



Three centuries of German-language philosophy journals (1765–1953): a bibliometric analysis

Maxim Demin¹ · Alexei Kouprianov¹

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Abstract

This paper analyses three centuries of developing German-language philosophy journals, from the first journals published in 1665 to those from the first decade of post-WWII recovery. Relying upon two bibliographies of philosophical journals collected in the 1970s, one by Joachim Kirchner and one by Wolfram Högbe, Rudolf Kamp, and Gert König, we attained a dataset of 607 journals. To analyse the population of periodicals, we identified three key components: the longevity of each journal and the growth rate and the continuity of the body of the journal population. The most puzzling finding is that there was a rapid decline in the number of journals at the end of the eighteenth century followed by a long growth in numbers that lasted almost a century. This paper analyses the structure of the boom in philosophical periodicals after 1888, followed by the effects of both World Wars, and identifies the communication crisis that occurred at the height of the Weimar Republic.

Keywords Historical bibliometrics · Academic communication · German idealism · Philosophical periodicals

Introduction

Academic journals played a crucial role in the differentiation of research programmes and in developing stable communication across the entire philosophical community (Köhnke, 1989). This was especially true for German-language philosophy in the nineteenth century. The heyday of the well-organized academic discipline of German-language philosophy occurred between the Franco-Prussian War of the 1870s and the defeat of Germany in WWII in 1945, as reflected by the growth of outstanding philosophical journals (Baldwin, 2008).

However, the evolution of the landscape of philosophical periodicals has received only sporadic academic attention. Usually, the journals have been studied in relation to the

✉ Maxim Demin
maxim.djomin@gmail.com; mdemin@hse.ru
<https://www.hse.ru/en/staff/mdemin>

Alexei Kouprianov
alexei.kouprianov@gmail.com; akouprianov@hse.ru

¹ National Research University Higher School of Economics, Saint Petersburg, Russia

biographical investigation of a particular philosopher who happened to be a journal editor. Thus, only a few journals have been studied in detail.¹

The study of individual journals may be difficult due to a type of systematic bias sometimes called cherry picking. We tend to pay attention only to respected or renowned journals, which can give an inaccurate picture of the landscape of periodicals. The methodological innovation called historical bibliometrics by Hérubel might help in overcoming this obstacle (Hérubel, 1999). Hérubel's approach brings together bibliometric and historical research methods so that the history of a given discipline can be mapped through the bibliographic record of journals. One of the advantages of working with bibliometrically derived data is that we can work not only with journals that are considered prominent or influential but also with the whole body of journals.

This paper analyses three centuries of developing German-language philosophy journals, from the first journals published in 1665 to those from the first decade of post-WWII recovery. We deliberately choose this time frame because it provides a large enough sample to track the dynamics of establishing the modern discipline.

Analysing the bibliographical data of established and discontinued German philosophy journals during this time period can help us reveal and analyse the dynamics of scholarly communication in the field. As we will see, the size of the body population has dramatically changed over time. We can identify hidden processes and analyse the dynamics of this discipline in terms of scholarly communication and subdiscipline diversity.

Methods and data

In this section, we briefly outline the data we relied upon in our project and the general methods we employed for analysis. More specific analytic techniques are described later.

Our study was population, not sample, based. Circumscribing the population's borders has always been rather problematic, in part because a population census is rarely undertaken by a disinterested outsider. Occasionally, censuses are produced by insiders, operating on the basis of partial criteria for inclusion or exclusion, and assume a certain degree of boundary work (Gieryn, 1983). When no impartial census is available, a reliable picture may still be compiled by combining several partial perspectives.

In our attempt to build a census of philosophical periodicals, we relied upon two main sources: a bibliography of journals published in the 'German-speaking area' that was edited by Joachim Kirchner (1969–1977) and *Periodica philosophica* (1972), an international bibliography of philosophical journals that was edited by Wolfram Högbebe, Rudolf Kamp, and Gert König.

Based on these two sources, we created a dataset with information on title(s), publication years, editors, publishers, and publication location. We also introduced unique identifiers for each journal in the dataset to help trace them through instances of renaming, merging, or splitting. If we found any discrepancies between dates, we turned to the original journals to resolve them.

¹ For example, see: Jamme (1994) on the *Yearbook for Scientific Criticism* (*Jahrbücher für wissenschaftliche Kritik*), (the journal edited by Hegel), and Kramme 1995 and Kramme 1997 on "Logos", the project started shortly before the First World War to organize journals as international enterprises with many national versions (Germany, Russia and Italy).

In some cases, the journals were not regularly issued. Our calculations did not reflect gaps in the regularity of publications if the gaps were less than one year; otherwise, we tried to record the gap to make them visible in the figures.

In terms of time periods, the scope of the dataset could extend well beyond the scope of this paper, which was selected to lessen the impact of the degeneration of the dataset towards the end of the period under consideration. Most journals were tracked to 1972. A select few that were published in 1945 were tracked further (including 11 journals still published today)² to minimize longevity analysis bias (see below Fig. 4).

We included German-language journals from two sources. However, we excluded monograph series, which were common in *Periodica philosophica* (1972), because they represent a medium that is clearly different from a scholarly periodical of any other sort. In the end, we included 555 unique journals from *Periodica philosophica* (1972) and 153 from Kirchner's list (1969–1977).

There is considerable discrepancy between the two sources, especially towards the end of the 18th and the end of the nineteenth century. *Periodica philosophica* (1972) covers journals from 1665 on, but the first journal mentioned by Kirchner (1969–1977) is dated 1715. *Periodica philosophica* (1972) depicts the philosophical journals in greater detail for the period from 1715 to 1830, but Kirchner (1969–1977) represents them in greater detail for the period from 1871 to 1900. In the period from 1715–1900, the sources have 90 common titles. As a result, the two sources yielded 618 unique titles.

After merging the two sources, we conducted a critical revision. We added 5 journals that, according to our view, were lacking in the two original sources. We also saw that both sources included journals in theosophy and anthroposophy. In our view, these types of journals represented a separate field that has little in common with philosophy. To exclude such journals, we compiled a list of journals from Deimann (1987) and Zander (2007).³ Only 12 titles overlapped between *Periodica philosophica* (1972) and Kirchner (1969–1977) on one side and Deimann (1987) and Zander (2007, 343–446) on the other.

After excluding all journals overlapping with Deimann and Zander, we were left with 607 unique journals, which served as the basis for all further calculations and visualizations. Table 1 breaks down the number of unique journals according to source and time period. Table 2 shows the overlap of the lists of unique journals from the different sources.

While the definition of philosophical journals might be ambiguous, the number of journals is large enough to analyse some dynamics of this population. The following analysis can help us better understand the emergence of modern academic communication.

The ebb and flow of German philosophy journals

The dataset allows us to study the dynamics of the changing population size. Figure 1 shows the number of existing journals in any particular year. The common understanding of the philosophical process presupposed that after the unification of German states following the Franco-Prussian War in the 1870s, the number of journals increased rapidly (Baldwin, 2008, 4). Our result confirms this assumption. However, our results offer a much more detailed picture, along with some unexpected findings.

² As supplementary material, we listed 28 German philosophy journals founded before 1971 and remain publishing in 2020.

³ For more about German-language journals of theosophy in this period, see Pytlik (2005).

Table 1 Unique journals: a breakdown by sources and time periods (time periods after Kirchner). Journals were assigned to time periods according to their first year of publication

Period	Periodica philosophica (1972)	Kirchner (1969–1977)	Zander (2007)	Diemann (1987)	Demin, Kouprianov	Total unique titles
1665–1714	17	–	–	–	–	17
1715–1830	237	61	–	–	–	242
1831–1870	41	17	–	–	–	43
1871–1900	25	75	15	–	4	98
1901–1945	126	–	51	34	1	204
1946–1972	109	–	–	47	0	156
TOTAL	555	153	66	81	5	

Table 2 Overlap of the lists of unique journals from different sources

	Kirchner (1969–1977)	Zander (2007)	Diemann (1987)
Periodica philosophica (1972)	90	2	4
Kirchner (1969–1977)		6	.
Zander (2007)			1

Fig. 1 reveals a number of findings:



Fig. 1 German philosophy journals: the dynamics of the changing population size

1. Towards the end of the eighteenth century, the number of journals rose substantially. The major increase in this type of communication occurred roughly parallel to the later period of Kant's work, between the first edition of his *Critique of Pure Reason* in 1781 and *The Metaphysics of Morals* in 1797.⁴ It is hard to justify the link between Kant's philosophy and a rise in the number of journals, but it is clear that the Romantics were keen to found new periodicals.⁵ Knowing that, it is perhaps surprising to see a rapid decline in the number of journals published by the generation of philosophers after Kant. The number of journals declined from almost 24 titles in 1799 to 2 in 1815.
2. The flourishing of German idealism (roughly 1800–1831) was accompanied by a decline in the number of philosophical periodicals. Of course, the decline in the number of philosophical journals at the beginning of the nineteenth century can be explained by the effects of the Napoleonic Wars. However, this explanation does not indicate why this low number of journals continued.

The main figure in German idealism had experience with and was interested in establishing journals. In 1797, Fichte joined Niethammer in editing the *Philosophical Journal of the Society of German Scholars* (*Philosophisches Journal einer Gesellschaft deutscher Gelehrten*) (1795 through 1800). Schelling undertook five attempts to launch a journal during his career. In 1800, he started the *Journal for Speculative Physics* (*Zeitschrift für speculative Physik*), which was renamed the *New Journal for Speculative Physics* (*Neue Zeitschrift für speculative Physik*) in 1802. Despite this fresh start, the journal lasted less than one year. From 1802 to 1803, Schilling and Hegel organized the *Critical Journal of Philosophy* (*Kritisches Journal der Philosophie*) in Jena. After moving to Würzburg, Schlegel launched the *Yearbook of Medicine as a Science* (*Jahrbücher der Medicin als Wissenschaft*, 1805–1808) and, in Munich, published the single issue of the *General Journal from Germans for Germans* (*Allgemeine Zeitschrift von Deutschen für Deutsche*, 1813).⁶

In addition to collaborating with Schelling, Hegel served as an editor for two other journals. After taking a professorship at Universität Heidelberg, Hegel worked on the editorial board of the *Heidelberg Yearbooks of Literature* (*Heidelberger Jahrbücher für Literatur*). This journal was founded by Heidelberg University in 1808 and is organized according to academic subject. After moving to Berlin in 1821, Hegel helped found another major academic journal, the *Yearbook of Scientific Criticism* (*Jahrbücher für wissenschaftliche Kritik*, 1827–1846). It was published regularly until 1835, after which point it was published only twice more, once in 1841 and once in 1845. We can conclude that German idealists were involved in the organization of very different types of journals, ranging from private to government-founded publications.⁷

3. The generation after the German idealists was not successful in establishing a network of periodicals. This finding was contrary to our expectation that the swelling of the ranks of young Hegelians and the emergence of university philosophy departments would lead

⁴ Pietsch (2010) shows the role that anonymous journal articles and reviews played in the initial reception of Kantian ideas in the late eighteenth century.

⁵ Despite the fact that Kant did not participate in the editorial board of the magazine, there is testimony that Schiller planned to invite Kant to his journal, *The Horae* (*Die Horen*) (Osterkamp 2007, S. 63).

⁶ Both of these journals were missing from Kirchner (1969–1977) and *Periodica philosophica* (1972).

⁷ For more details, see Buchner (1967), and Vieweg (2002).

- to a rise in the number of journals devoted to philosophy. In fact, the overall number was so low that the effects of the political reaction after the 1848 Märzrevolution is hardly noticeable.
4. After only slightly more than one hundred years, in 1892, the number of simultaneously existing journals surpassed the previous peak in 1786. It was only after 1871 that the number of journals started to grow consistently, albeit slowly, and the development between 1892 and WWI was unprecedented.
 5. The number of journals climbed before WWI; however, the recession after the start of military action was not substantial. This finding warrants an explanation regarding how large the impact of the ‘spiritual mobilization’ (die geistige Mobilmachung) on the philosophical periodicals was (Flasch, 2000) and how WWI affected the landscape of philosophical periodicals.
 6. The interwar period saw many changes in the German philosophy journal landscape. For example, in 1926, during the golden era of the Weimar Republic, there were 76 simultaneously issued journals. After this point, the number of journals fell dramatically. The graph shows that the decline in numbers began prior to 1933, when the number was at its lowest point since the end of WWI. In the 13 years between 1926 and 1939, the number of journals was almost halved. The fall continued during WWII, ending at 27 journals in 1945.
 7. Predictably, the decline in the number of journals at the end of WWII was much steeper than that after WWI. However, after the war, the number quickly returned to a level comparable to that after WWI.

The preliminary results, presented in this way, can reveal previously hidden trends that outline the different periods of communication in the German-language philosophical community. The patterns in the different periods found through such comparisons can help us understand the trends, dynamics and scale of the changes.

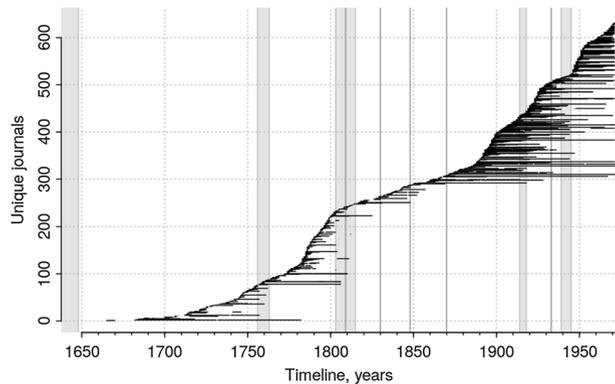
We can presume that the dynamics behind the two peaks were of a different nature. For example, the period from after the Franco-Prussian War to end of WWII has its own unique dynamics. To correctly interpret the nature of the peaks and depressions that lasted more than half of the century, we need to apply a sophisticated statistical method of analysis.

Temporal dynamics: lifespan and growth rate

Figure 2 shows the journals that were issued simultaneously and how long each journal was published after any particular year. For example, only one journal founded before 1850, the *Journal of Philosophy and Philosophical Criticism* (*Zeitschrift für Philosophie und philosophische Kritik*), continued after 1870. Figure 2 is useful for case-by-case analysis, but for a general analysis of the population of journals, we applied statistical techniques.

To understand the population size at any given moment, we need to examine two aspects of the temporal dynamics: the growth rate and lifespan of the journals. These two aspects show that the size of the population grows if the emergence of new journals outnumbers the dissolution of others.

Fig. 2 Lifespan of each journal in chronological order. Shaded areas and vertical lines, left to right: the Seven Years' War, the Napoleonic Wars (in part), the Märzrevolution of 1848, the Franco-Prussian War of the 1870s, WWI, Hitler's appointment as Chancellor of Germany in 1933, and WWII



Lifespan

From Fig. 2, we formed the hypothesis that in the mid-nineteenth century, short-lived journals from the past were replaced by more long-lived journals. To test the assumption, we drew a line between the two periods and then formally compared the parameters of the two subpopulations.

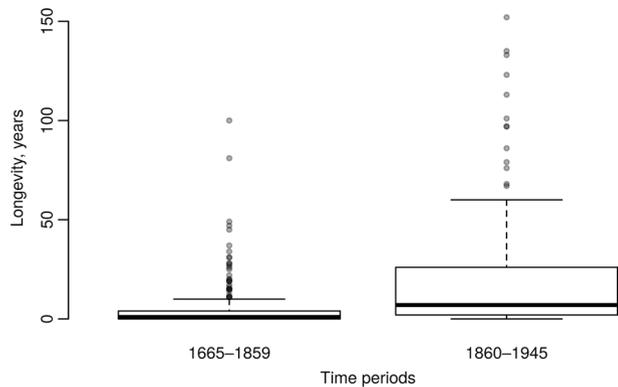
It would be tempting and quite justifiable to rely on ‘external’ periodisation, i.e., to take ‘major’ historical events as important breakpoints in population dynamics. For example, in our case, there were two candidates for events that seemed to be equally impactful: the 1848 March Revolution and the unification of Germany after Franco-Prussian War (1870). Another possible solution would be to rely on the intrinsic rhythm of population dynamics. In the latter case, we would need to find a way to identify a point that breaks the uneven growth into the two most contrasting parts. We decided to perform pairwise comparisons of journal longevity for all possible ways to split the journal population into two parts and concluded that neither of the external breakpoints explained the data. Instead, we found a natural ‘intrinsic’ breakpoint in 1859.⁸

⁸ When calculating the longevity of a journal, we subtracted the year of the first issue from the year of the last issue, covering all instances of renaming, splitting and merger (and, in the case of the few journals still in operation, the latter year was set at 2020). Thus, the lifespan of many journals technically became zero (meaning no full years), but such results had no effect on the general comparative conclusions regarding the longevity of the journals. We understand that counting journal lifespans in months or, at least, quarters or halves of a year would be more appropriate. However, given the number of journals under study, we believe that a rather moderate increase in the precision of the longevity estimates would have no major consequences for our overall conclusions and would come at a time cost we could not afford. The comparison procedure worked as follows. First, to eliminate the effects of the degeneration of the data at the dataset margin, we limited the population to journals that were first published in or before 1945 (otherwise the longevity of too many journals still in operation would be underestimated). Then, we ran a looped operation. In each iteration, we split the population into (a) the journals first published in or before a certain year and (b) the journals first published after that year; then, we compared these subpopulations. For example, we compared the journals first published in or before 1850 to those first published in or after 1851. The heavily right-skewed distributions of the longevity suggested that a non-parametric test should be used, but both a parametric Welch’s t-test and a non-parametric Wilcoxon’s rank sum test yielded basically the same result. After excluding marginal cases that resulted in subpopulations of extremely unequal sizes, we arrived at 1859 as the best point at which to split the population, as this led to the lowest p-values for the null hypothesis in both tests.

Table 3 Summary comparison of two subpopulations: Journals founded from 1665 through 1859 vs. those founded from 1860 through 1945

	1665–1859	1860–1945
Number of journals	290	215
Longevity: minimum	0	0
Longevity: 1st quartile	0	2
Longevity: median	1	7
Longevity: mean	4.7	18.76
Longevity: 3rd quartile	4	26
Longevity: maximum	100	152

Fig. 3 Summary comparison of two subpopulations: Journals founded from 1665 through 1859 ($n=290$) vs. those founded from 1860 through 1945 ($n=215$)



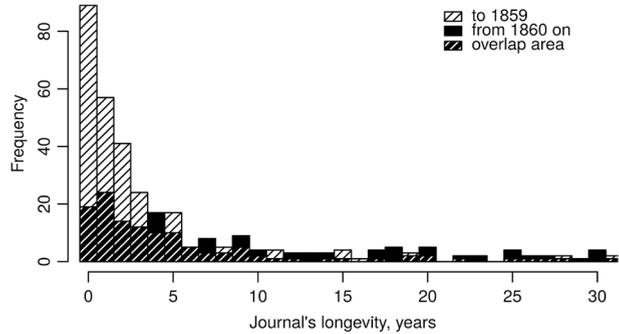
A summary comparison of the two resulting subpopulations can be seen in Table 3 and Figs. 3 and 4. A more detailed analysis showed that the most striking difference was due to the short-lived journals (longevity of 0 to 1 year) and journals with a longevity of 16 years or more. The short-lived journals constituted half of the journals founded before 1859 (146 of 290) and just one-fifth of those founded in 1860 or after (43 of 215) (Fig. 3). Long-lived journals were more characteristic of the period after 1860. They constituted more than one-third of the journals (78 of 215), compared to the approximately 7% constituted by pre-1859 journals (21 of 290). As for journals that lasted over 50 years, there were 20 post-1860 journals and just one pre-1859 journal.

The vast majority of journals in the first period were short-lived journals. Most were issued for no longer than one year. The second period had fewer short-lived journals, meaning that journals founded after 1860 were more likely to last more than one year than were those founded before 1860 (Fig. 4).

One interpretation of this fact is that we can see the changing aims of the journals as academic enterprises. It may be that, in the first period, the journals were not supposed to be “longrunners” but more like collective manifestos. Alternatively, there may have been a changing attitude towards publishing in periodicals. We cannot confirm this interpretation by using formal methods, and attempting to do so would be outside of the scope of this paper. However, by analysing the ‘behaviour’ of the journals, we can capture the shift and transformation in means of communication across the academic community.

Another interpretation (compatible with the first) is that the later academic community had more authors and better communication infrastructure, making it possible to supply

Fig. 4 Refined comparison of journals with a longevity of less than 30 years: Journals founded from 1665 through 1859 vs. those founded from 1860 through 1945



papers on a regular basis. The relatively sustainable life cycle of some journals had an effect of growth of the population, and as journal lifespans increased, new journals started to coexist with older ones. The emergence rate of new journals was a second factor affecting the population size. We will explore this factor in the next chapter.

Growth rate

This dramatic increase in the average longevity alone could partly account for the growth of the momentary population size towards the end of the nineteenth century. There was, however, another important factor contributing to the formation of peaks: the growth rate (the number of newly founded journals per year). A quick glance at Fig. 1 reveals that the growth rate varied considerably over the three centuries under study. The accumulated growth curve, formed by the tips of the lines depicting the journals' lifespans (Fig. 2), changes the angle of its slope angle from time to time.

We identified eight periods of variable length between 1665 and the end of 1953; these periods are characterized by contrasting growth rates (Table 4). Stagnation periods (a median growth rate of 1–2 newly founded journals per year) are punctuated by rapid growth periods (a median growth rate of 4–7 newly founded journals per year).

According to Table 4, there were 4 rapid growth periods (a median growth rate of 4–7 newly founded journals per year) and 4 stagnation periods (a median growth rate of 1–2 newly founded journals per year).

The peak towards the end of the eighteenth century was due to the increased growth rate alone (rapid growth in period from 1783 through 1800). As the vast majority of the journals in that period were ephemeral (short lived), the periodical network did not turn into a longstanding system. As soon as the growth rate decreased, so did the population size.

The second peak had a very different nature. Surprisingly, it started not around 1870 but almost two decades later. The growth rate began to change in the late 1880s. For just over a decade, from 1888 to 1900, the median growth rate was nearly 4.6 newly founded journals per year. Around the turn of the century, the system entered a period of relative stagnation, and the growth rate dropped twofold. The growth rate was twice as high as those during the long periods of stagnation during the seventeenth, eighteenth and nineteenth centuries, but against the background of the explosive growth of the preceding decade, it appeared moderate.

Table 4 Changing growth rate of the journal population (newly founded journals per year)

Period	Mean.GR	Median.GR
1665–1782	1.03	1
1783–1800	5.50	5
1801–1887	1.21	1
1888–1900	4.62	4
1901–1917	2.41	2
1918–1926	5.33	5
1927–1945	1.63	1
1946–1953	7.50	7

The end of WWI brought on another rapid growth phase, which lasted for eight years and stopped abruptly in 1926 during the Golden Age of the Weimar Republic (1918–1933). In 1926, nine years before Nazism came to power, the population of journals started to decline. The growth rate dropped nearly to its mid-nineteenth century level. The increased longevity of many journals saved the system from total collapse, but the crisis continued until the end of WWII.

We explore the growth rate and lifespan of the journals in detail, which allows us to outline a periodisation of philosophical periodicals. The peak, which occurred towards the end of the nineteenth century and early twentieth century, was of a different nature than those preceding it. The peak towards the end of the eighteenth century had been due to an increased growth rate alone (there was a rapid growth period from 1783 through 1800). As soon as the growth rate decreased, so did the journal population size. As the vast majority of the journals of the period were ephemeral, this peak did not last long. After 1860, the journals tended to be more stable and long term. During the period from 1860 to 1926, we identified two waves of rapid growth (1888–1900 and 1918–1926). The intense growth of new journals and the longevity of the majority of journals created an unprecedented journal population size during the period from 1888 to 1926.

The growth in the number of newly founded journals might be interpreted as a sign of thematic and institutional diversification. However, it might also be seen as a sign of turbulence, such as a large-scale rotation in which newly founded journals replaced other journals that had ceased publication. To understand this stable period in the journal landscape, in the next section, we will analyse the continuity of the population body.

Continuity of the journal population body

We examined the continuity and formation of the journal population, and the continuity and restructuring in the ecosystem was assessed in a standardized way using Jaccard similarity between temporal cross-sections.⁹ Table 5 shows the matrix of Jaccard similarities

⁹ An index proposed by the Swiss botanist Paul Jaccard to numerically assess the similarity of local floras (lists of plant species for given areas). It is calculated as a ratio of the size of the intersection of the two sets to that of their union. For example, the combined number of journal titles for 1914 and 1919 was 71; there were 47 common titles in these two time slices, so the Jaccard similarity for the two periods was $47/71 \approx 0.662$. For the original formulation, see Jaccard (1912).

Table 5 Jaccard similarity between the temporal cross-sections of the journal population (1888–1953). Absolute numbers of shared journal entities are given in parentheses

	1914	1919	1926	1939	1945	1953
1888	0.6818 (15)	0.4091 (9)	0.3636 (8)	0.1818 (4)	0.1818 (4)	0.1818 (4)
1914		0.662 (47)	0.5211 (37)	0.2857 (20)	0.1571 (11)	0.1429 (10)
1919			0.6825 (43)	0.3607 (22)	0.1803 (11)	0.1639 (10)
1926				0.4247 (31)	0.2055 (15)	0.1918 (14)
1939					0.439 (18)	0.3902 (16)
1945						0.76 (19)

between 7 important turning points (the 1888, 1926 and 1953 breakpoints in the growth rate dynamics and the beginning and end of both WWI and WWII).

In analysing the Jaccard similarity coefficient, we need to consider that the difference in the population size between any two time periods has an effect on the index. If the trend is increasing, the index will be lower; if the trend is declining, the index will be higher. To obtain a clearer picture, we add to the Jaccard index the information on the absolute number of journals published in two periods.

Based on Table 5, we can make several observations:

1. In the 26-year period between 1888 and 1914, the Jaccard similarity coefficient was high (approximately 0.68). Notably, there was a low absolute number of shared journals (15) during these years. However, this low number does not prevent us from concluding that, from the turning point in 1888, when the growth rate started to rise, to the beginning of WWI, the body of the journal population was relatively stable.

2. Did the situation change during WWI? According to the Jaccard index, in the five years between 1914 and 1919, the body of the journal population changed on a similar scale to what occurred 26 years before. For this period, we can see a high number of shared journals (47), which can be explained by the increased number of journals as of 1914. However, the number of shared journals between 1888 and 1919 dropped twice.

3. According to Fig. 1, the highest of journals published in any given year occurred in 1926 and amounted to 76 titles—the highest of all analysed periods. After that time, the number of journals started to decline. Figure 5 might help us understand whether it was a turning point in the notable decline in the size of the population or whether the decline just happened to coincide with the restructuring of the journal landscape.

As expected, the list of journals at the height of the Weimar Republic was fairly similar to that after WWI (Jaccard index 0.68). However, looking at this on a broader scale, one can see that the lists in 1914 and 1939 were almost equidistant from that in 1926 (12 and 13 years, respectively). A comparison of the journal population at these three time points shows that 1926 was much closer to 1914, with a Jaccard index of 0.52 and 37 shared journals, than to 1939, with a Jaccard index of 0.42 and 31 shared journals.

4. During WWII, the philosophy journal landscape was dramatically transformed. The Jaccard index was only 0.43 (18). The similarity of the lists in 1926 and 1945 was lower, with 15 journals and Jaccard index of 0.2.

5. The journal population recovery after WWII was rapid (Jaccard index 0.76). However, the index covering the journals that existed before 1926 hovered around 0.2.

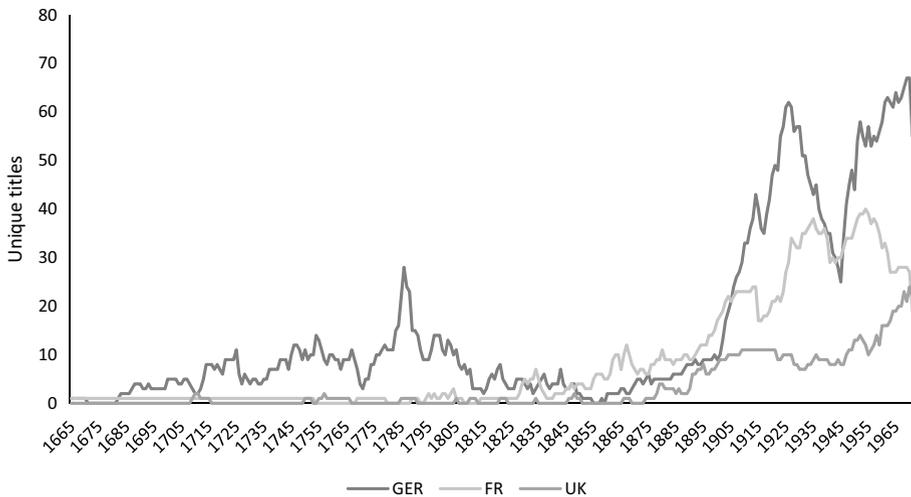


Fig. 5 German-language, French and British philosophy journals. The dynamics of the changing population size based on *Periodica philosophica* (1972) data from 1655 to 1971

Putting the case of German philosophy periodicals in a broader context

How unique is the case of German philosophy periodicals? To understand the specificity of the dynamic of German philosophy periodicals, we decide to compare it with French and British journals in the discipline.

The data were obtained from only *Periodica philosophica* (1972). We understand that obtaining the data only from one source might lead to some bias and that such data can be used only for a certain approximation. As we saw by comparing Kirchner (1969–1977) and *Periodica philosophica* (1972), the data might drastically differ (for examples, see Table 2). However, by taking into account this consideration, this compression of the data might reveal general trends.

Analysing the selection offered by *Periodica philosophica* (1972), we obtain data on 555 titles of German-language journals, 92 titles that published in the United Kingdom, and 170 titles that published in France (Fig. 5).

A comparison based on Fig. 5 leads us to draw the following conclusions:

1. The peak at the end of the eighteenth century that is salient for German-language journals does not occur in the case of French and British philosophical periodicals.

2. German and French journals have more similarities than German and British journals. First, we can see a sharp decline in numbers during WWI and WWII. The slight growth towards the mid-1830s changed the decreasing trend for 30 years. In 1860, the system started to emerge even more rapidly in France than in Germany. However, it must be considered that according to Kirchner (1969–1977), the rise of German periodicals began in the 1870s (see Fig. 1).

Both world wars left marks on German and French philosophical periodicals. In France as in Germany, the sharp decline during WWI changed to growth. However, the post-war recovery took a little more time in France, with the inter-war growth ending in 1937.

Compared to German-language philosophical journals, the drop in France philosophical periodicals during WWII was not so steep.

3. Based on *Periodica philosophica* (1972), the stable system of philosophical periodicals starts in the United Kingdom only in 1890. Unlike its continental counterparts, British journals during the first half of the twentieth century have only minor fluctuations around 10 titles. However, the trends started to change in 1955. The rapid growth in British journals occurred when the number of French philosophical journals slowly declined. In 1971 both German and French philosophical journals display trends that the opposite of those of philosophical journals published in the United Kingdom.

Conclusion

According to Derek J. de Solla Price (1963), a pioneer in scientometrics and an historian of science, the number of journals has to grow exponentially. Indeed, a simplistic exponential growth model (and even a slightly more sophisticated logistic growth model) cannot account for the complex historical dynamics of the population of German-language philosophical periodicals over three centuries of development. The most puzzling finding is that there was rapid growth at the end of the eighteenth century followed by a long depression that lasted almost a century. In the last decade of the nineteenth century, we observed other peaks with complicated structures. In analysing these complex dynamics, we identified three key components of change.

The first component was the varying longevity of the journals. The average longevity of the journals increased dramatically after 1860 with the a near disappearance of journals with a lifetime of 3 years or less and an increase in journals with a lifetime of 16 years or more. In addition to being a sign of important institutional changes, this change in journal longevity alone led to an increase in the momentary size of the journal population in the 1860s-1880s.

The second component was the varying growth rate of the journal population. While the transition from short-lived to long-lived journals happened only once in the population's history, the growth rate fluctuated more often. The periods of rapid growth from 1783–1800, 1888–1900, 1919–1926, and 1945–1953 define the peaks in the late eighteenth century, in late 19th and early twentieth centuries, and during the post-WWII recovery period.

The third component was the continuity of the journal population body. The presence of long-lived journals allows us to meaningfully assess the impact of major historical events on the continuity of the body of the journal population. The situation in 1888 had long-lasting effects, which lasted until WWI and left a visible mark on the journal population. WWII seemed to have a more powerful effect on the population body. However, with our methods of visualization and analysis, we showed that the crisis of WWII actually constituted a smooth continuation of the dramatic decrease that had started as early as 1927. This great decrease was far from being self-evident because its beginning did not coincide with either the beginning of a war or the coming of Nazism to power.

The history of academic philosophy journals offers us a new perspective on three centuries of German philosophy. Analysing a population of journals in a particular discipline, in our case, philosophy, paints a large picture that allows us to localize and contextualize follow-up studies of networks and channels of academic communication.

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