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Maya Bacache-Beauvallet, Françoise Benhamou, Marc Bourreau

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HOW LONG TILL WE HAVE FREE ACCESS TO HUMANITIES AND SOCIAL SCIENCE JOURNALS IN FRANCE?

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Maya Bacache-Beauvallet 
Françoise Benhamou
Marc Bourreau

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Summary

The aim of this study is to evaluate the merits of the introduction of the principle of open access to research in the humanities and social sciences (HSS) in France, using a study of its effects on the consultation of articles. We want to know if a free access policy improves the visibility of research, and if so, to what extent. The study shines important light on decision making about the dissemination of research results and on the effect of restricted access (for both researchers and the broader public) to research results. At stake in this debate are the choice of duration of the open-access embargo period, that is, the delay between time of publication and when the journal makes it freely available (delayed access journals), and the length of the self-archiving embargo, that is, the minimum time before the journal allows authors to self-archive their articles on the web (open access mandate). This inquiry consists of quantifying the impact of the duration of the embargo on the journal's audience and on research. The findings of our investigation indicate that a barrier to dissemination results in a loss of audience for the journal, starting from the first year. Since the marginal costs of making articles available online are low to non-existent, this loss of readers represents what is called a "deadweight loss". Our results therefore favour the introduction of a relatively short embargo (less than one year) rather than the durations discussed in public debates about HSS research (two to three years). ■

- In France, there are 936 HSS journals, of which 32 per cent appear on the Cairn and Revues.org platforms. Around 400 journals had not published an edition in the year before the study (from 2013 to spring 2014).
- All other things being equal, the longer the duration of the green open-access embargo, the lower the number of "views": journals with a short embargo are viewed more often than the others.
- The longer the embargo period, the more views are lost from one year to the next. The loss of readership linked to this embargo starts from the first year.
- However, while the number of "views" is greater when the embargo period is short, the rebound effect of the lifting of the embargo is greater when it is long.
- The total audience for a journal (over several years) is much lower when the embargo period is long. The loss of readership seems to start with embargoes of one year.



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It is in the context of the globalisation of research, the digitalising of publications, competition between universities through the quantitative evaluation of researchers' performance and the increase in the price of scientific journals that the movement for open access has arisen. Open access refers to access on line, free, to "scientific information", which brings together all research results as well as scientific data bases. The question for public policy is how long should access be paying before it becomes free? Currently, there is no consensus on how long this period should be, neither among researchers nor among the other concerned parties.

The issue of open access

The context

On 17 July 2012, the European Commission announced a policy in favour of open access to research results that are financed with public monies. On 24 January 2013, former French minister for higher education and research Geneviève Fioraso confirmed the principle that the results of publicly funded research should be freely available as quickly as possible, in line with the European recommendations.

Today, there is no consensus on the duration of the period for which a scientific publication should remain paying before it becomes freely available. For some, it should be long enough to ensure the survival of the publishing sector, through its guarantee of a temporary monopoly on circulation; but for others, the period should be sufficiently brief to allow the greatest circulation of scientific knowledge. The exact form that open access should take is also subject to debate. The period between the publication of a journal issue and the release of the issue into free access by the journal itself is called the "open access embargo". The minimum period before the journal authorises the researcher to publish her article on the internet is the "self-archive embargo".

While the idea of open access irritates some and enthruses others, most importantly, it reveals that digitalisation requires us to rethink the value chain of research production, as it also obliges us to rethink the business models of other sectors (cultural and non-cultural: not only music and books, but also trade, commerce, etc.). And if the debate about open access has become polemical, that is because it concerns intellectual property and changes the distribution of value in a sector in which symbolic value is fundamental.

Thus, a question for French public policy arises from an international movement which has consequences for the impact of open access in France. If all OECD countries adopt a policy of open access to research results but France refuses to or delays doing so, then the competition among researchers will rapidly become deleterious to French research, since the latter will be less available.

The terms of the debate

The economic issue in an open access policy is, ultimately, the greater economic growth generated by greater innovation, which is itself determined by the level of scientific research. Numerous reports and studies refer to the expected effects of open access, without however explaining what these effects will be. We try to summarise all the hypotheses proposed in the debate that ought to be tested methodically (Box 1).

In testing these different effects, the empirical literature above all focuses on the hypothesis that an open access article has an increased probability of being cited (H1B), and indeed confirms that making the article freely available significantly increases the number of times it is cited. The question we raise in this study is about the possible specific impact on the visibility of humanities and social sciences research in France of an open access policy: is there anything specific to French HSS research that would justify its distancing itself from the international movement that wants fast open access to scientific publications?

Box 1: Hypotheses about the impact of open access

Hypothesis 1: research results have greater circulation through open access

- 1A: open access increases the readership of articles (number of articles viewed and number of downloads).
- 1B: open access increases number of times articles are cited.
- 1C: open access increases citizen involvement and thus the number of articles viewed or downloaded by newspapers, politicians, etc.
- 1D: open access promotes R&D (number of times articles are taken up by companies).

Hypothesis 2: open access affects the quality of research

- 2A: open access reduces duplications and errors and therefore improves the quality of articles.
- 2B: open access affects the variety of journals, either by increasing them (the Long Tail theory), or by reducing them (especially for the humanities and social sciences, as a network effect of the internet, and the winner-takes-all principle).
- 2C: open access increases pluri-disciplinarity.

Hypothesis 3: open access improves the production (quantitatively) of research for the whole sector

- 3A: open access reduces research production costs.
- 3B: this last effect is most important for small universities and individual researchers.

Hypothesis 4: open access affects the business model of journals

- 4A: open access affects the number of subscriptions to journals (reduction through the substitution effect, but increase through the sampling effect).
- 4B: open access affects the number of author submissions to journals.
- 4C: open access changes journal hierarchies and benefits some (small journals?) in relation to others.
- 4D: open access threatens the profitability of journals and leads to them depending on public funding.
- 4E: open access increases a journal's profile and therefore its profitability if the base of general readers generates ancillary funding.

Methodology of the study

In order to bring quantitative and objectively measurable elements to the debate, we conducted an empirical study based on several original sources. Indeed, we constructed different databases, not used until now for research purposes, which improve our knowledge of the French HSS research publishing sector. Below, we present those data and the methodology used to exploit them.

Outlines and definitions

This study immediately confronts the problem of definitions and boundaries, even before the problems of method and interpretation of results. For assessing the issue of what open access brings to research, we use the definition of open access adopted by the AERES (*l'Agence d'évaluation de la recherche et de l'enseignement supérieur*), their list of 15 HSS disciplines, and the journals they publicly recognise as research journals.

The study provides an inventory of all French HSS journals classed as such by AERES, according to discipline; they total 936 journals, of which 201 are available on the Cairn platform and 135 on Revues.org. We also created and examined a self-administered questionnaire which was sent to the journals in these two groups. Finally, we conducted an empirical analysis to study the profile of these journals following their embargo policy. For that, we used precise data on "views", that is, how often the journals were consulted online on these two platforms. To our knowledge, this is the first statistical work of this magnitude done on HSS journals.

Data

Among the 936 journals mentioned above, 37 are listed on both Cairn and Revues.org. In total, 299 journals are on one or the other platform (that is, 31.9 per cent of all the journals).

Nearly 400 of the journals that do not appear on either the Cairn or Revues.org sites did not publish an issue in the year before the study (from 2013 to spring 2014). Sixty-six per cent (419) appear on a site other than Cairn or Revues.org, most often the Persée site; only 19 per cent of them (120 journals) have their own web site. The social sciences are well represented on the Cairn and Revues.org sites, but some disciplines, including law, are almost entirely absent.

We carried out our econometric analysis on views of journals listed on Cairn and Revues.org sites. For each journal, we had the following information: its presence on the platform, its disciplines and the regularity of its publication. We also know the length of the embargo adopted by the journal for its appearance freely on the website platform. Finally, we extracted the number of "views" of the journal each year from 2006 to July 2014, as well as the number of views by issue number for each of the journals.

Estimations

We sought to assess the impact of the embargo on the visibility of the research. To put it another way, we sought to quantify the impact of the duration of the embargo on the journal's audience.

The methodology is based on econometric analysis, using the number of views of a given journal (per annum or per month) as a dependent variable. The aim of the regressions is to explain the differences in the audience for each journal in relation to objective characteristics and in particular, the policy of the open access embargo.

Results

The effect of the duration of the open access embargo

The first anticipated effect is the effect of the duration of the free access embargo on the number of views on a given date. When the embargo is lifted, the number of people who can enter at a given moment is greater. This first effect seems simple, but it can be compensated for by an inverse effect: a closed door signals a journal of quality for which the number of views is higher. Thus, it is possible that the "good" journals, more often consulted, are more "selective" and prefer to maintain a long embargo period. We sought, therefore, to determine which of these two effects prevails, that is, to see whether the duration of the embargo is correlated positively (signal effect) or negatively (access effect) with the number of views.

Our regression analysis is carried out on the number of views of a journal each year with a set of control variables, and with the variable of interest: the duration of the open access embargo. The first result of our work is that, **all other things being equal, the longer the embargo period, the lower the number of views in a year for a journal.** This result confirms the effect on the number of views: the journals with short embargo periods are viewed more often than the others. The second result arises from the regression of the difference in views between two years on the control variables and the duration of the embargo. It shows that **the difference in views between two years is negatively correlated to the length of the embargo period.** In other words, the longer the embargo, the more views are lost from one year to the next. It seems, too, that the dominant effect is the loss of audience for back issues, which become freely available, but too late.

Is there a threshold effect?

In considering the duration of the embargo as a dependent variable, we implicitly assume that the effect of the embargo is linear. However, we can assume that there might be a threshold effect. To take up again the example of the queue in front of the closed door, the longer the queue, the more the potential readers are discouraged: but maybe the effect is zero so long as the queue is not too long and it is only at the end of a year's waiting that the readers become discouraged and go in search of something else to read?

We decided therefore to break down the "embargo" variable, which continuously indicates the duration of the embargo period, into discrete variables if the embargo lasts less than one year, between one and two years, or two years or longer. **We show that the loss in audience linked to the embargo begins to appear after one year.**

Thanks to the detailed data of the second base, we can refine these results. Now we consider views of a given edition of a journal following its publication, that we observe month after month. With this information about the edition, we can separate the global effect on views (the embargo is accompanied by a smaller number of views for the journal) into two distinctive effects – the signal effect of the quality of the journal and the effect of opening the door. For that, we construct a crossed variable that is the product of the embargo variable and a dependent variable that has the value 1 if the issue is in open access (that is, is published after the end of the embargo period). The crossed effect measures in reality the rebound effect in demand at the opening: when the embargo is lifted, the number of views automatically increases, but the rebound depends on the length of the embargo period. **We show that the shorter the embargo, the greater the number of views. However, the rebound effect is particularly marked when the embargo period is long.**

We now consider the difference in effect, using our monthly journal base. **All things being equal, the increase in views of an issue from one month to the next is less when the embargo is long.** Here, the crossed effect is still positive. We also verify, using the two data bases, that the break down of the embargo period into two dummy variables of durations less than or greater than one year gives a significantly negative result starting from the first year.

The effect on the total number of "views"

This more precise monthly base also allows us to answer a second question: what does the total of the views look like? Is this total the same? Have readers been won or lost? In order to understand the expected effects, consider the first graph in Figure 1: an article appears at date 0, is put into open access at date B as the embargo is lifted, and becomes obsolete at date F. This latter date, clearly, might be very far away.

Let us take the case which will be the control case, the counterfactual article that is subject to no embargo and is freely available from the moment of its publication. The curve represents the number of views. Here, this curve is hypothetical, but we hypothesise that the number of views

grows at the beginning, then reduces with time until its knowledge becomes obsolete. The total views are the sum of all views for these periods, which we call SO.

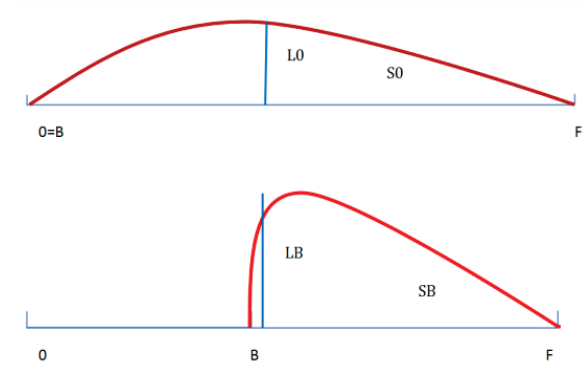
The second graph in Figure 1 below traces the number of views for an article that is not available until after date B. The number of views is zero before date B, then increases suddenly at the lifting of the embargo until the end. In reality, for some journals available with subscription or on-line payment, the number of views will not be zero before date B. At the lifting, the number of views is LB. Here, the view profile can be constant, or increasing then decreasing after the embargo is lifted. We call the total views SB.

When the embargo is lifted, we expect a first effect on the queue that will be absorbed. To put it another way, while the embargo is in place, those who wish to enter must wait in line; when it is lifted, they can enter. Following this first effect, the number of views must increase at the moment of the embargo lifting (as indicated in the graph above). But if we add to this total the views made during the life of the journal, the number of views is not affected (SO must be equal to SB no matter what B). All those who wish to enter can do so: for an open-access journal the number of entries is spread over the duration of the life of the journal, and for a journal with an embargo readers simply form a queue and await the lifting of the embargo. Nevertheless, if the queue is too long, readers can become discouraged and choose to read something else (SB < SO). Conversely, a long queue can indicate a high-quality journal. The question then, is whether the duration of an embargo leads to a loss in readership, or on the contrary wins readers; or whether this has no effect on the total number of readers.

Our last and main finding is that **the total audience of the journal is as reduced as the embargo period is long. Loss of readers begins with an embargo period of one year.**

If the edition is freely available, then the total number of views over a rolling period is higher than if it is not. **The longer the embargo period, the fewer the total number of views.** Thus, a journal loses readers by imposing an embargo. We sought further to know whether this effect is linear and if it appears starting from the first year. We examined the effect of two dummy variables: Embargo 1 which has a value of 1 if the embargo is for one year or 18 months, and Embargo 2 if it lasts more than two years. The two variables have a negative impact on the readership compared with journals that impose no embargo (or one of less than one year) and thus allow free access to their issues.

Graphique 1: Nombre de vues pour les articles disponibles à l'ouverture de la barrière



Lecture : The graph represents the number of views for an article depending on the date of the end of the open access embargo (B)

Source : Bacache-Beauvallet et al. 2015

Conclusion and perspectives

We can distinguish between two models of public policy: a regulatory model and an incentive model. The first (the policy adopted by the United States) consists in establishing a legal maximum period above which the law obliges authors and journals to publish articles in their entirety and for free. This policy thus seeks to establish a reasonable embargo period taking into account contradictory demands: on the one hand is the demand to improve distribution, which requires a drastic reduction in embargo periods, and on the other hand, the demand to protect the business model of journals which requires identifying the latest possible moment at which there is no impact on the journal. The second model (chosen by Germany), the incentive model, allows the actors involved to decide on the question. What this means is that authors have the right to deposit their articles in open archives and journals are prohibited from preventing this self-archiving through an overly-long embargo. The establishment of a date from which authors can take up the right to publish their own work functions as an incentive: after a relatively short embargo period, an author has the right to distribute freely a post-print version of her article. This allows authors to take up a subject, distribute their articles, and maybe to decide upon, together with their journals, an embargo period that suits their ecosystem.

What our study shows is that the existence of an embargo on distribution means a loss of audience for the journal, and it begins as early as after one year. If the gains from reducing the embargo period are thus established, what then are the costs? To the extent that the marginal costs of distributing articles through digital platforms are minimal to non-existent, this loss of audience represents what is called in economics a "deadweight loss". Our findings thus favour the introduction of relatively short embargo periods (less than one year) over the longer periods suggested in public debate about the humanities and social sciences (two to three years).

We might be concerned about the negative impact that such a policy would have on journals, that they may no longer be able to cover costs. However, our study also shows that a great many university HSS journals, in the AERES definition, are inactive. From a social point of view, we might ask ourselves whether there are indeed too many journals. Such a large number of them suggests that the fixed costs are not an entry barrier.

It is clear that the internet has profoundly changed the way in which research is done: literature searches, access to articles and databases, the way in which articles are distributed and in which researchers communicate with each other, have all been shaken to their roots. These practices continue to evolve, so, regardless of the choices made now, an assessment must be made two years hence, in order to understand how journals, authors and readers are adapting and modifying their practices following changes to the regulations.

Reference study

Bacache-Beauvallet, M., Benhamou, F. et M. Bourreau, « *Les revues de sciences humaines et sociales en France : libre accès et audience* », Rapport IPP n°11, Juillet 2015.