

# Research Output and Impact of the Fields of Management, Economics, and Sociology in Spain and France: An Analysis Using Google Scholar and Scopus

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**Because of a greater coverage of documentary sources in many languages that is greater than that of traditional bibliographic databases, Google Scholar is an ideal tool for examining the social sciences in non-Anglophone countries. We have therefore used it to study the scholarly output and impact of three scientific disciplines, management, economics, and sociology, in Spain and France, comparing some of the results with those retrieved with Scopus. Our findings show that scientific articles are the predominant form of scholarly communication in Google Scholar for our selected fields and countries. In addition, our results indicate that in Google Scholar the vernacular languages of each country are more used than English in all cases, but economics in France. The opposite occurs in Scopus, except for the case of sociology articles in France. We also show that books receive on average more citations than other published documents in Google Scholar. Finally, we demonstrate that publishing in English is associated with greater scholarly impact, except for the case of France in Google Scholar for articles in sociology and books in the three fields.**

## Introduction

The emergence of Google Scholar (GS) has been hailed as a form of democratization in the access to scientific information, until then monopolized by international bibliographic databases (Harzing & van der Wal, 2008; Pomerantz, 2006). Actually, GS offers certain advantages

with respect to such databases (Bormann, Thor, Marx & Schier, 2016; Jacobs, 2016; Marx & Bornmann, 2015; Mingers & Meyers, 2017; Prins, Costas, van Leeuwen & Wouters, 2016). In the first place, it has greater coverage of books and book chapters, which represent a large part of the scholarly production in social sciences and humanities (Engels, Ossenblok & Spruyt, 2012; Huang & Chang, 2008; Kousha, Thelwall & Rezaie, 2011; Thelwall & Sud, 2014). In the second place, GS also has a great coverage of scientific documents in languages other than English. Because many scientific journals in these languages are currently available in digital format, often with open access in order to maximize their diffusion, GS is very useful to access scientific information not covered by the bibliographic databases, whose bias for the English language has been observed in diverse opportunities (Archambault, Vignola-Gagne, Cote, Larivière & Gingras, 2006; Diaz-Faes, Bordons, & van Leeuwen, 2016; Frandsen and Nicolaisen, 2008; Giménez-Toledo, Román-Román & Alcain-Partearroyo, 2007).

Some authors have argued that social sciences have a national or regional character (Sztompa, 2009). Therefore, the corpus of academic documentation that they produce may be largely decoupled from the “international” production covered by international bibliographic databases, either because the issues and topics studied by the researchers may not be of interest to a general scholarly audience or because the dynamics of intellectual recognition and validation of academic prestige in non-Anglophone countries may be channelized through a circuit of scholarly publications in the vernacular languages of these countries (Beigel, 2014; Gantman & Fernández Rodríguez, 2016; Hanafi, 2011; Hicks,

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2005; Larivière & Macaluso 2011). Consequently, the analysis of the production, diffusion, and impact of the social sciences in non-Anglophone countries would greatly benefit from the use of GS.

The goal of this article is therefore to explore the usefulness of GS for the study of the social sciences in non-Anglophone countries, particularly analyzing the research output and impact by language. In this regard, the research questions that we will address are the following: What is the distribution of document types obtained from searching in GS? Does the impact in terms of citations received in GS differ across different types of scientific documents? How extended is the use of English in the social sciences in non-Anglophone countries? Does this use differ according to type of document? Do scientific documents written in English have greater impact than those written in the vernacular language? How do the results obtained from GS compare with those from Scopus (a bibliographic database that also includes many sources in languages other than English)? We address these issues with case studies of two non-Anglophone countries, Spain and France, in three scientific fields, economics, management and sociology.

### The Use of Google Scholar for Citation Analysis

Since it became available, the coverage of GS has been compared with that of other bibliographic databases like Scopus and the Web of Science (WoS). In terms of size in number of documents, GS is larger than these alternatives (Orduña-Malea, Ayllón, Martín-Martín & Delgado López-Cózar, 2015). Moreover, the use of GS has more advantages for the social sciences than for the hard sciences. In this regard, Harzing and Alakangas (2016) find that the difference in coverage between GS and both Scopus and the WoS is larger in the social sciences and humanities than in other disciplines like the life sciences. Likewise, Amara and Landry (2012) report that GS has greater coverage than the WoS for the field of management. Haley (2014) shows that GS has better coverage than Microsoft Academic Search. A detailed analysis of the advantages and shortcomings of the use of GS for research evaluation is provided by Orduña-Malea, Martín-Martín, Ayllón, and Delgado López-Cózar (2016), whereas Halevi, Moed, and Bar-Ilán (2017) systematically analyze the results of 91 studies that compare GS to other bibliographic databases, concluding that it could be specially useful in the social sciences.

Despite its advantages, GS has its drawbacks in terms of data quality. For instance, Delgado López-Cózar, Robinson-García, and Torres-Salinas (2014) suggest that citations can be artificially inflated using GS. Problems of duplicates and metadata errors have already been mentioned in the literature (Doğan, Şencan & Tonta, 2016; García-Pérez, 2010; Jacsó, 2005; Meho & Yang, 2007). On balance, though, we believe GS can be useful to evaluate the impact of the social sciences in non-Anglophone countries, and it seems particularly appropriate to measure the impact of the local or regional dimension of social sciences knowledge (production

published in vernacular languages) vis-à-vis its international dimension (production published in English). This, of course, comes at a price, a very tedious and cumbersome work of necessary data cleansing.

Several studies were based on GS. For instance, Abrizah and Thelwall (2014) compared the impact of books published by Malaysian university presses and found that those published in English have greater impact in terms of received citations. Jamali and Nabavi (2015) explored the types of documents retrieved from GS by discipline and found that the majority of them were articles, although the percentage of books in the social sciences was higher than in other disciplines. Martín-Martín, Orduña-Malea, Harzing, and Delgado López-Cózar (2017) argued that GS was useful for identifying highly cited documents; and Martín-Martín, Orduña-Malea, Ayllón, and Delgado López-Cózar (2016), using a dataset of the 64,000 most cited documents in GS, found that 18% of them were book and book chapters and that 93% of the documents were in English.

Research output, impact and other aspects of the development of the social sciences in Spain and France have already been the object of several studies, but they rely mostly on data from publications indexed in bibliographic databases like the Social Science Citation Index (SSCI). For instance, Pons-Novell and Tirado-Fabregat (2010) evaluate the impact of articles published in non-SSCI indexed economics journals from Germany, Italy, Spain, and France exclusively with citation data from the SSCI, and they conclude that the articles from scholarly journals of France and Germany have greater impact than those from Spanish and Italian journals, a difference they attribute to the fact that articles in English are published more frequently in the national scientific journals of the first two countries. Moreover, examining the scholarly production in management from Latin American countries, Ronda-Pupo and Díaz Contreras (2014) find that the articles published in English have a larger impact than those published in Spanish, but their analysis is restricted to cited and citing articles from the SSCI database, which underestimates the universe of potential citing documents given its linguistic bias.

Among the studies that used GS to examine the scientific production of Spain and France in social sciences, Etxebarria and Gomez-Uranga (2010) compared the visibility of 40 Spanish social scientists in Scopus against their production obtained from GS, concluding that economics is the discipline with greatest international visibility. Cabezas-Clavijo and Delgado-López-Cózar (2012), acknowledging the limitations of traditional bibliographic databases, used GS to evaluate the impact of Spanish scholarly journals in law and social sciences. In addition, Delgado López-Cózar, Orduña-Malea, Jiménez-Contreras, and Ruiz-Pérez (2014) estimated the h-index of 40993 researchers from Spanish public universities. Similarly, in the French case, Courtault, Hayek, Rimbaut and Zhu (2010) used GS to collect data of French faculty research output and then computed the h-index of individual researchers and higher education institutions in economics and management. These studies have not used

individual scientific documents as the unit of analysis. In this article, we will precisely make this to find out the relationship between the publication language and the scientific impact of these documents.

## Data and Methods

The case studies selected are Spain and France. This selection obeys basically to the authors' knowledge of the vernacular languages of these countries and to the fact that these countries have a high scientific productivity in social sciences at the global level. According to data from SCIMAGOJR (2017), France and Spain occupy, respectively, the third and fourth places in terms of scientific production in social sciences for the 1996–2015 period behind Germany and China if we only consider the production of non-Anglophone countries. Within the social sciences, we focus on three disciplines: management and business, economics, and sociology. The unit of analysis in this study is the individual bibliographic document.

### Dataset Construction

As a first step, we collected data on faculty from a limited group of French and Spanish institutions that were selected based on their scientific productivity. In the Spanish case, we selected the first ten universities according to their scientific productivity in management, economics and sociology in the I-UGR (2014) Ranking of Spanish Universities. As management is one of our disciplines of interest, and considering that the most prestigious Spanish institutions in this field are business schools, we also included the three highest ranked Spanish business schools from the European Business Schools ranking of the Financial Times (2015). Then, from the webpages of these institutions, we collected data of faculty affiliated with departments of economics, sociology, and management (a field composed of diverse subdisciplines such as accounting, finance, marketing, operations research and strategy). We only selected faculty with full-time appointments whenever such information was available and excluded the category of visiting professor. We thus ended up with a population of 3,728 social scientists (1,473 in economics, 1,637 in management, and 618 in sociology).

For the French case, we used another procedure. Because French universities' webpages do not always inform the faculty composition by academic department, we have resorted to information from the research laboratories of French doctoral schools, which do offer the required information about their members and are a privileged locus for the development of social sciences research in France. To restrict our selection to the most productive institutions, we selected those doctoral schools that (a) were totally or partly dedicated to economics, management or/and sociology and (b) have been evaluated at least in category A by the AERES (Agence d'évaluation de la recherche et de l'enseignement supérieur) between 2009 and 2014. The reports for classifying French doctoral school were obtained from the HCERES (Haut Conseil de

l'évaluation de la recherche et de l'enseignement supérieur) website (<http://www.hceres.fr>). This criterion allowed us to select 33 doctoral schools, from which we collected information from the research laboratories dedicated to our disciplines of interest. Some of these laboratories are interdisciplinary in nature and can be integrated by scholars from one or more higher education institutions. We selected faculty with rank of Maître de Conférences or higher and full-time dedication, excluding visiting professors. In addition, we also included faculty from the three top French business schools in the European business school ranking (Financial Times, 2015). We ended up with a population of 4707 French researchers (1,636 in economics, 2,120 in management, and 951 in sociology). The list of institutions is reported in Appendix 1.

From the populations thus obtained for both countries, we selected samples of researchers by institution, country, and discipline through proportionate stratified random sampling according to the size of individuals that each institution has in our population. The total number of researchers selected for the study was 1,500 (each discipline has 250 individuals by country).

We then collected the scientific output of the selected researchers from GS using the Publish or Perish 4.0 program (Harzing, 2010). In a few cases we could not obtain reliable data for some of them because of issues of homonymy, so we randomly selected another researcher from the same institution as a replacement. This circumstance was more common in the case of Spanish researchers, who typically pose some problems for name disambiguation in bibliographic databases (Jiménez Contreras, Ruiz-Pérez & Delgado López-Cózar, 2002). We thus have to rely on a very careful search as certain Spanish scholars publish with their compound surnames in Spanish journals, but with a single surname in foreign journals. So, for Spanish scholars, we searched for combinations of name and first surname, the compound surnames, and in some cases even name and second surname. Authors identities and their production were extensively checked manually, and in some cases we also examined their profiles in Google Scholars Citations.

The research output of the individual authors was assigned to one of the three disciplines according to their academic department of affiliation or to the main disciplinary topic of their research laboratory. In cases of discrepancies between an author's production and the discipline to which this output was assigned (e.g., an author assigned to finance who often publishes in economics journals), we excluded the author from the sample and selected at random a replacement from the same institution.

For each document from the researchers' production supplied by the Publish or Perish software, we collected the following information:

1. Document type, which we classified into article, book, book chapter, PhD thesis, book review, congress presentation, or other (gray literature, working papers, etc.).
2. Publication year.



3. Publication language. In the case of Spain, we distinguished between Spanish or Castilian (the country's main language), dialect (category that includes the languages of some autonomous communities like Catalonia and the Basque country), English, and "others" as residual category. In the case of France, we distinguished between French, English, and "others" as residual category.
4. Number of citations received.

We also searched the production of the 1,500 researchers in Scopus, collecting similar data for each document entry.

These data were collected between May 2016 and April 2017, a time lapse explained by the extensive manual work of data cleansing. In addition to the necessary work for the correct identification and allocation of documents to authors in GS, we resorted to additional web sources to classify some documents by type. In this regard, and among other sources, we have used the database Dialnet for the Spanish case and the HAL repository for the French case.

Among the most frequent problems, we have found numerous duplicates, which the Publish or Perish software allows to readily consolidate. GS also indexes documents that do not constitute scientific production as syllabi of courses, and it may retrieve items with erroneous document assignments to authors (e.g., in some book reviews, the author of the review and the author of the reviewed book may both appear as authors). We cleansed this and other errors to the best of our ability. In addition, in some national journals, the titles of published articles appear in both English and the vernacular language; and both could be retrieved by GS as individual entries. In such cases, we assigned the article to the language of full-text publication. To do this, we checked with the source of the original document to verify in which language it was published. When complete versions of the same article were published in both English and the vernacular language (e.g., in journals such as *Population* and *Revue Française de Sociologie*), we took them as separate entries.

Moreover, some documents appear as working papers, especially in economics (Fry, Spezi, Probets & Creaser, 2016), and also as published articles (Delgado López-Cózar & Robinson García, 2012). In such cases, we considered each entry separately, as working papers may have some differences with their published versions. However, we have eliminated duplicates within working papers, something we found often because they may have different versions or appear in several web repositories. Given these issues, we must acknowledge that the residual category "other documents" that we report in our analysis (consolidating working papers, unpublished research reports, etc.) may contain inadvertent errors, whereas we reviewed more carefully the data quality of the documents that we classified as articles, books, and book chapters. The problem of duplications also extends to the citations received by the documents, and we made no corrections in this regard because these errors can be considered of a random nature, and thus they do not affect our findings significantly.

Finally we consolidated the data from the individual authors by discipline, because our unit of analysis is the document and not the author. Therefore, we had to eliminate some duplicates, which appeared as a result of coauthorships between authors from the same country in the sample. Our final dataset has 61,039 documents (28,283 for Spain and 32,756 for France).

We also cleansed the data collected from Scopus. Although there were much fewer problems in this case, we also made multiple searches especially with Spanish authors, some of whom have even three "personalities" in Scopus despite being the same researcher. The Scopus dataset has 10,739 documents (4,901 for Spain and 5,838 for France).

### Methods

We basically use descriptive statistics to show the distribution of the types of document in GS and Scopus, as well as their distribution by language. In addition, to evaluate the statistical significance of the observed differences in citations between documents types in GS, we used the Mann-Whitney test, because citation data is a variable that does not follow a normal distribution. We did not use this procedure with Scopus data because document types other than articles were very low in percentage terms.

To answer our last research question, the effect of publishing in English upon citations received in GS and Scopus, we used an ordinary least squares (OLS) multiple regression model, in which the dependent variable is the document impact, which we operationalize as the natural log of the number of received citations plus one. In this regard, we follow the recommendations of Thelwall and Wilson (2014), who suggest that in citations studies the log transformation of the dependent variable is a preferable alternative to the negative binomial regression, commonly used in count models. The independent variable of interest is a dummy variable with value 1 if the article has been published in English and 0 otherwise. In addition, we consider publication year as a relevant control variable. However, in both the GS and Scopus datasets, the relationship between publication age and received citations is non-monotonic; the oldest documents are not necessarily those that receive more citations. The scatter plot of the data reveals that the relationship has the form of an inverted U. The total number of received citations per document increases with publication year until a maximum is reached and, from this point onward, as publication year increases further, the number of total received citations begins to decrease. So, we include both publication year and publication year squared as regressors.

### Results

We first analyze the distribution of documents by discipline and country to determine the relative importance attributed to the different types of documents in each discipline (Table 1). It can be observed that articles have the greatest share of documents in all disciplines and both countries. In the case of management, there is a large difference

TABLE 1. Distribution of documents in GS (by discipline and country).

Document type	Management				Economics				Sociology			
	Spain		France		Spain		France		Spain		France	
	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%	Nos.	%
Articles	4,129	55.12	2,900	38.75	5,067	46.06	5,324	41.58	4,685	47.85	5,630	45.15
Books	225	3.00	363	4.85	469	4.26	392	3.06	730	7.46	1057	8.48
Book chapters	823	10.99	768	10.26	1226	11.14	1334	10.42	1813	18.52	2488	19.95
Book reviews	10	0.13	11	0.15	126	1.15	66	0.52	138	1.41	102	0.82
PhD theses	14	0.19	136	1.82	65	0.59	138	1.08	63	0.64	172	1.38
Conference presentations	492	6.57	874	11.68	497	4.52	628	4.91	402	4.11	692	5.55
Other documents	1,798	24.00	2,432	32.50	3,552	32.29	4,921	38.44	1,959	20.01	2,328	18.67
Total	7,491	100	7,484	100	11,002	100	12,803	100	9,790	100	12,469	100

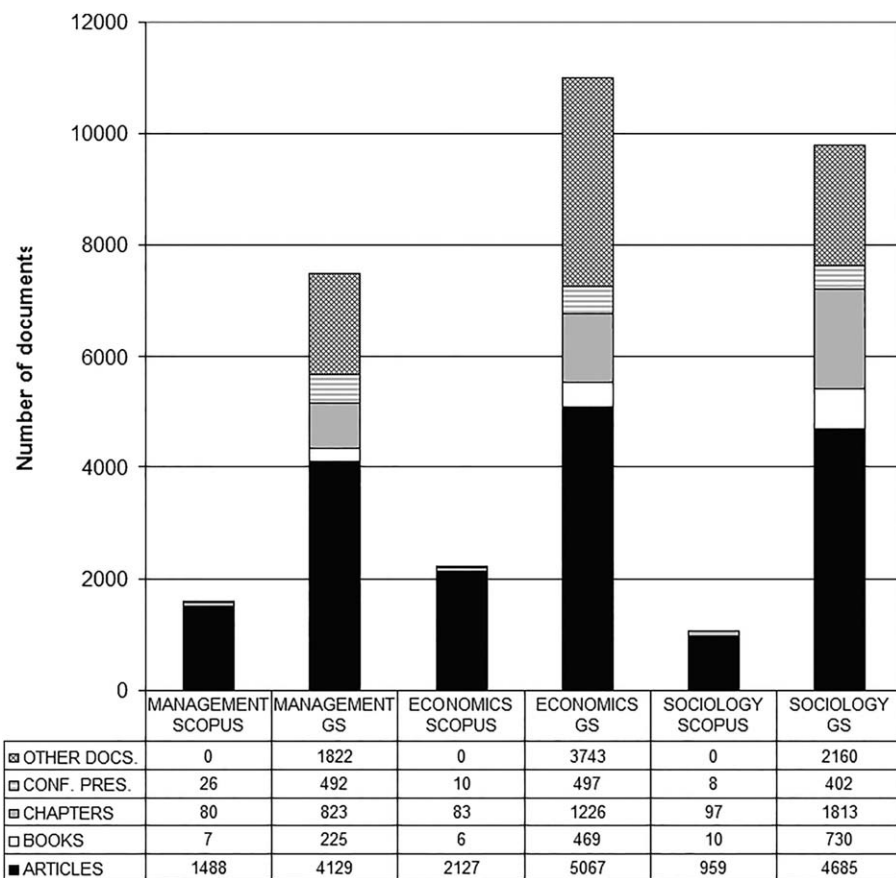


FIG. 1. Documents in Scopus and GS by type (Spain).

in the share of articles between Spain and France, something that does not occur with sociology and economics. In contrast, the share of other documents (the residual category for working papers and other entries) and conference presentations is higher for France. These differences, of course, may be simply explained by the fact that one of the countries may have better coverage of its research output in scholarly webpages and documentation repositories, at least in a particular disciplinary field. However, it is noteworthy that the shares of articles are quite similar in sociology (47.85 for

Spain and 45.15 for France) and economics (46.06 for Spain and 41.58 for France). In all disciplines, the number of doctoral theses is greater in France than in Spain.

Regarding books and book chapters, the sum of their shares ranges from a minimum of 13.48 for economics in France to a maximum of 28.43 for sociology in France. The book reviews have a very small share of total documents in all cases, being especially low in management. The share of conference presentations is rather similar for both countries in economics and sociology, and a bit larger in management

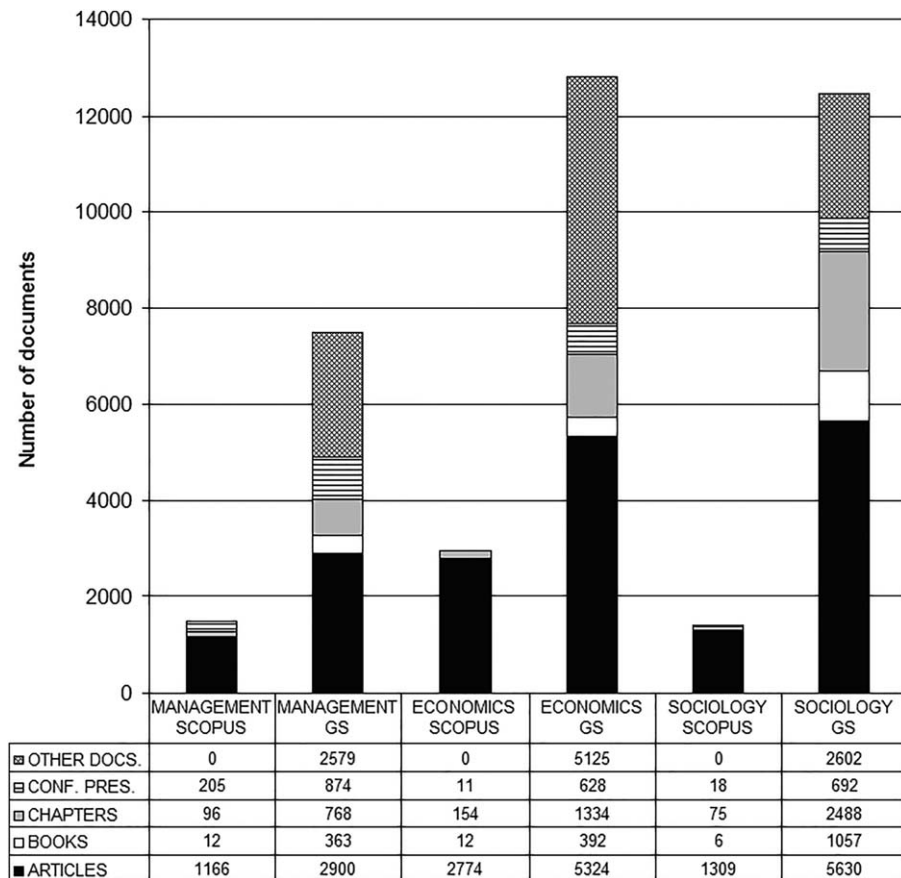


FIG. 2. Documents in Scopus and GS by type (France).

TABLE 2. Distribution of documents by language (Spain).

Type of document	Management		Economics		Sociology	
	Nos.	%	Nos.	%	Nos.	%
Total docs.						
English	2,919	38.97	4,887	44.42	1,867	19.07
Spanish	4,408	58.84	5,715	51.95	7,090	72.42
Dialects	135	1.80	341	3.10	650	6.64
Others	29	0.39	59	0.54	183	1.87
Articles						
English	1,675	40.57	2,276	44.92	911	19.45
Spanish	2,397	58.05	2,597	51.25	3,382	72.19
Dialects	44	1.07	169	3.34	315	6.72
Others	13	0.31	25	0.49	77	1.64
Books						
English	34	15.11	31	6.61	47	6.44
Spanish	181	80.44	397	84.65	629	86.16
Dialects	9	4	41	8.74	35	4.79
Others	1	0.45	0	0.00	19	2.60
Book chapters						
English	255	30.98	245	19.98	297	16.38
Spanish	559	67.92	945	77.08	1,417	78.16
Dialects	5	0.61	30	2.45	65	3.59
Others	4	0.49	6	0.49	34	1.88

with a larger share for France (11.68% against 6.57% for Spain). Finally, the share of other documents has a large range.

In Figures 1 and 2, we compare the number of documents by type and category between GS and Scopus. In this latter case, the only categories are articles, books, books chapters and conference presentations. Therefore, in our comparison, we include book reviews and PhD theses in the category “other documents” for GS. Not surprisingly, articles is the most important category in Scopus in all disciplines, ranging from 78% for management in France to 95.5 for economics in Spain. The percentage of the number of documents in Scopus over the number of documents in GS is lowest in sociology with around 11% for both countries, whereas it ranges from 19.76% for management in France and 23.05% for economics also in France. Thus, economics and management seem to be the most visible disciplines in Scopus. However, these low values are a result of the low coverage of other types of documents in Scopus. When we only consider the percentage of number of articles in Scopus over number of articles in GS, the figures are larger. In sociology, these are 23.25% for France and 20.50% for Spain, whereas in management they are 36.01% for Spain and 40.21% for France. Finally, economics is the most visible discipline in Scopus in terms of articles with ratios of 41.97% for Spain and 52.10% for France, indicating that in Scopus “the tip of the iceberg” is not so small in this field.

We next examine what share of documents is published in the national language of the country and what share is

published in English. To this end, we only analyze the most important types of published documents (articles, books, and book chapters). Tables 2 and 3 show the shares by discipline and language. In Spain (Table 2) and in management, most documents have been published in Spanish. The share of documents in dialects or in other languages is very low. Almost 41% of articles have been published in English, which demonstrates the researchers' will to gain international visibility, whereas the share for books is much lower, 15.11%, and for chapters, it is 31%. In economics, the level of internationalization is slightly greater. In the case of articles, 45% have been published in English, whereas only 6.61% of books and 20% of book chapters have appeared in this language. The discipline of sociology exhibits a much smaller proportion of total documents in English, only

19.07%. The share of articles in English is just 19.45%. The share of books in English is low and like that for economics, 6.44%, whereas for book chapters is 16.38%. In sum, the main feature in the sample of documents from Spain is the predominance of the Spanish language, with variants according to disciplines (it is most pronounced in sociology) and document types (there is a larger share of articles in English than of books and book chapters).

There are interesting results in the case of France (Table 3). As in Spain, the vernacular language predominates for total documents in management and sociology, but in economics, the majority of articles, overall documents, and book chapters are in English. The predominance of French is significant in sociology, constituting 82.29% of articles. This demonstrates the more local character of sociology, which is also evident in Spain. Economics appears as the most internationalized discipline, whereas management occupies an intermediate place, but closer to economics.

We can compare these figure with those of Scopus, but only in relation to articles because books and book chapters in this database are from English sources (the only exception was one book in French). In the Spanish case (Figure 3), the share of articles in English in Scopus is about 88% in both management and economics, and it diminishes to 61% in sociology. Again, this is an indication that sociology seems to be a discipline whose scholarly production is more oriented to the vernacular language. In contrast, the share of articles in Spanish in GS is 58% in management and 51.25% in economics. In sociology, this share increases to 72.19%, and the local character of this discipline is also shown by the share of articles in the subnational languages, which account for 6% of the articles detected in GS.

In the French case (Figure 4), English is the dominant language in Scopus in both economics and management.

TABLE 3. Distribution of documents by language (France).

Type of document	Management		Economics		Sociology	
	Nos.	%	Nos.	%	Nos.	%
Total docs.						
English	3,081	41.17	6,947	54.26	1,736	13.92
French	4,299	57.44	5,476	42.77	10,171	81.57
Others	104	1.39	380	2.97	562	4.51
Articles						
English	1,308	45.10	2,668	50.11	775	13.77
French	1,553	53.55	2,485	46.68	4,633	82.29
Others	39	1.34	171	3.21	222	3.94
Books						
English	54	14.88	59	15.05	63	5.96
French	298	82.09	289	73.72	927	87.70
Others	11	3.03	44	11.22	67	6.34
Book chapters						
English	358	46.61	653	48.95	310	12.46
French	392	51.04	611	45.80	1,990	79.98
Others	18	2.34	70	5.25	188	7.56

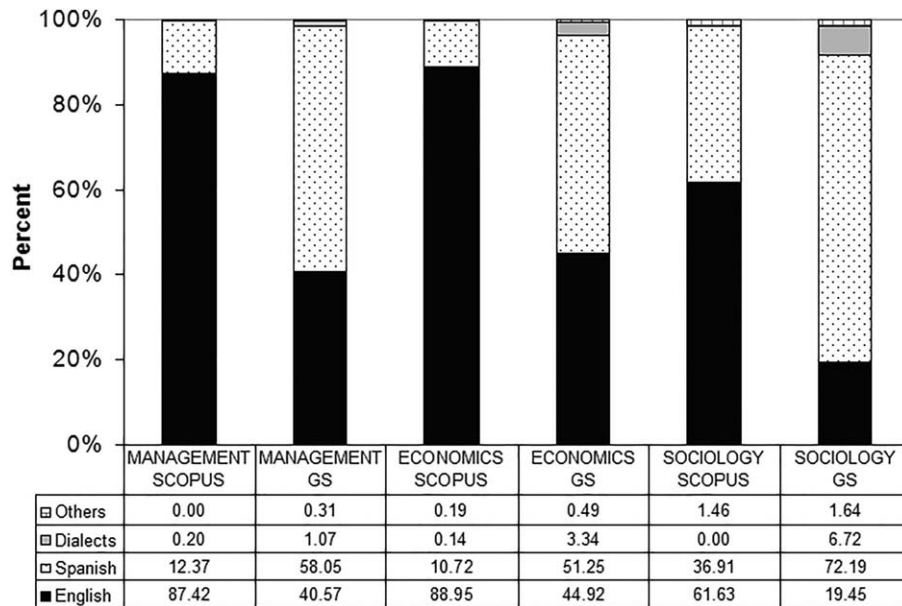


FIG. 3. Distribution of articles by language (Spain).



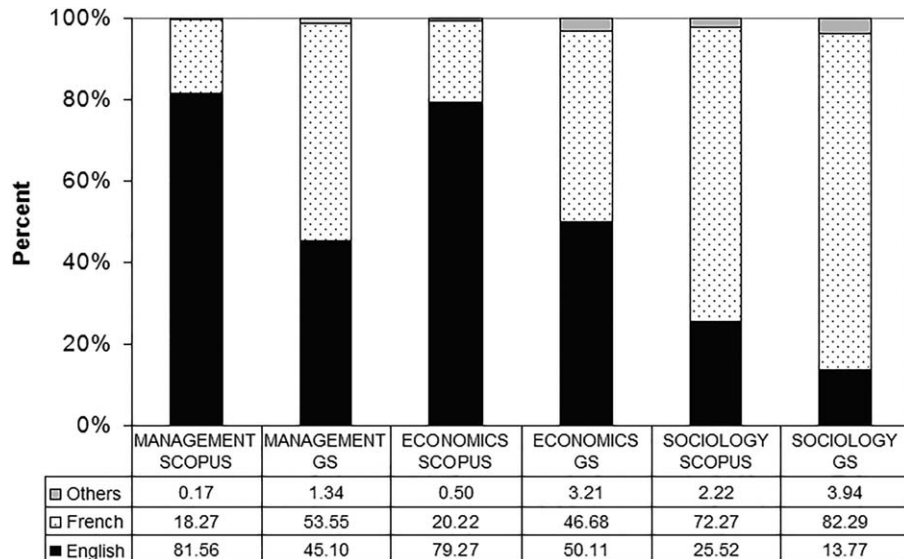


FIG. 4. Distribution of articles by language (France).

TABLE 4. Distribution of received citations (means) in GS by discipline, country, and language.

Type of document	Management		Economics		Sociology	
	Spain	France	Spain	France	Spain	France
Articles	14.02	22.74	14.68	21.18	6.50	7.53
English	29.12	42.57	27.86	34.51	13.91	10.45
French		6.56		7.95		7.00
Spanish	3.79		4.10		5.09	
Dialects	0.52		1.02		0.98	
Others	1.92	2.08	5.32	5.64	3.52	8.38
Books	19.56	41.75	21.49	67.61	35.12	58.90
English	30.91	72.87	62.90	121.97	39.19	88.24
French		36.33		57.59		57.56
Spanish	18.16		19.74		37.13	
Dialects	0.11		7.10		6.23	
Others	61 (*)	35.91		60.57	11.74	49.84
Book chapters	2.91	9.23	4.27	10.33	5.22	7.45
English	5.90	14.30	10.23	14.92	12.51	9.06
French		4.97		5.94		7.02
Spanish	1.58		2.76		3.62	
Dialects	1.60		3.63		8.35	
Others	1.00	0.94	0.83	5.91	2.26	9.39

Note. (\*) This figure corresponds to a single book.

However, this is not the case with sociology where French clearly predominates with 72.27% of articles. Although GS shows an even more pronounced dominance of French (82.29), this difference is not very important. This clearly demonstrates the local character of sociology in France, and the more “international” character of management and economics. In addition, it shows that the bias against languages other than English is not a major concern in sociology, at least in the French case. Foreign languages other than English show a negligible proportion in both databases.

Table 4 reports information on average citations received by each type of document in GS. It can be observed that, in all the disciplines and both countries, books receive on

average more citations than articles and book chapters. This finding demonstrates the relevance of books for the diffusion of knowledge in the social sciences, something already suggested in the literature but not on the basis of a large dataset from non-Anglophone countries. To assess if this difference (in some cases very pronounced as for sociology in France) is statistically significant, we performed Mann-Whitney tests, comparing citations received by books with those received by articles, which are the second category in terms of average citations received—a regularity that also happens in all cases. The results of this test indicate that the differences are statistically significant,  $p < 0.0001$ . Moreover, the differences between citations for articles and for book



TABLE 5. Distribution of received citations (means) in Scopus by discipline, country, and language.

Type of document	Management		Economics		Sociology	
	Spain	France	Spain	France	Spain	France
Articles	12.80	17.60	10.75	10.59	9.89	3.68
English	14.41	21.14	11.90	12.99	15.04	7.52
French		2.00		1.40		2.29
Spanish	1.60		1.56		1.60	
Dialects	0		0.67			
Others		2.5	0.75	1.21	1.79	4.69
Books	7.29	7.33	0.67	14.5	2.2	2.5
Book chapters	0.95	3.85	0.51	2.62	4.33	1.04

TABLE 6. OLS regression of citations received (articles).

Variable	Management Spain	Management France	Economics Spain	Economics France	Sociology Spain	Sociology France
Constant	-18717.33 (930.611)	-22581.14 (1039.285)	-14793.97 (709.4577)	-10681.98 (658.7074)	-11585.52 (688.7539)	-10914.53 (684.9738)
Pub. year	18.7273 **** (0.9299)	22.6304 **** (1.0389)	14.8226 **** (0.7092)	10.7350 **** (0.6590)	11.6040 **** (0.6902)	10.9511 **** (0.6847)
Pub. year sq.	-0.0047 **** (0.0002)	-0.0057 **** (0.0003)	-0.0037 **** (0.0002)	-0.0027 **** (0.0002)	-0.0029 **** (0.0002)	-0.0027 **** (0.0002)
English	1.48436 **** (0.0444)	1.0961 **** (0.0494)	1.5121 **** (0.0366)	1.1567 **** (0.0376)	0.8790 **** (0.0440)	0.0602 (0.0453)
Adj. R <sup>2</sup>	0.2513	0.28	0.2948	0.2094	0.1184	0.1094
Obs.	4129	2900	5067	5324	4685	5630

Notes. \*\*\*\*  $p < 0.001$ , \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , standard errors in parentheses.

chapters are numerically low. In French sociology, the average citations for articles and book chapters are very similar (7.51 and 7.41); and in Spanish sociology, this difference is also very small (6.48 against 5.20). The differences of impact between articles and chapters of books are more marked in economics and management.

Table 4 also presents descriptive statistics of the impact in terms of citations received by publication language. For articles, publishing in English has a larger impact in the three disciplines and both countries. Sociology is the discipline in which the difference in impact measured as the ratio between average citations received for articles in English and average citations for articles in the vernacular language is 2.73 for Spain and only 1.49 for France. In the other disciplines, this ratio is greater and, in all cases, it is greater in the Spanish case (in economics, it is 6.80 for Spain against 4.34 for France; whereas in management, it is 7.68 for Spain against 6.49 for France). With respect to books, we can again observe that publishing in English implies receiving more citations than publishing in Spanish and French in all cases; and the ratios for average citation in English related to those in the vernacular language are smaller in sociology (1.06 in Spain and 1.53 in France) than in the other disciplines (in economics, we have 3.19 for Spain and 2.13 for France; and in management, 1.70 and 2.01 respectively). Finally, book chapters also follow the general trend; those

published in English receive more citations. The ratios of average citations are 3.46 for Spain and 1.29 for France in sociology; 3.71 and 2.51, respectively in economics; and 3.73 and 2.88, respectively in management. Once more, in the case of book chapters, the impact ratio is greater for Spain than for France. In sum, descriptive statistics indicate that publishing in English entails greater impact. Nevertheless, the difference of impact is smaller in sociology, a discipline that seems to be more oriented to a local audience in its publication language.

We can compare these findings with the descriptive statistics obtained with the Scopus dataset. Table 5 shows that articles are the published document type that receive more citations in all disciplines and countries, except for economics in France. However, the number of books in the dataset is too low so the comparison must be taken with caution. In any case, this indicates that bibliometric comparisons may be contingent upon the database considered, and GS with its greater coverage may lead to results different than Scopus. Regarding the differential impact by language, which we compute only for articles, it can be observed that publishing in English generates a larger impact in all cases.

Finally, to better assess the effect of publishing in English upon citations received, we present an OLS multiple regression model. In the case of articles (Table 6), it can be observed that the nonmonotonic pattern for publication date holds in all the cases (the linear term is positive, the quadratic term is negative,

TABLE 7. OLS regression of citations received (books).

Variable	Management Spain	Management France	Economics Spain	Economics France	Sociology Spain	Sociology France
Constant	-13692.6 (5878.543)	-20000.81 (3230.442)	-12231.82 (2860.377)	-8377.95 (2375.166)	-11262.92 (2716.259)	-16650.88 (2155.103)
Pub. year	13.7465 ** (5.8705)	20.0556 **** (3.2309)	12.2824**** (2.8618)	8.4243 **** (2.3801)	11.3094 **** (2.7169)	16.6978**** (2.1550)
Pub. year sq.	-0.0034 ** (0.0015)	-0.0050 **** (0.0008)	-0.0031 **** (0.0007)	-0.0021 **** (0.0006)	-0.0028 **** (0.0007)	-0.0042 **** (0.0005)
English	1.0384 **** (0.2879)	0.3196 (0.2229)	1.4785 **** (0.2812)	0.3563 (0.2316)	0.7071 *** (0.2458)	-0.4924 ** (0.2040)
Adj. R <sup>2</sup>	0.1213	0.1579	0.1129	0.0511	0.0640	0.1147
Obs.	225	363	469	392	730	1057

Notes. \*\*\*\* $p < 0.001$ , \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , standard errors in parentheses.

TABLE 8. OLS regression of citations received (book chapters).

Variable	Management Spain	Management France	Economics Spain	Economics France	Sociology Spain	Sociology France
Constant	-8760.763 (1761.658)	-18788.81 (2405.34)	-8110.57 (1554.188)	-9207.769 (1523.847)	-7393.379 (1279.319)	-11750.56 (1180.084)
Pub. year	8.7844 **** (1.7596)	18.8135 **** (2.4019)	8.1409 **** (1.5532)	9.2606 **** (1.5233)	7.4268 **** (1.2779)	11.802 **** (1.1788)
Pub. year sq.	-0.0022 **** (0.0004)	-0.0047 **** (0.0006)	-0.0020 **** (0.0004)	-0.0023 **** (0.0004)	-0.0019 **** (0.0003)	-0.0030 **** (0.0003)
English	0.8190 **** (0.0735)	0.5510 **** (0.0861)	0.7958 **** (0.0735)	0.5124 **** (0.0654)	0.9278 **** (0.0675)	0.2241 **** (0.0624)
Adj. R <sup>2</sup>	0.1444	0.1525	0.1307	0.1550	0.1395	0.1882
Obs.	823	768	1226	1334	1813	2488

Notes. \*\*\*\* $p < 0.001$ , \*\*\* $p < 0.01$ , standard errors in parentheses.

and both are statistically significant). In all disciplines except sociology in France, publishing in English has a positive and statistically significant effect on the impact of articles. This underscores the singularity of French sociology, for which the internationalization of articles in terms of publication in English does not significantly affect their impact. When we consider books (Table 7), we obtain similar results for Spain; but in the case of French sociology, publishing in English has a statistically significant effect with a negative coefficient, which again shows the more local-oriented character of this discipline. In addition, and also in the French case, the indicator for publishing in English has a positive sign for economics and management, but it lacks a statistically significant effect. In the case of book chapters (Table 8), there is a statistically significant effect for publishing in English in the three disciplines and both countries.

We have replicated these regressions for the Scopus dataset of articles (results not shown), and in all cases, including sociology in France, publishing in English has a statistically significant effect over the number of citations.

In sum, in terms of linguistic dominance, the GS dataset shows that scholarly output in French and Spanish social sciences is mostly produced in the vernacular languages, a result that seems in accordance with conventional wisdom.

Yet there is an exception, economics in France, which showcases the power of English as lingua franca of science and thus the internationalized character of this scientific field. On the other hand, the wealth of documents retrieved with the use of GS has allowed us to confirm that publishing in English does matter in term of impact, something that is also evident in Scopus; but again there are exceptions in the French case, sociology for articles and the three disciplines for books.

## Discussion

Some of our findings are consistent with earlier studies. For instance, the fact that scientific articles are the category with the largest share of documents in GS (Jamali & Nabavi, 2015; Martin-Martin et al., 2016). We also found that the sum of books and book chapters, with shares ranging from 13.48% to 28.43, is also compatible with the share of 18% found in Martin-Martin et al.'s (2016) study of the most cited documents in GS. Our comparison with Scopus indicates that GS has a more extensive coverage. Our results for the ratio of documents found in GS over those in Scopus are 5.77 for Spain and 5.61 for France (for the three disciplines combined); and these figures are higher than the same ratio

in Harzing and Alakangas's (2016) study of scholars affiliated with an Australian university, which was 3.83. Their sample (23 social scientists), however, is smaller than ours. Although not distinguishing between disciplinary fields, Orduña-Malea et al. (2015) compare an estimate of total document size between GS and Scopus and find a ratio of 1.87. Our findings show a larger ratio, which indicates that social sciences, and particularly those from non-Anglophone countries, are underrepresented in Scopus; and segmenting by discipline further demonstrates that sociology (with a ratio of 8.86 for France and 9.12 for Spain) is more underrepresented than economics (4.94 for Spain and 4.33 for France) and management (4.68 for Spain and 5.06 for France). Moreover, by segmenting the coverage of both Scopus and GS by document type, we arrive at better coverage indicators by document category, something that to our knowledge was not explored in previous studies.

Although a heavy work of data cleansing must be done, the data provided by GS represents a more accurate picture of the research output, and corresponding impact in terms of received citations, of the social sciences for non-English countries, as suggested by Delgado-López-Cózar, Orduña-Malea et al. (2014), Orduña-Malea et al. (2016), and Halevi et al. (2017). This makes GS a relevant tool for analyzing the scientific production from non-Anglophone countries, particularly in local-oriented fields like sociology.

Our findings also indicate that books receive on average more citations than articles in the three disciplines considered. The literature has already stressed the important role of books for knowledge diffusion in the social sciences (Huang & Chang, 2008), and Nederhof (2006) indicates that books receive more citations than articles in economics with a sample of 524 documents. Similar results were obtained for sociology (Clemens, Powell, McIlwaine & Okamoto, 1995), also with a small sample ( $n = 170$ ). Our study also demonstrates this, but with a much larger sample and outside the realm of Anglophone academia. However, our Scopus dataset shows an opposite result, except in the case of economics in France, but the number of books in this dataset is too low for a rigorous comparison.

A basic advantage of using GS for the analysis of the social sciences in non-Anglophone countries is that it provides a large number of citable and citing documents in vernacular languages. This has allowed us to demonstrate the importance of publishing in English in terms of received citations for scholars in Spain and France. Thus, our findings confirm the benefit, first observed by Garfield (1978), of publishing in the English language, although not for all disciplines and types of documents. France appears as an exception in the cases of articles in sociology and in the three disciplines for books.

We also show that in Scopus and in the case of French sociology, the English language bias may no longer be a major concern. This finding runs counter to the conventional wisdom on the issue (Archambault et al., 2006; Larivière &

Macaluso, 2011), but so far it is only limited to one country and one discipline. Still, much of French sociological production remains invisible in Scopus, as we have already observed. The difference in Scopus coverage in vernacular languages may be accounted for the number of journals in these languages indexed by Scopus (and in which our selected scholars have published). In the case of sociology, our Scopus dataset has 179 journals in French or that accept articles in this language. In contrast, Spain has 118 journals in Spanish in our dataset.

Interestingly enough, Spanish sociologists in our sample have published more articles in English in Scopus journals (591 or 61.63% of total articles) than their French peers (334 or 25.52% of total articles). This may be partly explained by the so-called ANECA effect (Masip, 2011). Since the University Law of 2001 (Ley de Ordenamiento Universitario), which created the National Agency for Quality Assessment and Accreditation (ANECA), Spanish scholars, including sociologists, have been under a heavy institutional pressure to publish in international indexed journals, which are typically in English. Scholars working in French institutions are also under institutional pressure to publish, especially since the enactment of the Law of Research 2006-450 (Loi de programme n° 2006-450 pour la recherche). However, Karpic (2012) points out that the evaluation system differs by scientific field. Although economists in France fulfill the institutional demands of scholarly productivity by publishing in international journals with high impact factor, sociologists can demonstrate their productivity simply by publishing articles in local journals.

Our study, of course, has some limitations. First, the coverage of GS, although larger than that of other databases like Scopus or the SSCI (Harzing & Alakangas, 2016), may not be exhaustive. Although most national scholarly journals in Spain and France do have a presence on the web, and therefore can be captured by the GS search engine, some books and book chapter may escape the GS radar. Our findings regarding such types of documents may thus not be entirely conclusive. Second, our residual category "other documents," and by extension the cumulative category "total documents" in Table 4, may not be completely error free. Hence, the findings pertaining these two categories might not be fully accurate; but because they were not included in our regressions, this does not affect the validity of our findings. As a final caveat, we acknowledge that our data gathering procedure biases the results in favor of the most productive institutions, therefore another dataset based upon the research output of scholars from less productive institutions may generate different results.

## Conclusions

Our results suggest that, because of a documentary coverage in many languages that is greater than traditional bibliographic databases, GS is a very useful tool for examining the social sciences in non-Anglophone countries. Compared with Scopus, GS finds more than 5 documents per document

found in Scopus; but these differences in coverage vary by discipline.

Our GS dataset shows that the most utilized form for communication of scientific research is the article in the three disciplines and both countries, although books and book chapters also have a relevant share of total output. In addition, our findings show the importance of the vernacular languages. However, in the French case, the use of English appears to be very extended in economics. Moreover, we have also found that Scopus coverage of French documents in sociology is high (72% of total documents), which counters the existence of an English-bias of this database in this particular case.

The level of internationalization of research output in the disciplines considered appears as variable, with sociology as the one most focused on the vernacular language of each country. This confirms the importance of local sociologies and, consequently, the possible fragmentation of this discipline in different local traditions. In contrast, economics is the most internationalized discipline.

Regarding the impact received by articles, books, and book chapters, there is a predominance of books in terms of received citations for the three disciplines and both countries in GS. Finally, and except for the case of articles in French sociology and for books in France, our results show that publishing in English has a great impact in the disciplines studied. This suggests that, in certain social sciences as well as in particular forms of diffusion of academic production, scholars may grant more attention to sources written in their country's vernacular language. Further research is needed in order to understand why this occurs and why it happens in certain countries and not in others.

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## Appendix 1

List of universities and other institutions by country  
 Spain: Business Schools: Escuela Superior de Administración y Dirección de Empresas, Instituto de Empresa, IESE Business School

Universities: Autónoma de Barcelona, Autónoma de Madrid, Barcelona, Carlos III, Complutense, Granada, Pompeu Fabra, País Vasco, Valencia, Zaragoza

France: Universities: Aix Marseille, Auvergne, Bordeaux, Caen, Cergy-Pontoise, Dauphine, Grenoble, Lyon, Montpellier, Nantes, Paris 1 Pantheon-Sorbonne, Paris 2 Assas, Paris 4 Sorbonne, Paris 7 Diderot, Paris 8 Vincennes, Paris Est, Paris 10 Nanterre, Paris 13 Nord, Pau, Reims Champagne-Ardenne, Rennes 1, Rennes 2, Rouen, Toulouse 1, Toulouse 2, Tours François Rabelais.

Business Schools and other institutions: Conservatoire National des Arts et Métiers, Ecole Polytechnique, ESCP Europe Business School (Paris), École des Hautes Études en Sciences Sociales, Ecole Normale Supérieure, ESECC Business School, HEC Paris, INSEAD (Fontainebleau), Institut d’Études Politiques de Paris.

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