

## A specter is haunting science, the specter of piracy. A case study on the use of illegal routes of access to scientific literature by Argentinean researchers

Mariano Zukerfeld, Santiago Liaudat, María Sol Terlizzi, Carolina Monti & Carolina Unzurrunzaga

To cite this article: Mariano Zukerfeld, Santiago Liaudat, María Sol Terlizzi, Carolina Monti & Carolina Unzurrunzaga (2022) A specter is haunting science, the specter of piracy. A case study on the use of illegal routes of access to scientific literature by Argentinean researchers, Tapuya: Latin American Science, Technology and Society, 5:1, 2117491, DOI: [10.1080/25729861.2022.2117491](https://doi.org/10.1080/25729861.2022.2117491)

To link to this article: <https://doi.org/10.1080/25729861.2022.2117491>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 03 Nov 2022.



Submit your article to this journal [↗](#)








View related articles [↗](#)



View Crossmark data [↗](#)

# A specter is haunting science, the specter of piracy. A case study on the use of illegal routes of access to scientific literature by Argentinean researchers

Mariano Zukerfeld <sup>a</sup>, Santiago Liaudat <sup>b</sup>, María Sol Terlizzi <sup>c</sup>, Carolina Monti <sup>d</sup>  
and Carolina Unzurrunzaga <sup>e</sup>

<sup>a</sup>CONICET/e-TCS/CCTS/Umai, Buenos Aires, Argentina; <sup>b</sup>LECYS/FTS/UNLP, La Plata, Argentina; <sup>c</sup>FLACSO/UNLaM, Buenos Aires, Argentina; <sup>d</sup>CONICET/UNLP, La Plata, Argentina; <sup>e</sup>CONICET/IDIHCS/UNLP, La Plata, Argentina

## ABSTRACT

The aim of this study is to investigate the different types of access to scientific literature used by Argentinean researchers. This paper focuses particularly on the extent to which the illegal route is resorted to, the motivations for resorting to it, representations of legality and moral acceptability, and the relationship between productivity and different access routes. In order to tackle these topics, a survey was carried out among CONICET researchers. The main findings are as follows. The use of the illegal route is massive and widespread; it does not replace but rather coexists with the use of legal routes; there is a striking disconnection between the representations of legality and morality, and the motivations for using the illegal route are both practical and axiological.

## Um fantasma assombra a ciência, o fantasma da pirataria. Análise do uso de vias ilegais de acesso à literatura científica por pesquisadores argentinos

## RESUMO

O propósito desta investigação é analisar os diferentes tipos de acesso à literatura científica utilizados por pesquisadores argentinos. Este artigo centra-se especialmente na utilização da via ilegal, nas motivações para recorrer a ela, nas representações sobre legalidade e correção moral e na relação entre a produtividade e as diferentes vias de acesso. Para abordar estas questões, foi realizado, uma pesquisa de tipo survey entre os pesquisadores da CONICET. Os principais achados foram: a utilização da via ilegal é maciça e generalizada; a via ilegal não substitui, mas coexiste com a utilização de outras vias legais; existe uma notável desconexão entre representações de legalidade e correção moral e as motivações para a utilização da via ilegal são tanto práticas como axiológicas.

## KEYWORDS

Scientific literature; illegal route; Sci-Hub; piracy; scientific publication

## PALAVRAS-CHAVE

Literatura científica; via ilegal; Sci-Hub; pirataria; publicação científicas

## PALABRAS CLAVE

Literatura científica; vía ilegal; Sci-Hub; piratería; publicación científica

**CONTACT** Carolina Monti  [caro.montif@gmail.com](mailto:caro.montif@gmail.com)

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group  
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## Un fantasma recorre la ciencia, el fantasma de la piratería. Análisis del uso de vías ilegales de acceso a la literatura científica por parte de investigadores argentinos

### RESUMEN

El objetivo de esta investigación es analizar los distintos tipos de acceso a la literatura científica utilizados por los investigadores argentinos. Este artículo se centra especialmente en el uso de la vía ilegal, las motivaciones para recurrir a ella, las representaciones sobre legalidad y corrección moral y la relación entre la productividad y las diferentes vías de acceso. Para abordar estos temas se realizó una encuesta específica entre los investigadores del CONICET. Entre los hallazgos más notables destaca que el uso de la vía ilegal es masivo y generalizado; no sustituye, sino que coexiste con el uso de otras vías legales; existe una notable desconexión entre las representaciones sobre legalidad y corrección moral, y las motivaciones para utilizar la vía ilegal son tanto prácticas como axiológicas.

## 1. Introduction

A specter is haunting the world of scientific research: the specter of piracy. Despite the increasing expansion of open access policies and the fact that states and other funding agencies are increasingly demanding the availability of scientific results in this format, the privatization of knowledge is expanding and financial barriers continue to raise obstacles to access scientific information. The large international commercial publishers have adapted their business model to “openness,” combining closed access (paywalls) with open access and making profits through payment for publishing (APC: Article Processing Charges), with increasing control over the infrastructure and academic services necessary for current research processes (Posada and Chen 2018).

This situation has led to the emergence of illegal access routes known as “shadow libraries,” part of “black open access.” These are non-commercial internet platforms, often called “pirate sites,” that allow readers to access and download scientific literature. Among these, Sci-Hub has had the most impact in recent years. Studies have registered its widespread use across all academic fields and its global distribution, not only in wealthy countries but also in poor regions (Bohannon 2016; Gardner, McLaughlin, and Asher 2017; González-Solar and Fernández-Marcial 2019; Greshake 2016; Kjellström 2019; Machin-Mastromatteo, Uribe-Tirado, and Romero-Ortiz 2016; Liaudat 2021); research has also found the idea that using it is morally acceptable despite being illegal (although in this consideration there are strong variations between countries) and identified that its use is not exclusively linked to the lack of access but that other motivations exist, such as convenience or values concerning free access to knowledge (Nicholas et al. 2019; Travis 2016).

Meanwhile, nation states and science and technology agencies determine access policies for scientific literature, which involves negotiation with a small number of large publishers that reap extraordinary profits (Larivière, Haustein, and Mongeon 2015). Additionally, different actors have promoted open access initiatives that contemplate APC payments; for example, the European Research Council and the main national

research funding agencies of fourteen countries in Europe. Known as the COALition S or Plan S, this initiative, among its principles, declares that publication costs must be covered by institutions under an open access license. These policies sustain hybrid publication models that lead to increasing discontent among the global academic community and make it unaffordable for authors from developing countries to publish in certain journals.

In regions such as Latin America, other alternatives have been endorsed, which aim to make open access self-managed by academia and to encourage publishing on a non-profit basis (Salatino and Banzato 2021). For example, in 2018, AmeliCA – Open Knowledge for Latin America and the Global South – emerged as an initiative taken by UNESCO, CLACSO, RedALyC, and universities from different countries, proposing to build an infrastructure for academic publications “from and for academia” (Becerril-García 2019). These initiatives are in line with the recommendations subsequently agreed and disseminated by UNESCO to move towards open science (UNESCO 2021).

In this article, we focus specifically on investigating the situation in Argentina, where political and economic circumstances have repeatedly jeopardized subscription-only access to information resources paid for by the Electronic Library of Science and Technology – BECyT – a program that involves a significant investment and has required lengthy negotiations on prices. Studies of Sci-hub downloads show that the situation in the country does not seem to be different from that found in international studies, for example, if we consider the number of documents downloaded from the website (Liaudat 2021). However, so far, there is no information available to show in what way and how often researchers in Argentina use this type of access, compared to the legal methods of access. Furthermore, neither the motivations that lead to these practices or the perceptions of the researchers in relation to this practice are known.

We consider that developing a more detailed picture of the practices, motivations, and representations regarding access routes to scientific literature would enable us to contribute to the public debate with empirical evidence, and provide stakeholder agencies with useful evidence for future renegotiations of contracts with publishing companies. Furthermore, this work is driven by a theoretical and historical perspective that suggests that the use of illegal access routes to knowledge is far from being an anomaly. In the development of capitalism in general, and in the publishing industry in particular, so-called “piracy” has been and continues to be a very common resource. More precisely, the actors currently located in central capitalist economies have historically and currently been able to take the most advantage of it, while also attempting to prohibit those who are in peripheral regions from using it. This occurs across different economic branches and is a particular problem in the academic publishing industry. This theoretical perspective is engaged in the study of illegal access in order to inform a wider agenda on knowledge access and development based on historical and contemporary empirical evidence.

Therefore, the main objective of this research is to characterize the different types of access to scientific literature used by researchers from the National Scientific and Technical Research Council (CONICET, its acronym in Spanish), their frequency of use, and especially, the illegal access route, a category in which we include the platforms defined as pirate sites. Three specific aims are proposed here: (1) to delve into the motivations for using or not using the unpaid illegal route; (2) to analyze representations of legality and moral acceptability in access to and dissemination of scientific articles through illegal routes or “grey areas”; (3) to analyze the links between productivity,

publishing priorities and access routes. To that end, we used our survey as a data-gathering technique, and employed basic techniques of descriptive statistical analysis to analyze that data. After introducing the theoretical and legal framework that elucidates our epistemological perspective and the Argentinean context, we present and discuss the main findings.

## 2. Theoretical and legal framework

### 2.1. Unpaid translations of knowledge

This paper is part of a long-term research plan that looks at the relationship between the unpaid appropriation of knowledge and capital accumulation. In the current stage of capitalism, which we characterize as cognitive or informational, there exists a consensus regarding the association between the accumulation of knowledge and economic development. The use of productive knowledge, however, depends on the intellectual property regulations that determine who has access to them and under which circumstances. In that context, the debate around different ways of using or reproducing knowledge, especially unpaid *translations* carried out by peripheral actors of knowledge whose authorship is attributed to agents located in central regions, becomes crucial.

The concept of *translation* refers to the operation by which knowledge is reproduced and is recreated in another tangible form. From a cognitive materialist point of view, knowledge is always shown – exists – in some form. Therefore, knowledge flows entail complex processes as they involve the passage through different tangible forms, each of them “imposing its conditions,” adding to or taking away something from that knowledge. In other words, tangible forms through which knowledge flows are not neutral and the translations are not perfect either. In particular, the tangible form to which knowledge is translated into has consequences in terms of regulating access to it (Zukerfeld, Liaudat, Terlizzi, Monti & Unzurrunzaga 2021; Zukerfeld 2017).<sup>1</sup>

Extensive historical evidence has been analyzed in previous studies to understand the link between unpaid translations of knowledge and the accumulation of knowledge and capital (among others, Zukerfeld, Liaudat, Terlizzi, Monti & Unzurrunzaga 2021; Monti & Unzurrunzaga 2021; Lund & Zukerfeld 2020; Liaudat, Terlizzi & Zukerfeld 2020; Zukerfeld 2016). From this, a tentative classification was formulated based on two main dichotomous variables: profits and legality.<sup>2</sup> Table 1 shows cases, as an example, linked particularly to copyright and the publishing industry.

This table, in succinct form, shows that the unpaid use of texts is a practice that has taken different forms and has extensive chronological and geographical scope. In many of those situations, laws have emerged to legalize these forms of “piracy.” The origin of copyright in 1709 in England and the publishing industry in the United States between 1790 and 1891 are paradigmatic: the development of the publishing industry and the

---

<sup>1</sup>It should be clarified that the notion of translation used here is not linked to the use ascribed to it by Bruno Latour’s Actor-Network Theory, nor to its usual linguistic meaning, but is inscribed in the theoretical-methodological framework of cognitive materialism. It is a concept that refers exclusively to the flow of knowledge between material supports (Zukerfeld, Liaudat, Terlizzi, Monti & Unzurrunzaga 2021; Zukerfeld 2017).

<sup>2</sup>Indeed, the cognitive materialist concept of knowledge translation allows for analysis across multiple dimensions. In this study, however, the focus is on the paid or unpaid character as this is the determinant for access or non-access to scientific literature published in journals with paywalls. The other fundamental variable is that of legal vs. illegal as we are interested in investigating illegal access as a way of avoiding onerous payments to access scientific literature.

**Table 1.** Types of unpaid *translations* of knowledge.

Unpaid translations of knowledge	Legal	Illegal
For profit	Stationers Company (London 1557–1709) European publishing industry XVII–XVIII c. US publishing industry XIX c. Scientific publishers XXI c.	Paid-access shadow libraries (91lib.com from China)
Non-profit	Exceptions for educational or research use Exceptions for libraries Exceptions for web linking Fair use Project Gutenberg	Free-access shadow libraries (Sci-Hub, LibGen) Scientific piracy through social networks

Source: Authors' elaboration based on Lund, & Zukerfeld (2020).

widespread expansion of reading, respectively, was associated with unpaid translations of knowledge by actors who became central, and following that, a new stage of enclosure in order to prevent peripheral actors from doing the same. On the other hand, certain unpaid cognitive translations take the form of limitations and exceptions to copyright to guarantee the exercise of other rights (education, culture), whose importance to the processes of regional and national development is well-known (Flynn and Palmedo 2017).

Likewise, the academic publishing industry maintains the naturalization of other unpaid cognitive translations: the appropriation of scientific works without copyright payments (and even, increasingly, charging for publication) as well as the usually unpaid work of those who review and edit. Mainly public funds, through different channels, increase the revenues of this industry. In short, the publishing industry, in general, and the academic one, in particular, have resorted and continue to resort to the unpaid translations of knowledge that they present as anomalous or a misappropriation – labeling them as “piracy.”<sup>3</sup> Hence, the importance of studying the illegal means of accessing that knowledge. Sites such as Sci-Hub, LibGen, and others allow access to published scientific production without paying the prohibitively high rates established by the publishing oligopoly. Thus, the unpaid translations of knowledge could be of use for the accumulation of capital and development – in no way do we assert that they necessarily do this – but, in this case, in favor of those actors located in the peripheries and to the detriment of the publishing oligopoly.

## 2.2. Regulating access to scientific literature

Argentina, along with many other countries, adheres to the international legislation concerning copyright. Firstly, the Berne Convention for the Protection of Literary and Artistic Works, adopted in 1886 and amended on several occasions until its last amendment in

<sup>3</sup>The term piracy and its political significance are objects of debate. This article does not aspire to explore this issue in any depth; however, at the request of our reviewers, we include some remarks here. Digital piracy is subjected to two contradictory forces that are expressed not only between individuals, but also within each individual who engages in the practice in some way: on the one hand, there is the tendency towards collaboration, the dilution of individual authorship, de-commodification, the economy of the gift; and on the other hand, commodification, capture of scarce human attention, self-promotion and the reinforcement of individualized identity (Cfr. Hall 2016, 133, 140,142; Johns 2009). That is to say, practices labelled as “piracy” (and the same can be said for open access) can be at once oppositional and favourable to the hegemonic tendencies of informational capitalism. We draw on an understanding of acts of piracy, and the regulations that configure them, that places them in the context of their historical development, in such a way that behaviours which are criminalized in one period can be subsequently legalized, and vice versa, in general due to the degree of knowledge and capital accumulated by companies, regions and countries (Chang 2001; Johns 2009; Zukerfeld 2016). For this reason, to adequately grasp the dynamic of so-called “piracy,” we frame it as a type of unpaid translation of knowledge.

1971, is the foundation of all subsequent regulations. Secondly, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). Enacted in 1994, it was stipulated as a condition for membership in the World Trade Organization. With this agreement, intellectual property rights, in general, were expanded and strengthened, including the copyrights referred to in the Berne Convention. Finally, the WIPO Copyright Treaty (WCT), in force since 2002, updates and expands the scope of the Berne Convention to the new digital technologies (databases, computer software, internet).

In relation to our research question, the Berne Convention states that the authors (in our case, scientists and technologists) are the only parties legally entitled to exercise all rights, including the right to make reproductions. However, they can relinquish the ownership of this right to a third party. In fact, this is what happens with publications in scientific journals, which entail conceding reproduction rights to publishing companies. In other words, publishing companies – in most cases private companies – are the owners of the rights of reproduction of those papers they publish.<sup>4</sup>

National laws in Argentina on intellectual property agree almost perfectly with the global frameworks. In copyright, the regulatory framework is laid out in Law 11.723, which establishes the *Legal Regime of Intellectual Property*. Passed in 1933, it has been updated with more than sixty amendments and addendums to this day. These regulations state that the copyright of a scientific, literary or artistic work includes the power to dispose, publish, perform, represent and exhibit it in public, transfer, translate, adapt it or authorize its translation and reproduction in any way. In section 71 et seq. the penalties for those who infringe these rights are stated (an essential aspect to ensure enforcement, as the international treaties do not apply at the national level).

Finally, in 2013, Law 26.899 to promote open access was enacted. It stipulates the *Creation of Institutional Digital Open-Access Repositories*. In section 5, this regulation states the obligation of researchers in the Argentine national system of including a copy of the final version of their works in public repositories, if the research was financed by state funds.

Lastly, it is worth mentioning that international treaties and national law have certain flexibilities that allow those signatory countries to make use of exceptions and apply limitations to intellectual property rights. In the case of copyrights, they are a set of regulations that exceptionally support the use of works without the authorization of the author or owner of the rights due to public interest reasons, such as allowing the exercise of other rights considered equal or higher in rank (for culture, education, research and freedom of speech).<sup>5</sup> It is worth highlighting that wealthy countries tend to adopt

---

<sup>4</sup>It is worth mentioning that the Berne Convention states that reproduction is the physical “fixing” of a work in a form that facilitates its communication to the public and the availability of copies of parts or the whole work, while the WCT stipulates that downloading material from the internet and other forms of digital copying are considered acts of reproduction. For this reason, the unpaid downloading of papers whose ownership is in the hands of restricted and paid access publications is illegal according to these regulations.

<sup>5</sup>International human rights treaties were incorporated into the national constitution as part of the 1994 reform and, therefore, have taken on constitutional status. In this way, the integration of the rights of authors within the framework of human rights grants them protection equivalent to other rights, such as the right to health and education, among others. This integration can be observed principally in two international instruments: the Universal Declaration of Human Rights (art. 27) and the International Covenant on Economic, Social, and Cultural Rights ICESCR (art. 15). Both instruments establish the right to the protection of the moral and material interests of the author. Meanwhile, the same article establishes the right of any person to participate in cultural life and scientific progress. The simultaneous protection of both rights reveals a potential tension between the right to access culture, and authors’ rights. Despite this regulatory equivalency in the Argentinian legal pyramid, it is necessary to provide two clarifications which arise from the interpretation of article 15.c by the ICESCR Implementation Committee. On the one hand, the



more flexibilities to copyright than peripheral countries, with legislative modernization in the latter lagging 30 years behind the former (Flynn and Palmedo 2017).

The Argentine case seems to confirm that picture. The national legislation has virtually no flexibilities. Law 11.723 admits only a few exceptions and with limited scope. The most recent amendment (article 36 bis, ter, quater y quinquie) establishes certain exceptions exclusively for people with sensorial disabilities which cause accessibility problems in the case of printed texts. This was included through the signing of the Marrakesh Treaty in 2014, but it was only implemented in 2020. In turn, one of the most demanded exceptions concerns libraries. In recent years (2010, 2012, and 2015) three projects to reform the law were presented by the Association of Graduate Librarians of the Republic of Argentina, but as they were not debated in congress within the parliamentary term, they failed.

### 3. Methodology

The present research is a case study in which we used the survey as a data collection mechanism to learn about the types of access to scientific literature used by researchers working at CONICET, the main agency dedicated to the promotion of science and technology in Argentina.<sup>6</sup> To analyze the data we used basic techniques of descriptive statistics and conducted hypothesis testing according to the level of the variables measured (chi-square test, Kendall's Tau Coefficient, Pearson's  $r$ ).

Additionally, the numerical coding of ordinal variables to produce indicators similar to a Likert scale was used. For instance, in the analysis of the representations of legality in four scenarios, the value 2 is assigned to "legal," 1 to "partially legal," -1 to "partially illegal" and -2 to "illegal." Then, they are added and a value is obtained for the general representations of legality particular to each individual.

Finally, it is worth pointing out that the analysis of the answers treats the empirical material as discourses of the survey respondents. Therefore, the aim is to explore and compare what different actors say they do and think, without addressing in this study the triangulation with objective sources.

#### 3.1. Instrument and sample

The data-gathering instrument consisted of a structured questionnaire with twenty questions organized along five axes: (1) *access to scientific literature* looked into the frequency and the methods of access; (2) *motivations for its use* asked about the choice of routes to

---

protection of moral and proprietary interests does not necessarily coincide with what is identified as intellectual property rights or authors' rights in national legislation or in international agreements. Hence, other instruments may exist which fulfill these objectives, such as premiums, subsidies, etc. In other words, authors' rights as such are not a human right. On the other hand, human rights only cover physical persons, and not legal entities. Thus, the protection arising from these instruments only protects the individual author. This means that the right to the protection of moral and proprietary rights is not extendible to legal entities such as corporations, businesses, and publishers. In this sense, from the perspective of human rights, when rights holders such as scientific publishers are involved, the rights of persons to have access to science is ranked higher than the rights of legal entities, which are excluded from the juridical framework of human rights. For a discussion of cultural rights and authors' rights, see Busaniche (2016).

<sup>6</sup>It is worth noting that "scientific literature" means those papers published in scientific journals and other documents (books, reports, etc.); "access" refers to both downloading and online reading of the document; the phrase "researchers from CONICET" includes permanent researchers of all categories, as well as doctoral and post-doctoral scholarship holders.



access scientific literature; (3) *scenarios*, the survey harvested the representations related to legality and moral acceptability of certain actions to obtain scientific literature; (4) *production* addressed publication habits over the previous two years; (5) *socio-demographic profile*. The questionnaire, designed in Google Forms, was distributed through multiple electronic communication channels (mailings, academic networks, researchers' groups). Answers were received from 10 December to 31 December 2020.<sup>7</sup>

The survey received 368 responses from scholarship holders ( $n = 144$ ) and researchers ( $n = 224$ ), out of a population of 21,162 persons (researchers + scholarship holders) in December 2019.<sup>8</sup> The features of the sample resemble the features of the environment in terms of gender, age range, type of researcher and disciplinary area determined by CONICET (Agrarian, Engineering and Material Sciences, Biological and Health Sciences, Exact and Natural Sciences, Social Sciences and the Humanities and Technology), and, to a lesser extent, the geographical distribution of CONICET workplaces considering the region (see Appendix).

### 3.2. Defined categories

In this paper, the access modalities are classified as follows: (1) *Paid legal access* (payment with own funds, grants, bibliographic services paid by institutions); (2) *Unpaid legal access* (literature published in open access or public domain); (3) *Unpaid illegal access* (Sci-Hub and similar websites); (4) *Direct access* (requested from the author or through social media); (5) *Undetermined access* (directly through a browser). In the first three types, two variables meet: whether the access is legal or illegal and whether it is unpaid or subject to an onerous fee. Conversely, in the last two types, the access is free of charge, and it may be legal or illegal. Finally, the frequency was measured over two intervals: in twelve months and in a standard week.

## 4. Access modalities

In this subsection, information regarding three aspects is presented: the scale of the downloads made by researchers, which access routes and to what extent they are used (paid legal access, unpaid legal access, illegal access, and other alternatives) and also whether one of these routes is detrimental to accessing the others.

### 4.1. Frequency of access

Two questions related to the frequency of access were included in the survey. The first one was about the number of accesses over the previous twelve months. The second one is in a standard week. This was intended to cover, on the one hand, representations regarding what happens over an extended period (which includes ordinary and exceptional situations) and, on the other hand, during a normal period, which is shorter and easier to estimate for the respondents. Briefly, the survey respondents stated that they accessed around eleven documents per standard week. For the previous year (2020),

---

<sup>7</sup>The questionnaire can be found at <https://drive.google.com/file/d/1r0VnrCpCUa8baBEY2AwooruHANk8k8IA/view>.

<sup>8</sup>In addition, it was responded to by 26 people who work as support staff in the institution.

57% of respondents reported having accessed more than a hundred papers and only 13% to less than 50.

It is worth noting that the association between the frequency of access in a standard week and the annual total is partial (Tau  $b = 0.44$ ). The reason for this may be, assuming the consistency of the answers, the uneven number (among the respondents) of non-standard weeks in the baseline twelve months. In the rest of this study, the accesses in a standard week were used as an indicator as it is an interval variable and, due to the magnitude of the values and the time proximity, we considered them to be more easily calculated by the respondents.

Is the number of accesses associated with other variables? In short, no. Men and women present a slight difference in terms of weekly accesses (10.93 and 10.17 on average, against the total of 10.74) without association (chi-square of 7.09 and  $p = 0.13$  to four degrees of freedom), the correlation with age is null ( $r = 3E - 05$ ), and negligible regarding the position in CONICET (Tau  $b = 0.077$ ), and the averages do not significantly vary between disciplinary areas (they range between 9.47 and 12, with a chi-square = 7.22 and  $p = 0.84$ ).

#### 4.2. Access routes

The most important finding in this research is the following: the most used route is the unpaid illegal one, with 90% of the respondents reporting that they have used sites such as Sci-Hub, LibGen, and similar alternatives. This value shows no significant deviation when compared to other variables, which confirms the relative homogeneity that the high values of unpaid illegal access routes show. In all cases, hardly any respondents reported not using this route (Table 2).

Table 2 shows in detail that in terms of gender, region and position, the differences are not statistically significant. Conversely, there is a significant association regarding age and disciplinary area (high Chi-square, very low  $p$ ). When age increases, the use of the illegal route slightly decreases. More strikingly, in disciplinary areas, it is observed that in social sciences, the use of this route, even though it remains very high, is substantially lower than in other fields. Thus, the average use in the rest of the areas is around 98%, whereas in social sciences it decreases to 73%.

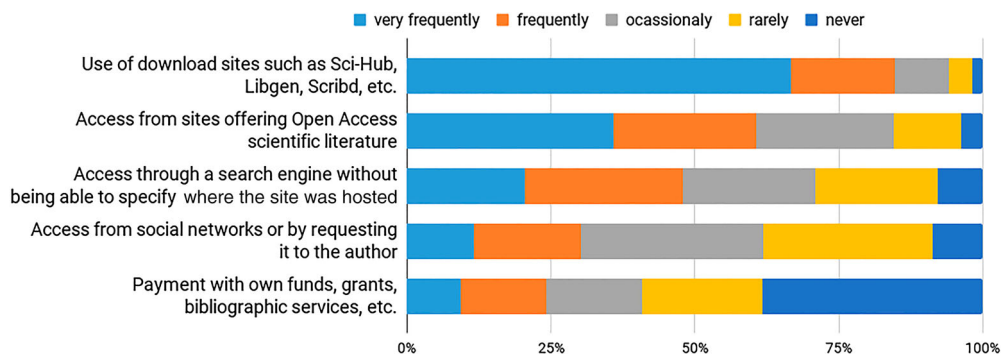
Beyond the dichotomous question about the use of illegal routes, to obtain more detailed information, the survey focuses on questions related to the frequency of use of different routes to access scientific literature. The results are highly consistent with those arising from the previous question. In fact, 85% of the respondents reported frequently or very frequently having used those download sites and only 6% claimed to have rarely or never used them. Symmetrically opposite, for the paid legal routes (accessed through their own resources, project funding, bibliographic services paid by institutions) only 24% informed a frequent or very frequent use, whereas 60% stated they rarely or never use them (Figure 1).

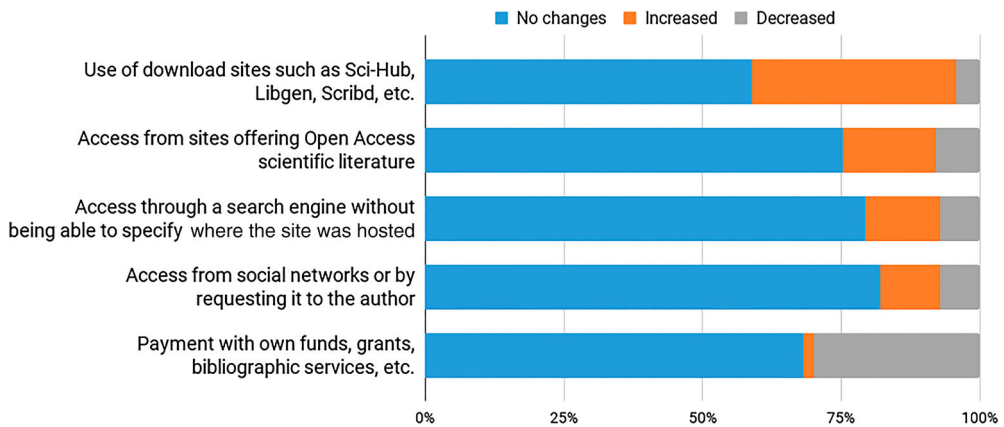
Regarding the impact of the limitations in circulation due to the COVID-19 outbreak in terms of access and information needs, most of the respondents expressed that there had been no changes in their access modalities (Figure 2). However, net variations – increase minus decrease – are observed in favor of unpaid routes (32% for the illegal route and 9% for unpaid legal access) and to the detriment of paid legal access (–28%).

**Table 2.** Use of illegal and unpaid access according to gender, age, disciplinary area, region and position.

Use of illegal and unpaid access		Yes		No		Chi-square	<i>p</i>
		<i>n</i>	%	<i>n</i>	%		
Gender	Women	179	89	22	11	0.28	0.59
	Men	138	91	14	9		
	Non-binary	4	100	0	0		
	Other	1	100	0	0		
Age	I prefer not to say	8	80	2	20	9.67	0.02
	Up to 39	190	91	18	9		
	40–49	106	91	10	9		
	50–59	28	80	7	20		
Scientific Area CONICET	60 and more	6	67	3	33	45.86	2.51E–09
	KA – Agrarian, Engineering and Material Sciences	69	95	4	5		
	KB – Biological and Health Sciences	89	99	1	1		
	KE – Exact and Natural Sciences	83	97	3	3		
	KS – Social Sciences and the Humanities	87	73	30	27		
Country region	KT – Technology	9	100	0	0	1.7	0.43
	Metropolitan	191	90	22	10		
	Pampean	70	95	4	5		
	Cuyo	24	85	4	15		
	Northwest Argentina (NWA)	13	93	1	7		
	Northeast Argentina (NEA)	2	50	2	50		
Position	Patagonia	30	85	5	15	3.45	0.17
	Doctoral Scholarship holders	79	90	9	10		
	Postdoctoral Scholarship holders	51	91	5	9		
	Assistant Researcher	59	88	8	12		
	Adjunct Researcher	85	94	5	6		
	Independent Researcher	38	81	9	19		
	Principal Investigator	14	93	1	7		
	Senior Researcher	3	75	1	25		
Emeritus Researcher	1	100	0	0			
Total		330	90	38	10		

Source: Authors' elaboration.

**Figure 1.** Access modalities to scientific literature. Source: Authors' elaboration.



**Figure 2.** Modifications of access modalities during the COVID-19 outbreak. Source: Authors' elaboration.

**Table 3.** Kendall's Tau coefficient of types of access to scientific literature.

Access routes	Illegal unpaid	Legal paid	Unpaid legal	Direct	Undetermined
Illegal unpaid	1	-0.12	-0.2	-0.08	-0.05
Legal paid	-0.12	1	-0.18	-0.04	-0.07
Unpaid legal	-0.2	-0.18	1	0.19	0.08
Direct	-0.08	-0.04	0.19	1	0.18
Undetermined	-0.05	-0.07	0.08	0.18	1

Source: Authors' elaboration based on primary data.

However, access through a particular modality does not mean that the alternatives are excluded, i.e. those who intensively use a particular access route do not necessarily stop using the alternatives. Table 3 shows that the association among the different forms of access is very low in all cases. Thus, the fact that someone reports, for instance, a very frequent use of the illegal access routes does not give grounds for asserting a certain behavior in relation to other access routes. It does not imply, for instance, a significantly lower use of the paid legal routes. Conversely, those who frequently use the paid legal routes do not use the illegal ones significantly less. It is not then a question of either exclusive uses (which would imply Tau close to  $-1$ ) or positively associated ones (Tau close to  $1$ ). In short, those who use an access route also use others approximately as much as the rest of the sample.

In this context of low associations, some relations that warrant further study can be highlighted. The unpaid illegal access route shows a higher association – weakly negative – with the unpaid legal access than with the paid legal route. The use of unpaid legal access is associated with a lower use of both the paid legal route and the unpaid illegal route. This leads us to ask to what extent the use of the unpaid illegal route could be more detrimental to open access than to the paid legal route. Furthermore, requesting the text from its author (direct access) is not frequent, but it is positively related to unpaid legal access and undetermined access (whose source page cannot be pinpointed).

**Table 4.** Average weekly accesses by route and frequency.

Access frequency	Illegal unpaid	Legal paid	Open access
Very frequently	12.27	11.38	12.55
Frequently	9.97	10.73	11.36
Occasionally	7.12	10.39	10.71
Rarely	10.4	8.16	7.83
Never	8.14	13.41	10.21
Tau <i>b</i>	0.127	-0.025	0.061

Source: Authors' elaboration.

### 4.3. Intensity of use and access routes

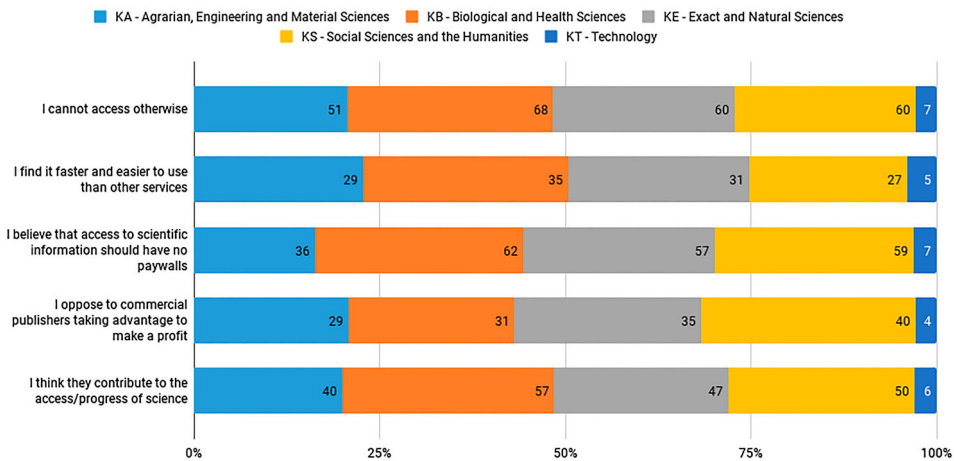
Upon analyzing the relationship between the different access routes and the number of articles accessed by researchers, there is no noticeable correlation that allows us to reject the null hypothesis (Tau  $b = 0.04$ ). This means that there is no evidence that shows that the reporting of a higher access frequency corresponds to a greater number of papers accessed. No significant variations were found either in the unbundling of the different types of access. Kendall's Tau remains at very low values (Table 4).

Thus, although some differences can be noted, these are modest changes in most cases, which is consistent with the fact that the same respondents use different methods of access, as will be shown below. The average number of papers accessed in a standard week by those who frequently use the illegal, paid legal and unpaid legal routes does not show significant variations. Differences, however, are observed in the lower frequencies of access: those who never use the illegal access route download fewer total papers than the average, while those who never use paid legal access download to a greater extent.

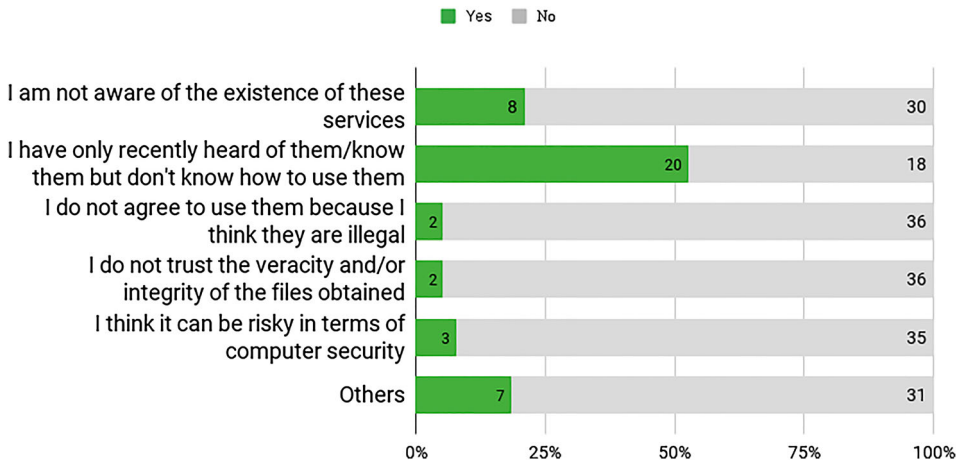
## 5. Motivation for using illegal routes

This study also examined the reasons for using or not using the illegal access routes. From the five options presented, it was observed that those who reported using these routes indicated both practical and value-related concerns, and it is worth noting the homogeneity among the different disciplinary areas (Figure 3). In response to the first option, the impossibility of accessing the information in any other way attracts 75% of support, which coincides with the research into downloads from Sci-Hub in Argentina (Monti and Unzurrunzaga 2021). It also highlights that 38% of those who answered the survey mentioned the relative ease of access compared to other legal services. Among value-related motivations, the ideas that scientific literature should not have paywalls (67%) – a value that rises to 74% in Social Sciences and Humanities – that these illegal services contribute to the progress of science (61%) and opposition to the exploitation of authors and reviewers by publishers (42%) were expressed to a high degree.

Meanwhile, in the group of those who do not use the unpaid illegal access route ( $n = 38$ ), it was verified that the most reported motivations are predominantly practical: lack of knowledge of the sites and not knowing how to use them (see Figure 4). Conversely, the motivations associated with value-based beliefs (disagreement with illegality, distrust of integrity or veracity, risks in terms of computer security that coincide with publishing industry standards) were barely mentioned. From the seven people who included other options, no reference is made to value-based matters. As the sample is a numerically



**Figure 3.** Motivations for using illegal routes according to scientific discipline. Source: Authors' elaboration.



**Figure 4.** Motivations for not using illegal channels. Source: Authors' elaboration.

limited group, generalizations cannot be made regarding their responses since they carry a significant margin of error.

### 6. Representations of legality and moral acceptability

We also inquired into the relationship between the legal and moral representations that researchers hold regarding the act of piracy and other actions related to intellectual property. For the analysis, we used concepts from the theory of law. From the perspective of conceptual positivism, the existing law is understood as the applicable law (as opposed to naturalism for which the existing law is the natural or necessarily fair law). This legal perspective separates the existence of law from the question of justice or injustice from a moral perspective, i.e. it enables an external moral assessment of the legal regulations.

In that regard, the applicable law may be unfair, and there may be moral reasons to disobey it or strive for changes (Rivera López 2015).

Anderson (2018) identifies two categories of illegal acts: those considered *mala prohibita* (technically illegal acts but not morally wrong) and those considered *mala in se* (“wrong in themselves”). The former are usually prohibited, mainly to maintain security and order (e.g. speed limit), while the latter are prohibited to preserve the social order and because they represent a behavior that is considered fundamentally wrong by society (e.g. murder). Although punishments for *mala in se* acts are much more significant than for *mala prohibita* acts, sometimes the borderline between the two is blurred. In the context of academic communication, this is one of the “gray areas” related to the infringement of copyright.

### 6.1. The scenarios provided

In the survey, four slightly different scenarios were posed, with situations in which the respondents should decide whether they were legal/illegal and right/wrong (Figure 5).

In the first two scenarios, the behavior is illegal in Argentina, as the author or rights holder (for example, the publisher) is the only party entitled to execute the right of reproduction. Downloading material from the internet is considered a reproduction act unless the document accessed is published in an open-access journal or under a *Creative Commons* (CC) license.

Conversely, in scenario number three, the downloading act is legal because the institution has paid for such access, while the uploading act is not, as the author (or publisher) keeps the right of reproduction and public communication, unless the paper has been published under a wide Creative Commons license, in which case there is no infringement.

Finally, the action presented in scenario four is partially illegal. The legality status is subject to contractual rules and to the nature of the research funding. If the research was publicly funded, it could be published in institutional repositories, although grace periods can be stipulated.

### 6.2. Researchers' representations

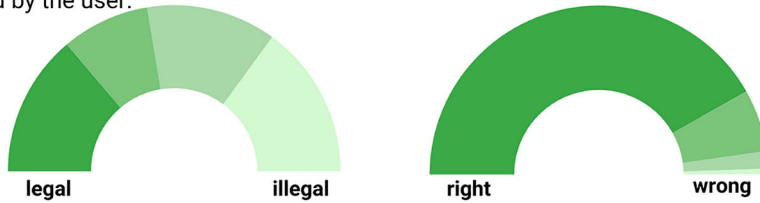
As we can see in Figure 6, in the first three scenarios, the representations of legality show similar values: around 45% considered these actions legal or partially legal. In contrast, those related to morality vary in the different scenarios, although they remain at very high levels of acceptance. In fact, between 64% and 95% of the sample, according to the scenario, considered it legitimate – morally right or partially right – to download and distribute scientific literature in any way (Sci-Hub, academic social media, etc.).

In that regard, if we group those answers for the four scenarios according to scales of legality and moral acceptability (which range from  $-8$  to  $8$ ),<sup>9</sup> we see that when

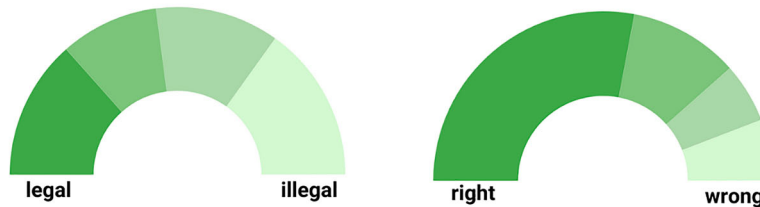
<sup>9</sup>Legality and moral acceptability are measured with a scale that ranges from  $-8$  to  $8$  (see the methodology section). The access levels are frequency of use of different access routes, such as averages based on values from 1 (never) to 5 (very frequently). “Not using the illegal route” refers to the percentage of researchers who reported not having used the illegal route in the specific dichotomous question. “Annual downloads” presents an average between 1 (1–50) and 5 (more than 500), whereas “weekly downloads” averages the absolute values of weekly downloads reported.



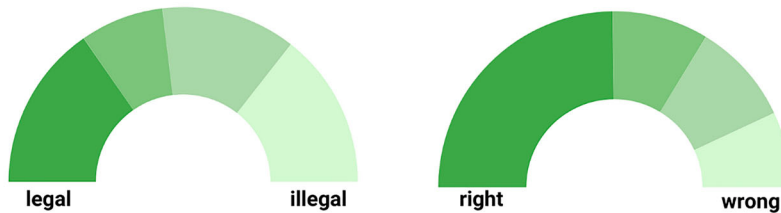
**Scenario 1.** A researcher downloads a paper from Sci-Hub that was published in one of the most important journals in his/her area of work, and that cannot otherwise be accessed by the user.



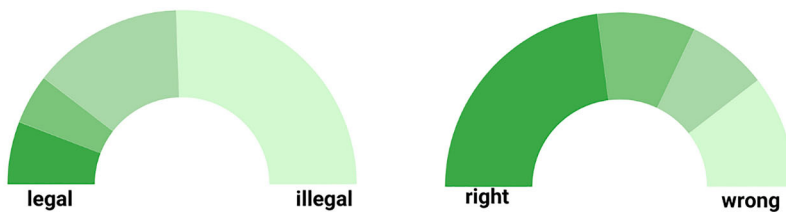
**Scenario 2.** A researcher notices the existence of Sci-Hub, LibGen and similar websites. Although she/he has extensive free access to journals, she/he decides to try them out and realizes that it is much easier to access them in that way than by searching in the institutional repository. From then on, every time she/he needs a paper, she/he goes to these sites first. Do you think the researcher's action is...?



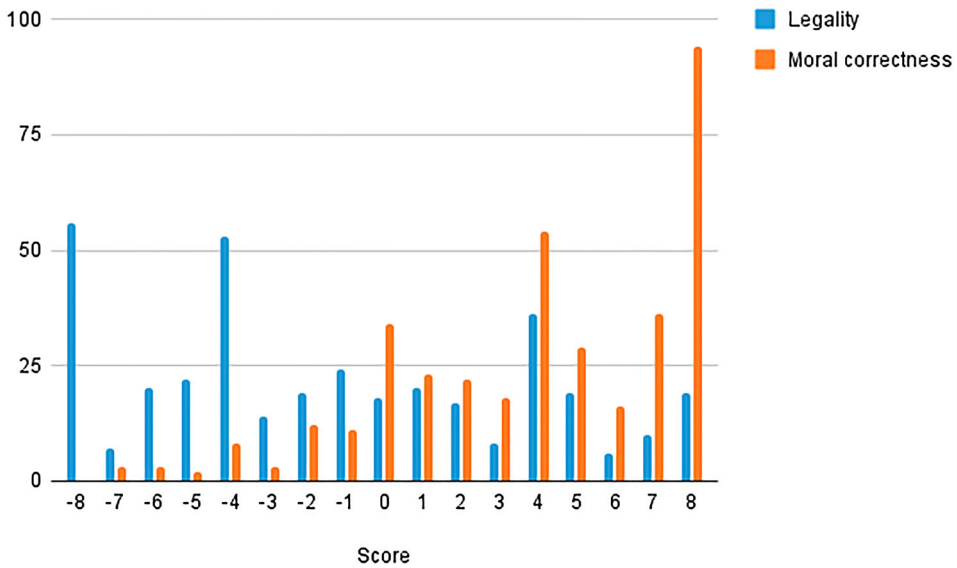
**Scenario 3.** A researcher downloads a paper of high relevance for his/her area of work through an open access institutional repository. Then, she/he uploads it to social media (Facebook, LinkedIn, etc.). Do you think the researcher's action is...?



**Scenario 4.** A researcher publishes her/his paper in a paid-access journal. The publication's terms and conditions indicate that the paper cannot be shared. However, she/he uploads it to scholarly social media, personal sites or repositories. Do you think the researcher's action is...?



**Figure 5.** Representations about legality and moral acceptability. Source: Authors' elaboration.



**Figure 6.** Disengagement between perceived legality and moral acceptability. Source: Authors' elaboration.

considering legality, 58% of researchers responded with negative values, whereas when considering morality, 89% responded with positive values.

At the extremes, 56 respondents (15%) considered that the actions in all scenarios were illegal, whereas nineteen (5%) considered that the practices in all scenarios were legal. Conversely, no respondent considered that in every scenario, the action was morally wrong. On the other hand, 98 respondents (27%) indicated in all cases that the action was legitimate (see Table 6). Therefore, a fundamental division is observed between legality and moral acceptability: for a significant group of respondents, representing an action as illegal does not prevent them from considering it morally acceptable.

Although the representations of legality remain more or less constant throughout all scenarios, the positive representations of morality decrease as the scenarios become more complex. As can be observed, there is a robust legitimacy for scenario one that is strongly reduced for scenario two. This drop may be explained by the differences in the forms of access available: in the first case, there was only one access route available; in the second case, there was an alternative legal route. For a group of respondents (74 people), therefore, not having any access route other than the illegal one could be a

---

"Conicet hierarchy" is an average of the position in the institutional hierarchy. It ranges from 1 (doctoral scholarship holder) to 8 (emeritus researcher). "Social Sciences area" refers to the percentage of researchers in that area, which is the one that shows most variations in relation to legality and moral acceptability. "Men" refers to those who reported a male gender, which is the category that shows greater variation. "Age" refers to the average age declared. The "n" refers to the number of researchers in each group. The division into quartiles assumed an n of 92 in each case. However, that division implied the exclusion from the group of observations with values identical to the included ones, so we decided to use as a dividing line those values nearest to the quartile in each case: >Legality: 8, 7, 6 and 5. <Legality: -8, -7, -6, -5, >Moral acceptability: 8, < Moral acceptability: -8, -7, -6, -5, -4, -3, -2, -1, 0. The chart lacks the corresponding tests to estimate the significance of the association among variables, which we hope to include in the next version of this study.

**Table 5.** Representation quartiles on legality and moral acceptability, according to socio-demographic variables and access routes.

Variables	>Legality	<Legality	>Acceptability	<Acceptability	Total
Legality	5.52	-6.92	0.37	-3.57	-1.27
Moral acceptability	6.18	2.93	8	-1.64	3.96
Illegal access	4.38	4.61	4.62	4.13	4.43
Legal paid access	1.84	2.64	2.02	2.86	2.36
Legal unpaid access	4.08	3.61	3.93	3.55	3.77
No use of illegal route	18	2	11	12	10
Annual downloads	2.96	2.9	2.95	2.92	2.86
Weekly downloads	12.2	13.14	11.39	13.24	11.22
CONICET Position	2.69	3.28	2.73	3.46	3.05
Social Sciences (%)	48	28	44	21	30
Men (%)	31	46	53	42	41
Age	38.44	40.07	37.67	41.54	39.27
N	90	105	94	76	91.25

Source: Authors' elaboration.

References: Legality and moral acceptability are measured on a scale that ranges from -8 to 8 (see methodology section).

The access levels are frequency of use of different access routes, such as averages based on values from 1 (never) to 5 (very frequently). "Not using the illegal route" refers to the percentage of researchers who reported not having used the illegal route in the specific dichotomous question. "Annual downloads" show an average between 1 (1-50) and 5 (more than 500), whereas "weekly downloads" average absolute values of weekly downloads reported. "Conicet hierarchy" is an average of the position in the hierarchy. It ranges from 1 (doctoral scholarship holder) to 8 (emeritus researcher). "Social Sciences area" refers to the percentage of researchers in that area, which is the one that shows most variations in relation to legality and moral acceptability. "Men" refers to those who reported a male gender, which is the category that shows greater differences. "Age" refers to the average age declared. The "n" refers to the number of researchers in each group. The division into quartiles assumed an n of 92 in each case. However, that division implied the exclusion from the group of observations with values identical to the included ones, so we decided to use as a dividing line those values *nearest the quartile* in each case: >Legality: 8, 7, 6 and 5. <Legality -8, -7, -6, -5, >Moral Acceptability: 8, <Moral Acceptability -8, -7, -6, -5, -4, -3, -2, -1, 0. The chart lacks the corresponding tests to estimate the significance of the association among variables that we hope to include in the next version of this study.

compelling reason to assess the action as more morally acceptable, while having other options available makes it more morally dubious.

In scenarios three and four, the representations of legality have values that are similar to those in scenarios one and two, whereas representations of moral acceptability follow an increasingly negative tendency. In scenario three, the quandary presented is not only downloading (reproducing) the work but also sharing it. In addition, the access posited in this scenario is legal, unlike the previous two. We could hypothesize that the decline of the moral approbation may be due to the act of sharing (public communication) being considered less legitimate than the act of downloading. In turn, the fact that the paper concerned is highly relevant could be a compelling reason to positively assess such behavior, which might explain the reason why the drop in moral approbation is not so sharp. Scenario four is considered the least acceptable, although the difference between this and the previous one is very slight. In this case, what is shared is their own work but under an explicit prohibition. Again, on hypothetical grounds, it could be understood that either the legal prohibition constitutes a reason to consider it more morally problematic or there is confusion between legal and moral spheres.

Regarding the relationship of the representations detected with other variables (Table 5), we can observe that: those who consider, to a greater extent, that all behaviors shown in the four scenarios are legal tend to – compared to the total number – also deem them to be morally acceptable. They are also less likely to resort to paid legal access and the illegal route and more to unpaid legal access. In this group, lower-ranked researchers stand out (balanced between postdoctoral scholarship holders and assistant researchers),

less men are represented, and there is a greater presence of respondents from social sciences and humanities. On the other hand, those who consider the practices described to be illegal also consider them in relative terms as less morally acceptable; not using illegal access routes in this group is negligible, and there is a relatively low presence of those who do research in social sciences.

From the acceptability perspective, as indicated above, the group that considers that the actions are morally acceptable (entirely composed of those who identified that in all four scenarios the actions were acceptable) tends to deem them to be legal actions, compared with the average, reports that they use paid legal access slightly more than other routes, has a relatively lower rank at CONICET, and presents a greater concentration of respondents from social sciences and men (this last point differs from the group that considers greater legality).

Finally, as also pointed out above, the group that expresses less moral approval across all four scenarios, is somewhat strict in their moral disapproval, and perceives greater illegality in the behaviors than the average, has a higher rank at CONICET and low participation from social sciences.

## 7. Publication practices vs. access practices

When analyzing the responses concerning publication practices in relation to access routes, it was observed that in general terms, there is no association between productivity and routes to access scientific literature. However, there is a slight variation among those who publish less frequently: they reported using both the open access and the paid legal route to a lesser extent, while they make use of the illegal route slightly more (Table 6).

In addition, some questions were related to the aspects considered a priority when choosing where to publish a paper. Five options were included, and the respondents could choose up to two. The most chosen options are related to disciplinary recognition: 74% specified bibliometric indicators of impact measured in citations, and 39% indicated the prestige of the publication. On the other hand, 56% prioritized having no publication charges and 11% chose the affordable fees option. When considering disciplinary areas in comparison to the sample as a whole, it can be observed that the last two options were selected mostly by individuals from Agrarian, Engineering and Material Sciences, and

**Table 6.** Publication quartiles by demographic variables and access routes ( $n = 362$ ).

Variable	Q1	Q2	Q3	Q4	Sample
Average publications in two years	1.2	3.1	4.8	9.9	4.8
Average standard week downloads	8.7	8.3	11.4	15.9	11.1
% illegal route (frequently–very frequently)	88%	78%	89%	85%	85%
% illegal route (never–rarely occasionally)	12%	22%	11%	15%	15%
% legal paid route (frequently–very frequently)	19%	29%	21%	28%	24%
% legal paid route (never–rarely occasionally)	81%	71%	79%	72%	76%
% open access (frequently–very frequently)	53%	63%	67%	59%	60.5%
% open access (never–rarely occasionally)	47%	37%	33%	41%	39.5%
% social networks (frequently–very frequently)	19%	34%	31%	38%	31%
% social networks/by asking the author (never–rarely occasionally)	81%	66%	69%	62%	69%
% Scholarship holders	53%	30%	9%	4%	24%
% women	62%	53%	58%	45%	54%
Total researchers	90	90	90	92	362

Source: Authors' elaboration.

Biological and Health Sciences areas. The option related to open-access policy was chosen by 11%, most of them from the Social Sciences area (66%).

We also analyzed whether there is a relationship between the prioritization of some publication criteria and the different access routes used. When comparing the illegal route with every criterion considered, the variations in comparison to the sample as a whole were not significant. The noteworthy finding is that those who frequently use the unpaid legal route coincide with those who prioritize open-access policy when choosing where to publish their papers (80% compared with 61% of the sample). Lastly, those who chose options related to recognition used the same methods of accessing literature as the rest of the sample.

Finally, we inquired about the researchers' willingness to share their work freely on the web. We found that 27% reported not sharing their work before or after publication, the rest chose at least one survey option or wrote a new one. Forty-six percent reported sharing in open access institutional repositories, which could be due in part to the existence of the mandate, and 49% on academic, social networks or personal websites.

An analysis of the relationships shows that those who more frequently access publications through illegal routes do not, to a greater extent, upload their own works to other sites for free availability. And those who upload their works to repositories are slightly more associated with those who use legal routes more frequently. This shows that the methods of accessing academic literature are not linked to the dissemination of their works on the web for free access.

## 8. Conclusions

As other international researchers have shown, this empirical study has enabled us to detect a widespread and extensive use of illegal access to scientific literature among CONICET researchers in Argentina. The most noteworthy findings are, on the one hand, that the use of illegal access routes does not replace but rather coexists with the use of legal routes. On the other hand, there exists a remarkable disconnection between representations regarding legality and perceptions of moral acceptability in relation to access and dissemination of scientific literature protected by copyright. In other words, the fact that an action is considered illegal does not imply that it is also assessed as morally wrong. Thirdly, the motivations driving the mass use of illegal routes combine practical and value-related aspects. Among the former, the impossibility of accessing papers in any other way and their ease of use compared to other legal services stand out. In terms of value judgements, a rejection of the publishing industry for scientific literature stands out.

This study has some limitations. Firstly, researchers from CONICET are an important group but are in no way representative of the whole body of researchers in Argentina, and for this reason, our conclusions cannot be extrapolated beyond that sphere. Secondly, the analysis carried out is preliminary and needs further statistical improvement. Thirdly, we have not linked the findings from our fieldwork with the findings from international literature in this text. Later versions of this work will improve these problem areas. In the future, we aim to contrast the data we obtained here with the practices and representations in other scientific, technological, and education agencies. Likewise, the possibility of replicating this survey internationally is under consideration, in order to be able to better evaluate the characteristics shown by researchers from CONICET.

Another limitation concerns the insertion of the dynamics studied into a projection of the capitalist future. Although access through paywalls is still important, the publishing business is rapidly moving towards corporate gold open access (this is through charging authors). It is a shift that includes but exceeds the academic publishing industry and is typical of the second stage of informational capitalism (YouTube, WhatsApp, Coursera, Red Hat, among others). Here, profits increasingly arise more from openness and less from paywalls. Open-access commodities are accessible to all partly as an answer to the impossibility of limiting unpaid translations of knowledge, particularly illegal copies of digital information. We have not incorporated the relationship between unpaid illegal access, publishing trends, and profit models based on openness, but we hope to do this in forthcoming works.

Finally, this work signals future lines of research about a possible tension between intellectual property rights and the right to conduct research, along with the advantages that unpaid translations of knowledge can mean for the scientific field.

As we have analyzed, scientific publication falls within the scope of copyright, underpinned by a significant national and international legal framework. In those cases in which papers are published by private publishing companies, the exclusive assignment of rights of reproduction is usually requested, meaning that the ownership of rights over knowledge is transferred from scientists to publishers. Different international treaties outline the scope of copyright and allow signatories to establish some limitations and exceptions. Most national legislation coincides with these global regulations. But, while some countries use flexibilities to favor internal development processes, others have a very rigid legal structure which, as in the Argentine case, is even more restrictive than international law.

Access to scientific publications is essential to do research. As we analyzed in sections four and five, researchers resort to different routes to access the material they need, regardless of its legality. Intellectual property rights are sometimes a barrier to accessing this material and may conflict with other rights. For instance, empirical evidence in the field of medicine shows that the lack of access hinders research, while the exceptions to copyright make it easier, and that insufficient access to medical literature in low-income countries decreases the amount of research produced there (Adcock and Fottrell 2008; Gowers 2006).

Conversely, the unpaid appropriation of knowledge in different ways may widely improve access. Proposals have been made to abandon exemptions such as “research exceptions” or “for personal study,” to instead refer to a “right to do research,” with the aim of better expressing the direct relationship of these activities with fundamental rights (Flynn et al. 2020). The right to do research includes acts of exchange and communication of information among researchers, which are necessary to enable collaboration, validate knowledge and accelerate scientific progress (Díaz Charquero 2021).

Thus, the right to do research dovetails with the history of economic development regarding the importance of unpaid translations of knowledge to cognitive accumulation processes. The unpaid translation of knowledge is not a random exception, nor merely circumstantial but is rather a very well-recognized component of the development process. Naturally, those exercising public authority are those responsible for defining the forms, quantity, and circumstances in which it should be administered. The current study has shown that scientists from CONICET, at least, report engaging in practices in which – implicitly or explicitly– they acknowledge the importance of the unpaid translation of knowledge. We believe that the methodological strategy we have applied

could be of interest for outlining and reorienting informational policies both in Argentina and in other parts of the world. We hope to expand the scope of the study to the national level and replicate the survey in other countries.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Notes on contributors

**Mariano Zukerfeld** is a researcher at the National Scientific and Technical Research Council (CONICET), Argentina, Lecturer in Sociology of ICTs at Buenos Aires University (UBA), and Head of the Technology, Capitalism and Society team (e-TCS) at the Science Technology and Society Center (CCTS) Umai.

**Santiago Liaudat** holds a master's degree in science, technology and society (UNQ). Professor and researcher at the National University of La Plata.

**María Sol Terlizzi** holds a master's degree in Intellectual Property (FLACSO). Academic Director of the Master's Degree in Intellectual Property at FLACSO Argentina, and professor and researcher at National University of La Matanza.

**Carolina Monti** holds degrees in audiovisual communication (UNLP) and library and information science (UNLP). Studies a master's degree in Science, Technology and Society (UNQ) and works at the National Scientific and Technical Research Council (CONICET), Argentina.

**Carolina Unzurrunzaga** holds a master's degree in digital information systems (USAL, Spain). Professor and researcher at the National University of La Plata. CONICET PhD Fellow at Institute for Research in the Humanities and Social Sciences.

## ORCID

Mariano Zukerfeld  <http://orcid.org/0000-0002-8547-842X>

Santiago Liaudat  <http://orcid.org/0000-0003-3128-5144>

María Sol Terlizzi  <http://orcid.org/0000-0002-9609-5993>

Carolina Monti  <http://orcid.org/0000-0002-8126-3712>

Carolina Unzurrunzaga  <http://orcid.org/0000-0002-4383-0085>

## References

- Adcock, J., and E. Fottrell. 2008. "The North–South Information Highway: Case Studies of Publication Access among Health Researchers in Resource-Poor Countries." *Global Health Action* 1 (1), 1865. doi:10.3402/gha.v1i0.1865.
- Anderson, R. 2018. "Is Copyright Piracy Morally Wrong or Merely Illegal? The Malum Prohibitum/Malum in Se Conundrum." *The Scholarly Kitchen*, April 30. Accessed November 19, 2021. <https://scholarlykitchen.sspnet.org/2018/04/30/copyright-piracy-morally-wrong-merely-illegal-malum-prohibitum-malum-se-conundrum/>
- Becerril-García, A. 2019. "AmeliCA vs Plan S: mismo objetivo, dos estrategias distintas para lograr el acceso abierto." Post blog, Blog Ameli. <http://www.amelica.org/index.php/2019/01/10/amelica-vs-plan-s-mismo-objetivo-dos-estrategias-distintas-para-lograr-el-acceso-abierto/>
- Bohannon, J. 2016. "Who's Downloading Pirated Papers? Everyone." *Science* 352 (6285): 508–512. doi:10.1126/science.352.6285.508.



- Busaniche, B. 2016. *Propiedad intelectual y derechos humanos Hacia un sistema de derechos de autor que promueva los derechos culturales*. Temperley: Edición en movimiento. [https://www.vialibre.org.ar/wp-content/uploads/2016/04/piydh\\_busaniche.pdf](https://www.vialibre.org.ar/wp-content/uploads/2016/04/piydh_busaniche.pdf)
- Chang, H. J. 2001. "Intellectual Property Rights and Economic Development: Historical Lessons and Emerging Issues." *Journal of Human Development* 2 (2), 287–309.
- Díaz Charquero, P. 2021. *Flexibilidades al derecho de autor en América Latina*. Datsyoc and Fundación Karisma. <https://datsyoc.org/wp-content/uploads/2021/04/Flexibilidades-DDAA-Latam.pdf>
- Flynn, S., C. Geiger, J. Quintais, T. Margoni, M. Sag, L. Guibault, and M. W. Carroll. 2020. "Implementing User Rights for Research in the Field of Artificial Intelligence: A Call for International Action American University." WCL Research Paper No. 2020-12. doi:10.2139/ssrn.3578819
- Flynn, S., and M. Palmedo. 2017. "The User Rights Database: Measuring the Impact of Copyright Balance." December 4. Accessed November 19, 2021. doi:10.2139/ssrn.3082371.
- Gardner, G. J., S. R. McLaughlin, and A. D. Asher. 2017. "Shadow Libraries and You: Sci-Hub Usage and the Future of Ill." ACRL 2017, Baltimore, MD, March 22–25. Accessed November 19, 2021. <http://www.ala.org/acrl/sites/ala.org/acrl/files/content/conferences/confsandpreconfs/2017/ShadowLibrariesandYou.pdf>. doi:10.3145/epi.2019.ene.12
- González-Solar, L., and V. Fernández-Marcial. 2019. "Sci-Hub, a Challenge for Academic and Research Libraries." *El profesional de la información* 28 (1): e280112.
- Gowers, A. 2006. "Gowers Review of Intellectual Property, HMSO." Accessed November 19, 2021. [https://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/d/pbr06\\_gowers\\_report\\_755.pdf](https://webarchive.nationalarchives.gov.uk/http://www.hm-treasury.gov.uk/d/pbr06_gowers_report_755.pdf)
- Greshake, B. 2016. "Correlating the Sci-Hub Data with World Bank Indicators and Identifying Academic Use." *The Winnower* 3: e146485–e157797. doi:10.15200/winn.146485.57797.
- Hall, G. 2016. *Pirate Philosophy. For a Digital Posthumanities*. Cambridge, MA: MIT press.
- Johns, A. 2009. *Piracy: The Intellectual Property Wars from Gutenberg to Gates*. Chicago, IL: University of Chicago Press.
- Kjellström, Z. 2019. "Black Open Access in Sweden: A Study on the Perceptions on and Usage of Illicit Repositories of Academic Documents." Master Thesis, University of Lund, Sweden.
- Larivière, V., S. Haustein, and P. Mongeon. 2015. "The Oligopoly of Academic Publishers in the Digital Era." *PLoS One* 10 (6): e0127502. doi:10.1371/journal.pone.0127502.
- Liaudat, S. 2021. *Stevia: conocimiento, propiedad intelectual y acumulación de capital*. Buenos Aires: Prometeo.
- Liaudat, S., Terlizzi, S., & Zukerfeld, M. 2020. "Piratas, virus y periferia: la apropiación impaga de conocimientos en el capitalismo, del PLACTS a la COVID-19." *Argumentos* 22: 40–81.
- Lund, A., & Zukerfeld, M. 2020. *Corporatés use of openness: profit for free?*. London: Palgrave MacMillan.
- Machin-Mastromatteo, J. D., A. Uribe-Tirado, and M. E. Romero-Ortiz. 2016. "Piracy of Scientific Papers in Latin America: An Analysis of Sci-Hub Usage Data." *Information Development* 32 (5): 1806–1814. doi:10.1177/0266666916671080.
- Monti, C., & Unzurrunzaga, C. 2021. "Acceso a la literatura científica desde Sci-Hub." *Hipertextos* 8 (14), 111–136. <https://doi.org/10.24215/23143924e022>
- Nicholas, D., C. Boukacem-Zeghmouri, J. Xu, E. Herman, D. Clark, A. Abrizah, B. Rodríguez-Bravo, and M. Świgoń. 2019. "Sci-Hub: The New and Ultimate Disruptor? View from the Front." *Learned Publishing* 32 (2): 147–153. doi:10.1002/leap.1206.
- Posada, A., and G. Chen. 2018. "Inequality in Knowledge Production: The Integration of Academic Infrastructure by Big Publishers." ELPUB 2018, Toronto, Canadá, June. doi:10.4000/proceedings.elpub.2018.30.hal-01816707.
- Rivera López, E. 2015. "Derecho y bioética." In *Enciclopedia de Filosofía y Teoría del Derecho*, edited by J. L. Fabra Zamora and E. Spector. Vol. 3. México DF: Instituto de Investigaciones Jurídicas UNAM. <https://archivos.juridicas.unam.mx/www/bjv/libros/8/3876/28.pdf>
- Salatino, M., and G. Banzato. 2021. "Confines históricos del Acceso Abierto latinoamericano." In *Conocimiento abierto en América Latina: Trayectoria y desafíos*, edited by A. Becerril-García and S. Córdoba González, 79–115. Ciudad Autónoma de Buenos Aires: CLACSO; Universidad Autónoma del Estado de México. <https://www.memoria.fahce.unlp.edu.ar/libros/pm.4982/pm.4982.pdf>.

- Travis, J. 2016. "In Survey, Most Give Thumbs-Up to Pirated Papers." *Science News*, May 6. doi:10.1126/science.aaf5704.
- UNESCO. 2021. "Recomendación de la UNESCO sobre la Ciencia Abierta." [https://unesdoc.unesco.org/ark:/48223/pf0000379949\\_spa](https://unesdoc.unesco.org/ark:/48223/pf0000379949_spa).
- Zuckerfeld, M. 2016. "La piratería Des-comunal: Los orígenes de la acumulación capitalista de conocimientos." *Con-Ciencia Social* 20, 31–41.
- Zuckerfeld, M. 2017. *Knowledge in the Age of Digital Capitalism: An Introduction to Cognitive Materialism*. London: University of Westminster Press.
- Zuckerfeld, M., Liaudat, S., Terlizzi, M.S., Monti, C. & Unzurrunzaga, C. 2021. *Un fantasma recorre la ciencia, el fantasma de la piratería*. Prácticas y representaciones acerca del acceso a la literatura científica [Preliminary Research Report]. <https://bit.ly/PyDG21>

## Appendix. Table comparison of CONICET population (2019) with main socio-demographic characteristics of the sample

Variable	Values	Population 2019		Sample	
		F	%	F	%
Position	Researchers	10,917	52	224	61%
	Scholarship holders	10,245	48	144	39%
	<i>Total</i>	21,162	100%	368	100%
Gender	Men	10,723	44%	152	41%
	Women	13,230	56%	201	55%
	Others	Unknown	Unknown	15	4%
	<i>Total</i>	23,953		368	100%
Scientific Area CONICET	KA – Agrarian, Engineering and Material Sciences	5345	25%	73	20%
	KB – Biological and Health Sciences	5806	27%	90	24%
	KE – Exact and Natural Sciences	4473	21%	86	23%
	KS – Social Sciences and the Humanities	5008	24%	110	30%
	KT – Technology	530	3%	9	2%
	<i>Total</i>	21,162	100%	368	100%
Regions	Autonomous City of Buenos Aires (ACBA) and Buenos Aires Province (BAP)	11,255	53.2	252	68
	Pampean	4706	22.2	45	12
	Cuyo	1498	7.1	28	8
	Northwest Argentina (NWA)	1568	7.4	14	4
	Northeast Argentina (NEA)	620	2.9	4	1
	Patagonia	1515	7.2	25	7
	<i>Total</i>	21,162	100	368	100%
	Age (researchers only)	Up to 39	2697	25	69
40–49		5075	46	111	50%
50–59		2163	20	35	16%
60 and more		982	9	9	4%
<i>Total</i>		10,917	100%	224	100%

Source: Authors' elaboration: Data for the sample taken from "CONICET en Cifras."