a low frequency, reaching in 2002 the highest rate of publication (4 works). As a result, there was an increase in publication from 2008 onwards (5 papers), with the upward curve remaining until 2019, with a peak in 2016 (10 papers), which indicates recent interest in the subject. at the end 146 works, as shown in Figure 1.



**Figure 1.** Temporal evolution of scientific production. Source: Elaborated by the authors.

Figure 2 shows the temporal evolution of the number of citations of articles.

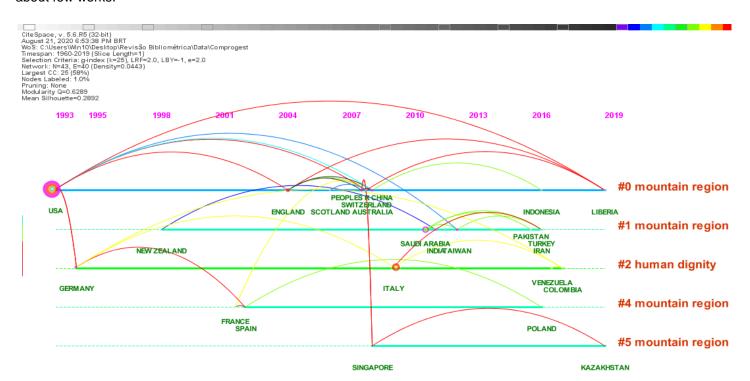


**Figure 2.** Temporal evolution of the number of citations of articles. Source: Elaborated by the authors.

Based on Figure 2, it is observed that there was a significant increase in the volume of citations of articles that address the topic, totaling 1,100 citations from 146 publications. This is due to a more specific interest in the subject that may be related to the questioning about intellectual property, and reveals that there is a lot of citation about few works.

The growth trend is noted from 2002 onwards and it is worth highlighting the large increase in 2009, when the number of citations rose to 280.

Figure 3 shows the countries that stood out in the publications.



**Figure 3.** The countries that stood out in the publications. Source: Elaborated by the authors.

Table 1 shows the citation by countries and their network connection.

Table 1

Citations by countries and networking.

Citations	References	group #	
27	EUA	20	
14	ESPANHA	15	
13	ITÁLIA	8	
9	FRANÇA	15	
9	INGLATERRA	9	
8	AUSTRALIA	8	
7	ALEMANHA	23	
5	CANADÁ	2	
5	SUÍÇA	8	
5	INDIA	5	

Source: Elaborated by the authors.

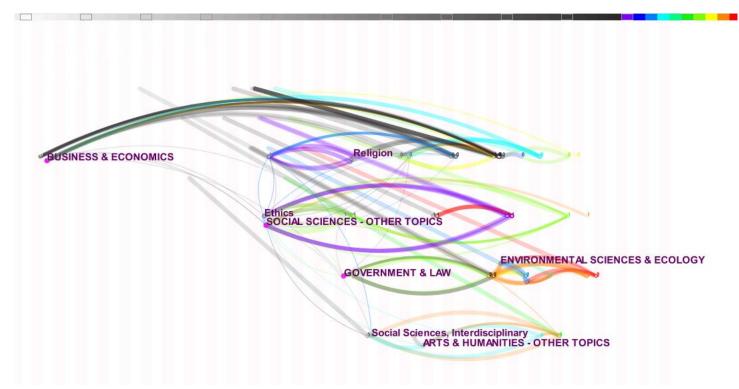
The nodes in Figure 3, corroborated by Table 1, show the citation volume with reference to citations by countries. As seen, the United States, in addition to being the first to publish on the subject, is the country with the highest volume of citations and publications (27). With a numerical distance

are Spain (14), Italy (13), France, England (9), Australia (8), Germany (7), Canada, Switzerland and India (5).

The path of the line, in Figure 3, shows the influence of certain works from some countries on the others, which indicates lines of reasoning, as well as the influence of the United States in other publications and the connection between the countries.

Finally, in Table 1, it can be seen that some countries are linked by network relationships, such as Spain and France, Italy, Australia and Switzerland, and others that are not connected. This is what signals the division into groups#, by the software, as shown in the Table 1 in the group item.

Figure 4 shows that the articles cover different areas of knowledge and there are three major nodes Economics and Business (i), followed by Social Sciences (ii), Environmental Sciences and Ecology and Government and Law (iii). The fact that the first major field of citations is in Economics and Business is well related to the emergence of the theme in the economic scenario in the United States.



**Figure 4.** Publication categories - knowledge areas.

Source: Elaborated by the authors.

It is important to clarify that the analysis of the distribution by countries is significantly associated with the category that develops the theme. When the seminal work was published (Hardin, 1968), its approach had an economic slant, influencing thinking in this area. Later, the area became more diversified, which indicates that knowledge in the economic area influences the other categories and studies that each country leads.

In the same context of implications regarding the point of contact between countries and categories, there are journals that publish on the subject. The largest number of journals that have published on the subject are diametrically

linked to the countries that publish the most, in their respective categories (areas) of publication.

In sequence, the ones that published the most were the journals SCIENCE – USA (19), THESIS – England (18), J BUS ETHICS – Netherlands (14), GOVERNING COMMONS EV – Netherlands (12), HARVARD BUS VER, ACAD MANAGE VER – USA (8), ECOL ECON - Netherlands, BUS ETHICS Q - USA, J CLEAN PROD - England and WORLD DEV - England (7), which can be seen in figure 5.

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Iimespan: 1960-2019 (Slice Length=1)
Selection Criteria: Top 50 per silce, LRF=2.0, LBY=-1, e=2.0

Network: N=71, E=166 (Density=0.0668)
Largest CC: 47 (66%)
Nodes Labeled: 1.0%
Pruning: None Dietz T (2003) Cantino V (2017) SCIENCE & TECHNOLOGY - OTHER TOPICS Ostrom E (1990) ENVIRONMENTAL SCIENCES & ECOLOGY **HARDIN G (1968)** Ostrom E (2009) SOCIAL SCIENCES - OTHER TOPICS GOVERNMENT & LAW Strom E (1994) BUSINESS & ECONOMICS
Olson M (1965) SAHUMMUTES - OTHER TORICS Felber C (2012) Felber C (2072) ter M É (2011) MATHEMATICS Al-Thagafi MA (2009) Eldred AA (2006)

**Figure 5.** Association between authors and categories. Source: Elaborated by the authors.

The article with the highest number of citations is Integrating Personalism into Virtue-Based Business Ethics: The Personalist and the Common Good Principles (Melé, 2009) and its investigation is the discussion of the Common Good as a principle (CGP) of business ethics, with the development of cooperation to promote conditions that increase people's opportunities in the business environment and does not directly face the property discussions referenced in this research.

What is observed in the most cited works is a great diversity of aspects and explored aspects, confirming the diversity in which the issues are inserted in the context of the common good. As shown in Table 2, the first two articles with the highest number of citations were published in the same year, and the others kept the lowest number of citations.

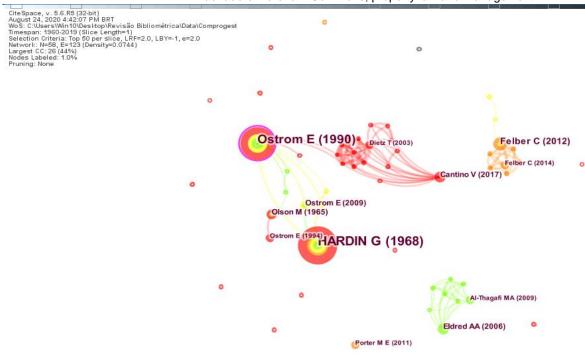
Table 2
Most cited Works

Title	Author	Citations	Journal
Integrating personalism into virtue-based business ethics: The personalist and the common good principles	Mele D (2009)	100	J BUS ETHICS, 88,18
What explains collective action in the commons? Theory and evidence from the Philippines collective action	Araral E (2009)	85	WORLD DEV, 37,11
Neoliberalism for the common good? Public value governance and the downsizing of democracy management	Dahl A (2014)	54	PUBLIC ADMIN REV,74,9
Representing mountains: From local and national to global common	Debarbieux B (2008)	39	GEOPOLITICS,13,21
Personal privacy and common goods: A framework for balancing under the national health information privacy rule medical	Gostin LO (2002)	31	MINN LAW REV,86,41
The great descriptor melting pot: mixing descriptors for the common good of QSAR models	Tseng Y (2012)	29	J COMPUT AID MOL DES,26,5
Baking for the common good: a reassessment of the assize of bread in medieval England moral economy	Davis J (2004)	26	ECON HIST REV,57,38
Governance and the common good	Carcello J (2009)	26	J BUS ETHICS,89,8
Representing the common goods - Stakeholders vs. Citizens	Soma K (2014)	24	LAND USE POLICY,41,9
Common best proximity points: Global optimization of multi- objective functions	Basha SS (2011)	24	APPL MATH LETT,24,4

Source: Elaborated by the authors.

The intellectual basis points out who the main references used by the works found in the search are, which allows the identification of the seminal and most cited authors. From the results, excluding citations below the number of four, which is the exclusion criterion, the most cited authors, in sequence, are: Ostrom E (23), Hardin G (16), Rawls J (9), Felber C and Sem A (7), HARVEY D (6), MacIntyre A (5), Hess C (5) and Olson M (4).

It is observed that the network of authors cited by the 146 articles is quite dispersed, composed of several nodes of different colors, with the centrality in Ostrom E, 0.21. Figure 6 shows the names of the most cited authors, and the other authors are represented only by dots, for ease of viewing.

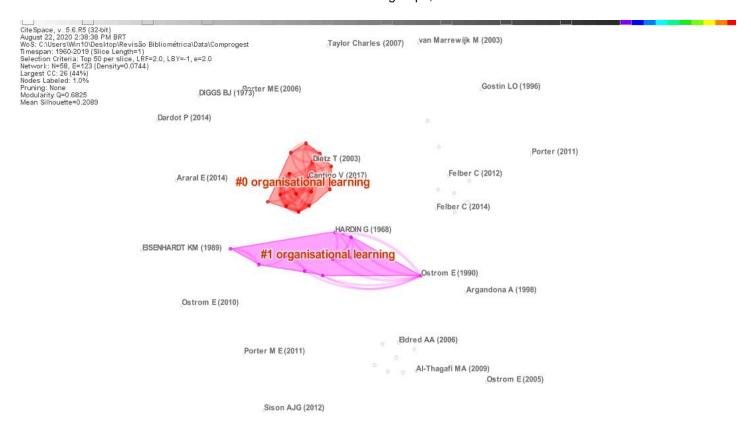


**Figure 6.** Citation network with year of publication of the most cited work. Source: Elaborated by the authors.

Figure 6 shows 2 clusters selected by the software, Ostrom E (1990) and Hardin G (1968), which, due to the dates of the most cited works, are the two described in the introduction: Governing the commons: the evolution of institutions for collective action, by Ostrom, and The Tragedy of the Commons, by Hardin. Figure 6 also highlights the field of clusters, as well as the isolation of some authors.

If a cluster has numerous nodes and these indicate an explosion of citations, a very active area of research is captured, however bursts (explosions) were not found in the theme.

Figure 7 shows the cluster selection by study object. This search, in addition to the previous search depicted in Figure 6, verifies the connection of authors, who form two groups, in view of the theme.



**Figure 7.** Clusters by theme. Source: Elaborated by the authors.

The result shows that both clusters work with organizational learning, but in different groups. There is a division into two groups, made by color and this marking represents a division of reasoning, either through the theoretical basis or methodology, which should be

investigated by reading the works of the authors of the two groups.

Considering the thematic cut, the research on the Government & Law category was deepened and the most cited works were found. The first in this category is the fourth in the ranking of the highest citations.

**Table 3**Top citations in the Government and Law category.

Title	Author	Citations	Journal
Representing mountains: From local and national to global common good.	Debarbieux B, 2008,	39	GEOPOLITICS, V13
Co-governing common goods: Interaction patterns of private and public actors	Tosun J, 2016,	20	POLICY SOC, V35
Saving the WTO from the risk of irrelevance: The WTO dispute settlement mechanism as a common good for RTA disputes	Gao H, 2008,	12	J INT ECON LAW, V11
Justice and the common good in dispute resolution discourse in the United States and the people's Republic of China	Murphy T, 2017,	0	LAW DEV REV, V10
The weak natural law thesis and the common good	Duke G, 2017,	0	POLIT STUD-LONDON, V65
Political authority and the common good	Duke G, 2016,	0	LAW PHILOS, V35
Can a common good be held in a pig? Ordinary conflicts over the ownership of assets of the souls in eighteenth century Spain	Glesener T, 2017,	0	POLITIX, V30
Solidarity, social welfare policy and common good	Guarin Ramirez E A, 2017,	0	REFLEX POLITICA, V19
Refusing to pay taxes, defining the common good. Tax resistance and ordinary politics in eighteenth century Germany	Renault R, 2017,	0	POLITIX, V30

Source: Elaborated by the authors.

Likewise, still within this category, articles published in Brazil were researched. However, there was little publication and citation of national articles, which denotes the absence of Brazil in the framework of countries that have published intensively on the subject.

Therefore, it is considered relevant to investigate, in full reading, the theoretical and methodological basis adopted in the country.

**Table 4** Publications in Brazil.

Title	Author	Citations	Journal
O Paradoxo do desenvolvimento: Direito Ambiental e Bens	Schumacher Wolkmer M F,	2	VEREDAS
Comuns no Capitalismo	2018		DIREITO, V15
Common good production in capitalism: A critical reading through the public policies linked to social rights	Goncalves Correia M O, 2015	1	SAUDE SOC-SAO PAULO, V24
Razão prática, direito e bem comum na teoria da lei natural de John Finnis	Pinheiro V S, 2019	0	QUAESTIO IURIS, V12

Source: Elaborated by the authors.

#### **5 CONCLUSIONS**

This study aimed to identify and describe the main characteristics of scientific production (published in international journals) that address the theme commons in a dialogue with the right to property and management. Through CiteSpace, data from 146 works were generated, which was the selected sample as explained in the methodology, from works that were indexed in the Web of Science, considered one of the most relevant international scientific bases.

Therefore, it is considered relevant to investigate, in full reading, the theoretical and methodological basis adopted in the country.

The results found, which were particularly commented on in each item, show Hardim's work as a seminal work, with reflections on other authors, especially Ostrom, who became the central author of the discussion

with reflections in several areas, including the area of this research's clipping.

Production began in the United States and this is still the country with the highest number of citations. However, other countries have also been standing out with dispersed themes, some linked to Ostrom, other countries in isolation.

Therefore, it is concluded from the survey carried out and according to the most cited works, that the theme is approached from different perspectives. What confronts the theoretical foundation about the common goods are.

The dispersion of issues related to the commons reinforces the difficulty of identifying and better defining this field of studies. Only one of them mentioned the discussion of legal recognition to favor protection. That is, the definition of ownership for the institution and functioning of the commons is not immediately required. This definition, as this work demonstrates, is necessary a posteriori.

Therefore, it is necessary, after this bibliometric survey, considering its own limitations, to have it as the guide for an integrative review, attentively, since the larger scenario of the insertion of the theme, to the details has already been outlined of the subjects dealt with and the theoretical foundations carried out. After all, the results of this study show that the field is new, but with a growing amount of interest, as it has been debated in the academic world and the focus sought is echoed in the Government & Law category. In addition, as pointed out in the analysis in Table 4, the need to read Brazilian works in their entirety, special observation of the theoretical methodological basis adopted.

It is expected to have contributed to the understanding of the scientific production on the subject and, at the same time, to seek ways to foster discussions on scientific production involving common goods, property and management rights, and thus be able to contribute to the systematization of the advancement of scientific knowledge, mainly with the aim of finding a way out so that resources, in social practices managed in community, can escape the "tragedy".

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