



Researchers publishing monographs are more productive and more local-oriented

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Abstract

In this study, we investigate what share of researchers publish monographs across fields, gender and seniority. We acquired data from the Polish current research information system (POL-on) containing metadata of about 1,031,141 peer-reviewed publications from 67,415 Polish researchers, including 30,185 monographs from 2013 to 2016. The data are aggregated at the researcher level, which allows us to shed new light on publication patterns in all fields. We show that scholars who publish monographs also publish journal articles at the same time. This pattern is observed in all dimensions, i.e. research fields, gender and seniority. However, substantial differences between the fields are observed. Moreover, we show that researchers who publish monographs are also more productive in terms of the number of publications than researchers who did not publish any monographs. This result is independent of the publication counting method, i.e. fractional or whole counting. At the same time, scholars who publish monographs are more local-oriented in terms of the publication channels they choose.

Keywords Publication patterns · Publication type · Monograph · Researcher-level analysis

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Introduction

Monographs are the primary type of scholarly book publication in social sciences and humanities (Giménez-Toledo and Román-Román 2009; Williams et al. 2009). The so-called hard sciences also use monographs, but it is definitely a less popular form of scholarly communication channel (Aagaard et al. 2015; Kulczycki 2018).

Systematic empirical studies regarding the share of monographs among scholarly publications are rare because full publication records are often not available. Comprehensive studies need to be based on national level publication databases that collect all scholarly output, as opposed to commercial bibliographic databases which collect only data on selected publications (Sîle et al. 2018). In the Web of Science Core Collection (WoS) and Scopus, the degree of coverage of scholarly books is low, especially where non-English outlets are not indexed (Kousha et al. 2011; Leydesdorff and Felt 2012), while in national databases, scholarly book publications constitute a substantial share of the total volume (Engels et al. 2018). Such studies can be conducted at the level of countries, fields, or research units. Engels et al. (2018) show that scholarly book publications are not disappearing from scholarly communications, and that the publication patterns seem stable over the last several years. Kulczycki et al. (2018) present publication patterns for eight European countries, and argue that monograph patterns differ both across fields and across countries within social sciences and humanities (SSH). On average, the share of monographs in the total number of publications in those countries was 6.2% in 2014. The highest share of monographs in the total volume was observed in the Czech Republic (12.8%), with the lowest in Flanders (Belgium) at 1.8%. Also, at the level of disciplines, patterns were diverse. For instance, in the field of Law, the highest share was in Finland (11.1%) and the lowest in Flanders (2.3%). Such studies at field and country level provide important information on how monographs are popular within fields and given countries, yet they do not detail how single researchers use monographs as a publication channel, nor how often they decide to use them to communicate their research results. Moreover, existing literature devoted to monographs is most often limited to SSH fields.

Claims that monographs are the primary research output in some fields, especially in SSH, has not been extensively documented or investigated. Moreover, analyses are usually conducted at the level of fields. Studies at the researcher level are most often related to citation analysis (Aksnes et al. 2011) and evaluation context at the national level (Sivertsen 2016a) rather than the publication channel. Therefore, there is a lack of studies at the researcher level related to publication patterns. In this light, Sivertsen's study on the patterns of internationalization in the SSH performed at the researcher level reveals that 15.7% of researchers in humanities and 8.5% researchers of researchers from social sciences published a monograph within the studied 4 year period (Sivertsen 2016b).

In order to perform publication pattern analysis at the researcher level in a given country, a current research information system with metadata about all publications by all researchers is required. Therefore, such studies cannot be based on either WoS or Scopus, as these databases do not include all publication channels, especially local journals, monographs and edited volumes. Current research information systems at the national level exist in Norway, Finland, Slovenia and Poland, among others.

In this paper, we define the productivity of researchers as the number of publications, regardless of the publication quality. Productivity can be a buzzword if not clearly operationalized. Showing the genealogy of this concept in scientometrics, Godin (2009) argues that productivity was primarily understood as the reproduction (of men of science), and

later as output, and later still as efficiency and outcomes. Nonetheless, in studies on publication patterns, the number of publications is very often used as the measure of productivity (Sandström and van den Besselaar 2016; Waltman et al. 2016). Indicators of publication quality, such as the impact factor for journals and the publisher lists for scholarly book publications (Giménez-Toledo et al. 2019), might be of use to only a minor extent. In analyzing productivity, we have to take into account that more and more publications are multi-authored. The number of authors significantly differs across disciplines and even sub-disciplines. Thus, it is worthwhile analyzing productivity across disciplines using a variety of methods of publication counting. The two most often used such methods are whole counting and fractional counting (Korytkowski and Kulczycki 2019; Larsen 2008; Waltman and van Eck 2015). In the former method, each researcher receives full credit for co-authored papers. Using the latter method permits proportionally fractionalizing of credit across all the contributing authors.

We use bibliographic records published from all Polish Ph.D. level researchers across a 4-year period. In analyzing the productivity, we count not only the number of publications per researcher, but we also investigate what share of publications from a single researcher are constituted in articles published in international-oriented journals, defined as journals indexed in the WoS.

Our study fills a gap in research literature related to monograph publishing patterns in all fields of science, by investigating empirically what share of researchers published monographs in the 4-year period, using comprehensive publication data collected in Poland. The starting point for this study is one of our previous studies, presented at the ISSI 2019 conference in Rome, Italy (Kulczycki and Korytkowski 2019). In that study, we investigated what share of researchers in a given field published at least one or more monographs across both gender and seniority, and how publishing monographs is related to publishing journal articles. In the present study, we additionally investigate the differences in productivity between two groups of researchers: those who published at least one monograph in the 4-year period and those who did not published any monographs. We also analyze the productivity of more than 60 thousand researchers from a mid-size European country across all fields of science. In this way, our paper extends beyond a previous study on investigating the productivity of the Flemish SSH researchers who (did not) publish monographs (Verleysen and Ossenblok 2017).

The discussion summarizes our empirical findings, and positions them in light of the often-raised statement that monographs are the primary research output in SSH, and that researchers who publish monographs publish fewer other publication types, especially scholarly journal articles.

In the section following, we describe the data and methods. Then, we present the results. Firstly, we show patterns of monograph publishing across fields, gender and seniority. Secondly, we compare the productivity of researchers who did and did not publish any monograph. In the final section, we discuss the main findings.

Data and methods

Data

In this study, we use bibliographical records of publications from the Polish Scholarly Bibliography, a part of POL-on, i.e. the current research information system in Poland,

published for the period 2013–2016. Since 2013, all Polish higher education institutions and research institutes have been obliged to submit bibliographical records of publications affiliated with those institutions. The POL-on data contains publications by 87,352 researchers employed by Polish universities, as well as basic and applied science institutes. In the analyses we limited this number to only those researchers who; (1) were academic staff members in the higher education institution or research institute; (2) had published at least one of any type of publication in the 2013–2016 period according to the POL-on data, and (3) had obtained a Ph.D. degree before 2013 (for those researchers there are full publication records in POL-on data). As a result, we have data on 67,415 Polish researchers and their 1,031,141 peer-reviewed publications: 30,185 monographs, 638,779 journal articles, 18,405 edited volumes, and 343,771 book chapters. The POL-on data is originally aggregated at the researcher level, meaning that whole counting is used: every co-author gets credit for a whole publication.

We assigned information on gender using first name dictionaries. The overwhelming majority of researchers working in Poland are Poles who have Polish names that invariably indicate gender. The rest of the cases were manually decided by the authors of this study. Moreover, we used information about the date of obtaining the Ph.D. and the discipline attributed by the researcher. For 500 researchers, there were data about more than one discipline. We decided to exclude those researchers from the analysis and they were not counted in the number of 67,415 researchers. We mapped the Polish discipline classification into the six major fields of science and technology classified by the Organisation for Economic Co-operation and Development (OECD 2007). For this purpose, a qualification-based classification was used: all Polish researchers had been required to indicate (for national research evaluation exercise purposes) the main discipline they represent. The Polish discipline classification in English can be found in the Appendix of Kulczycki (2019). In this way all publications by researchers classified for instance as philosophers, are counted in this analysis as publications from Humanities.

Moreover, we analysed which articles by Polish scholars were published in journals indexed in one of the four indexes of the WoS, that is: Science Citation Index Expanded, Social Sciences Citation Index, Art & Humanities Citation Index, and Emerging Sources Citation Index.

Methods

In this study, we analysed a set of 67,415 Polish researchers divided among six OECD major fields and the set of their 1,031,141 peer-review publications from the 2013–2016 period reported in the Polish current research information system.

We use two datasets to; (A) describe the patterns of monograph publishing across OECD fields, gender and seniority, and to investigate whether monograph authors also publish journal articles; and (B) compare the productivity of researchers (taking into account all their publications regardless of publication type) who published at least one monograph in the 4-year period, with the productivity of researchers who did not publish any monographs.

These two datasets are described below:

- (A) Dataset A contains statistics for 30,185 monographs and 638,779 journal articles from the 2013–2016 period and information on 67,415 Polish researchers who published

at least one publication in this period. For our analysis of the patterns of monograph publishing, we use the number of researchers as our unit of analysis, along with three nominal variables: (1) OECD major field, (2) gender (female, male), and (3) seniority in terms of the number of years since their Ph.D. (0–10, 11–20, 21–30, 30+), along with two rank variables: (1) number of monographs (0, 1, 2, 3+) and (2) number of articles (0, 1, 2, 3+).

- (B) Dataset B contains statistics for 1,031,141 peer-reviewed publications (monographs, journal articles, edited volumes, book chapters) from the 67,415 Polish researchers in Dataset A. For our analysis of the differences in productivity, we use the number of publications as our unit of analysis, along with two nominal variables: (1) OECD major field, (2) publishing of any monographs in the 2013–2016 period (researchers who did not publish any monograph, researchers who published at least one monograph). We counted the number of publications using two methods: (1) *whole counting*—where each publication of a given researchers is counted as 1, and (2) *fractional counting*—where each publication from a given researcher is divided by the total number of authors. Moreover, we counted what share of all publications from a given researcher constituted articles published in journals indexed in the WoS.

Results

Part A: Patterns of monograph publishing across fields, gender, and seniority

In each OECD major field, the majority of scholars did not publish any monograph in the studied 4-year period. Figure 1 shows that in Humanities, the share of such non-publishing

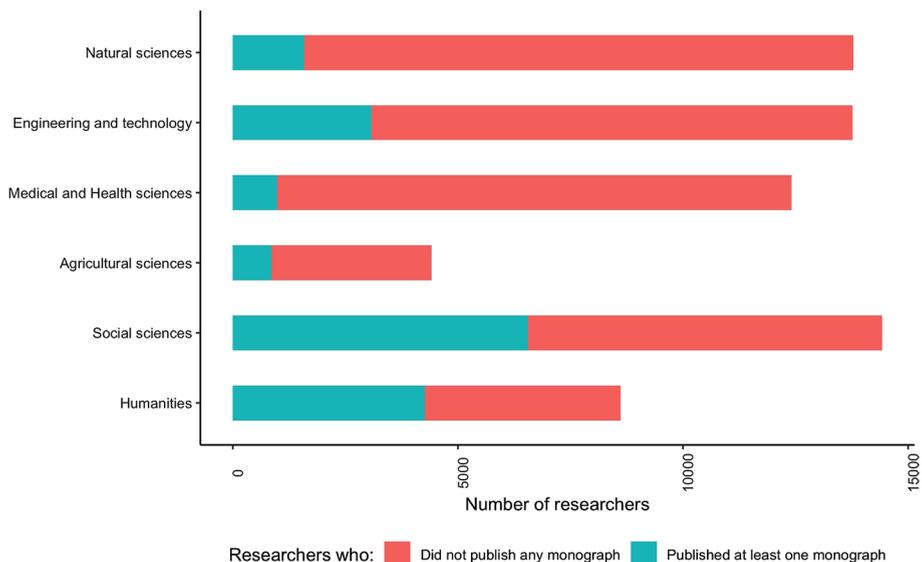


Fig. 1 The shares of researchers who published and did not publish a monograph across the OECD major fields

scholars is 50.5% (4347 researchers) and in Medical and Health sciences 92% (11,424 scholars).

The univariate logistic regression analysis of the studied factors is presented in Table 1. Researchers from Natural sciences were taken as the reference point in the logistic regression. Only researchers from Medical and Health sciences wrote fewer monographs than those from Natural sciences (OR 0.67). It is no surprise that researchers from social sciences and humanities wrote many more monographs (OR 6.42 and OR 7.55, respectively). Male researchers (57% of all researchers), wrote more monographs than female researchers (OR 1.15). Seniority, i.e. the number of years after obtaining a Ph.D. was not a major factor in general. By a small margin, researchers with 11–20 years of experience were keener by 1.34 to be a monograph author. Because there are no significant differences between researchers publishing and non-publishing monographs except the OECD major fields, we are not presenting further analysis for each field correlated with the other parameters.

We use pie charts to visualize the results, Figs. 2, 3 and 4. The size of the pie depends on the number of researchers. A slice represents the proportion of researchers regarding a key variable, for example, the share of researchers who published 0, 1, 2, 3+ articles.

Figure 2 shows how many monographs that researchers published across the six OECD major fields, and how publishing monographs is related to publishing journal articles. In all fields, the overwhelming majority of researchers who published monographs also published articles. While 74.3% of researchers (all fields) did not publish a monograph, the majority of them published at least 3 articles in the 4 year period.

Analysing all fields together, 16.5% of researchers published one monograph, 5.3% published two monographs, and 3.9% published three or more monographs. These numbers differ when the analysis is broken down into the major fields. For instance, 8.3% of researchers in Humanities published three or more monographs, whereas just 0.8% of researchers in Medical and Health Sciences did so.

Figure 3 shows the differences between the number of published monographs across the OECD major fields and gender. In Medical and Health Sciences there are more female researchers than male researchers, while at the opposite spectrum there are almost three times more male researchers and female researchers in Engineering and Technology. In all fields except Humanities, the majority of female and male scholars did not publish a monograph. In the Humanities and Social Sciences, we can observe that a higher proportion of male researchers published monographs than female researchers. This includes also two or more monographs in the analysed period.

Figure 4 shows the differences between the number of published monographs across the seniority groups (years since Ph.D.). In all fields except researchers from Humanities, at 11–20 years after their Ph.D., the majority of researchers did not publish any monographs. In all fields, the highest share of researchers who published some monograph are those 11–20 years after their Ph.D.. It can be observed that the patterns of monograph publishing depend to a much greater degree on the researcher's field of study than on seniority.

Part B: Comparison of researchers who published and did not publish any monograph

In this section, we compare the two groups of researchers: the first group who did not publish any monograph and the second group who published at least one monograph in the analysed period. We decided to analyse all publications here, including the scholarly book publications and conference proceedings omitted in the previous analysis. This

Table 1 Univariate logistic regression of researchers who published and did not publish monographs across the OECD major fields, gender and seniority

Parameter	N	Researchers who did not publish a monograph	Researchers who published monograph(s)	Odds ratio	95% confidence interval	P value
<i>OECD major field</i>						
Natural sciences	13,786	12,201 (88.5%)	1585 (11.5%)	1	(Ref.)	
Engineering and technology	13,769	10,697 (77.7%)	3072 (22.3%)	2.21	(2.07; 2.36)	< 0.001
Medical and Health sciences	12,411	11,424 (92%)	987 (8%)	0.67	(0.61; 0.72)	< 0.001
Agricultural sciences	4418	3559 (80.6%)	859 (19.4%)	1.86	(1.70; 2.04)	< 0.001
Social sciences	14,421	7861 (54.5%)	6560 (45.5%)	6.42	(6.04; 6.84)	< 0.001
Humanities	8610	4347 (50.5%)	4263 (49.5%)	7.55	(7.06; 8.08)	< 0.001
<i>Gender</i>						
Female	28,809	21,824 (75.8%)	6985 (24.2%)	1	(Ref.)	
Male	38,333	28,046 (73.2%)	10,287 (26.8%)	1.15	(1.11; 1.19)	< 0.001
<i>Seniority (number of years after Ph.D.)</i>						
0–10	35,334	26,874 (76.1%)	8460 (23.9%)	1	(Ref.)	
11–20	15,966	11,236 (70.4%)	4730 (29.6%)	1.34	(1.28; 1.39)	< 0.001
21–30	7247	5315 (73.3%)	1932 (26.7%)	1.16	(1.09; 1.22)	< 0.001
30+	7284	5520 (75.8%)	1764 (24.2%)	1.02	(0.96; 1.08)	0.62

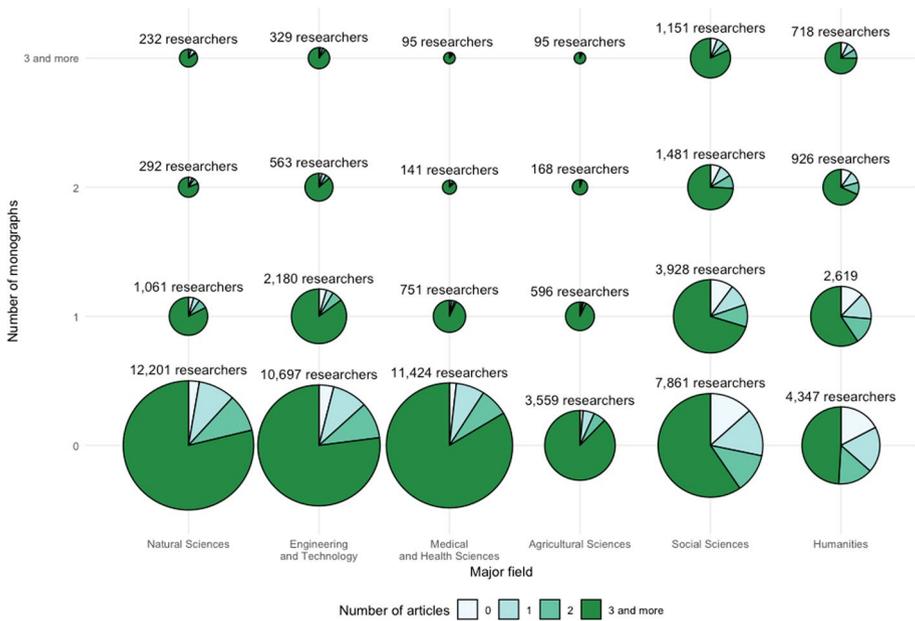


Fig. 2 Publication patterns across the OECD major fields, with the number of published monographs and articles

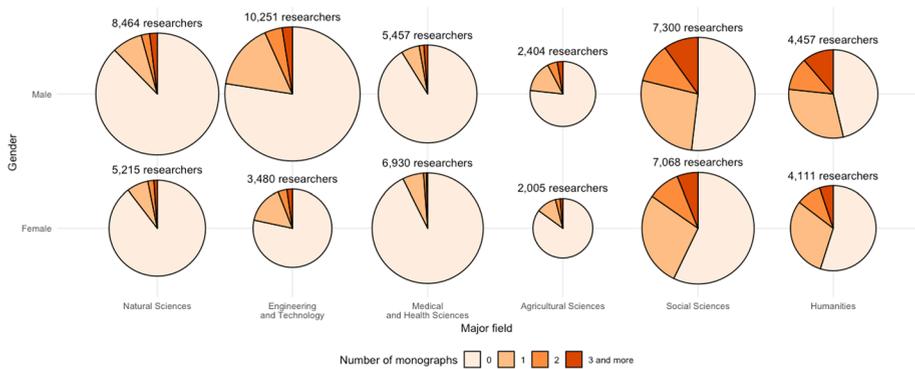


Fig. 3 Publication patterns across the OECD major fields, with the number of published monographs and gender

approach gives us a more comprehensive picture. Due to the large set of analysed data, we do not present outliers in Figs. 5, 6, 7 and 8.

Table 2 below shows the distribution of the two groups of researchers (those who published at least one monograph and those that did not) across the OECD major fields, along with the respective numbers of researchers who have WoS-indexed publications and those that do not.

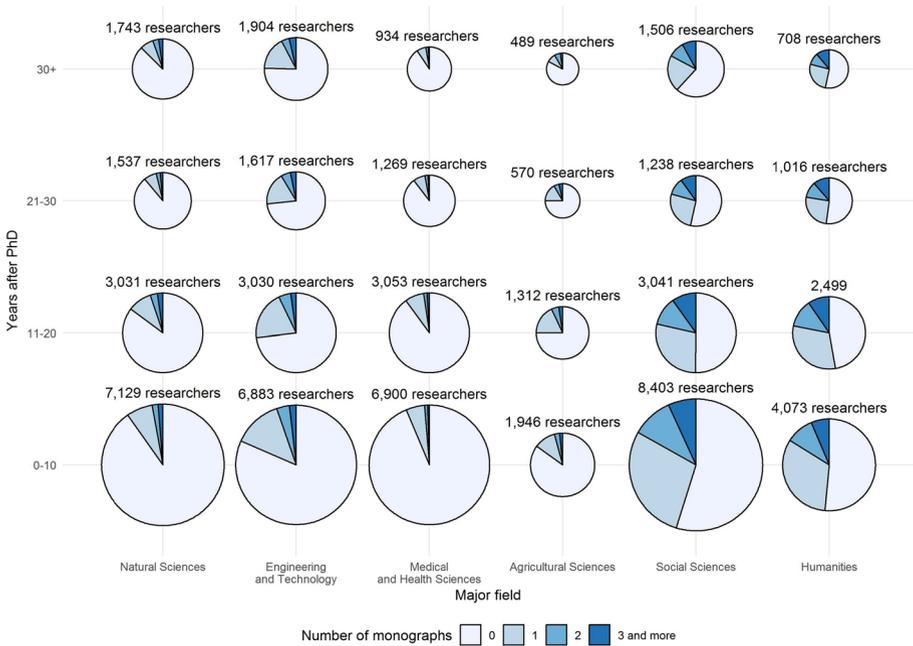


Fig. 4 Patterns of monograph publishing across the OECD major fields and seniority

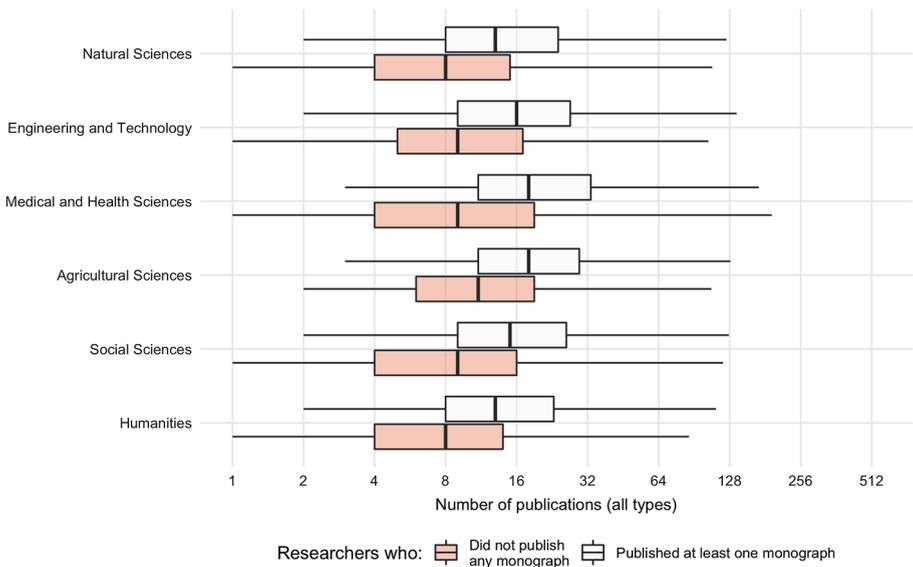


Fig. 5 Boxplots of the number of publications (whole counting) per researcher across the OECD major fields

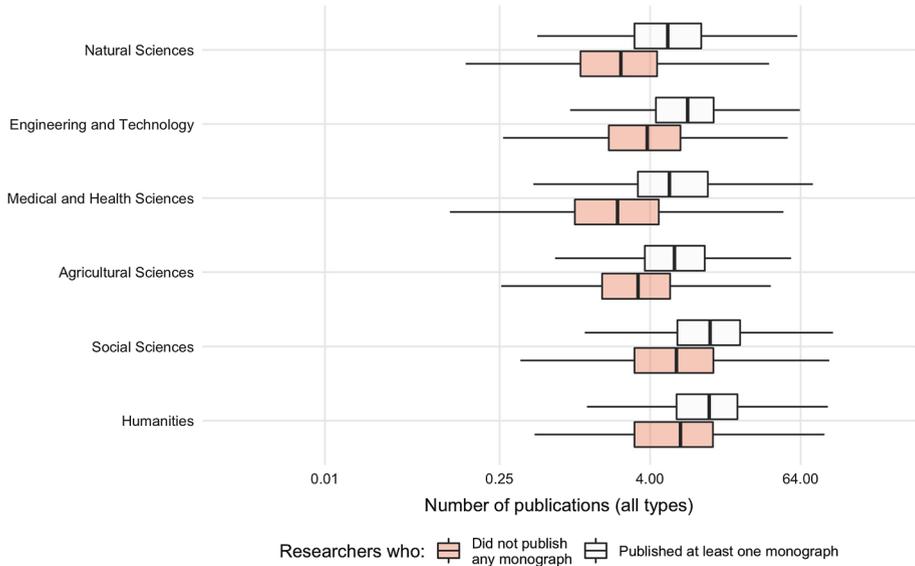


Fig. 6 Boxplots of the number of publications (fractional counting) per researcher across the OECD major fields

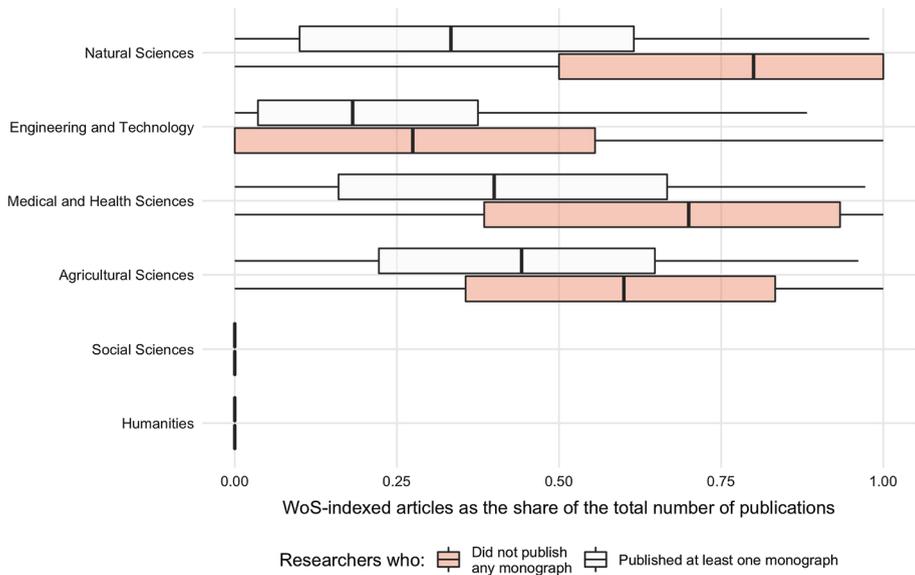


Fig. 7 Boxplots of the number of WoS-indexed articles as the share of the total number of publications (whole counting) across OECD major fields

In four of six OECD major fields, researchers chose to publish or were able to publish considerably more articles in internationally visible journals than local articles. In the SSH fields, the majority of researchers published locally rather than internationally. The

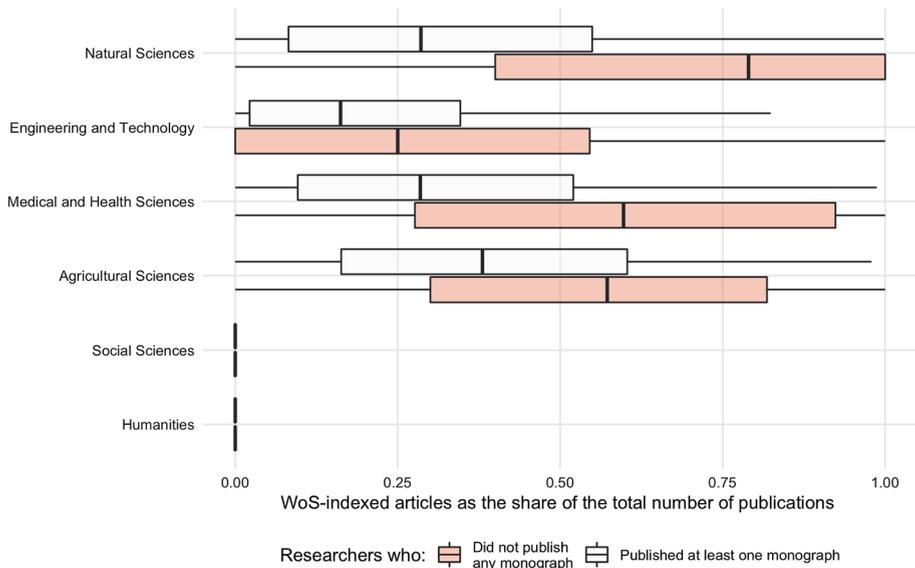


Fig. 8 Boxplots of the number of WoS-indexed articles as the share of the total number of publications (fractional counting) across OECD major fields

differences between the groups of researchers who had published monographs and those that did not is explored in the following boxplots, also comparing whole counting and fractional counting methods.

Figure 5 shows boxplots of the number of publications (whole counting) per researcher across the six OECD major fields. In each field, the researchers are divided into two groups: those who did not publish any monograph and those who published at least one monograph in the period 2013–2016. In all fields, researchers publishing monographs published substantially more (all types included) than researchers not producing monographs.

Figure 6 shows boxplots of the number of publications (fractional counting) per researcher across the six OECD major fields. Researchers are divided into the same groups as in Fig. 5. In all fields, researchers publishing monographs published substantially more (all types included) than researchers not producing monographs. This means that the method of publication counting is not a significant factor that differentiates these two groups.

Figures 7 and 8 present the share of journal articles indexed in WoS among all publications by the researchers. In both cases of whole and fractional counting, in all OECD major fields, researchers who did not author any monographs in the analyzed 4-year period chose to publish or were able to publish considerably more articles in internationally visible journals. In this case, we assume that the lack of WoS indexed articles would be a proxy for local-oriented publications. In Figs. 7 and 8 the boxes for the Social Sciences and the Humanities are unnoticeable. This is due to the fact that in these fields, regardless of the way in which publications are counted, the medians and the interquartile ranges of shares are equal to zero for both researchers who did not publish any monograph and those who published at least one monograph.

In further analyzing the local-orientation, let's have a look at Table 3 which presents the number of publications not indexed in WoS broken down by language (English, Other,

Table 2 The number of researchers publishing WoS-indexed journal articles, across the OECD major fields, in relation to publishing a monograph

OECD major field	N	Researchers not publishing a monograph		Researchers publishing monograph(s)			
		N	WoS-indexed	Not indexed	N	WoS-indexed	Not indexed
Natural sciences	13,786	12,201	11,125 (91%)	1076	1585	1322 (83%)	263
Engineering and technology	13,769	10,697	7947 (74%)	2750	3072	2363 (77%)	709
Medical and Health sciences	12,411	11,424	10,351 (91%)	1073	978	875 (89%)	103
Agricultural sciences	4418	3559	3334 (94%)	225	859	797 (93%)	62
Social sciences	14,421	7861	1629 (21%)	6232	6560	1625 (25%)	4935
Humanities	8610	4347	639 (15%)	3708	4263	808 (19%)	3455

Table 3 Publication language of publications not indexed in Web of Science across the OECD major fields

OECD major field	English	Other	Polish
Natural Sciences	19,936 (68%)	302 (1%)	9217 (31%)
Engineering and Technology	22,686 (33%)	489 (1%)	45,475 (66%)
Medical and Health Sciences	12,680 (26%)	192 (0%)	35,820 (74%)
Agricultural Sciences	4855 (27%)	89 (0%)	13,104 (73%)
Social Sciences	16,796 (20%)	1435 (2%)	64,270 (78%)
Humanities	5192 (14%)	4528 (12%)	26,527 (73%)

Polish) across the six major OECD fields. Except for Natural Sciences, the vast majority of non-indexed publications are in the local language (in this case Polish), which means they are only accessible for the local audience.

Table 4 below presents the average shares of WoS-indexed articles as the share of the total number of publications per researcher across the fields, taking into account the two methods of publications counting. In Natural sciences, the share of WoS-indexed articles of the researchers who did not publish a monograph is 0.78, and 0.6 for those who did publish a monograph. In all fields except Humanities, the average shares are higher for researchers who did not publish a monograph, regardless of the method of publication counting.

Discussion and conclusion

In this study, we analysed the share of researchers who published monographs in the 4-year period 2013–2016, across the major OECD fields, gender and seniority. We studied publications from over 67 thousand Polish researchers.

The key findings of our study are threefold. Firstly, scholars who published monographs also published journal articles at the same time. This pattern is observed in all dimensions, i.e. fields, gender and seniority. Secondly, we show that scholars who publish monographs are also more productive in terms of the number of publications than those who did not publish any monograph. This result is independent of the publication counting method, i.e. fractional or whole counting. Moreover, presenting the publication patterns at the researcher level allows us to provide stronger arguments that a monograph is the primary publication channel for social sciences and humanities. Thirdly, we show that researchers who authored a monograph are more local-oriented, that is, they publish more often in local journals (not indexed in Web of Science) or more scholarly book publications than their colleagues who did not publish a monograph.

Our study reveals that there is no substantial difference between female and male researchers in terms of publishing at least one monograph. Virtually all those researchers published more scientific articles than monographs. We believe that this should be interpreted in such a way that working on a monograph does not mean abandoning scholarly communication using journal articles. The seniority of the researcher (measured as the number of years since obtaining their Ph.D.) did not significantly change the inclination toward publishing monographs.

The number of monographs published by Polish researchers might be influenced by a recent practice in academic promotion procedures where publishing monographs was

Table 4 welch two sample t test for the share of WoS indexed journal articles across publication counting methods and OECD major fields

OECD major field	Whole counting			Fractional counting		
	Average share for researchers who did not publish a monograph	Average share for researchers who published monograph(s)	P value	Average share for researchers who did not publish a monograph	Average share for researchers who published monograph(s)	P value
Natural sciences	0.78	0.6	< 0.001	0.77	0.58	< 0.001
Engineering and technology	0.47	0.39	< 0.001	0.46	0.38	< 0.001
Medical and Health sciences	0.69	0.57	< 0.001	0.66	0.52	< 0.001
Agricultural sciences	0.69	0.63	< 0.001	0.67	0.6	< 0.001
Social sciences	0.08	0.07	< 0.001	0.08	0.06	< 0.001
Humanities	0.06	0.06	0.886	0.06	0.06	0.793

perceived as the proper way of obtaining the habilitation degree and professorship in many fields. For instance, in 2011–2016, less than 2% of researchers from chemical and pharmaceutical sciences published a monograph as their habilitation thesis, whereas in all SSH fields this share was above 70% (Kulczycki 2019).

Comparing the Polish data on SSH (from 2013–2016) with the Norwegian data (2010–2013) presented by Sivertsen (2016b), substantial differences can be observed between the share of researchers who published a monograph. According to Sivertsen, 8.5% of Norwegian researchers from social sciences published a monograph compared to 45.5% of Polish researchers. A similar situation can be observed in humanities with 15.7% of Norwegian and 49.5% of Polish researchers publishing a monograph. As Kulczycki et al. (Kulczycki et al. 2018) show, publication patterns differ both across fields and across countries, e.g. publication patterns for humanities in Norway differ from those in Poland. Our results are line with this conclusion. However, we would like to emphasize the differences in publication patterns between data aggregated at the researcher level rather than the field level.

The monograph is perceived as the primary research output, especially in social sciences and humanities (SSH). When we look at the 4-year period 2013–2016, the majority of Polish researchers did not publish a monograph, yet for humanities this share is 50.5%. On one hand, it could be said that a 4 year period is too short to analyze such a publication pattern, yet on the other, we can say that in this specific Polish case, the 4 year period (2013–2016) comprises the entire evaluation period counted for Polish higher education institutions and research institutions, motivating all researchers to present their best publications within this regular period to maintain an adequate evaluation.

Our findings show that researchers who publish monographs are more productive, regardless of the field or the publication counting method. Comparing our findings with the results from the study on Flemish SSH researchers (Verleysen and Ossenblok 2017) shows that in both countries, monograph authors are more productive than other authors.

Most previous studies on publication patterns focused on differences between fields, so publications were aggregated at the level of fields. In our study, we aggregated the publications at the level of researcher. For instance, Kulczycki (2018) shows that monographs published by Polish researchers in the 4-year period 2011–2014 constituted 10% of all publication types in SSH. However, our study shows that in the analyzed period, 47.0% of SSH researchers (two fields counted as a whole) published a monograph. A similar situation is in Norway where, according to Kulczycki (2018), monographs constituted 3.6% of all publication types in SSH, and according to Sivertsen (2016b), 11.1% of all SSH researchers (two fields counted as a whole) published a monograph. This means that researchers use many publication channels at the same time to communicate research results. Counting publications at only the field level does not allow a proper emphasis on the role of monographs in the so-called soft sciences. Thus, we argue that presenting the publication patterns at the researcher level provides a stronger argument that the monograph is the primary publication channel for SSH.

Our research draws an interesting observation on the different publishing practices of two groups of researchers. Unfortunately, based on this data, we are not able to state what these differences are due to. One hypothesis could be that the scientific interests of the researchers who publish monographs are located in topics that have a local (national) dimension. However, that might be specific just to the Polish context. A more radical thesis can be put forward that researchers who publish monographs are not able to participate in the international communication of scientific knowledge as much as scientists who do not publish monographs. These questions remain open for further investigation that would

require qualitative analyses (e.g. semi-structured interviews) to learn the motivations behind the publishing decisions of individual researchers.

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References

- Aagaard, K., Bloch, C., & Schneider, J. W. (2015). Impacts of performance-based research funding systems: The case of the Norwegian Publication Indicator. *Research Evaluation*, 24(2), 106–117. <https://doi.org/10.1093/reseval/rvv003>.
- Aksnes, D. W., Rorstad, K., Piro, F., & Sivertsen, G. (2011). Are female researchers less cited? A large-scale study of Norwegian scientists. *Journal of the American Society for Information Science and Technology*, 62(4), 628–636. <https://doi.org/10.1002/asi.21486>.
- Engels, T. C. E., Istenič Starčič, A., Kulczycki, E., Pölonen, J., & Sivertsen, G. (2018). Are book publications disappearing from scholarly communication in the social sciences and humanities? *Aslib Journal of Information Management*, 70(6), 592–607. <https://doi.org/10.1108/AJIM-05-2018-0127>.
- Giménez-Toledo, E., Mañana-Rodríguez, J., Engels, T. C. E., Guns, R., Kulczycki, E., Ochsner, M., et al. (2019). Taking scholarly books into account, part II: A comparison of 19 European countries in evaluation and funding. *Scientometrics*, 118(1), 233–251. <https://doi.org/10.1007/s11192-018-2956-7>.
- Giménez-Toledo, E., & Román-Román, A. (2009). Assessment of humanities and social sciences monographs through their publishers: A review and a study towards a model of evaluation. *Research Evaluation*, 18(3), 201–213. <https://doi.org/10.3152/095820209X471986>.
- Godin, B. (2009). The value of science: Changing conceptions of scientific productivity, 1869 to circa 1970. *Social Science Information*, 48(4), 547–586. <https://doi.org/10.1177/0539018409344475>.
- Korytkowski, P., & Kulczycki, E. (2019). Publication counting methods for a national research evaluation exercise. *Journal of Informetrics*, 13, 804–816. <https://doi.org/10.1016/j.joi.2019.07.001>.
- Kousha, K., Thelwall, M., & Rezaie, S. (2011). Assessing the citation impact of books: The role of Google books. *Google Scholar, and Scopus*, 62(11), 2147–2164. <https://doi.org/10.1002/asi>.
- Kulczycki, E. (2018). The diversity of monographs: Changing landscape of book evaluation in Poland. *Aslib Journal of Information Management*, 70(6), 608–622. <https://doi.org/10.1108/AJIM-03-2018-0062>.
- Kulczycki, E. (2019). Field patterns of scientometric indicators use for presenting research portfolio for assessment. *Research Evaluation*. <https://doi.org/10.1093/reseval/rvy043>.
- Kulczycki, E., Engels, T. C. E., Pölonen, J., Bruun, K., Dušková, M., Guns, R., et al. (2018). Publication patterns in the social sciences and humanities: Evidence from eight European countries. *Scientometrics*. <https://doi.org/10.1007/s11192-018-2711-0>.
- Kulczycki, E. & Korytkowski, P. (2019). What share of researchers publish monographs? In *ISSI 2019*. Rome.
- Larsen, P. O. (2008). The state of the art in publication counting. *Scientometrics*, 77(2), 235–251. <https://doi.org/10.1007/s11192-007-1991-6>.
- Leydesdorff, L., & Felt, U. (2012). “Books” and “Book Chapters” in the book citation index (BKCI) and science citation index (SCI, SoSCI, A & HCI).

- Organisation for Economic Co-Operation and Development (OECD). (2007). *Revised field of science and technology (FOS) classification in the Frascati manual DSTI/EAS/STP/NESTI(2006)19/FINAL*. <http://www.oecd.org/science/inno/38235147.pdf>. Accessed 15 Oct 2019.
- Sandström, U., & van den Besselaar, P. (2016). Quantity and/or Quality? The importance of publishing many papers. *PLoS ONE*, *11*(11), e0166149. <https://doi.org/10.1371/journal.pone.0166149>.
- Sile, L., Pölönen, J., Sivertsen, G., Guns, R., Engels, T. C. E. E., Arefiev, P., et al. (2018). Comprehensive-ness of national bibliographic databases for social sciences and humanities: Findings from a European survey. *Research Evaluation*, *27*(4), 310–322. <https://doi.org/10.1093/reseval/rvy016>.
- Sivertsen, G. (2016a). A bibliometric indicator with a balanced representation of all fields. In *International conference on science and technology indicators (STI 2016)* (pp. 910–914). Valencia, Spain.
- Sivertsen, G. (2016b). Patterns of internationalization and criteria for research assessment in the social sciences and humanities. *Scientometrics*, *107*(2), 357–368. <https://doi.org/10.1007/s11192-016-1845-1>.
- Verleysen, F. T., & Ossenblok, T. L. B. (2017). Profiles of monograph authors in the social sciences and humanities: An analysis of productivity, career stage, co-authorship, disciplinary affiliation and gender, based on a regional bibliographic database. *Scientometrics*, *111*(3), 1673–1686. <https://doi.org/10.1007/s11192-017-2312-3>.
- Waltman, L., & van Eck, N. J. (2015). Field-normalized citation impact indicators and the choice of an appropriate counting method. *Journal of Informetrics*, *9*(4), 872–894. <https://doi.org/10.1016/j.joi.2015.08.001>.
- Waltman, L., van Eck, N. J., Visser, M., & Wouters, P. (2016). The elephant in the room: The problem of quantifying productivity in evaluative scientometrics. *Journal of Informetrics*, *10*(2), 671–674. <https://doi.org/10.1016/j.joi.2015.12.008>.
- Williams, P., Stevenson, I., Nicholas, D., Watkinson, A., & Rowlands, I. (2009). The role and future of the monograph in arts and humanities research. *Aslib Proceedings*, *61*(1), 67–82. <https://doi.org/10.1108/00012530910932294>.