

Social Sciences and Humanities research funded under the European Union Seventh Framework Programme (2007-2013): the challenge of retrieving its scholarly outputs

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Abstract

This study follows suit of a former analysis of the performance of Social Sciences and Humanities in the European Union's 6th Framework Programme by analysing its presence in the 7th Framework Programme that was active between 2007 and 2013. The results show that economics and political science continued to be the disciplines with the largest share of funded projects. As in the former study, the high level of collaboration in project consortia did not extend to the scholarly outputs resulting from those projects, which showed low levels of institutional co-authorship. Most scholarly outputs resulting from projects were articles published in journals covered by Scopus. The study illustrates the difficulties in comprehensively retrieving these outputs. Some of the scholarly outputs self-reported by the beneficiaries in CORDIS were not covered by OpenAIRE and/or Scopus. In addition, a comparison of the list of self-reported scholarly outputs in CORDIS with those retrieved from Scopus when searching by funding showed little overlap. Some of the outputs in CORDIS were not retrieved from Scopus whereas a large share of the articles indexed in Scopus acknowledging FP7 support had not been self-reported by the beneficiaries in CORDIS. Our results suggest that neither source (CORDIS, OpenAIRE or Scopus) is comprehensive enough as to guarantee a thorough retrieval of the scholarly outputs resulting from Social Sciences and Humanities research projects.

1. Introduction

Research assessment in the Social Sciences and Humanities (SSH) has been problematic for a long time. Performance indicators are frequently impregnated by the features of science, technology, engineering and mathematics (STEM) disciplines and are less sensitive to the singularities of the SSH. These latter disciplines are characterised by a pronounced national and regional orientation; fewer publications in journals and more in books; a slower pace of theoretical development; a single-scholar approach rather than team research; and a greater share of publications directed at the non-scholarly public (Nederhof, 2006; van Leeuwen, 2013).

Several studies confirm these features in the SSH, although they note differences between academic fields and a certain homogenization with the STEM disciplines in the choice of journal articles in English as an increasingly relevant publication venue. Certain social sciences, such as economics or psychology, show a greater degree of homogenisation with the STEM, whereas in other fields scholars tend to publish more articles in national journals and

monographs, including books addressed to a non-scholarly audience. Changes in scholars' behaviour in relation to knowledge generation and dissemination frequently result from the requirements of evaluation systems that tend to rely on the assessment procedures employed in STEM (Chi, 2014 and 2015; Engels, Ossenblok and Spruyt, 2012; Guns, Eyckens and Engels, 2019; Hammarfelt and Haddow, 2018; Kulczycki et al., 2018 and 2020; Ossenblok, Engels and Sivertsen, 2012).

The Framework Programmes (FP) for Research and Technological Development are funding programmes created by the European Union (EU) to support and foster research in the European Research Area. Through thematic calls for projects, they constitute the main funding instrument to support research in the EU since 1984. Previous research (Ardanuy, Arguimbau and Borrego, 2022) has explored how the EU contributed to the development of research in the fields of SSH through the Sixth Framework Programme (FP6), which assembled a collection of actions to fund and promote research between 2002 and 2006. Results showed that most funded projects were in the fields of economics and political sciences, in order to enhance economic development and the integration process in Europe. Research teams showed a high level of collaboration, although the large size and diversity of consortia did not translate into a large number of co-authored scholarly journal articles. The results showed that research funds in the SSH may have long-term effects, with some outputs acknowledging funding being published more than a decade after the end of the project.

This study follows suit by investigating the participation of the SSH in the Seventh Framework Programme (FP7) that was active between 2007 and 2013. The study aims to:

- a) describe the participation of SSH in FP7
- b) analyse the amount and type of scholarly outputs resulting from those projects
- c) assess the coverage of those scholarly outputs in CORDIS, OpenAIRE and Scopus.

2. Methods

2.1. SSH projects funded under FP7

According to the ex-post evaluation report (Fresco et al., 2015), FP7 funded more than 25,000 projects around four main programmes. FP7-Cooperation promoted international cooperation within ten thematic priorities, SSH being one of them. FP7-Ideas was newly introduced to increase research excellence in Europe and Europe's attractiveness for world-renowned researchers. Developing human potential and strengthening research infrastructure were addressed by FP7-People and FP7-Capacities, respectively.

We obtained a list of the 25,782 FP7 funded projects from the CORDIS website (<https://cordis.europa.eu/projects>). Our analysis was not limited to the 253 FP7-Cooperation-SSH projects, but covered all projects in the four FP7 programmes that included SSH features. A total of 1,290 projects devoted to SSH were identified plus 272 projects combining SSH and STEM features (see examples in Table 1), adding 1,562 projects that are those analysed in this paper.

Projects were classified by disciplines and issues. Disciplines were based on those listed in a report describing the integration of SSH on Horizon 2020 (Kania, Lemaire and Swinnen, 2019, p. 14). Issues were manually assigned based on title and abstract keywords.

Table 1. Examples of SSH projects funded under FP7 in programmes different from Cooperation-SSH. (a) a project funded under FP7-Security programme classified as SSH. (b) a project funded under FP7-Information and Communication Technologies (ICT) combining SSH and STEM features.

(a))	Socio-Economics meets Security https://cordis.europa.eu/project/id/285223 SECONOMICS goal is synthesizing sociological, economic and security science into a usable, concrete, actionable knowledge for policy makers and social planners responsible for citizen's security.
(b))	Musical Interaction Relying On Reflexion https://cordis.europa.eu/project/id/258338 MIROR develops an innovative adaptive system for music learning and teaching based on the reflexive interaction paradigm in the context of early childhood music education.

2.2. Publications resulting from FP7-Cooperation-SSH projects

In order to explore a homogeneous set of projects, the analysis of the publications resulting from FP7-SSH projects was limited to the scholarly outputs resulting from the 253 projects funded under the FP7-Cooperation-SSH programme. According to the evaluation report (Fresco et al., 2015), these 253 projects produced 914 publications, with an average of four publications per project, below the eleven publications per project for the whole FP7-Cooperation programme.

In order to analyse the scholarly outputs resulting from these 253 FP7-Cooperation-SSH projects, we compared four information sources:

- a) CORDIS: a public dataset, updated on 7 September 2021, contained a list of publications linked to FP7 projects self-reported by beneficiaries. The beneficiaries declared a total of 3,098 scholarly outputs. However, the list included 266 duplicates that were removed resulting in 2,832 outputs.
Source: <https://data.europa.eu/data/datasets/cordisfp7projects?locale=en>
- b) OpenAIRE: although OpenAIRE allows filtering by “Funding stream”, limiting results to FP7-SSH only retrieved 353 records. Therefore, we performed individual searches for each of the 2,832 publication listed in CORDIS. Searches were performed by DOI or, if unavailable, combining title and authors.
Source: <https://explore.openaire.eu>
- c) Scopus (search 1): we searched the 2,832 publications listed in CORDIS in Scopus, using the same strategy that in b), i.e. by DOI or, if unavailable, combining title and authors.
- d) Scopus (search 2): we retrieved, in February 2023, the scholarly outputs that acknowledged funding from any of the 253 FP7-Cooperation-SSH projects. The search equation (Table 2) retrieved 2,003 records. The purpose was to retrieve any additional scholarly outputs acknowledging FP7 support that had not been self-reported by the beneficiaries in CORDIS.

Table 2. Scopus search strategy to retrieve scholarly outputs acknowledging funding from FP7-Cooperation-SSH projects.

FUND-ACR (EC) OR FUND-ACR (FP7)	Funding acronym
AND	
FUND-SPONSOR ("European Commission") OR FUND-SPONSOR ("7TH FRAMEWORK PROGRAMME") OR FUND-SPONSOR ("SEVENTH FRAMEWORK PROGRAMME")	Funding sponsor
AND	
FUND-NO (id1 OR id2 OR id3 ... OR id253)	Funding numbers id1 to id253 refer to the identification numbers of the 253 FP7-SSH projects
AND	
PUBYEAR AFT 2006	Publication year after 2006

3. Results

3.1 FP7 SSH research projects

The analysis of the research projects funded under the four FP7 programmes resulted in the identification of 1,562 projects related to the SSH (Table 3).

Table 3. SSH projects funded under FP7 programmes.

FP7 Programme		Projects funded	Social Sciences & Humanities	Social Sciences & Humanities combined with STEM
Cooperation	FP7-ENERGY	374	0	0
	FP7-ENVIRONMENT	494	6	8
	FP7-EURATOM-FISSION	136	0	0
	FP7-EURATOM-FUSION	4	0	0
	FP7-GA	25	3	0
	FP7-HEALTH	1,008	0	0
	FP7-ICT	2,326	2	32
	FP7-JTI	807	0	0
	FP7-KBBE	516	0	0
	FP7-NMP	806	0	0
	FP7-SECURITY	321	22	6
	FP7-SPACE	267	0	0
	FP7-SSH	253	223	30
	FP7-TRANSPORT	720	0	0
Ideas	FP7-IDEAS-ERC	4,564	492	75
People	FP7-INFRASTRUCTURES	340	1	6
	FP7-PEOPLE	11,126	526	66
Capacities	FP7-COH	28	8	1

	FP7-INCO	157	0	1
	FP7-REGIONS	84	1	0
	FP7-REGPOT	206	0	0
	FP7-SIS	184	6	47
	FP7-SME	1,036	0	0
Total		25,782	1,290	272

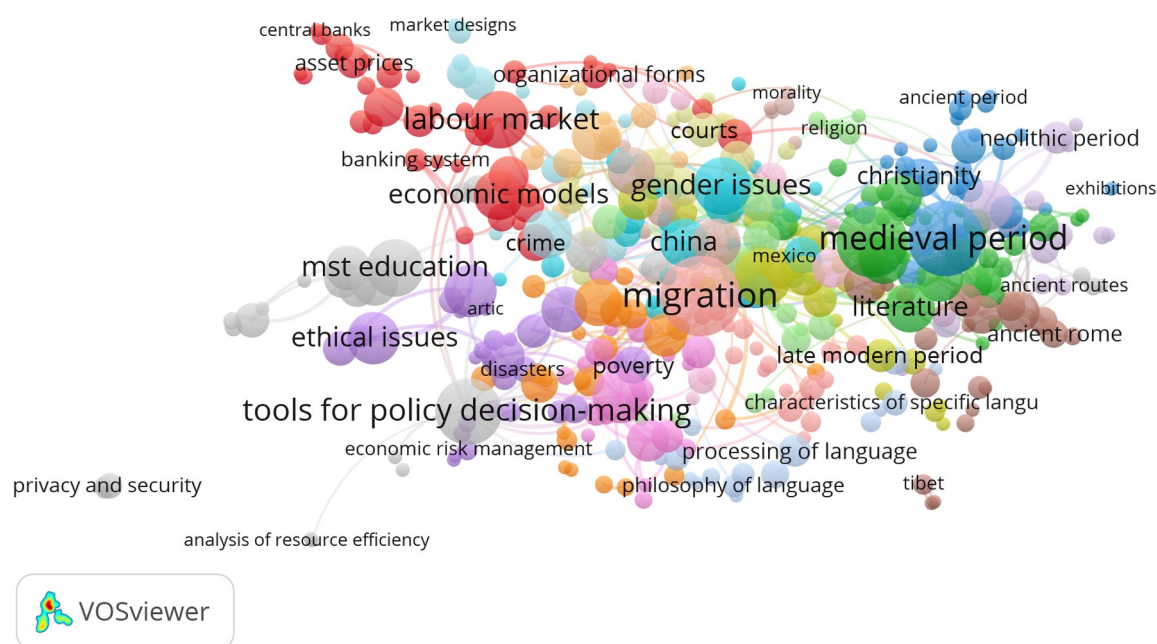
By discipline, most of the projects were in economics, sociology and political science (Table 4). FP7-Cooperation funded a relatively small number of projects in history and anthropology, but these disciplines benefited from a large number of projects funded under FP7-Ideas and FP7-People programmes.

Table 4. Disciplines of FP7 projects in SSH (total adds more than 1,562 projects since some projects were classified in several disciplines).

	Capacities	Cooperation	Ideas	People	Total	%
economics	9	157	194	137	497	32%
sociology	2	101	104	117	324	21%
history	0	15	148	132	295	19%
political science	1	92	91	107	291	19%
anthropology, folklore, ethnology and cultural studies	1	18	107	119	245	16%
law	5	34	45	53	137	9%
literary and linguistic studies	1	4	70	60	135	9%
philosophy	16	6	30	49	101	6%
education	28	30	4	29	91	6%
archaeology	0	1	23	48	72	5%
psychology	0	8	24	37	69	4%
criminology and security science	0	36	7	10	53	3%
journalism, media and communication	3	11	14	18	46	3%
public administration science	1	22	6	12	41	3%
religious studies	0	0	28	12	40	3%
geography	0	5	12	8	25	2%
humanities in general	0	15	2	3	20	1%
social sciences in general	0	15	2	3	20	1%
musicology	0	0	9	9	18	1%
library, information science and museology	4	7	1	5	17	1%
non-research activities	2	9	0	4	15	1%
social work	0	7	1	7	15	1%
management and business administration science	0	1	5	7	13	1%
history of art	0	0	5	3	8	1%
arts	1	0	0	2	3	0%

The projects dealt with a wide range of issues, with those more frequently researched being migration (73 projects), the development of tools for policy decision-making (70 projects) and historical time periods, e.g. Neolithic, ancient period, medieval period, late modern period, etc. (Figure 1).

Figure 1. Issues of FP7 projects in SSH.



In terms of funding, the size of the awarded grants varied across FP7 programmes. SSH projects received less funds than the average except for those in the Capacities programme (Table 5).

Table 5. Average funding of FP7 projects.

	Average funding
Cooperation	
Non-SSH projects (n = 7,725)	3,740,742 €
SSH projects (n = 332)	2,424,475 €
Ideas	
Non-SSH projects (n = 3,997)	1,729,408 €
SSH projects (n = 567)	1,453,824 €
People	
Non-SSH projects (n = 10,867)	567,381 €
SSH projects (n = 599)	301,831 €
Capacities	
Non-SSH projects (n = 1,631)	1,313,899 €
SSH projects (n = 64)	1,677,496 €

Research collaboration varied as a result of the different requirements of the four FP7 programmes (Table 6). The analysis of the countries and institutions involved in the projects

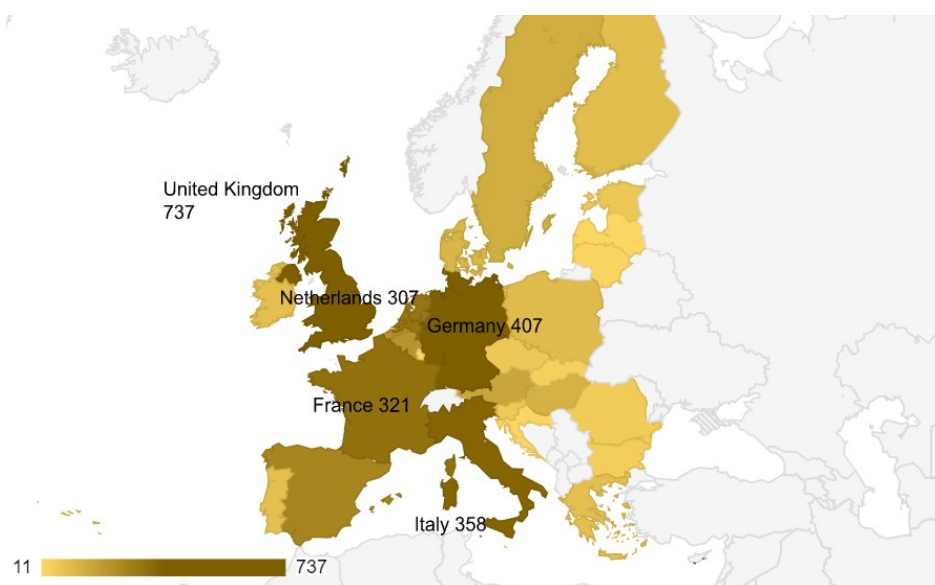
showed a high level of collaboration in FP7-Capacities (on average, each project involved 8.2 countries) and FP7-Cooperation (8.1 countries per project).

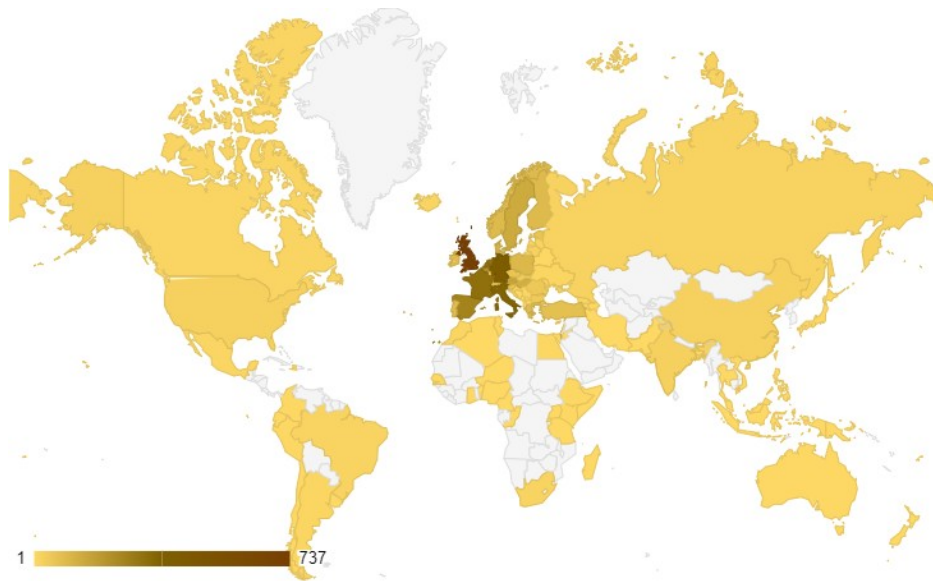
Table 6. Country collaboration in FP7 SSH projects.

	Average countries per project (standard deviation)
Cooperation	8.1 (3.8)
Ideas	1.2 (0.5)
People	1.4 (1.4)
Capacities	8.2 (4.3)

The United Kingdom (737 projects) and Germany (407 projects) were the two countries involved in the largest number of projects. Up to 98 countries worldwide were involved in FP7-SSH projects (Figure 2).

Figure 2. (top) EU member countries participation in FP7 SSH projects. Labels refer to the total number of projects participated by the top five countries either as a coordinator or as a participant. Data include the current 27 EU member countries plus the United Kingdom.
(down) Worldwide participation in FP7 SSH projects.





3.2 Scholarly outputs resulting from FP7 SSH projects

This section focuses on the scholarly outputs resulting from the 253 projects funded under FP7-Cooperation-SSH programme. According to the CORDIS dataset, which contained the references of the publications self-reported by the beneficiaries, 184 projects (73%) had produced at least one publication by the time the information was compiled. These projects declared a total of 2,832 outputs. On average, each project reported 15.4 publications (median = 9). Table 7 shows the distribution of scholarly outputs by document type.

Table 7. Scholarly outputs self-reported by beneficiaries of FP7-Cooperation-SSH projects.

	Outputs	Percentage
Peer reviewed article	2,363	83%
Book chapter	242	9%
Book	62	2%
Conference proceeding	53	2%
Report	34	1%
Working paper	31	1%
Other	47	2%
Total	2,832	100%

When we searched for these 2,832 outputs in OpenAIRE, we retrieved 78% of them. This figure raised up to 86% for journal articles, but was lower for working papers (65%), book chapters (46%) and books (39%). Searches were hampered by variations in article titles, translations, changes in journal titles, etc. In general terms, searches were much more successful when a DOI was available. The results were similar for Scopus (search 1) where we retrieved 71% of the outputs listed in CORDIS. Again, the figure for journal articles was higher (82%) than for book chapters (21%) and books (19%) (Figure 4, left).

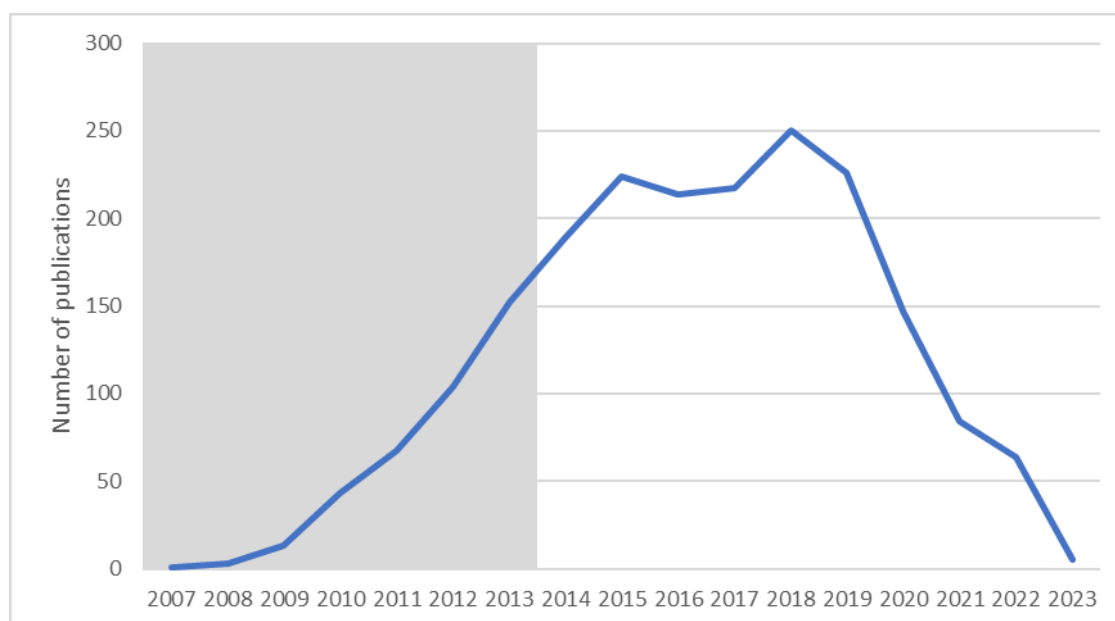
In order to supplement the data self-reported by beneficiaries, we also searched the scholarly outputs that acknowledged funding from any of these 253 FP7-Cooperation-SSH projects in Scopus (search 2) using an equation that combined the funding acronym, the funding sponsor and the funding number (Table 2). As a result, we retrieved 2,003 records (Table 8).

Table 8. Scholarly outputs of FP7-Cooperation-SSH projects retrieved from Scopus.

	Outputs	Percentage
Article	1,811	90%
Book	7	0.3%
Book chapter	38	2%
Conference paper	30	1%
Editorial	32	2%
Review	72	4%
Other	20	1%
Total	2,003	100%

Although FP7 was active between 2007 and 2013, scholarly outputs continued to be published long afterwards with annual numbers of publications growing until 2018 and starting then a gradual decline (Figure 3).

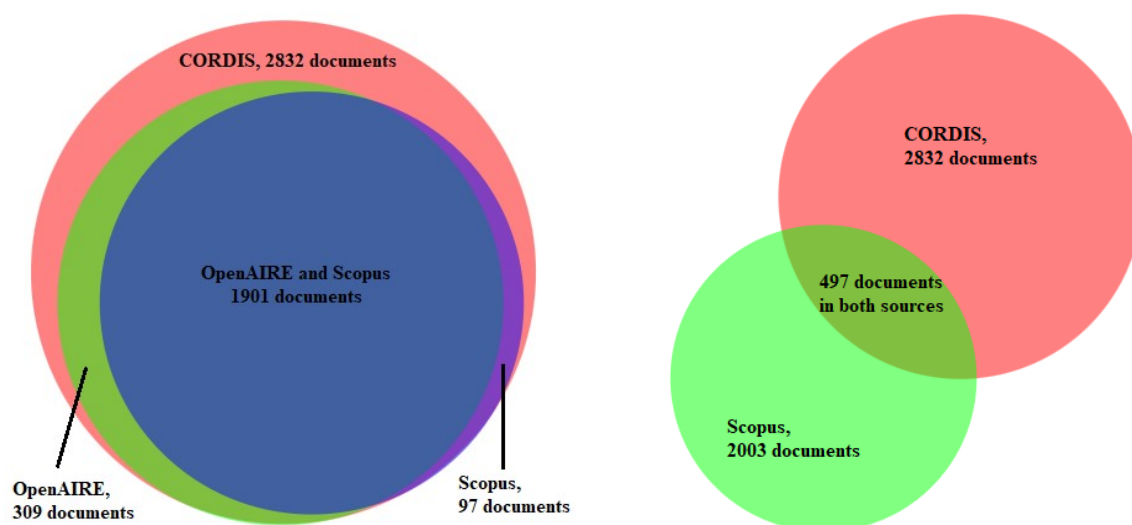
Figure 3. Scholarly outputs of FP7-Cooperation-SSH projects retrieved from Scopus (search 2) by year of publication (shadowed in grey the years while FP7 was active).



Regarding collaboration, Table 6 showed that FP7-Cooperation projects involved an average of 8 countries per project. However, the scholarly outputs resulting from SSH projects showed a much lower level of co-authorship. Thus, out of the 2,003 records retrieved from Scopus, 31% had authors affiliated within a single affiliation. The average number of affiliations per scholarly output was 2.8.

The comparison of the list of scholarly outputs declared by beneficiaries in the CORDIS dataset with that of scholarly outputs retrieved from Scopus (search 2) showed little overlap (Figure 4, right). Just 497 documents (18% of the records in the CORDIS dataset) were retrieved from Scopus. The difference between both sources was partially explained by the fact that some of the scholarly outputs listed in CORDIS were not covered by Scopus. Moreover, when published, some of the publications listed in the CORDIS dataset did not acknowledge funding from the FP7-SSH programme or, if they did, this information was not correctly compiled in the funding field of Scopus. Therefore, these publications were not retrieved when we searched Scopus. Finally, there was a good deal of articles indexed in Scopus acknowledging FP7-SSH support (75%) that had not been self-reported by the beneficiaries in CORDIS.

Figure 4. (left) Overlap between scholarly outputs of FP7-Cooperation-SSH projects in CORDIS, OpenAIRE and Scopus (search 1). (right) Overlap between scholarly outputs of FP7-Cooperation-SSH projects in CORDIS and Scopus (search 2).



4. Conclusions

The results of the analysis on the performance of SSH in FP7 is consistent with previous research on its presence in FP6 (Ardanuy, Arguimbau and Borrego, 2022). Economics, sociology and political sciences were the disciplines with the largest number of funded projects. As in our former study, the high level of collaboration at the project level did not extend to the scholarly outputs resulting from these projects, which showed low levels of institutional co-authorship.

The large presence of projects in economics, sociology or political sciences shaped the type of scholarly outputs resulting from the projects, most of them articles published in journals indexed by Scopus. Nevertheless, our study illustrates the difficulties in properly retrieving these scholarly outputs. The comparison of the list of outputs self-reported by beneficiaries in CORDIS with that of scholarly outputs retrieved from Scopus when searching by funding fields showed little overlap. The differences between both sources were partially explained by the fact that some of the outputs in CORDIS were not covered by Scopus. More importantly, a good deal of the articles indexed in Scopus acknowledging FP7 support had not been self-reported by the beneficiaries in CORDIS. Our results suggest that neither of the three sources compared in our study (CORDIS, OpenAIRE or Scopus) is comprehensive enough as to guarantee a complete retrieval of the scholarly outputs resulting from SSH research projects.

Open science practices

Our study compares two open sources (CORDIS and OpenAIRE) and one commercial database (Scopus) to retrieve the scholarly outputs resulting from SSH projects funded under the EU FP7 programme. Both open sources are of different nature. CORDIS provides a public dataset of the publications linked to FP7 projects self-reported by beneficiaries whereas OpenAIRE harvests research outputs from different data providers. Although our study shows

the benefits of open sources to compile data for research purposes, it also illustrates the limitations resulting from the coexistence of diverse incomprehensive data sources.

Author contributions

Jordi Ardanuy: Conceptualization, Data curation, Formal analysis, Funding acquisition, Writing—review & editing.

Llorenç Arguimbau: Conceptualization, Funding acquisition, Writing—review & editing.

Ángel Borrego: Conceptualization, Funding acquisition, Writing—original draft, Writing—review & editing.

Andreu Sulé: Conceptualization, Funding acquisition, Writing—review & editing.

Competing interests

The authors have no competing interests.

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