Building a Scientific Community? The WOEPS Workshop and the Evolution of the Economics of Science, 1994–2023

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Abstract

The paper studies the development of the Economics of Science as a new emerging field in the social sciences during the period 1994-2023. To identify the community of scholars working on this new scientific topic, we examine authors citing two seminal papers and use network analysis to investigate the cognitive and organizational characteristics of the community of authors. Our findings suggest that the Economics of Science is still in the process of becoming an independent and cohesive field, exhibiting a highly fragmented structure. We also study the role of the "Workshop on the Organisation, Economics, and Policy of Scientific Research" (WOEPS), initiated in 2007, for the Economics of Science community. We show that WOEPS presenters have more economists of science as coauthors and are better positioned to connect different clusters of authors in the wider Economics of Science network than other members of the network, highlighting its importance for linking scholars in the field. We also show that WOEPS papers are published in higher "quality" journals, receive relatively more citations, and significantly more citations from within the Economics of Science field compared to other Economics of Science papers.

Keywords: Economics of Science; Scientific Communities; Network Analysis; Field Formation

JEL codes: I23; H5; 039

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1 Introduction

The Economics of Science (EoS) has a history of about 150 years, starting with the seminal work of Charles Saunders Peirce in 1876 (Peirce, 1879); nonetheless, the field has attracted few economists with few publications strewn across time until the early 1990s. Sociologists, philosophers and historians devoted far more scholarly work to the understanding of scientific production. In the late 1980s and early 1990s, a series of papers by Paul A. David and Paula E. Stephan, with their respective coauthors,[1] generated renewed interest in the topic among economists. A major restructuring of university systems around the world, the development of new technological paradigms heavily dependent on science, such as biotechnology, and the increased internationalization of the science labor market and of science itself during that period made an economic understanding of scientific production more relevant. Economists with backgrounds foremost in innovation, labor, and industrial organization devoted themselves to the study of science, and gradually a community formed[2]. With this, over the last ten years or so, some of the institutional and organizational characteristics of an independent scientific field (Clausen et al., 2012) started to emerge, with workshops and conferences devoted to EoS (e.g., the Workshop on the Organisation, Economics and Policy of Scientific Research (WOEPS) in Europe and the NBER Science of Science Funding Summer Institute in the US), and sessions in generalist conferences (e.g., the 2023 European Association of Young Economists Conference). However, other elements necessary for the survival and growth of a field are missing, in particular a journal dedicated to EoS.

Following on from Antonelli et al. (2011), which discussed the emergence of EoS as a new growing field and classified EoS contributions published between 1990 and 2010 into eight domains and identified challenges ahead, we study how the field has evolved and whether it has developed into a recognized scientific field. The paper makes two main contributions. First, following the literature on emerging scientific fields (Fagerberg and Verspagen, 2009; Cherrier and Rebours, 2023; Molontay and Nagy, 2021), we map and analyze the EoS community using network analysis. As noted by Granovetter (1985), behavior depends on a network of interpersonal relationships, and coauthorship networks in different time periods can capture the evolving structure of the community and allow

[1] See, for example, Dasgupta and David (1987), Dasgupta and David (1994), Levin and Stephan (1991), Stephan and Levin (1992), and Stephan (1996).

[2] Appendix Table A1 shows the distribution of EoS papers by JEL codes and confirms the early dominance of innovation, industrial organization and labor economics.

us to calculate its cognitive and organizational characteristics. Empirically, we define *economists of science* as any author of a paper indexed in EconLit, a database of economic literature curated by the American Economic Association, who cited Dasgupta and David (1994) and Stephan (1996), papers that we consider seminal to EoS. Then, we construct a coauthorship network of *economists of science* and study the evolution of its structural features following Goyal et al. (2006) and Rose (2022). Second, we study participation in one specific annual meeting, the "Workshop on the Organisation, Economics and Policy of Scientific Research" (WOEPS) (running since 2007), an annual workshop devoted to EoS (broadly defined to include organization and policy analyses).[3] Conferences and journals are the building blocks of a scientific field (Merton, 1973; Whitley, 2000) as they provide a place for the exchange of ideas and offer the institutional structure where reputation and legitimization - especially for young academics - are constructed. We thus draw on published papers that were presented at WOEPS to study the scholars that participated in the workshop; we study their characteristics and position within the EoS network; and the performance of WOEPS participants and their works compared to other *economists of science*.

The paper is structured as follows. In Section 2, we analyze the characteristics of EoS using network analysis. In Sections 3 and 4, we present an analysis of WOEPS participants and their works. The paper concludes with a discussion on the possible future development of EoS in Section 5.

2 The Emergence of Economics of Science

2.1 Delineating a disciplinary field

Identifying the boundaries of a discipline is challenging, especially at its inception. As Clausen et al. (2012) point out, establishing a field involves multiple dimensions: a cognitive dimension, which relates to the knowledge base of its proponents; a social dimension, which includes the community of researchers dedicated to the specific topic; and an institutional dimension, which involves departments, dedicated research centers, and institutes that mobilize human and financial

[3] In recent years, several additional conferences and workshops were launched, reflecting the growing interest in EoS and related domains. Notable examples include the Science of Science Funding Summer Institute organized by the NBER (since 2019, see: https://www.nber.org/conferences/si-2025-science-science-funding), the International Conference on Science of Science and Innovation (since 2022, see: https://icssi.org/), and the Metascience Conference (since 2023, see: https://metascience.info).

resources to support the new field.

In the case of well-established subdisciplines, field boundaries are often delineated through institutional markers such as dedicated journals - a method commonly used in studies of disciplinary evolution (Moody, 2004; Acedo et al., 2006; Anderson et al., 2017) - as well as through repositories of working papers (Newman, 2001), classification systems such as the Journal of Economic Literature (JEL) curated by the American Economic Association (Cherrier, 2017), or field classifications developed from bibliometric databases such as Clarivate's Web of Science, Elsevier's Scopus, and OpenAlex.

In contrast, EoS remains a relatively recent and specialized area of research (Sent, 1999; Ballandonne, 2012), lacking many of the institutional anchors that help define more mature fields. As a result, there is currently no standardized classification or dedicated infrastructure to demarcate its boundaries. Given the inherent difficulty in defining the disciplinary boundaries of EoS, we employ social network analysis to characterize the EoS literature and study its evolution, based on the hypothesis that fields are centered around prominent or closely interacting academics (Fagerberg and Verspagen, 2009).

Following the strategy of Cherrier and Rebours (2023) and Molontay and Nagy (2021), who studied the emergence of Urban Economics and Network Science respectively, we define an *EoS article* based on two seminal papers that are widely regarded as precursors to the recent interest of economists in the study of science: a) Partha Dasgupta and Paul David's (1994) *"Toward a New Economics of Science"* and b) Paula Stephan's (1996) *"The Economics of Science"*. Although all three authors had previously published works on EoS (Dasgupta and David, 1987; Levin and Stephan, 1991; Stephan and Levin, 1992), these two can be considered the most fundamental early contributions to EoS. This is evident in the high number of citations received by both works: Dasgupta and David (1994) received more than 1500 citations on Scopus, more than 170 in Research Policy alone, and Stephan (1996) more than 750 citations, with about 100 in Research Policy at the end of 2024. We consider an article an *Economics of Science* paper if it cites, directly or indirectly (by citing an article that cited the seminal papers), at least one of the two seminal works.[4] Given the interdisciplinary nature of these works, we limited our sample to papers indexed in EconLit, a

[4]We considered other potentially seminal works such as Diamond (1996)'s *The Economics of Science*, but it had received fewer than 140 citations on Google scholar and its inclusion does not impact the analysis.

database specialized in economics and curated by the AEA. We thus define an *Economist of Science* as any author who has published a paper indexed in EconLit that cites, directly or indirectly, the seminal works. We then base our analysis on coauthorship networks, where each author is connected if they have co-authored an *EoS article*.

Clearly, this strategy has limitations. Not all articles in EoS cite the two seminal papers, while some that do may not necessarily belong to the field. Additionally, limiting our search to EconLit excludes many interdisciplinary works, particularly those at the intersection of economics and sociology, organization studies, science and technology policy, and the history of science. However, alternative methods face similar challenges: defining a field by keywords can be arbitrary, and using advanced machine learning classification models requires a large, validated training set that depends heavily on expert choices and operates as a "black box".[5]

Our approach thus approximates EoS based on its knowledge base using citation patterns, drawing significantly from economics and studies on the sociology and organization of science. It also considers the social component, focusing on coauthorship patterns among individuals who share this knowledge base. Following this method allows us to trace the community of authors who publish on EoS topics from its inception to the present in a simple and transparent way. Moreover, this strategy allows us to compare our results with previous work that studies the development of collaboration patterns in economics (Anderson and Richards-Shubik, 2022; Angrist et al., 2020; Truc et al., 2023). The coauthorship network we construct can be considered a subsample of Rose (2022), a replication of Goyal et al. (2006) on the emergence of the small-world structure of the coauthorship network of economists, which can therefore serve as a comparator on the evolution of structural features. Consequently, we adopt a similar methodology using adjusted time windows that reflect the inception and development of the EoS literature. This allows us to assess how the structural properties of the collaborations between *economists of science* evolved compared to the broader discipline of economics, following the publication of foundational contributions by Partha Dasgupta and Paul David, and by Paula Stephan.

[5] Several alternative approaches were explored, yielding mixed results. For instance, attempts to identify EoS papers by searching for combinations of the terms "economics" and "science" in abstracts and keywords produced samples that were either overly broad or insufficiently representative. A more inclusive strategy was also tested, which involved selecting all articles citing two seminal contributions to the field — without restricting by journal — and applying the Leuven community detection algorithm. However, this approach also failed to generate a clear and unambiguous demarcations of the field. Details on these alternative strategies and their results are available from the authors upon request.

2.2 Data collection

We rely on data collected from Elsevier's Scopus bibliographic database and metadata from the *EBSCO EconLit with Full Text* database[6]. While Scopus does not cover all volumes indexed in EconLit[7], we decided to use Scopus instead of EconLit as basis for our analysis for the same main reason as (Rose, 2022), namely because Scopus's disambiguation algorithm allows us to better trace individuals over time using their stable author profile identifier, which is fundamental for our network analysis. We access Scopus data through its public RESTful Automated Programmer Interface (API) using the *pybliometrics* Python package (Rose and Kitchin, 2019), which ensures easy access and reproducibility.

We collect data on all direct and indirect citations (i.e., first and second-order citations) to Dasgupta and David (1994) and Stephan (1996). First-order citations refer to articles that cite either of the two focal papers directly, while second-order citations refer to articles that cite any of those first-order citing papers. This approach enables us to trace not only the immediate scholarly impact of the two foundational works but also their broader intellectual influence through subsequent layers of citation. We restricted our sample to journal articles published between 1994 and 2023, covering 30 years of academic output. In economics, most contributions take the form of journal articles, whereas literature reviews, books and conference proceedings serve different functions within the field's structure and were therefore excluded[8]. After identifying the sample of articles citing seminal papers (directly or indirectly), we excluded all papers published in journals and volumes not covered by EconLit[9]. Our final sample includes 12,068 *EoS articles* written by 17,814 authors. For each paper, we collected bibliometric information - including citations, number of references, JEL codes, and author profile metadata - which enabled us to reconstruct authors' full publication histories and identify their affiliations, coauthorship networks, and contributions beyond the EoS.[10].

[6]Scopus data were retrieved between April and December 2024, while EconLit data were collected on December 15, 2024.

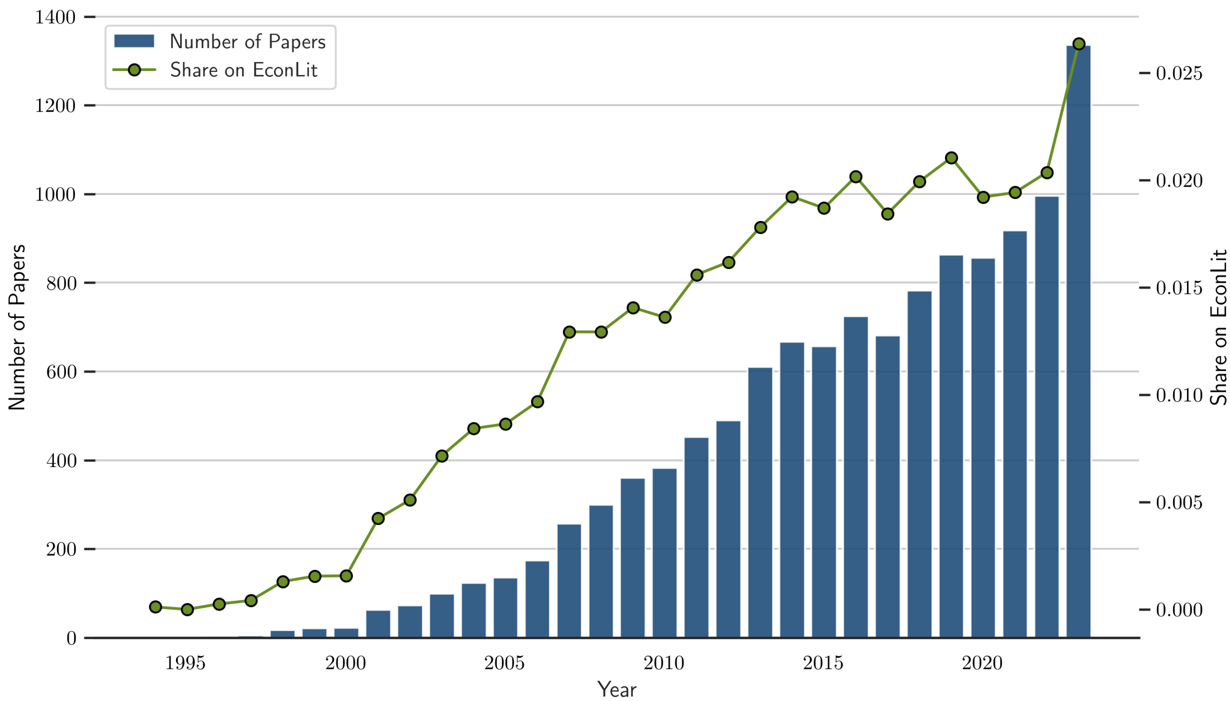
[7]Rose (2022) shows that there are many volumes covered in EconLit but not in Scopus and vice versa. The sample of common volumes of journals used by Rose covers 52% of volumes in EconLit for the period 1970-1999 and 59.8% from 2000-2019.

[8]Journal articles were identified based on the Scopus subtype "ar"; other document types, such as book chapters and conference proceedings, were excluded. This classification is not perfect - some reviews are occasionally labeled "ar" - but we believe that this approach provides a sufficiently accurate approximation.

[9]The list of journals and volumes indexed by EconLit can be found at https://www.aeaweb.org/econlit/journal_list.php

[10]We could not retrieve publication records for 5 authors due to Scopus ID inconsistencies caused by profile merges or other unidentified errors.

Figure 1: Growth of Economics of Science and its Share in EconLit (1994–2023)

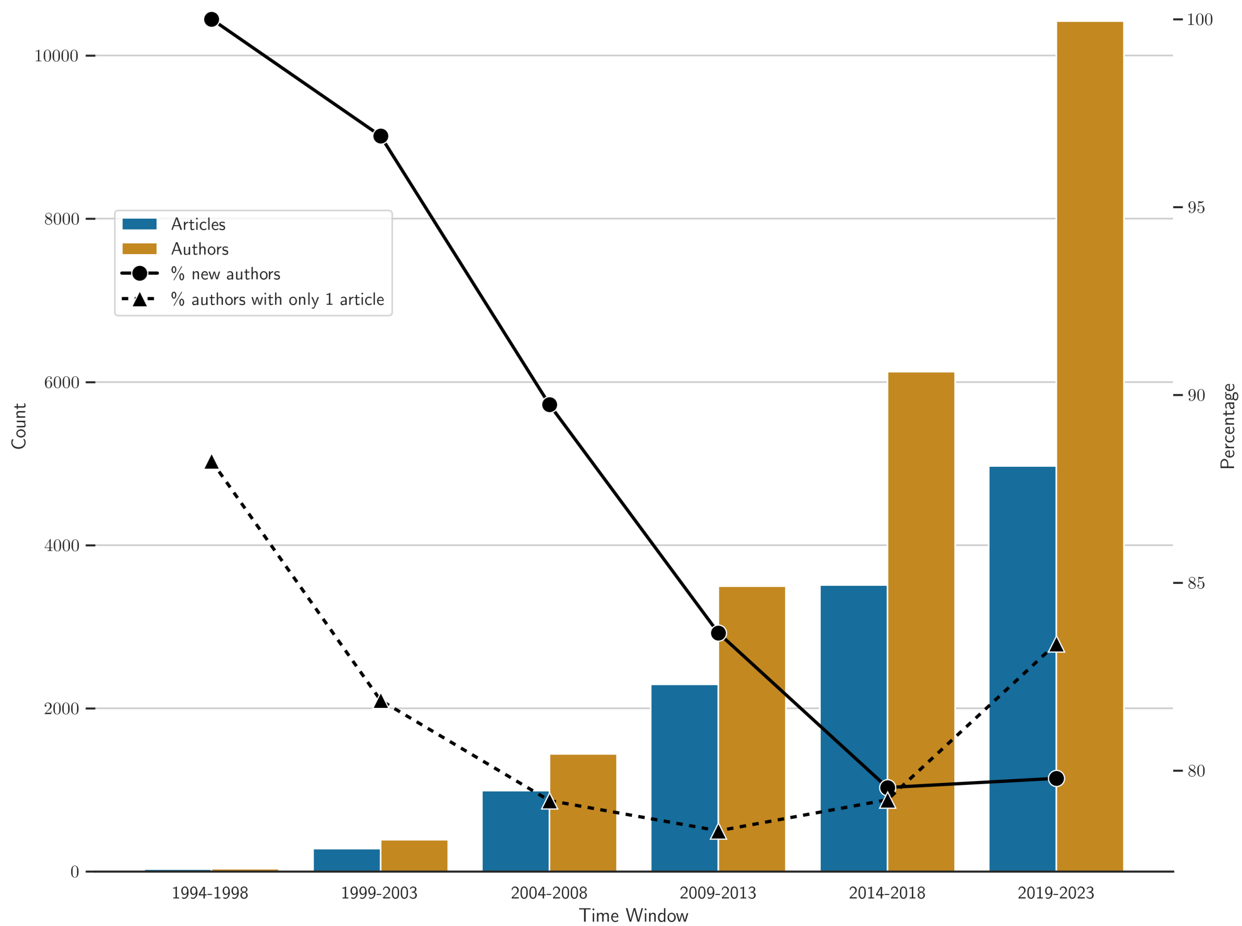


Notes: This figure illustrates the increase of Economics of Science articles from 1994 to 2023. The bars (left y-axis) represent the absolute number of published papers per year. The line with markers (right y-axis) shows the share of these papers relative to the total number of articles in the EconLit database for each year.

2.3 Descriptive statistics

Figure 1 shows the number of EoS articles published and their share in EconLit. It shows that the volume of articles in EoS increased sharply as a total and as a share within the economics literature, with a particularly noticeable increase in 2023. To further depict the evolution of the field, we divide publications into six time periods of 5 years (1994-1998, 1999-2003, 2004-2008, 2009-2013, 2014-2018, 2019-2023). Figure 2 shows an increase from an initial 26 EoS papers published during the 1994-1998 period, to 989 during 2004-2008 and then 4,969 papers published during the period 2019-2023, a 217.8% average growth rate between these time periods. The number of EoS authors increased even more strongly, going from 34 during 1994-1998 to 10,424 during the last period 2019-2023, an average growth rate of 249.1%. The share of new authors entering the field decreased until 2014-2018 and then stabilized around 80%. A similar pattern is observed for the share of "transient" authors (those who only publish one EoS article in the period), a proportion that is high, showing that most authors do not publish more than one article in EoS in a given

Figure 2: Evolution of Articles and Authors Numbers in Economics of Science, 1994–2023



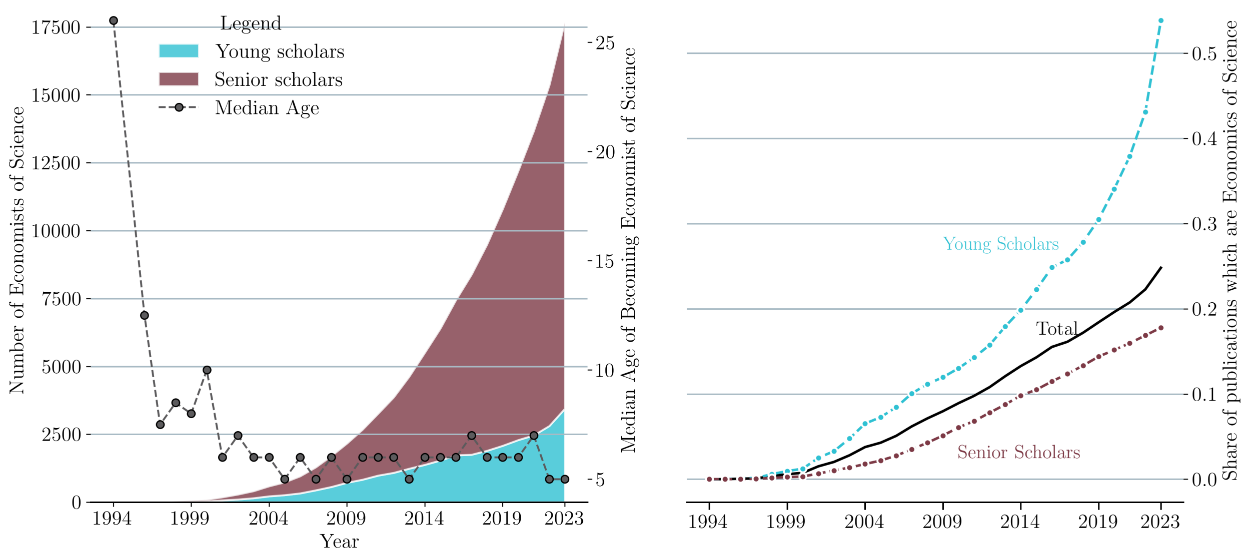
Notes: This figure shows the number of unique articles and authors published in selected seminal economics journals across five-year periods from 1994 to 2023. Colored bars represent article counts (blue) and author counts (golden yellow). The solid black line with circles indicates the percentage of new authors in each period, while the dashed black line with triangles shows the percentage of authors who published only one article.

5-year time period. The share of transient authors decreased until the 2009-2013 period to 78.63% and then notably increased to 83.56% in the last period, potentially indicating a resurgent interest in EoS topics.

Transient authorship and new entry could be due to a higher share of doctoral students and postdoctoral researchers in a field (Malaterre and Lareau, 2023; Raimbault et al., 2016). We explore this in Figure 3. The left panel compares the field entry of young and senior authors, with young scholars defined as those within five years of their first publication. While the median age at entry remains relatively stable, the number of young scholars entering the field increased steadily over time. However, this growth has been outpaced by the overall rise in senior authors active in the field, resulting in a declining share of young entrants. The right panel shows that senior scholars are more likely to be transient, with only a small but increasing share of their works contributing to EoS literature. Young scholars, instead, have a larger and increasing share of their contributions in EoS, reflecting growing early-career engagement with this literature.

The observed entry patterns may also, at least partially, relate to increases in the size of authorship teams in economics (Anderson and Richards-Shubik, 2022; Goyal et al., 2006). However, increases in author numbers are marginal and coauthor numbers remain low over the observed period. In Figure 4 we show that articles in EoS generally have 2 or 3 authors. Only 1.31% of papers had more than 6 authors.

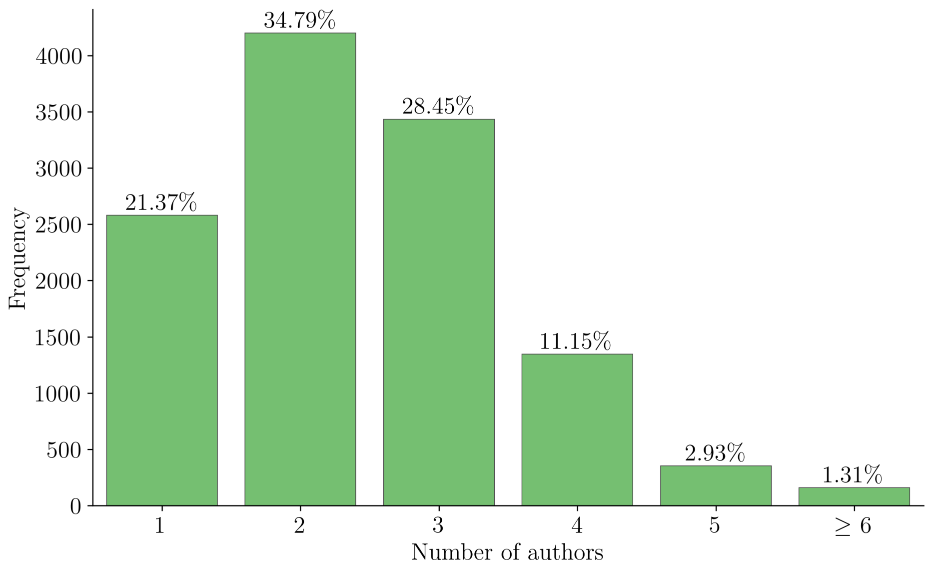
Figure 3: Entry and Engagement of Scholars in the Economics of Science (1994–2023)



Notes: This figure illustrates differences in entry and engagement with the Economics of Science (EoS) field between younger and senior scholars over the period 1994–2023. Young scholars are defined as those within five years of their first publication, while for senior scholars more than five years have passed since their first publication. The left panel presents a stacked area chart showing the number of scholars entering the EoS network each year, disaggregated by career stage. The dashed line (right y-axis) indicates the median academic age at which scholars publish their first EoS paper, capturing generational patterns in field entry. The right panel shows the average share of cumulative publications devoted to EoS, separately for young scholars, senior scholars, and all scholars combined. The data reveal that young scholars consistently allocate a greater portion of their research output to EoS, reflecting a growing early-career engagement with the field.

The exponential growth in papers and authors in EoS could further be linked to the increased availability and quality of bibliometric data to measure scientific output. While in the 1990s data provision and access was restricted to few institutions, several bibliometric databases are now widely available. including open datasets, coupled with advances in econometrics and data science to analyse bibliometric data. Moreover, funding for EoS and related domains increased, with dedicated funding programs, such as the NSF-Science of Science and Innovation Policy (SciSIP) program.[11]

Figure 4: Distribution of the Number of Authors per Paper, 1994-2023

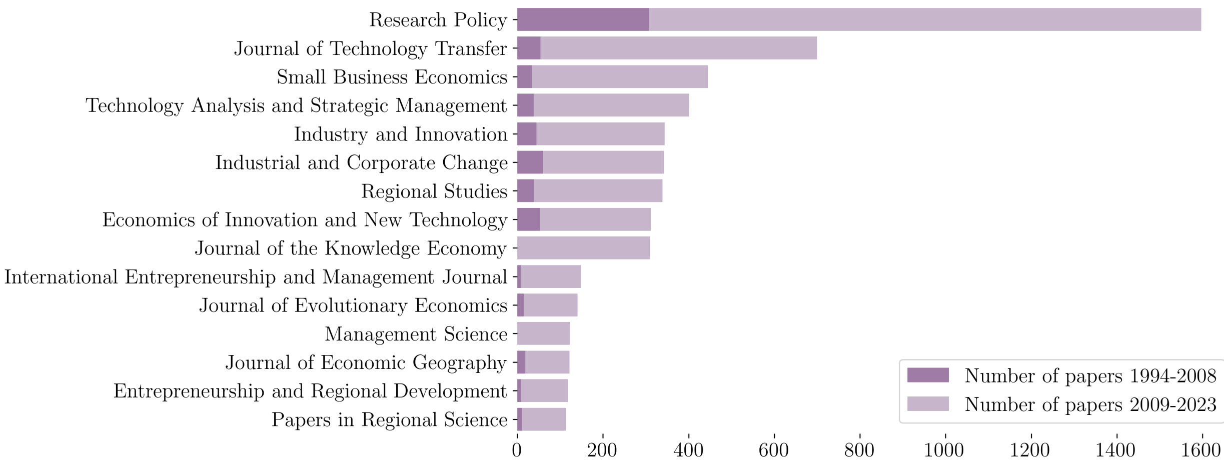


Notes: This figure shows the frequency distribution of the number of authors per article in Economics of Science. The share of papers within each bin is reported as a percentage above the corresponding bar.

Articles in EoS appear in 786 different EconLit journals during the 30-year period considered in our analysis. Figure 5 shows the top 15 journals, split into two 15-year time periods (1994-2008 and 2009-2023). Research Policy is the lead journal, followed by the Journal of Technology Transfer, Small Business Economics, Technology Analysis and Strategic Management, Industry and Innovation, Industrial and Corporate Change, Regional Studies and Economics of Innovation and New Technology. These journals were the main publication outlets in the 1994-2008 period and increased in importance compared to the lead journal Research Policy in the 2009-2023 period. Finally, in the last 15 years, we see an increase in publications in management journals (Management Science, International Entrepreneurship and Management Journal) and in regional studies (Journal of Economic Geography, Papers in Regional Science, Entrepreneurship and Regional Development). This shows that growth in the topic is driven by a more diverse set of publication venues and

[11] SciSIP launched in 2008 with science policy and innovation studies as its main areas of interest, thus of direct relevance to EoS. No other funding agency has devoted a specific funding stream to EoS during our observation period, but UKRI launched a Metascience program in 2024. Private foundations including Alfred P. Sloan in the US, Compagnia di Sanpaolo in Italy, and Novo Nordisk in Denmark have also supported EoS research since the 2010s.

Figure 5: Top 15 Journals in Economics of Science, 1994–2023



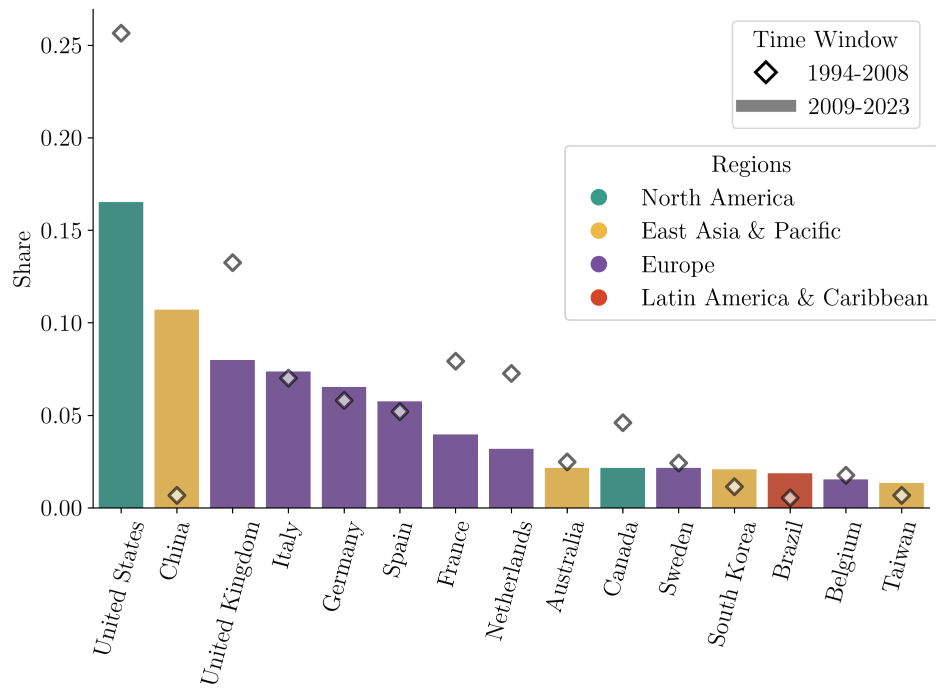
Notes: This figure presents the top 15 journals with the highest number of Economics of Science articles published during two time periods: 1994–2008 and 2009–2023. The bars show the number of articles published in each journal during these two periods. The lighter purple bars represent the period 1994–2008, while the darker purple bars represent the period 2009–2023.

potentially authors.

We further consider the country affiliation of authors listed on EoS articles. Figure 6 shows the share of authors from the top 15 countries during the 2009-2023 time period, compared to the first 15 years (1994-2008). The largest share of articles in the first period is by US authors, followed by authors in Europe, foremost the UK, France and the Netherlands. In the latter period, we see that the US still leads, but now followed by China. European countries that were formerly leading, saw a substantial decrease in their article share. Yet, EoS has remained strong in Italy, Germany and Spain where there is continued interest in the topic.

Finally, Table 1 shows the most prolific authors in terms of productivity, the average of the top 100 and the average of all authors for the entire time period. Across the top five, there is considerable variation in specialization and overall productivity. Author A is the *most* prolific EoS author with 86 EoS articles, about 32% of their total publication output (269 articles), and an H-index of 96, indicating both productivity and impact. Author D also has high total output but a smaller share of EoS works (11.52%) well below the total average (25%); while Author C and E are more concentrated in the EoS network (proportion of EoS articles of more than 40%) and a small total publication count that suggests a specialized research agenda. On average, the top 100

Figure 6: Evolution of the Geographical Distribution of Economists of Science (Top 15 Countries, 1994–2023)



Notes: This figure illustrates the evolution of the geographical distribution of authors publishing Economics of Science articles, focusing on the top 15 countries by author share. Bar heights represent each country's share of authors during the second half of the period (2009–2023), while diamond markers indicate the corresponding shares in the first half (1994–2008). Shares are computed as the proportion of authors whose main affiliation (defined as the most common affiliation over their publication history) is associated with each country, relative to the global total for the respective period. Bars are colored by continent or region, distinguishing Europe, North America, East Asia and Pacific, and Latin America and Caribbean regions. Only authors with at least one available country affiliation are included in the analysis.

authors published 21.63 EoS articles, representing 36% of their research output. In contrast, the average author in the full sample contributed just 1.65 EoS articles, underscoring a highly skewed productivity distribution. This pattern suggests that for most leading contributors EoS represents a significant but not exclusive focus - with few building their academic careers primarily within the field. The most common JEL codes among the top authors and EoS authors more broadly - particularly L26 (Entrepreneurship) and O33 (Technological Change) - moreover point to thematic clustering within EoS. Appendix Table A1 provides a full list of JEL codes covered in EoS articles, that further confirms this clustering.

Table 1: Most Prolific Economists of Science (1994–2023)

Author Rank	Articles Economics of Science	Total Articles	H-index (Publications)	Share of Articles Economics of Science	Primary JEL Code
1 - Author A	86	269	96	31.97%	L26
2 - Author B	52	201	49	25.87%	L26
3 - Author C	49	119	32	41.18%	O33
4 - Author D	44	382	112	11.52%	G34
5 - Author E	37	69	40	53.62%	O32
Average top 100	21.63	79.26	33.59	36.04%	L26
Average all	1.65	22.53	10.37	24.87%	I23

Notes: This table presents the top 5 most productive authors in Economics of Science (EoS), ranked by the number of articles published in EoS. The columns include the total number of articles published, the share of those articles within EoS, the H-index based on total publications, and the most common JEL code associated with each author's publication record. The "Average top 100" and "Average all" rows provide summary statistics for the top 100 authors and the full sample (N = 17,809), respectively.

2.4 Network Analysis

To analyze EoS as a field within economics, we make use of network analysis based on coauthorship ties. 2 presents the structural characteristics[12] of the EoS coauthorship network alongside those of the wider economics field, as defined by journals indexed in EconLit, for comparison. The analysis divides networks into six time periods of 5 years, in addition to a network spanning the full 30 year period.

Panel A of Table 2 shows that while the average number of coauthors per publication in the EoS network remains relatively low, the average degree — defined as the mean number of unique coauthors per author within each period — shows a steady upward trend, increasing from 1.000 in the first to 2.777 in the most recent period. This pattern is consistent with the general trend identified by Goyal et al. (2006) for the economics coauthorship network from the 1970s to the 1990s. However, as shown in Panel B, the average degree in the EoS network remains substantially lower than that observed for the overall EconLit sample. Specifically, the average degree in the wider economics network increased from 2.063 in the 1994–1998 period to 2.714 in the 2004–2008 period, and reached 4.407 in the most recent period (2019–2023). These results align closely with those reported in Rose (2022), which found that the average degree in the wider economics network rose from 2.258 in the 1990s to 2.524 in the 2000s, and reached 3.976 in the 2010s. These comparisons

[12] For a clear and accessible introduction to the network metrics used in this study, see Jackson et al. (2017).

Table 2: Coauthorship Network Statistics (1994–2023)

	1994-1998	1999-2003	2004-2008	2009-2013	2014-2018	2019-2023	1994-2023
Panel A: Coauthorship Network Statistics in Economics of Science							
Total authors	34	386	1,442	3,494	6,125	10,424	17,814
Degree							
Average	1	1.653	2.019	2.189	2.616	2.777	2.983
Standard deviation	0.939	1.856	2.613	2.931	2.581	2.150	3.390
Giant Component							
Size	4	37	105	526	1,245	1,799	6,025
Percentage	11.8%	9.6%	7.3%	15.1%	20.3%	17.3%	33.8%
Second largest component	3	9	49	23	41	84	38
Isolated authors							
Number	11	87	199	394	454	510	1,205
Percentage	32.4%	22.5%	13.8%	11.3%	7.4%	4.9%	6.8%
Clustering coefficient	0.206	0.328	0.422	0.490	0.603	0.689	0.613
Distance in giant component							
Average	1	3.189	6.057	6.452	9.319	10.037	7.452
Standard deviation	0	1.487	3.329	2.364	3.435	3.853	2.218
Panel B: Coauthorship Network Statistics in Economics (all fields)							
Total authors	49,342	69,130	97,761	153,090	216,447	305,736	584,949
Degree							
Average	2.063	2.345	2.714	3.102	3.576	4.407	4.843
Standard deviation	3.152	3.207	4.049	4.735	4.758	6.215	8.032
Giant Component							
Size	15,626	25,859	43,745	77,927	120,681	192,986	415,116
Percentage	31.7%	37.4%	44.7%	50.9%	55.8%	63.1%	71.0%
Second largest component	891	148	69	53	119	116	78
Isolated authors							
Number	12,101	14,284	16,853	20,118	20,643	19,990	56,401
Percentage	24.5%	20.7%	17.2%	13.1%	9.5%	6.5%	9.6%
Clustering coefficient	0.310	0.356	0.398	0.459	0.528	0.600	0.523
Distance in giant component							
Average	11.896	11.194	10.041	9.887	9.632	8.952	7.489
Standard deviation	2.989	2.799	2.463	2.413	2.326	2.056	1.667

Notes: This table presents summary statistics of coauthorship networks over six consecutive five-year periods and the full 1994–2023 span. Panel A reports statistics for the Economics of Science (EoS) network, while Panel B covers the broader economics field across all fields. For each period and panel, we report the total number of authors, average and standard deviation of the degree distribution, size and percentage of the largest connected component (giant component), size of the second largest component, number and share of isolated authors (authors without coauthors), average clustering coefficient, and average and standard deviation of the shortest path lengths within the giant component.

indicate that, despite growth, the average degree within the EoS subfield during 2019–2023 remains around half that of economics in general. This suggests that EoS scholars tend to have fewer coauthorship connections on average, indicating a sparser collaboration structure compared to the economics community.

Moreover, there is a notable difference between EoS compared to economics more generally in the composition of the largest connected component within the network. Despite its expansion, it includes a significantly smaller proportion of authors, with only 17.3% being part of the giant component during 2019-2023, compared to 63.1% of economists in the same period. This difference in proportions could be attributed to our sample's focus solely on collaborations within EoS, rather than considering all collaborations of each author. Nonetheless, this discrepancy highlights a greater fragmentation into disconnected components within EoS relative to that of the wider economics community. While the EoS network comprises numerous disconnected components, the share of isolated authors - defined as individuals who published exclusively single-authored EoS papers within a given period - has been declining. The share of isolated authors fell from approximately 11% to 5% of the EoS sample over the last 15 years. This is lower than in the overall economics field, where the share of isolated authors decreased from 13% to 6.5% over the same timeframe.

The clustering coefficient in the EoS coauthorship network shows a marked increase over time, rising from 0.206 in 1994–1998 to 0.689 in 2019–2023, and surpassing that of the economics field from 2014 onward. This growth indicates increasingly dense local collaboration among EoS authors, suggesting the formation of tightly-knit research communities despite the network's overall fragmentation. In contrast, the clustering in the wider economics network grows more gradually, reflecting its earlier consolidation and broader, more integrated structure.

The average path length within the giant component of the EoS coauthorship network also increased steadily, from 1 in 1994–1998 to 10.037 in 2019–2023. This rise reflects the expansion of the field and the growing number of connected authors, yet the increase is slower than the overall growth in network size. Alongside the rising clustering coefficient, this pattern aligns with the emergence of a small-world structure, characterized by high local clustering and a relatively short number of steps needed to connect any two authors compared to a comparable random network.

To examine the emergence of small-world characteristics in EoS, Table A3 in the appendix presents a calculated small-worldness metric[13]. The results indicate that both the EoS network and the broader economics network exhibit increasing small-worldness over time[14]. However, compared to the broader economics network — where the average path length decreased from 11.896 to 8.952 over the same period — the EoS network remains more fragmented and less efficiently connected. The decline in the average path length within the giant component of the wider economics coauthorship network reflects a growing level of small-worldness in the field, a phenomenon previously identified by Goyal et al. (2006). As collaboration expanded across subfields, institutions, and countries, the network became not only denser but also more efficiently connected, allowing authors to reach others through shorter chains of intermediaries. This trend suggests increasing cohesion and integration within the economics community in recent years, as further documented by Rose (2022). By contrast, the EoS network shows rising clustering and a modest increase average path length over time, indicating a lower degree of small-worldedness. This points to a more fragmented and loosely connected collaboration structure, consistent with EoS's more recent emergence and lower level of institutional consolidation.

The relatively low average distance in the giant component is mainly driven by highly connected "stars", i.e. prolific authors with many coauthors (high degree centrality) that do not coauthor among themselves (low clustering coefficient). Table 3 lists the top five authors ranked by strength (weighted degree centrality) within the giant component, the top 100 and the EoS average. The distribution of both degree (number of unique coauthors) and strength (degree weighted by frequency of collaboration) is heavy-tailed, with top authors exhibiting values an order of magnitude above the mean, highlighting the prominent role of these central figures. While the top 100 authors have extensive co-authorship networks, their collaborators tend not to collaborate with each other, reflected in their low clustering coefficients, underscoring their function as structural bridges or connectors within the network.

We investigate more closely the connectivity of authors within the giant component of the

[13] Following Watts (1999) and Baum et al. (2003), we computed the small-world coefficient σ, which quantifies the extent to which the empirical network is both more clustered and more efficiently connected than a comparable Erdős–Rényi random network. This coefficient captures the degree to which the network displays small-world characteristics.

[14] For the EoS network, we also constructed baseline random networks by generating randomized bipartite graphs through a degree-preserving double-edge swap algorithm applied to the empirical author–paper bipartite network. Results from this approach differ, indicating that EoS's small-world coefficient falls below 1 and has declined in recent periods. The detailed results are available upon request.

Table 3: Top Authors by Degree Centrality in the Giant Component of the Economics of Science Co-authorship Network

Author Rank	Degree	Strength	Clustering Coefficient	Share of Articles Economics of Science	Primary JEL Code
1 - Author A	75	115	0.04	31.97%	L26
2 - Author F	80	91	0.20	70.27%	I23
3 - Author D	53	88	0.07	11.52%	G34
4 - Author B	33	75	0.09	25.87%	L26
5 - Author G	32	64	0.14	28.87%	L26
Average top 100	29.54	40.36	0.24	32.55%	L26
Average all	4.45	5.19	0.64	27.05%	I23

Notes: This table lists the top 5 authors ranked by strength (weighted degree centrality) within the giant component of the co-authorship network in the Economics of Science. The columns report the degree (number of unique collaborators), strength (sum of co-authorship ties), local clustering coefficient (density of connections among an author's collaborators), the share of the author's publications in EoS, and the most common JEL code associated with each author's publication record. The bottom rows report average statistics for the top 100 authors and for the full author population (N = 6,023).

co-authorship network for the whole period 1994-2023 (i.e. the largest connected subgraph) by analyzing two centrality measures: betweenness centrality, which captures how often an author lies on the shortest path between other authors, and eigenvector centrality, which reflects an author's influence based on their connections to other highly connected authors. These metrics provide insight into the authors' structural roles, influence, and prestige within the network. Table 4 presents the top-ranking authors based on eigenvector centrality (Panel A) and betweenness centrality (Panel B) for the full 1994–2023 period, in addition to the top 100 and sample average. Firstly, we note that the top 5 authors in terms of connectivity are not necessarily the ones who are the most prolific in terms of productivity (Table 1). An exception is Author A, the most prolific, who is the main connector in the giant network. Moreover, Author F, while not among the most prolific, is very central and acting as superconnector in the EoS network, and characterized by an exceptionally high share of EoS articles among their publications (70%).

In summary, our analysis of the EoS coauthorship network reveals that EoS took shape in the mid-1990s, expanded significantly throughout the 2000s, and has seen renewed interest in recent years, evident from the entry of new authors. Figure 7 presents the coauthorship network from 1994 to 2023, highlighting the 250 largest connected components, which include 8,246 authors - 46.29%

Table 4: Most Central Authors in the Giant Component of the Economics of Science Co-authorship Network

Panel A: Top Authors by Eigenvector Centrality

Author Rank	Eigenvector Centrality	Share of Articles Economics of Science	Primary JEL Code
1 - Author F	0.2491	70.27%	I23
2 - Author H	0.1930	41.18%	O33
3 - Author I	0.1881	44.00%	O14
4 - Author A	0.1786	31.97%	L26
5 - Author G	0.1693	28.87%	L26
Average top 100	0.0850	31.74%	I23
Average all	0.0023	27.05%	I23

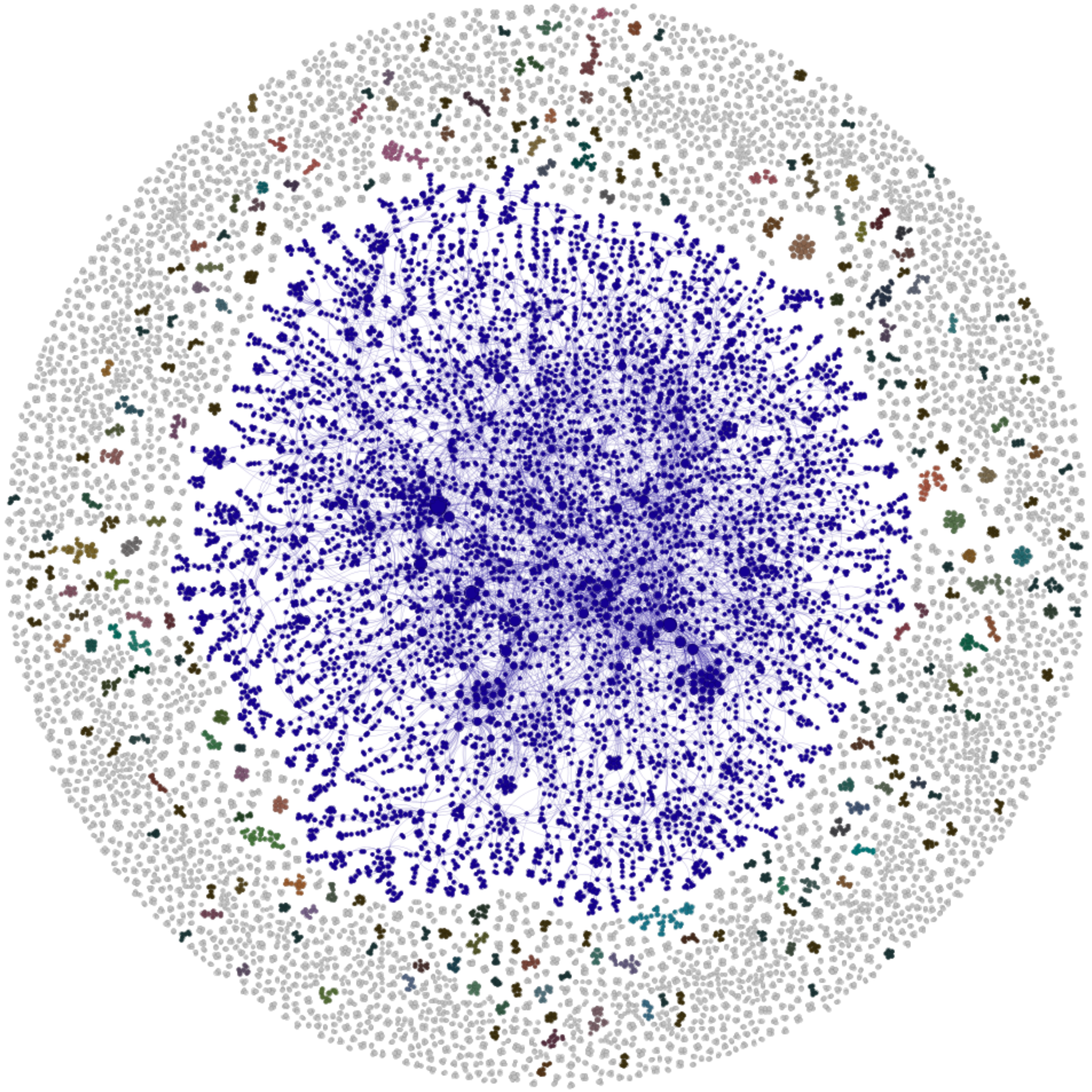
Panel B: Top Authors by Betweeness Centrality

Author Rank	Betweenness Centrality	Share of Articles Economics of Science	Primary JEL Code
1 - Author A	0.0140	31.97%	L26
2 - Author F	0.0077	70.27%	I23
3 - Author B	0.0066	25.87%	L26
4 - Author J	0.0064	32.61%	O31
5 - Author K	0.0059	29.82%	O34
Average top 100	0.0030	29.98%	O31
Average all	0.0001	27.05%	I23

Notes: Panel A lists the top authors ranked by *Eigenvector Centrality* within the giant component of the Economics of Science (EoS) co-authorship network. Eigenvector centrality captures an author's influence based on both their direct connections and the centrality of their collaborators. Panel B presents the top authors based on *Betweenness Centrality*, which measures how frequently an author appears on the shortest paths between other pairs of authors - indicating their potential role as knowledge brokers or gatekeepers. For each author, we report their share of publications related to EoS and their most frequent JEL code. The bottom rows of each panel report average values for the top 100 authors and the full author sample (N = 6,023).

of the entire network - of which the largest component accounts for 33.8%. The development of EoS has been characterized by persistent fragmentation and a relatively small core, especially when compared to the overall economics discipline, where 71% of authors belong to the largest connected component. Centrality measures indicate that a handful of authors play a disproportionately important role, both in terms of their number of collaborations and their ability to connect otherwise isolated groups. These central nodes help maintain a relatively short average path length within

Figure 7: Economics of Science Co-authorship Network (1994-2023)



Notes: This figure displays the coauthorship network in the Economics of Science (EoS) from 1994 to 2023. Each node represents an author who published an EoS paper, and edges connect authors who have coauthored a paper. Node size reflects weighted degree (strength), and positions are determined using the ForceAtlas2 force-directed layout. Colors denote the top 250 connected components, comprising 8,246 authors 46.29% of the entire network. The largest component in blue contains 6,025 authors, accounting for 33.8% of the total. The visualization highlights the fragmented structure of the field, composed of many disconnected subgraphs.

the largest component, a characteristic feature of an emerging small-world structure. Nevertheless, many coauthor groups remain disconnected from the (small) giant component, underscoring the fragmented nature of the field.

To put this in perspective, coauthorship studies in other scientific fields typically reveal far greater cohesion. For instance, Newman (2001) found that between 1995 and 1999, giant components in fields such as biomedicine, high-energy physics, astrophysics, and condensed matter physics comprised 70–80% of all authors. Even in less integrated disciplines, the level of connectivity remains substantially higher: the giant component in computer science included 57.2% of authors, while in sociology it reached 53% over the period 1963–1999 (Moody, 2004) and in management studies 45% between 1980 and 2002 (Acedo et al., 2006). Smaller and more specialized fields also tend to develop relatively cohesive collaboration structures. For example, in physics education research, Anderson et al. (2017) report that the giant component expanded from just 12% in the 1980s to 68% in the 2000s, while Molontay and Nagy (2021) show that in Network Science, the proportion of authors in the giant component increased from about 20% to nearly 60% between 1998 and 2019. One of the few exceptions to this pattern is the coauthorship network in the topic of "Evolution of Cooperation", which Liu and Xia (2015) found to be highly fragmented: between 1961 and 2013, the giant component comprised only 33% of authors.

In contrast, the EoS coauthorship network remains notably fragmented, where even the 250 largest connected components combined account for fewer than 50% of all authors. Most strikingly, in the most recent period the proportion of authors in the giant component declined from 20% to 17%. This decrease coincides with a recent surge in new authors and publications, as shown in Figure 2, suggesting that many recent contributions engage with foundational EoS literature but do not involve direct collaboration with central figures in the field. This trend further highlights the decentralized and fragmented nature of the EoS research network.

3 The Workshop on the Organisation, Economics and Policy of Scientific Research

3.1 Introduction

Conferences and workshops play an important role in the creation and fostering of new scientific communities (Clausen et al., 2012; Whitley, 2000). The "Workshop on the Organisation, Economics and Policy of Scientific Research" (WOEPS) has emerged as a key annual event drawing together scholars in EoS. WOEPS was first held in Turin, Italy, in 2007 as a small invitation-only event mainly focused on the economics and history of science. At the time, there was a growing group of scholars interested in understanding the changing governance of universities. However, this research was foremost concerned with the process of knowledge diffusion and a changing university mission (academic patenting, technology transfer, triple-helix etc.), and little attention was given to the economics and organization of science and its constituent parts (researchers, teams, students, management staff, etc.).[15]

With the support of the DIME network of excellence, the group in Turin organized two more events in 2008 and 2009 that aimed to provide a locus for the presentation and discussion of research that fills this gap in the literature. WOEPS accepted contributions from both junior and senior scholars interested in understanding the changing governance of universities and PROs from an economics, historical, organizational, policy and managerial perspective. Given the success of these early workshops, the 2010 and 2011 WOEPS were again organized with the support of the DIME network of excellence and COST Action STRIKE, the title of the event and two-day plenary format and annual cycle were confirmed, with a permanent and growing scientific committee from 2012 onward. The authors of the two seminal papers in EoS joined the committee; Paula Stephan in 2012, and Paul David, who had been a co-organizer in 2009 and a participant in 2010 and 2013, joined in 2014 until 2020. After the 2017 WOEPS, the scientific committee took the decision to leave Turin, and since 2018 it has been organized at the University of Bath, University of Bordeaux, KU Leuven and MPI Munich. In 2024 WOEPS was again hosted in Turin.

Table 5 presents the location of WOEPS and the number of papers submitted and the number selected for presentation by year. In total, 308 papers were selected out of 893 submitted, an acceptance rate of about 34%. Submissions oscillated over the years, with a decline in submissions due to changes in travel cost funding (from funding for all to funding for selected junior participants after 2013), attractiveness of location, and a process of (self)selection among submitting authors toward applied economics (also driven by a scientific committee of mostly applied economists). However, some variety in approaches including historical, organizational, and policy is still present today. The high number of submissions and the quality of presented papers attest to the status of

[15] Complementary network analysis reveals that the most cited paper in the EoS network is Etzkowitz and Leydesdorff (2000). This underlines university-industry relationships as EoS's initial focus.

the event.

Table 5: Submissions and Presentations at the WOEPS, 2007–2024

Year	Location	Submitted	Presented
2007	Turin	10*	10
2008	Turin	60	22
2009	Turin	34	20
2010	Turin	54	23
2011	Turin	97	18
2012	Turin	75	19
2013	Turin	60	19
2014	Turin	44	21
2015	Turin	36	17
2016	Turin	40	19
2017	Turin	47	18
2018	Bath	42	18
2019	Bordeaux	56	18
2020	Online	44	12
2021	-	-	-
2022	Leuven	50	18
2023	Munich	61	18
2024	Turin	83	18
Total		893	308

Notes: This table summarizes the number of papers submitted and presented each year at the Workshop on the Organisation, Economics, and Policy of Scientific Research (WOEPS). The 2007 edition featured only invited presentations. The 2020 workshop was planned in Munich but held online due to the COVID-19 pandemic, and no edition took place in 2021.

WOEPS has two main objectives: Firstly, it aims to create a community of scholars interested in the EoS especially in Europe. Table 6 lists the country affiliations of presenting authors. Although the largest group of presenters comes from the US, the majority are from Europe, principally Italy, followed by France, Germany, and the UK. Secondly, it aims to support young scholars' (doctoral, postdoctoral and young assistant professor) development by creating a space where they can receive comments and suggestions on their work from senior scholars and network with others working on related topics. As one young participant to WOEPS put it: "I enjoyed [WOEPS] very much. I got great comments and suggestions for my paper. The attendees are sharp and friendly, insightful and supportive. [...] I got the precious chance to talk with senior researchers whose papers I had read and cited but never met in person before. I also got the opportunity to talk with other junior researchers and found at least two of them with possibilities for future collaboration. I hope to attend more [WOEPS] in the future." (Junior Presenter, WOEPS 2018). To support the objective, travel funding support continues to be offered to selected junior scholars.

Table 6: Country affiliations of presenting authors 2007-2024

Country Affiliation	Count
United States	62
Italy	52
France	33
Germany	29
United Kingdom	28
Belgium	24
Netherlands	16
Switzerland	15
Denmark	12
Spain	10
Japan	6

Note: Affiliation as listed at time of presentation. Only countries with more than 5 presenters are listed. Same presenter may appear multiple times if presenting in multiple years.

3.2 Data collection

We focus our data collection on papers presented at WOEPS between 2008 and 2023 only, as the 2007 WOEPS was a small invitation-only event and the 2024 WOEPS too recent for any papers to have been published. In this period, 280 papers were presented by 190 unique presenters. On average, an individual author presented 1.5 times during the 15 workshop editions considered; 70% of authors presented just once; the maximum number of presentations by an individual author is 8.

Using these presentations, we create our WOEPS population as being composed of: 1) paper presenters, and 2) coauthors of paper presenters that a) were and b) were not present at the workshop. We collected their full publication histories following a four-step process. First, we conducted an automatic API search on Scopus and identified perfect matches with the title of the presented paper. Second, we applied a similarity approach based on title similarity and author composition. Third, we searched the Scopus acknowledgments field for mentions of WOEPS and assigned the correct published paper titles if papers had the same authors as the presented work. Fourth, we sent an email survey to presenters for whom we were unable to locate a published paper, receiving 76 responses. The process provides a lower bound estimate, as some publications are missed due to changes in title or authorship teams since their presentation at WOEPS.

We were able to identify 168 papers in Scopus, 60% of the 280 papers presented. If we consider only the period 2008-2019, which allows a longer period until publication, the share increases to 68%. After checking for completeness of records and for errors, we are left with 159 publications for which full citation information is available, 150 journal articles and 9 other publication formats such as reviews or book chapters. We identified all the publications' coauthors, those who participated in the workshop (category 2.a) and those that did not (category 2.b). The final authors database includes 263 Scopus author IDs. Of these authors, 25 had not been listed as coauthors in the original submission to WOEPS; they are likely coauthors who joined later or were not listed on the submission for other reasons. For the 263 authors of presented papers that could be identified on Scopus, we extracted their full publication histories relying on Scopus author IDs, a total of 8,374 publications (including all document types and including the 159 presented papers), the first in 1968. We record the year of successful workshop submission and first year of publication (the year of the first journal article listed in their Scopus profile). Based on this information we identified *junior authors*, as those who had their paper presented within five years of their first publication, a total of 100 authors, or 38%.

While not part of the analysis, we also considered authors of the 520 not accepted papers, identifying 739 unique authors and a total of 940 authors. 621 of the unique authors have only one rejected submission, while 118 (16%) were rejected multiple times from 2 to a maximum of 13, accounting for 34% of total authors/submissions. Interestingly, 19% of rejected authors were accepted with the same or different papers in one or more workshops; in particular 43% of the 118 with multiple rejections had been accepted at least once. The small number of presentation slots (and priority given to younger scholars), generated strong competition for participation with authors interested in EoS submitting multiple times including multiple papers in the same year, not always with success.

3.3 Descriptive statistics

We first provide a summary of the 159 presented papers that could be identified on Scopus. On average they take 2.7 years from presentation to publication. They have 2.5 authors on average, but presenters are first authors on 50% of co-authored works. About 70% of presented papers have a young scholar (i.e. academic age less than 6 years when the paper was presented at WOEPS). A closer examination revealed that 43% had been presented by the junior author (20% by an author who had no publishing experience prior to presenting), 51% of presenting authors are junior when they first present a paper at WOEPS, and 27% return to present papers when they are no longer junior. Finally, 62% of the papers cite one of the two seminal EoS works directly or indirectly and can thus be considered an EoS paper. All of this highlights the goal of the workshop to support junior scholars and to build a community.

The identified 159 papers were published in 69 different journals, but more than a third have been published in Research Policy (see Table 7). Publishing journals have an average SJR score of 3, and articles received an average of 42 citations, indicating above average quality. About 62% of the papers cited one of the two seminal works in EoS either directly or indirectly (see section 2), highlighting the close link of presented papers to the wider EoS network.

Table 7: Top publication output for presented papers

Journal	Count
Research Policy	56
Industrial and Corporate Change	9
Journal of Technology Transfer	5
PLoS ONE	5
Management Science	5
Organization Science	3
Revue Economique	3
PNAS	3

Note: N=159. Number of journals is 69. Top 8 reported.

We compare the 159 presented papers to the overall publication output of their 263 authors. More than 70% of their papers were published after 2007, the year of the first WOEPS, a total of 6,114 publications including 4,270 journal articles. Comparing these other post-2007 publications to the 159 presented at WOEPS (see Table 8, Panel A), we find that WOEPS papers have fewer co-authors, and are significantly more likely to have cited one of the two seminal works in EoS either directly or indirectly than other works by the same authors (63% vs. 14%). They are also published in journals with a higher SJR score (3 vs. 2). However, there is no significant difference in the number of citations they received.

Table 8: Summary Statistics for Papers Published by the WOEPS Community

Panel A: Paper-level Statistics				
	Non-WOEPS papers	WOEPS papers	Total	Test
N	5,956 (97.4%)	159 (2.6%)	6,115 (100.0%)	
Nb. Authors	3.824 (6.385)	2.494 (0.915)	3.789 (6.307)	0.009
Nb. Citations Total	35.967 (84.871)	42.614 (68.734)	36.139 (84.495)	0.329
SJR Score	2.103 (2.679)	3.086 (3.386)	2.133 (2.708)	<0.001
EoS Paper	0.142 (0.349)	0.627 (0.485)	0.154 (0.361)	<0.001
Panel B: Author-Paper-level Statistics				
	Non-WOEPS participants	WOEPS participants	Total	Test
N Authors	131 (49.8%)	132 (50.2%)	263 (100.0%)	
N Papers	4,123 (57.4%)	3,065 (42.6%)	7,188 (100.0%)	
Nb. Authors	4.166 (6.859)	3.451 (5.454)	3.861 (6.308)	<0.001
Nb. Citations Total	40.915 (95.645)	38.223 (104.072)	39.768 (99.328)	0.256
SJR Score	2.207 (2.767)	2.219 (2.819)	2.212 (2.789)	0.878
EoS Paper	0.128 (0.334)	0.270 (0.444)	0.189 (0.391)	<0.001

Notes: This table reports summary statistics for all papers published between 2008 and 2024 by authors of papers presented at WOEPS between 2008 and 2022. The unit of observation is the publication (incl. articles, book chapters, reviews, etc.). Panel A considers the 159 WOEPS presented papers compared to all other publications by the same authors. Panel B compares all publications by authors who participated at WOEPS in person at least once to all publications by their co-authors who did not participate. Panel B contains duplicates in publications for each co-author. Mean values are presented with standard deviations in parentheses; p-values of means comparison tests. SJR Score excludes observations for which score is not available.

Not all authors participate in WOEPS in person; only 132 of the 263 authors participate at least once. Participation enables scholars to receive comments on their work and build links with others interested in EoS. This is particularly important in the emergence of a new research field, to find like-minded scholars, to discuss and develop research projects, and to legitimize research interests. We compare papers published by participants and non-participants in Panel B of Table 8. Participating authors are more likely to cite one of the two seminal works in EoS, either directly or indirectly, in their papers compared to authors who did not participate (in 27% of their papers vs. 13%) and at the same rate as the average *economists of science* (see Table 1). This suggests that WOEPS participants are more closely linked to the EoS network compared to their coauthors not attending WOEPS. Papers by WOEPS participants have fewer coauthors, but there is no difference in citations or SJR score between papers authored by the two groups.

4 WOEPS and the Economics of Science

4.1 Empirical approach

To understand the relationship between authors' participation in WOEPS and their position within the EoS network, we estimate the association between differences in network centralities and the number of times an author presented at WOEPS. If the workshop plays a role in shaping the structure of the EoS network, we would expect participating authors to occupy more central positions within the EoS network. We anticipate this association to be stronger for younger scholars, given WOEPS' focus on junior researchers. It is important to note that our empirical approach does not allow for causal interpretation. The observed relationship may reflect both selection and treatment effects. Nevertheless, even if the effect is driven primarily by selection, this remains a meaningful result: it suggests that the WOEPS scientific committee has been effective in selecting papers and authors who are or will become central to the field.

We construct an unbalanced panel of all EoS authors from 2008 to 2023, with observations beginning in the year of each author's first EoS publication. For each author-year observation, we measure network centrality and the cumulative number of WOEPS presentations up to the previous year. We then estimate the following model:

$$\begin{aligned}\text{Network Centrality}_{it} = \beta_0 &+ \beta_1 \text{WOEPS Presentations}_{i(t-1)} + \beta_2 \text{Young Scholar}_{i(t-1)} \\ &+ \beta_3 \text{WOEPS Presentations}_{i(t-1)} \times \text{Young Scholar}_{i(t-1)} + \alpha X_{i(t-1)} \\ &+ \xi_i + \gamma_t + \epsilon_{it}\end{aligned} \tag{1}$$

where Network Centrality$_{it}$ is the network centrality measure for author i at year t; The interaction term captures whether the relationship differs for junior scholars, defined by the indicator variable Young Scholar$_{i(t-1)}$, which equals 1 if the author is within five years of their first publication; the vector $X_{i(t-1)}$ includes additional author-level controls lagged by one year. In particular, we include academic age and its squared term to account for nonlinear experience effects, and the author's cumulative h-index to proxy for research output "quality". To account for unobserved heterogeneity and common time shocks, we include author fixed effects (ξ_i) and year fixed effects (γ_t). Standard errors are clustered at the author level to address serial correlation in both network centrality and WOEPS participation.

We also examine whether papers presented at WOEPS perform better after publication compared to other EoS papers. Workshop presentations offer authors the opportunity to receive feedback on their work, and prior research has shown that such feedback can positively influence a publication's impact Rose et al. (2022). Given its focus on junior scholars, WOEPS is particularly well positioned to enhance the visibility of their work within the EoS community. As before, any observed effect may reflect selection rather than treatment; nonetheless, such a pattern would underscore the scientific committee's ability to identify high-potential research.

For this analysis, we compare WOEPS publications to those identified as EoS in terms of journal "quality" and number of citations. Our journal "quality" variables are the journal's SJR score, which measures the "prestige" of a journal[16], the journal H-index, which indicates whether at least h articles published in a given year have received h citations, and the journal cites per document, which is equivalent to the journal impact factor. In terms of citation performance, we consider the number of citations received by articles in a 2, 3, and 5 year window, as well as the total number of citations. Finally, we look at the number of citations received by papers identified as EoS papers, again using 4 different citation window measures. All citations are log transformed to account for their skewed nature. The main independent variable is whether the paper was presented at WOEPS (1) or not (0).

Specifically, we estimate the following models:

$$\text{Journal Impact}_t = \beta_0 + \beta_1 \text{WOEPS Paper}_t + \alpha X_t + \gamma_t + \epsilon_t \tag{2}$$

$$\text{Citations}_{jt} = \beta_0 + \beta_1 \text{WOEPS Paper}_{jt} + \alpha X_{jt} + \upsilon_j + \gamma_t + \epsilon_{jt} \tag{3}$$

where *Journal Impact* is one of our three journal impact measures, and *Citations* measures overall citations, or EoS citations for different time windows. *WOEPS Paper* indicates whether the paper

[16]For a detailed description of this indicator, see https://www.scimagojr.com/SCImagoJournalRank.pdf.

was presented at WOEPS; X includes paper controls (counts of authors, references and pages) and author controls (authors' highest h-index, authors' mean academic age) which account for experience of the publishing author team; γ_t and υ_j capture time and journal fixed effects respectively; and ϵ is the error term.

4.2 Descriptive Statistics

Table 9 reports descriptive statistics for the key variables used in our regression analysis. Panel A summarizes author-level data across 125,383 author-year observations, covering 17,809 unique authors from which we could retrieve publication record information. The average degree and strength, measuring the number and intensity of an author's annual collaborations, are 2.70 and 2.99, respectively, with right-skewed distributions and maximum values of 80 and 115. Measures of Eigenvector and Betweenness Centrality are highly dispersed and median values are zero, indicating that most authors occupy peripheral positions within the network, while a small number play disproportionately central roles. Only 29% of author-year observations belong to the giant component of the network, suggesting limited overall connectivity in the EoS community.

Participation in WOEPS is rare: the average number of presentations per author-year is just 0.01, and the median is zero, reflecting the selective and small size of the event. Author characteristics reveal substantial heterogeneity. The average academic age in the sample is approximately 14 years, ranging from 0 to 77 years. The longest academic career belongs to William Baumol, who published his first paper at age 24. The average h-index is 10.94, with a maximum of 190, held by John Ioannidis of Stanford University School of Medicine, highlighting substantial variation in scholarly productivity and impact. Junior researchers account for 21% of the sample.

Panel B presents descriptive statistics for the subset of articles used in the analysis of journal outcomes. The sample includes 9,435 publications identified as relevant to EoS and with complete journal measures. On average, articles are published in journals with an SJR score of 1.59, though the distribution is right-skewed due to a small number of articles in highly prestigious journals (maximum SJR = 36.73). The average journal h-index is 105 and the average number of citations of articles published in these journals is 2.82, suggesting that EoS papers are typically published in journals of moderate to high visibility. Only 1% of the papers in this sample were presented at WOEPS. The average article is approximately 21 pages long and cites around 70 references.

Table 9: Summary Statistics

	Mean	Median	Std.Dev.	Min	Max
Panel A: Panel (Nb. Authors = 17,809; Observations = 125,383)					
Degree	2.70	2	3.37	0	80.00
Strength	2.99	2	4.16	0	115.00
Eigenvector Centrality	1.11	0	11.24	0	304.51
Betweenness Centrality	0.06	0	0.39	0	17.62
Giant Component	0.29	0	0.46	0	1.00
Nb. WOEPS Presentations	0.01	0	0.18	0	8.00
Academic Age	13.90	12	10.29	0	77.00
H-index	10.94	7	11.35	0	190.00
Young Scholar	0.21	0	0.41	0	1.00
Panel B: Journal Outcomes Sample (Observations = 9,435)					
SJR Score	1.59	1.10	2.02	0.1	36.73
Journal h-index	104.57	79	83.06	0.0	1,283
Journal Cites/Document	2.82	2.27	2.07	0.0	14.83
WOEPS Paper	0.01	0	0.12	0.0	1
Nb. Authors	2.45	2	1.19	1.0	26
Nb. Pages	20.95	20.00	8.77	1.0	109.00
Nb. References	69.76	64	41.63	1.0	2,167
Authors h-index (max)	18.01	14	15.78	0.0	158
Authors Academic Age (mean)	11.28	10.00	7.69	0.0	68.00
Panel C: Citation Outcomes Sample (Observations = 9,679)					
Nb. Citations Total	36.76	14	73.59	0	1,824
Nb. Citations (2 years)	7.17	4	11.84	0	318
Nb. Citations (3 years)	11.26	6	18.14	0	350
Nb. Citations (5 years)	19.38	10	32.54	0	746
Nb. Citations EoS Total	5.24	1	12.43	0	305
Nb. Citations EoS (2 years)	0.99	0	1.92	0	44
Nb. Citations EoS (3 years)	1.58	0	2.97	0	77
Nb. Citations EoS (5 years)	2.74	1	5.36	0	154
WOEPS Paper	0.01	0	0.12	0	1
Nb. Authors	2.45	2	1.19	1	26
Nb. Pages	20.91	20	8.75	1	109
Nb. References	69.58	64	41.46	1	2,167
Authors h-index (max)	17.83	14	15.73	0	158
Authors Academic Age (mean)	11.21	9.8	7.70	0	68

Notes: This table reports summary statistics for the variables used in the regression analysis. Panel A is based on author-year observations; Panels B and C use article-level data. *Degree*, *Strength*, *Eigenvector*, and *Betweenness Centrality* describe authors' positions in the annual co-authorship network. *Giant Component* indicates membership in the largest connected subgraph. *Nb. WOEPS Presentations* counts cumulative workshop presentations. *Academic Age* is years since first publication; *H-index* measures scholarly impact; *Young Scholar* equals 1 if within five years of first publication. In Panels B and C, *SJR Score*, *Journal h-index*, and *Cites/Document* capture journal quality. Article characteristics include number of authors, pages, and references. *Authors h-index (max)* and *Academic Age (mean)* summarize author profiles. Citation metrics cover both overall and Economics of Science (EoS)-specific citations, reported as totals and at 2-, 3-, and 5-year intervals following publication.

Coauthorship is common, with an average of 2.45 authors per paper. The most senior coauthor, as measured by the maximum h-index among coauthors, has an average h-index of 18 and the average academic age of the author team is 11 years.

Panel C presents summary statistics on the citation performance of 9,679 articles identified as relevant to EoS. This sample extends beyond that of Panel B by including articles for which citation data are available, even when journal-level indicators (such as SJR) are missing. On average, these papers receive 36.8 citations with a median of 14, although the distribution is highly skewed, with some articles accumulating more than 1,800 citations. Citations increase over time, with mean counts of 7.2, 11.3, and 19.4 citations within 2-, 3-, and 5-year windows, respectively. When focusing exclusively on citations from within the EoS community, the figures are markedly lower. The average number of EoS-specific citations within five years is 2.74, with a median of just 1, indicating that while many EoS papers gain visibility in the broader academic literature, internal referencing within EoS remains limited. The descriptive statistics for article and author characteristics in this citation sample closely resemble those reported in Panel B, with similar distributions for the number of authors, article length, number of references, and author-level metrics such as h-index and academic age.

Taken together, these statistics highlight several structural characteristics of the EoS network: a sparsely connected author network, limited internal citation activity, and the relatively minor role played by WOEPS overall. However, as shown in Table 8, WOEPS could potentially have an influential role in identifying and promoting emerging research and researchers, given that works presented at WOEPS tend to receive more citations on average, and are published in journals with higher SJR scores.

4.3 Results

Table 10 presents as baseline the pooled OLS regression results examining the relationship between WOEPS presentations and authors' positions in the EoS coauthorship network. The analyses show that the number of WOEPS presentations prior to t is positively associated with several network measures in t. Specifically, each WOEPS presentation is linked to higher degree and strength, indicating more collaborators and stronger coauthor ties, with estimated increases of approximately 31% and 38%, respectively. WOEPS presentations are also positively related to eigenvector centrality, suggesting collaboration with more influential coauthors. Betweenness centrality, reflecting an author's brokerage role in the network, also increases significantly with number of presentations at WOEPS. The effects of WOEPS are generally weaker for junior researchers, as indicated by the negative and significant interaction terms with the young scholar indicator for degree, strength, and betweenness centrality. WOEPS is positively associated with a higher likelihood of belonging to the largest connected component (giant component), although no significant differential effect is observed for young scholars. Control variables including academic age, its square, and H-index are also associated with network outcomes in expected directions. It is important to note that these results do not include author fixed effects, that is, they capture associations across authors rather than within-author changes over time, and are therefore more likely to reflect selection effects rather than a direct relationship with WOEPS presentations.

Table 10: WOEPS Participation and the Economics of Science Network - Pooled OLS

	Dependent variable:				
	$\log(\text{Degree}_t + 1)$	$\log(\text{Strength}_t + 1)$	Eigenvector Centrality$_t$	Betweenness Centrality$_t$	Giant Component$_t$
	(1)	(2)	(3)	(4)	(5)
Nb. WOEPS Presentations$_{t-1}$	0.309^{***}	0.377^{***}	4.680^{*}	0.299^{***}	0.206^{***}
	(0.053)	(0.056)	(1.941)	(0.073)	(0.030)
Young Scholar$_{t-1}$	0.074^{***}	0.072^{***}	0.380^{*}	0.024^{*}	-0.003
	(0.012)	(0.012)	(0.188)	(0.010)	(0.008)
Nb. WOEPS Presentations$_{t-1}$ × Young Scholar$_{t-1}$	-0.239^{**}	-0.271^{***}	-3.053	-0.211^{**}	0.046
	(0.076)	(0.080)	(2.098)	(0.078)	(0.041)
Academic Age$_{t-1}$	-0.009^{***}	-0.010^{***}	0.089^{*}	-0.002	-0.001
	(0.002)	(0.002)	(0.038)	(0.002)	(0.001)
Academic Age$^2_{t-1}$	0.00004	0.00004	-0.002^{**}	0.0001	-0.00003
	(0.00005)	(0.0001)	(0.001)	(0.0001)	(0.00003)
$\log(\text{H-index}_{t-1} + 1)$	0.210^{***}	0.232^{***}	0.614^{***}	0.083^{***}	0.054^{***}
	(0.009)	(0.009)	(0.167)	(0.008)	(0.006)
Author Fixed Effects	NO	NO	NO	NO	NO
Year Fixed Effects	YES	YES	YES	YES	YES
Number of authors	17,270	17,270	17,270	17,270	17,270
Observations	122,057	122,057	122,057	122,057	122,057
R^2	0.078	0.083	0.010	0.046	0.025
Adjusted R^2	0.078	0.083	0.009	0.046	0.025

Notes: This table presents pooled OLS regressions examining the relationship between participation on the Workshop on the Organization, Economics, and Policy of Scientific Research (WOEPS) and authors' positions in the Economics of Science co-authorship network over the period 2008–2023. The dependent variables are: log(Degree + 1) and log(Strength + 1), log-transformed degree and weighted degree of authors in the co-authorship network; the normalized Eigenvector Centrality and Betweenness Centrality (multiplied by 1,000), standard measures of network influence and knowledge brokerage, respectively; and a binary indicator for belonging to the Giant Component of the network. The main explanatory variable is the number of WOEPS presentations given by each author up to a given year. Control variables include: Young Scholar, a binary variable equal to 1 if the author observed within 5 years since the author's first publication; log(H-index + 1), based on the author's cumulative publications and citations; *Academic Age*, defined as the number of years since the author's first publication; and *Academic Age*^{2} to account for non-linear career effects. All regressions include year fixed effects. Standard errors are clustered at the author level. Significance levels: * p<0.05; ** p<0.01; *** p<0.001.

To address this limitation, Table 11 presents the results of a fixed-effects model (equation 1). Accounting for author and year fixed effects, we observe that for senior researchers (the main effect) a higher number of cumulative WOEPS presentations are associated with increases in both degree (number of coauthors; column 1) and strength (weighted coauthor ties; column 2), corresponding to average within-author increases of roughly 20% and 25% for each WOEPS presentation, respectively. The negative interaction term suggests that this association is weaker during the early stages of an author's career. Presentations at WOEPS are also positively related to eigenvector centrality (column 3), implying that presenting authors are more likely to coauthor with well-connected peers, although this relationship is statistically weaker (significant at the 10% level).

A clearer pattern emerges for betweenness centrality (column 4): an increase in cumulative WOEPS presentations are associated with occupying more central brokerage positions in the network. This association does not vary significantly across career stages. Lastly, no significant relationship is found between WOEPS presentations and the probability of being in the giant component (column 5). However, the positive and significant interaction term indicates that, for junior researchers, each additional presentation is associated with a 6.1 percentage point higher likelihood of being in the giant component the following year (0.031 + 0.030), relative to years without participation. Given that only 29% of observations are in the giant component on average, this corresponds to a relative increase of approximately 21%, highlighting a notable within-author association between junior scholars' WOEPS engagement and network integration.

As a robustness check, we estimate our models using 2-year and 3-year lags for the explanatory variables, reported in Appendix B. The fixed effects results reveal an even stronger positive association between WOEPS presentations and belonging to the giant component for young scholars, while the pooled OLS results remain consistent with the main findings.

Overall, the evidence indicates that presenting at WOEPS is associated with having more coauthors in the EoS network and producing more joint publications, with stronger effects observed for senior compared to junior participants. Furthermore, continued participation as presenter correlates with occupying important brokerage roles that connect different parts of the network, suggesting that WOEPS presenters help facilitate communication within the field. Finally, relative to their overall academic career, junior scholar presentations at WOEPS are linked to a higher likelihood of being part of the giant component. This suggests that repeated participation early in one's career is

Table 11: WOEPS Participation and the Economics of Science Network - Fixed Effects

	Dependent variable:				
	$\log(\text{Degree}_t + 1)$	$\log(\text{Strength}_t + 1)$	Eigenvector Centrality$_t$	Betweenness Centrality$_t$	Giant Component$_t$
	(1)	(2)	(3)	(4)	(5)
Nb. WOEPS Presentations$_{t-1}$	0.204***	0.246***	1.742†	0.166***	0.031
	(0.034)	(0.038)	(0.917)	(0.046)	(0.019)
Young Scholar$_{t-1}$	0.041***	0.044***	0.084	0.022***	0.005
	(0.005)	(0.005)	(0.109)	(0.005)	(0.005)
Nb. WOEPS Presentations$_{t-1}$ × Young Scholar$_{t-1}$	−0.104***	−0.111***	−0.060	−0.054	0.030*
	(0.029)	(0.033)	(0.267)	(0.064)	(0.012)
$\log(\text{H-index}_{t-1} + 1)$	0.261***	0.307***	0.926***	0.095***	0.106***
	(0.009)	(0.010)	(0.177)	(0.008)	(0.007)
Academic Age$^2_{t-1}$	0.0001***	0.0002***	0.002***	0.00003	−0.00004
	(0.00003)	(0.00003)	(0.001)	(0.0001)	(0.00003)
Author Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
Number of authors	17,270	17,270	17,270	17,270	17,270
Observations	122,057	122,057	122,057	122,057	122,057
R^2	0.909	0.905	0.883	0.767	0.831
Adjusted R^2	0.894	0.890	0.864	0.728	0.803

Notes: This table reports estimates of regressions of the models described in equations 1 examining the relationship between participation on the Workshop on the Organization, Economics, and Policy of Scientific Research (WOEPS) and authors' positions in the Economics of Science co-authorship network over the period 2008–2023. The dependent variables are: log(Degree + 1) and log(Strength + 1), log-transformed degree and weighted degree of authors in the co-authorship network; Eigenvector Centrality and Betweenness Centrality, standard measures of network influence and knowledge brokerage, respectively; and a binary indicator for belonging to the Giant Component of the network. The main explanatory variable is the number of WOEPS presentations given by each author up to a given year. Control variables include: Young Scholar, a binary variable equal to 1 if the author observed within 5 years since the author's first publication; log(H-index + 1), based on the author's cumulative publications and citations; and Academic Age^2, defined as the square of the number of years since the author's first publication. All regressions include author and year fixed effects. Standard errors are clustered at the author level. Significance levels: † p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

tied to more strategic collaboration with well-connected researchers at the core of the EoS network. These patterns are consistent with a preferential attachment mechanism, where authors with more existing collaborators are more likely to attract new coauthorship ties from authors entering the network.

We now turn to an analysis at the publication level comparing papers presented at WOEPS to EoS articles following equations 2 and 3. The results in Table 12 reveal a significant positive association between the papers presented at WOEPS and the quality of the journals in which they are published. We find that WOEPS papers appear in journals with higher SJR scores, greater journal H-indices, and more citations per document, compared to EoS publications not presented at WOEPS. These effects remain statistically significant after controlling for publication characteristics such as the number of authors, page length, and references, as well as author-level variables including the maximum H-index among coauthors and their average academic age. Notably, the highest

Table 12: WOEPS Papers and Journal Quality

	Dependent variable:		
	SJR	Journal H-index	Journal Cit./Doc.
	(1)	(2)	(3)
WOEPS Paper	1.452**	0.654***	1.372***
	(0.369)	(0.097)	(0.320)
Nb. Authors	−0.007	0.014	0.053*
	(0.032)	(0.010)	(0.024)
Nb. Pages	0.031	−0.023*	−0.038
	(0.026)	(0.010)	(0.024)
Nb. References	0.001	0.004*	0.011*
	(0.002)	(0.001)	(0.004)
Authors H-index (max)	0.018***	0.012***	0.027***
	(0.004)	(0.002)	(0.005)
Authors Academic Age (mean)	−0.005	0.0002	−0.009†
	(0.005)	(0.002)	(0.005)
Journal Fixed Effects	NO	NO	NO
Year Fixed Effects	YES	YES	YES
Observations	9,435	9,435	9,435
R^2	0.047	0.162	0.234
Adjusted R^2	0.045	0.161	0.233

Notes: This table presents regression estimates corresponding to the specifications detailed in Equation 2, analyzing the relationship between papers presented at the Workshop on the Organization, Economics, and Policy of Scientific Research (WOEPS) and the quality of the journals in which they are subsequently published. The dependent variables are: the journal's SJR score, the natural logarithm of (Journal H-index + 1), and the number of citations per document, all sourced from Elsevier's Scimago Journal Rankings. The main variable of interest, WOEPS Paper, is a binary indicator equal to 1 if the paper was previously presented at a WOEPS edition. Control variables include the number of authors, paper length (in pages), and reference count, along with author-level metrics, which include the highest H-index among co-authors and their combined academic age (calculated as the sum of years since each author's first publication). All regressions include year fixed effects. Standard errors are clustered at the author level. Significance levels: † p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

author H-index strongly predicts publication in higher-quality journals across all measures. While the number of authors and references also show modest positive effects on journal citation impact, paper length and average academic age show little to no consistent relationship. Overall, these findings suggest that presenting at WOEPS is linked to greater impact of research outputs, as reflected by their publication in more prestigious and influential journals.

Table 13: WOEPS Papers and Citations Across All Fields

	Cit. 2y	Cit. 3y	Cit. 5y	Cit. Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.088	0.032	−0.008	−0.037
	(0.063)	(0.052)	(0.055)	(0.056)
Nb. Authors	0.026*	0.034**	0.039**	0.043**
	(0.010)	(0.011)	(0.011)	(0.012)
Nb. Pages	0.008*	0.009**	0.010**	0.011**
	(0.003)	(0.003)	(0.003)	(0.004)
Nb. References	0.003*	0.003*	0.003*	0.003*
	(0.001)	(0.001)	(0.001)	(0.002)
Authors H-index (max)	0.012***	0.013***	0.014***	0.014***
	(0.001)	(0.001)	(0.001)	(0.001)
Authors Academic Age (mean)	−0.004**	−0.004**	−0.005**	−0.007***
	(0.001)	(0.001)	(0.002)	(0.001)
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,679	9,679	9,679	9,679
R^2	0.457	0.514	0.573	0.635
Adjusted R^2	0.409	0.472	0.535	0.604

Notes: This table presents regression estimates corresponding to the specifications detailed in Equation 3, analyzing the relationship between papers presented at the Workshop on the Organization, Economics, and Policy of Scientific Research (WOEPS) and the citations received after they are published. The dependent variables are the natural logarithm of citation counts received two years (Column 1), three years (Column 2), five years (Column 3), and cumulatively (Column 4) after publication. The main variable of interest, WOEPS Paper, is a binary indicator equal to 1 if the paper was previously presented at a WOEPS edition. Control variables include the number of authors, paper length (in pages), and reference count, along with author-level metrics, which include the highest H-index among co-authors and their average academic age (computed as the sum of years since each author's first publication divided by the number of co-authors). All regressions include year fixed effects. Standard errors are clustered at the author level. Significance levels: * $p<0.05$; ** $p<0.01$; *** $p<0.001$.

The results in Table 13 explore the relationship between presenting a paper at WOEPS and its subsequent citation impact (considering 2, 3, 5 year citation windows, and total citations). The coefficient for WOEPS Paper is positive but not statistically significant in any specification, indicating that WOEPS papers do not receive more citations than other EoS papers when accounting for journal and year fixed effects. In contrast, Table 14 reveals that papers presented at WOEPS receive significantly more citations from the EoS literature across all time windows, with the WOEPS Paper coefficient consistently positive and highly significant (ranging from approximately 0.31 to 0.35). This suggests a strong positive link between WOEPS presentation and increased visibility and academic impact within the EoS network. These results remain robust to alternative sets of control variables, dependent variable transformations, and Poisson model specifications, as shown in Appendix B. Overall, although presenting at WOEPS does not appear to directly influence citation counts across all fields after controlling for journal and time effects, the findings underscore WOEPS's important role in enhancing the visibility and influence of research specifically within the EoS network.

Our findings thus indicate a close connection between WOEPS and EoS. First, presenting at WOEPS is associated with more central positions in the EoS coauthorship network, especially for young researchers. Second, papers presented at WOEPS tend to be published in higher-quality journals and, although they receive similar average citation counts, they attract greater attention within the EoS through internal citations. These findings align with Rose et al. (2022), which finds that conference presentations that received discussant comments are subsequently published in higher impact journals than those that did not benefit from a dedicated discussant, while citation counts do not differ significantly. Given the fragmented nature of the EoS, the positive impact of presenting at WOEPS for young scholars is particularly noteworthy: participating at WOEPS helps position young scholar within the core of the community.

5 Discussion and Conclusions

The paper set itself two main objectives: first to examine the evolution of the EoS and whether it has emerged as a recognized scientific community in economics; second to analyze the WOEPS workshop, created with the goal of supporting the development of an EoS community in Europe and of a new generation of young EoS researchers, and its role in the development of the EoS field and the building of its community.

To identify the EoS field and its community, we considered all EconLit papers citing, directly or indirectly, two seminal works: Dasgupta and David (1994) and Stephan (1996). Our analysis

Table 14: WOEPS Papers and Citations from Economics of Science Literature

	Cit. EoS 2y	Cit. EoS 3y	Cit. EoS 5y	Cit. EoS Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.306***	0.309***	0.311***	0.345***
	(0.055)	(0.044)	(0.001)	(0.034)
Nb. Authors	0.001	0.002	0.004	0.008
	(0.006)	(0.008)	(0.008)	(0.010)
Nb. Pages	0.004**	0.005**	0.007**	0.008**
	(0.001)	(0.001)	(0.002)	(0.002)
Nb. References	0.001†	0.001*	0.001*	0.001†
	(0.0004)	(0.0004)	(0.0005)	(0.0005)
Authors H-index (max)	0.006***	0.007***	0.008***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)
Authors Academic Age (mean)	−0.001	−0.002†	−0.003	−0.005*
	(0.001)	(0.001)	(0.002)	(0.002)
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,679	9,679	9,679	9,679
R^2	0.306	0.373	0.451	0.535
Adjusted R^2	0.246	0.318	0.403	0.494

Notes: This table presents regression estimates corresponding to the specifications detailed in Equation 3, analyzing the relationship between papers presented at the Workshop on the Organization, Economics, and Policy of Scientific Research (WOEPS) and the citations received after they are published. The dependent variables are the natural logarithm of citation counts from papers in the Economics of Science (EoS) literature after two years (Column 1), three years (Column 2), five years (Column 3), and cumulatively (Column 4) after publication. The main variable of interest, WOEPS Paper, is a binary indicator equal to 1 if the paper was previously presented at a WOEPS edition. Control variables include the number of authors, paper length (in pages), and reference count, along with author-level metrics, which include the highest H-index among co-authors and their average academic age (computed as the sum of years since each author's first publication divided by the number of co-authors). All regressions include year fixed effects. Standard errors are clustered at the author level. Significance levels: † p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

showed a rapidly growing field and increasing number of authors publishing EoS works, mostly in top international journals dedicated to the economics and management of innovation and to regional economics. In the period 2019-2023 alone, about 5,000 papers by 10,000 authors were published with an exponential average growth. The share of EoS papers in Econlit has increased dramatically, but was still only 2.5% of all Econlit papers at the end of the period.

Despite this growth, EoS cannot yet be considered an independent and cohesive field. We showed that EoS papers represent only about 27% of the total number of journal publications by authors in the EoS network, and only 36% of the works published by the top 100 authors of the EoS network. These results suggest that EoS has attracted authors from related fields that only occasionally publish in EoS.

This interpretation was confirmed in our analysis of the coauthorship network. We showed that the giant component accounts for less than 20% of authors in the 2019-2023 period, much lower than other established fields, and with a lower number of coauthors compared to other sub-fields of economics. While overall coauthorship increased over time, the giant component showed only limited growth and even shrank in relative size during the most recent period. This shows that the increase in collaboration occurred to a large extent within smaller, disconnected components rather than through consolidation or expansion of the core network. This means that the network remains fragmented into disconnected components, with the giant component shrinking in relative size in the last period compared with the previous ones, even as the number of isolated authors also declined. This suggests that smaller components are growing in size and connectivity at a faster rate than the giant component.

Our results also suggest that the role of new transient authors and early-career scholars has grown in recent years, indicating renewed interest in EoS topics and the emergence of a new generation of economists of science. However, this influx of new entrants coincides with a decline in the size of the giant component. If entry were driven by preferential attachment, we would expect the core of the network to expand and exhibit stronger small-world characteristics. Instead, the network is becoming more fragmented, with a growing number of disconnected components.

We further provided evidence on WOEPS' place within EoS. We identified published journal articles for 60% of WOEPS presentations, and 263 authors associated with these articles. We found that more than 60% of these articles are EoS papers and 85% of authors are in the EoS coauthorship network. Studying the centrality of the WOEPS presenters and their coauthors in the broader EoS network, we found that they have a larger number of coauthors and are better positioned to connect different clusters of authors compared to other members of the network who did not present at WOEPS. We also showed that papers presented at WOEPS were published in higher impact journals than the average EoS article. While they do not receive more citations than other EoS publications, they receive significantly more citations from within the EoS network.

This performance advantage could be the result of selection, with higher quality papers and those most closely associated with EoS being accepted for presentation. However, WOEPS may also have contributed positively with comments and suggestions, or by directing presenters towards relevant EoS works.

We further found that young WOEPS presenters are more likely to be part of the giant component compared to young scholars in the wider EoS network and compared to senior WOEPS presenters. This suggests that relatively small workshops like WOEPS may play a role in strengthening the core of a coauthorship network such as EoS. The recent rise in new entrants to the EoS community could signal movement along this trajectory.

Our analysis thus showed that WOEPS papers and presenters are well positioned within EoS. Presentation at WOEPS could thus be indicative of preferential attachment strategies given its association with author centrality. However given the small size of the event, WOEPS is not sufficient to change the evolution of the network structure.

Taken together our paper thus highlights that although EoS has seen exponential growth, it does not yet display the institutional and organizational characteristics of a scientific community for three main reasons: First, though we speak of EoS, the topic and its community are intrinsically interdisciplinary, in part due to its dependence on the sociology of science and in part because economics alone is not sufficient to study communities of scholars and the organizations in which they are embedded.

Second, as pointed out by the sociology of science, journals and conferences are required building blocks of a new discipline (Clausen et al., 2012). Although Research Policy is of particular importance to the EoS network and to WOEPS, the journal is not centered on science, and, in more recent years, has become progressively less concerned with the topic. The absence of a field-specific journal (as exists in other economics sub-fields) can impede its full recognition as a field and thus create disincentives for economists to focus on EoS. Although we showed that WOEPS has played some role in the consolidation of the topic, it has to be acknowledged that, although successful, it is not a conference and therefore brings together only a small proportion of authors. However, a number of other academic events have emerged in recent years such as those held by the Science of Science community in the US. These activities indicate a growing interest in the topic and that there is space for a more coordinated effort supporting a bigger and broader conference on the organization, economics and policy of science that is not restricted to economics.

Finally, the two leading EoS scholars Paul A. David (sadly passed away in 2023, dearly missed) and Paula E. Stephan have had a fundamental role in stimulating young minds towards a better understanding of the intricacies of scientific endeavors. They became mentors to a large number of scholars in Europe and the US. However, for their intrinsic characteristic (much appreciated by those that had the chance of getting to know them) of being intellectuals foremost, and then academic politicians, they did not use their academic leadership to steer resources and research priorities. Money, positions and resources matter also in science, as both would attest.

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Appendix A Additional descriptives

In this appendix we present additional descriptive statistics that characterize the evolution and communities in the Economics of Science.

Table A1 presents the percentage distribution of economics of science papers classified by JEL codes over six consecutive time periods from 1994 to 2023. It shows how the focus of research topics has shifted or remained stable within different economic subfields across nearly three decades, with the final column summarizing the overall share for each JEL code during the entire period.

Table A2 lists the top ten institutional affiliations of economists publishing research on the economics of science across six consecutive five-year periods from 1994 to 2023. For each institution and time period, it shows the number of affiliated papers and their share of the total publications in that window, highlighting how leading research centers and universities in this field have evolved over time.

Table A3 reports small-world metrics for the giant component of the coauthorship networks in Economics of Science (Panel A) and General Economics (Panel B) over successive five-year intervals from 1994 to 2023. The table includes: the number of nodes (N_A), representing unique authors; the average degree (k_A), or mean number of coauthors per author; the clustering coefficient of the empirical network (C_A), measuring the tendency of authors to form tightly knit groups; and the clustering coefficient of a degree-preserving random network (C_r), used as a baseline for comparison. It also shows the average shortest path length in the empirical network (L_A) and in the random network (L_r), reflecting the typical number of steps required to connect any two authors. The random networks are modeled as Erdős–Rényi (E–R) graphs with the same number of nodes and average degree as the empirical projected network (Watts, 1999). The expected clustering coefficient for such a random graph is approximated by

$$C_r \approx \frac{k_A}{N_A}$$

and the characteristic path length by

$$L_r \approx \frac{\ln N_A}{\ln k_A}.$$

The ratios C_A/C_r and L_A/L_r compare clustering and path length in the empirical network relative to the random baseline. Finally, the small-world coefficient (σ), defined as

$$\sigma = \frac{C_A/C_r}{L_A/L_r},$$

quantifies the degree to which the network exhibits small-world properties. The results show that both networks consistently demonstrate strong small-world characteristics across the entire period, with significantly higher clustering than random networks and relatively short average path lengths.

Table A1: Distribution of Economics of Science Papers by JEL Classification and Time Period

	Periods						Total
JEL Code	1994-1998	1999-2003	2004-2008	2009-2013	2014-2018	2019-2023	1994-2023
A - General Economics and Teaching	2.00%	0.92%	0.85%	0.84%	0.78%	0.81%	0.80%
B - History of Economic Thought, Methodology, and Heterodox Approaches	2.00%	2.25%	0.88%	1.17%	0.93%	0.59%	0.84%
C - Mathematical and Quantitative Methods	0.00%	0.13%	0.76%	0.77%	0.91%	1.21%	0.96%
D - Microeconomics	2.00%	6.74%	5.36%	5.50%	10.62%	9.65%	8.70%
E - Macroeconomics and Monetary Economics	0.00%	0.26%	0.40%	1.12%	1.21%	1.21%	1.10%
F - International Economics	2.00%	2.25%	2.13%	2.15%	2.18%	2.06%	2.09%
G - Financial Economics	0.00%	1.72%	2.50%	3.91%	3.67%	4.39%	3.82%
H - Public Economics	2.00%	1.19%	0.88%	1.40%	1.74%	1.62%	1.53%
I - Health, Education, and Welfare	6.00%	3.57%	8.65%	7.03%	6.17%	7.09%	6.71%
J - Labor and Demographic Economics	8.00%	1.85%	4.48%	4.82%	6.36%	6.05%	5.65%
K - Law and Economics	0.00%	0.00%	0.49%	1.15%	0.55%	0.48%	0.61%
L - Industrial Organization	14.00%	18.76%	22.12%	21.66%	19.57%	16.70%	18.63%
M - Business Administration and Business Economics; Marketing; Accounting; Personnel Economics	0.00%	5.02%	4.39%	4.25%	3.71%	3.59%	3.76%
N - Economic History	0.00%	0.26%	0.49%	0.59%	0.45%	0.42%	0.46%
O - Economic Development, Innovation, Technological Change, and Growth	62.00%	41.88%	31.84%	29.67%	28.20%	30.08%	29.23%
P - Political Economy and Comparative Economic Systems	0.00%	0.40%	0.91%	1.81%	2.15%	4.79%	2.98%
Q - Agricultural and Natural Resource Economics; Environmental and Ecological Economics	0.00%	1.45%	1.74%	2.33%	3.25%	4.07%	3.22%
R - Urban, Rural, Regional, Real Estate, and Transportation Economics	0.00%	11.23%	9.54%	7.91%	5.69%	3.90%	5.64%
Y - Miscellaneous Categories	0.00%	0.00%	0.12%	0.21%	0.08%	0.14%	0.12%
Z - Other Special Topics	0.00%	0.13%	1.46%	1.72%	1.79%	1.15%	1.44%

Notes: The table shows the distribution of economics of science papers across different JEL codes and their respective time periods, spanning from 1994 to 2023. Each value indicates the proportion of papers associated with a specific JEL code in the corresponding time window. The final column reports the aggregate distribution over the entire period.

Table A2: Top Institutional Affiliations of Economists of Science by Time Period (1994–2023)

	1994-1998			1999-2003		
Rank	Affiliation	Count	Share	Affiliation	Count	Share
1	University of Sussex	4	10.8%	Université de Strasbourg	14	3.0%
2	All Souls College	3	8.1%	University of Sussex	11	2.3%
3	Georgia State University	3	8.1%	Centre Clermont-Auvergne-Rhône-Alpes	10	2.1%
4	United Nations University Institute for New Technologies	3	8.1%	Erasmus Universiteit Rotterdam	9	1.9%
5	Universiteit Leiden	3	8.1%	Stanford University	8	1.7%
6	Anglia Ruskin University	2	5.4%	The University of North Carolina at Greensboro	8	1.7%
7	Politecnico di Milano	2	5.4%	University of Aberdeen	8	1.7%
8	UC Berkeley Haas School of Business	2	5.4%	Fraunhofer Institute for Systems and Innovation Research ISI	7	1.5%
9	Bowling Green State University	1	2.7%	Università Bocconi	7	1.5%
10	Centre Clermont-Auvergne-Rhône-Alpes	1	2.7%	CNRS Centre National de la Recherche Scientifique	6	1.3%

	2004-2008			2009-2013		
Rank	Affiliation	Count	Share	Affiliation	Count	Share
1	Georgia Institute of Technology	33	1.7%	Alma Mater Studiorum Università di Bologna	56	1.2%
2	Université de Strasbourg	30	1.5%	Università Bocconi	56	1.2%
3	University of Nottingham	27	1.4%	Georgia Institute of Technology	53	1.1%
4	University of Sussex	24	1.2%	Friedrich-Schiller-Universität Jena	44	0.9%
5	Max Planck Institute for the Science of Human History	22	1.1%	KU Leuven	44	0.9%
6	EIM Group	19	1.0%	Imperial College Business School	42	0.9%
7	KU Leuven	18	0.9%	Politecnico di Milano	38	0.8%
8	Copenhagen Business School	17	0.9%	Copenhagen Business School	36	0.7%
9	Imperial College Business School	17	0.9%	Università degli Studi di Torino	34	0.7%
10	Tilburg University	17	0.9%	University of Sussex	30	0.6%

	2014-2018			2019-2023		
Rank	Affiliation	Count	Share	Affiliation	Count	Share
1	KU Leuven	86	1.0%	Università degli Studi di Torino	93	0.7%
2	Politecnico di Milano	85	1.0%	Politecnico di Milano	81	0.6%
3	Alma Mater Studiorum Università di Bologna	66	0.8%	Sant'Anna Scuola Universitaria Superiore Pisa	81	0.6%
4	Georgia Institute of Technology	58	0.7%	Copenhagen Business School	74	0.6%
5	Università degli Studi di Torino	55	0.6%	Friedrich-Schiller-Universität Jena	68	0.5%
6	Universitat Politècnica de València	48	0.6%	KU Leuven	59	0.4%
7	Copenhagen Business School	46	0.5%	Alma Mater Studiorum Università di Bologna	58	0.4%
8	Università degli Studi di Bergamo	41	0.5%	European Commission Joint Research Centre	56	0.4%
9	TUM School of Management, Munich	40	0.5%	Universidade da Beira Interior	53	0.4%
10	London School of Economics and Political Science	39	0.5%	Politecnico di Torino	50	0.4%

Notes: This table presents the top ten institutional affiliations of authors publishing in the economics of science for each five-year period between 1994 and 2023. For each institution, the table reports the number of papers affiliated with that institution and the corresponding share of the total affiliations associated with papers published during the given time window.

Table A3: Small-World Metrics in Coauthorship Networks: Economics of Science vs. General Economics (1994–2023)

Time window	N_A	k_A	C_A	C_r	L_A	L_r	C_A/C_r	L_A/L_r	σ
Panel A: Coauthorship Network — Economics of Science									
1994-1998	4	3	1	0.75	1	1.262	1.333	0.792	1.682
1999-2003	37	4.324	0.595	0.117	3.189	2.466	5.093	1.293	3.939
2004-2008	105	6.629	0.64	0.063	6.057	2.461	10.141	2.462	4.12
2009-2013	526	4.791	0.609	0.009	6.452	3.999	66.811	1.613	41.41
2014-2018	1,245	4.125	0.65	0.003	9.319	5.029	196.142	1.853	105.85
2019-2023	1,799	4.2	0.708	0.002	10.037	5.223	303.108	1.922	157.717
1994-2023	6,025	4.454	0.639	7.39×10^{-4}	7.452	5.827	864.049	1.279	675.6
Panel B: Coauthorship Network — Economics (all fields)									
1994-1998	15,626	3.69	0.428	2.36×10^{-4}	11.896	7.396	1,814.006	1.608	1,127.809
1999-2003	25,859	3.863	0.463	1.49×10^{-4}	11.194	7.518	3,102.196	1.489	2,083.384
2004-2008	43,745	4.168	0.496	9.53×10^{-5}	10.041	7.486	5,202.382	1.341	3,878.594
2009-2013	77,927	4.476	0.536	5.74×10^{-5}	9.887	7.515	9,337.079	1.316	7,097.118
2014-2018	120,681	4.821	0.591	4.00×10^{-5}	9.632	7.438	14,794.435	1.295	11,425.258
2019-2023	192,986	5.565	0.647	2.88×10^{-5}	8.952	7.09	22,430.946	1.263	17,765.514
1994-2023	415,116	6.133	0.585	1.48×10^{-5}	7.489	7.133	39,575.087	1.05	37,691.891

Notes: The table reports small-world metrics for the giant component of the coauthorship network in Economics of Science, across successive five-year windows. N_A is the number of nodes (unique authors), and k_A is the average degree, representing the mean number of coauthors per author. C_A is the clustering coefficient of the empirical (actual) network, while C_r is the clustering coefficient of a degree-preserving random network. L_A and L_r denote the average shortest path lengths in the empirical and random networks, respectively. C_A/C_r and L_A/L_r are the corresponding ratios. σ is the small-world coefficient, defined as $(C_A/C_r)/(L_A/L_r)$, which indicates the extent to which the empirical network exhibits small-world properties.

Appendix B Robustness checks

In this Appendix we report robustness checks and discussed in Section 4 of this article.

Table B1: Robustness Check: Fixed Effects Estimation (2-Year Lag)

	Dependent variable:				
	$\log(\text{Degree}_t + 1)$	$\log(\text{Strength}_t + 1)$	Eigenvector Centrality$_t$	Betweenness Centrality$_t$	Giant Component$_t$
	(1)	(2)	(3)	(4)	(5)
Nb. WOEPS Presentations$_{t-2}$	0.196^{***}	0.234^{***}	$1.792^{\dagger}$	0.161^{***}	0.027
	(0.034)	(0.036)	(1.009)	(0.049)	(0.018)
Young Scholar$_{t-2}$	0.040^{***}	0.043^{***}	0.060	0.021^{***}	$0.008^{\dagger}$
	(0.005)	(0.005)	(0.107)	(0.005)	(0.005)
Nb. WOEPS Presentations$_{t-2}$ × Young Scholar$_{t-2}$	-0.079^{**}	-0.094^{**}	-0.144	-0.014	0.038^{**}
	(0.027)	(0.030)	(0.244)	(0.037)	(0.012)
$\log(\text{H-index}_{t-2} + 1)$	0.218^{***}	0.254^{***}	0.770^{***}	0.083^{***}	0.088^{***}
	(0.008)	(0.009)	(0.139)	(0.008)	(0.007)
Academic Age$^2_{t-2}$	0.0001^{***}	0.0001^{***}	0.002^{***}	0.00002	$-0.00005^{\dagger}$
	(0.00003)	(0.00003)	(0.001)	(0.0001)	(0.00003)
Author Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
Number of authors	16,750	16,750	16,750	16,750	16,750
Observations	118,263	118,263	118,263	118,263	118,263
R^2	0.910	0.906	0.887	0.769	0.832
Adjusted R^2	0.895	0.891	0.868	0.731	0.804

Notes: This table reports estimates of regressions of the models described in equations 1 examining the relationship between WOEPS (Workshop on the Organization, Economics, and Policy of Scientific Research) participation and authors' positions in the Economics of Science co-authorship network over the period 2008–2023. The dependent variables are: log(Degree + 1) and log(Strength + 1), log-transformed degree and weighted degree of authors in the co-authorship network; Eigenvector Centrality and Betweenness Centrality, standard measures of network influence and knowledge brokerage, respectively; and a binary indicator for belonging to the Giant Component of the network. The main explanatory variable is the number of WOEPS presentations given by each author up to a given year. Control variables include: Young Scholar, a binary variable equal to 1 if the author observed within 5 years since the author's first publication; log(H-index + 1), based on the author's cumulative publications and citations; and Academic Age^2, defined as the square of the number of years since the author's first publication. All regressions include author and year fixed effects. Standard errors are clustered at the author level. Significance levels: † p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

Table B2: Robustness Check: Fixed Effects Estimation (3-Year Lag)

	Dependent variable:				
	$\log(\text{Degree}_t + 1)$	$\log(\text{Strength}_t + 1)$	Eigenvector Centrality$_t$	Betweenness Centrality$_t$	Giant Component$_t$
	(1)	(2)	(3)	(4)	(5)
Nb. WOEPS Presentations$_{t-3}$	0.186***	0.222***	1.748†	0.145**	0.021
	(0.033)	(0.034)	(0.973)	(0.049)	(0.017)
Young Scholar$_{t-3}$	0.040***	0.043***	0.087	0.020***	0.011*
	(0.005)	(0.005)	(0.099)	(0.005)	(0.005)
Nb. WOEPS Presentations$_{t-3}$ × Young Scholar$_{t-3}$	−0.052*	−0.069**	−0.232	−0.011	0.038**
	(0.022)	(0.024)	(0.241)	(0.033)	(0.014)
$\log(\text{H-index}_{t-3} + 1)$	0.192***	0.220***	0.701***	0.075***	0.075***
	(0.008)	(0.009)	(0.130)	(0.008)	(0.006)
Academic Age$^2_{t-3}$	0.0001***	0.0001***	0.002**	0.00002	−0.0001†
	(0.00003)	(0.00003)	(0.001)	(0.0001)	(0.00003)
Author Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
Number of authors	16,245	16,245	16,245	16,245	16,245
Observations	113,989	113,989	113,989	113,989	113,989
R^2	0.911	0.908	0.891	0.771	0.835
Adjusted R^2	0.896	0.892	0.873	0.733	0.807

Notes: This table reports estimates of regressions of the models described in equations 1 examining the relationship between WOEPS (Workshop on the Organization, Economics, and Policy of Scientific Research) participation and authors' positions in the Economics of Science co-authorship network over the period 2008–2023. The dependent variables are: log(Degree + 1) and log(Strength + 1), log-transformed degree and weighted degree of authors in the co-authorship network; Eigenvector Centrality and Betweenness Centrality, standard measures of network influence and knowledge brokerage, respectively; and a binary indicator for belonging to the Giant Component of the network. The main explanatory variable is the number of WOEPS presentations given by each author up to a given year. Control variables include: Young Scholar, a binary variable equal to 1 if the author observed within 5 years since the author's first publication; log(H-index + 1), based on the author's cumulative publications and citations; and Academic Age^2, defined as the square of the number of years since the author's first publication. All regressions include author and year fixed effects. Standard errors are clustered at the author level. Significance levels: † p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

Table B3: Robustness check: Pooled OLS (2-Year Lag)

	Dependent variable:				
	$\log(\text{Degree}_t + 1)$	$\log(\text{Strength}_t + 1)$	Eigenvector Centrality$_t$	Betweenness Centrality$_t$	Giant Component$_t$
	(1)	(2)	(3)	(4)	(5)
Nb. WOEPS Presentations$_{t-2}$	0.325^{***}	0.397^{***}	4.905^{*}	0.313^{***}	0.210^{***}
	(0.057)	(0.060)	(2.043)	(0.078)	(0.032)
Young Scholar$_{t-2}$	0.073^{***}	0.072^{***}	0.295	0.023^{*}	0.002
	(0.012)	(0.012)	(0.190)	(0.011)	(0.008)
Nb. WOEPS Presentations$_{t-2}$ × Young Scholar$_{t-2}$	-0.210^{**}	-0.247^{**}	-3.044	-0.188^{*}	0.046
	(0.081)	(0.086)	(2.222)	(0.085)	(0.044)
Academic Age$_{t-2}$	-0.009^{***}	-0.010^{***}	$0.077^{\dagger}$	-0.003	-0.001
	(0.002)	(0.002)	(0.040)	(0.002)	(0.001)
Academic Age$^2_{t-2}$	0.00004	0.00004	-0.002^{**}	0.0001	-0.00003
	(0.0001)	(0.0001)	(0.001)	(0.0001)	(0.00003)
$\log(\text{H-index}_{t-2} + 1)$	0.211^{***}	0.233^{***}	0.653^{***}	0.086^{***}	0.055^{***}
	(0.009)	(0.009)	(0.175)	(0.009)	(0.006)
Author Fixed Effects	NO	NO	NO	NO	NO
Year Fixed Effects	YES	YES	YES	YES	YES
Number of authors	16,750	16,750	16,750	16,750	16,750
Observations	118,263	118,263	118,263	118,263	118,263
R^2	0.076	0.081	0.009	0.045	0.024
Adjusted R^2	0.076	0.081	0.009	0.045	0.024

Notes: This table presents pooled OLS regressions examining the relationship between WOEPS (Workshop on the Organization, Economics, and Policy of Scientific Research) participation and authors' positions in the Economics of Science co-authorship network over the period 2008–2023. The dependent variables are: log(Degree + 1) and log(Strength + 1), log-transformed degree and weighted degree of authors in the co-authorship network; Eigenvector Centrality and Betweenness Centrality, standard measures of network influence and knowledge brokerage, respectively; and a binary indicator for belonging to the Giant Component of the network. The main explanatory variable is the number of WOEPS presentations given by each author up to a given year. Control variables include: Young Scholar, a binary variable equal to 1 if the author observed within 5 years since the author's first publication; log(H-index + 1), based on the author's cumulative publications and citations; *Academic Age*, defined as the number of years since the author's first publication; and *Academic Age*^{2} to account for non-linear career effects. All regressions include year fixed effects. Standard errors are clustered at the author level. Significance levels:; * p<0.05; ** p<0.01; *** p<0.001.

Table B4: Robustness Check: Pooled OLS (3-Year Lag)

	Dependent variable:				
	$\log(\text{Degree}_t + 1)$	$\log(\text{Strength}_t + 1)$	Eigenvector Centrality$_t$	Betweenness Centrality$_t$	Giant Component$_t$
	(1)	(2)	(3)	(4)	(5)
Nb. WOEPS Presentations$_{t-3}$	0.340^{***}	0.418^{***}	5.138^{*}	0.328^{***}	0.216^{***}
	(0.061)	(0.064)	(2.126)	(0.084)	(0.034)
Young Scholar$_{t-3}$	0.068^{***}	0.069^{***}	0.273	0.022^{*}	0.008
	(0.012)	(0.012)	(0.188)	(0.011)	(0.008)
Nb. WOEPS Presentations$_{t-3}$ × Young Scholar$_{t-3}$	-0.177^{*}	-0.217^{*}	-3.062	$-0.177^{\dagger}$	0.043
	(0.086)	(0.092)	(2.336)	(0.094)	(0.047)
Academic Age$_{t-3}$	-0.010^{***}	-0.011^{***}	$0.069^{\dagger}$	-0.003	-0.002
	(0.002)	(0.002)	(0.041)	(0.002)	(0.001)
Academic Age$^2_{t-3}$	0.00004	0.00005	-0.002^{*}	0.0001	-0.00002
	(0.0001)	(0.0001)	(0.001)	(0.0001)	(0.00003)
$\log(\text{H-index}_{t-3} + 1)$	0.210^{***}	0.231^{***}	0.703^{***}	0.089^{***}	0.056^{***}
	(0.009)	(0.010)	(0.184)	(0.009)	(0.006)
Author Fixed Effects	NO	NO	NO	NO	NO
Year Fixed Effects	YES	YES	YES	YES	YES
Number of authors	16,245	16,245	16,245	16,245	16,245
Observations	113,989	113,989	113,989	113,989	113,989
R^2	0.073	0.078	0.009	0.044	0.024
Adjusted R^2	0.073	0.077	0.009	0.044	0.023

Notes: This table presents pooled OLS regressions examining the relationship between WOEPS (Workshop on the Organization, Economics, and Policy of Scientific Research) participation and authors' positions in the Economics of Science co-authorship network over the period 2008–2023. The dependent variables are: log(Degree + 1) and log(Strength + 1), log-transformed degree and weighted degree of authors in the co-authorship network; Eigenvector Centrality and Betweenness Centrality, standard measures of network influence and knowledge brokerage, respectively; and a binary indicator for belonging to the Giant Component of the network. The main explanatory variable is the number of WOEPS presentations given by each author up to a given year. Control variables include: Young Scholar, a binary variable equal to 1 if the author observed within 5 years since the author's first publication; log(H-index + 1), based on the author's cumulative publications and citations; and Academic Age^2, defined as the square of the number of years since the author's first publication. All regressions include author and year fixed effects. Standard errors are clustered at the author level. Significance levels: † p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

Table B5: Robustness Check: Excluding Page Count as Control

Panel A: Dependent Variables - Citation Counts Across All Fields

	Cit. 2y	Cit. 3y	Cit. 5y	Cit. Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.066	0.024	−0.003	−0.030
	(0.072)	(0.062)	(0.065)	(0.055)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	11,132	11,132	11,132	11,132
R^2	0.472	0.532	0.589	0.650
Adjusted R^2	0.430	0.494	0.557	0.623

Panel B: Dependent Variables - Citations from Economics of Science Literature

	Cit. EoS 2y	Cit. EoS 3y	Cit. EoS 5y	Cit. EoS Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.283***	0.279***	0.290***	0.318***
	(0.049)	(0.043)	(0.042)	(0.064)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	11,132	11,132	11,132	11,132
R^2	0.307	0.375	0.450	0.532
Adjusted R^2	0.252	0.325	0.407	0.495

Notes: This table reports regression estimates with dependent variables expressed in natural logarithmic form. Panel A shows results based on overall citation counts after 2, 3, and 5 years, as well as total citations. Panel B restricts the analysis to citations received from publications in the Economics of Science (EoS) literature over the same time windows. The key explanatory variable, *WOEPS Paper*, is a binary indicator equal to 1 if the paper was presented at a Workshop on the Organization, Economics, and Policy of Scientific Research. All regressions include paper-level controls (only number of authors and references), author-level controls (maximum H-index among co-authors and their average academic age), as well as journal and year fixed effects. Standard errors are clustered at the journal-year level. Significance levels: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table B6: Robustness Check: Outcomes transformed with the inverse hyperbolic sine function

Panel A: Dependent Variables - Citation Counts Across All Fields				
	Cit. 2y	Cit. 3y	Cit. 5y	Cit. Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.112	0.041	−0.004	−0.032
	(0.074)	(0.061)	(0.064)	(0.064)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,679	9,679	9,679	9,679
R^2	0.462	0.521	0.580	0.642
Adjusted R^2	0.415	0.479	0.544	0.611

Panel B: Dependent Variables - Citations from Economics of Science Literature				
	Cit. EoS 2y	Cit. EoS 3y	Cit. EoS 5y	Cit. EoS Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.399***	0.393***	0.386***	0.421***
	(0.071)	(0.055)	(0.001)	(0.045)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,679	9,679	9,679	9,679
R^2	0.307	0.375	0.456	0.541
Adjusted R^2	0.247	0.321	0.409	0.501

Notes: This table reports regression estimates where the dependent variables are transformed using the inverse hyperbolic sine function. Panel A presents results using overall citation counts after 2, 3, 5 years, and in total. Panel B focuses on citations from the Economics of Science (EoS) literature over the same time windows. The main explanatory variable, *WOEPS Paper*, is a binary indicator equal to 1 if the paper was presented at a Workshop on the Organization, Economics, and Policy of Scientific Research. All regressions include paper-level controls (number of authors, pages, and references), author-level controls (maximum H-index among co-authors and their average academic age), as well as journal and year fixed effects. Standard errors are clustered at the journal-year level. Significance levels: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table B7: Robustness Check: Poisson Regression

Panel A: Dependent Variables - Citation Counts Across All Fields

	Cit. 2y	Cit. 3y	Cit. 5y	Cit. Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.0222	$-0.0356^{\dagger}$	-0.1106^{***}	-0.1416^{***}
	(0.0609)	(0.0210)	(0.0039)	(0.0026)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,679	9,679	9,679	9,679
Pseudo R^2	0.331	0.383	0.449	0.536

Panel B: Dependent Variables - Citations from Economics of Science Literature

	Cit. EoS 2y	Cit. EoS 3y	Cit. EoS 5y	Cit. EoS Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.3887^{***}	0.3453^{***}	0.2424^{***}	0.2178^{***}
	(0.0021)	(0.0035)	(0.0010)	(0.0133)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,679	9,679	9,679	9,679
Pseudo R^2	0.201	0.262	0.347	0.484

Notes: This table presents results from Poisson regression models. Panel A presents results using overall citation counts after 2, 3, 5 years, and in total. Panel B focuses on citations from the Economics of Science (EoS) literature over the same time windows. The main explanatory variable, *WOEPS Paper*, is a binary indicator equal to 1 if the paper was presented at a Workshop on the Organization, Economics, and Policy of Scientific Research. All regressions include paper-level controls (number of authors, pages, and references), author-level controls (maximum H-index among co-authors and their average academic age), as well as journal and year fixed effects. Standard errors are clustered at the journal-year level. Significance levels: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table B8: Robustness Check: Controlling for JEL Codes Count and Main JEL Codes

Panel A: Dependent Variables - Citation Counts Across All Fields	Cit. 2y	Cit. 3y	Cit. 5y	Cit. Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.095	0.040	−0.004	−0.031
	(0.092)	(0.084)	(0.079)	(0.070)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
JEL Codes Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,128	9,128	9,128	9,128
R^2	0.449	0.504	0.562	0.627
Adjusted R^2	0.400	0.460	0.523	0.594

Panel B: Dependent Variables - Citations from Economics of Science Literature	Cit. EoS 2y	Cit. EoS 3y	Cit. EoS 5y	Cit. EoS Total
	(1)	(2)	(3)	(4)
WOEPS Paper	0.304***	0.299***	0.277***	0.295***
	(0.061)	(0.062)	(0.048)	(0.050)
Paper Controls	YES	YES	YES	YES
Author Controls	YES	YES	YES	YES
JEL Codes Controls	YES	YES	YES	YES
Journal Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Observations	9,128	9,128	9,128	9,128
R^2	0.311	0.379	0.456	0.541
Adjusted R^2	0.249	0.324	0.408	0.501

Notes: This table reports regression estimates with dependent variables expressed in natural logarithmic form. Panel A shows results based on overall citation counts after 2, 3, and 5 years, as well as total citations. Panel B restricts the analysis to citations received from publications in the Economics of Science (EoS) literature over the same time windows. The key explanatory variable, *WOEPS Paper*, is a binary indicator equal to 1 if the paper was presented at a Workshop on the Organization, Economics, and Policy of Scientific Research. All regressions include paper-level controls (number of authors, number of pages, number of references), author-level controls (maximum H-index among co-authors and average academic age), and fixed effects for the journal, publication year, and main JEL codes (based on the most common single-digit sub-subcategory). The number of JEL codes assigned to each paper is also controlled for. Standard errors are clustered at the journal-year level. Significance levels: † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.