# Impact vs. Inclusion in the Economics Profession: Insights from the Papers and Proceedings

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# I. Introduction

The economics profession has long been criticized for fostering a culture of elitism and exclusivity, and the persistent underrepresentation of women and minorities in its ranks is well documented.<sup>1</sup> Beyond obvious concerns about discrimination, the lack of diversity is harmful because it constrains the range of issues and perspectives taken into consideration, reduces innovation, and results in research findings and policy proposals that are narrower or less accurate than those produced by more diverse groups.<sup>2</sup>

One area where the underrepresentation of certain groups of economists is most evident is in journal publications, which are the primary means for communicating research findings to a broad audience and contributing to the profession's body of knowledge. Journal publications are also a key determinant of economists' career trajectories, especially those of young scholars working in academia, where tenure decisions depend critically on the quantity of journal publications, the ranking of the journals in which they appear, and the citations they garner in later work. As a result, access to publication opportunities has important effects on the pipeline of economists reaching the upper echelons of the profession, and the prospect of publication in highly selective journals has a powerful influence on the direction of economic research.<sup>3</sup>

<sup>&</sup>lt;sup>1</sup> See, for example, Fourcade, Ollion, and Algan (2015) and Hoover and Svorenčík (2023).

 $<sup>^{2}</sup>$  Research shows that diversity changes the dynamics of decision-making, broadens the range of questions and options considered, and increases innovation: Bayer and Rouse (2016); Østergaard (2011); Surowiecki (2004). Condorcet's seminal jury theorem (1785) showed that the larger the group size, the greater the likelihood of an accurate decision provided each voter brings independent information (and that voters choose between two alternatives using majority voting and reveal information truthfully). In the case of diversity, the independent information is the perspective and experience that each member brings to the group.

<sup>&</sup>lt;sup>3</sup> See Card and DellaVigna (2013, 2014).

In this paper, we contribute to the growing literature on these issues by drawing on a novel dataset of author and article-level information for two prominent research outlets published by the American Economic Association (AEA), the *American Economic Review* (AER) and what was formerly its Papers and Proceedings (P&P) issue.<sup>4</sup> Despite sharing a common brand for more than a century, P&P issues have long differed from regular AER issues along several dimensions. Regular AER issues contain standard scholarly articles on topics considered to be of general interest to the profession, whereas P&P issues cover a wide range of research topics and policy issues, with multiple sets of 3 or 4 articles organized around a particular topic presented together in a session at the annual AEA conference. Compared with regular-issue articles, P&P articles are shorter, less technical, and not subject to peer review. Moreover, as our analysis demonstrates, the P&P is more inclusive of professional economists and more representative of the broader discipline. In particular, we show that P&P articles have a greater gender diversity of authors, more women from U.S. academic institutions outside the top 15, and a broader coverage of research fields and topics than regular-issue articles.

While the content of regular AER issues and the P&P are both controlled by elite scholars in the economics profession, their selection processes are very different. For regular AER issues, the editor and coeditors oversee a single-blind referee and revision process for manuscripts submitted for publication. In contrast, the content of the P&P is controlled largely by the AEA president-elect and a program committee he or she designates, with additional sessions selected for publication by the AEA's standing committees or chosen by the president-elect from the AEA program.<sup>5</sup>

The way these two research outlets are organized have evolved over time. During what we refer to as the "P&P expansion period" (2008-2017), the AEA Executive Committee (EC) made several changes that significantly increased the number of articles published in the P&P. The overall page count of the issue was enlarged, and the proceedings portion of the P&P was moved to an onlineonly publication. The EC allocated the extra space by increasing the number of P&P sessions

<sup>&</sup>lt;sup>4</sup> Until 2018, the AEA published a subset of papers presented at its annual meetings in a single P&P issue of the AER; in 2018, the issue was spun off into a standalone journal published once per year in May. See Meade, Starr, and Bansak (2021) for a history of the P&P.

<sup>&</sup>lt;sup>5</sup> The president-elect recruits 17-18 program committee members, with each member organizing an "invited" session in their research area, designated to appear in the P&P. As discussed in footnote 6 below, several AEA standing committees also organize sessions of published papers, currently including the Committee on Economic Education (CEE), Committee on Economic Statistics (AEAStat), Committee on the Status of LGBTQ+ Individuals in the Economic Profession (CSQIEP), Committee on the Status of Minority Groups in the Economics Profession (CSMGEP), and Committee on the Status of Women in the Economics Profession (CSWEP).

allotted to AEA standing committees from four to six and adding three sessions chosen by the president-elect from the general AEA program.<sup>6</sup> This expansion broadened access to publication opportunities in the P&P and shifted the composition of contributors away from the historical overrepresentation of men from top U.S. universities. Over this same time period, the frequency of regular AER issues also increased, from 4 to 6 in 2011, from 6 to 11 in 2014, and from 11 to 12 in 2019, two years after the end of our sample. These latter changes were driven, in part, by the fact that acceptance rates for regular-issue articles had dropped into the single digits.<sup>7</sup> Whereas the P&P expansion broadened opportunities to publish work in its pages, AER articles continued to be selected via anonymous peer review. This difference creates a valuable opportunity to examine how efforts to increase the inclusivity of the P&P affected its impact, relative to trends in the impact of articles published in AER regular issues.

To analyze how changes in the composition of authors, the representation of research fields, and citation impact differed between the P&P and regular-issue articles, we examine differences over two broad 10-year time periods, a baseline period from 1998 to 2007 and the P&P expansion period from 2008 to 2017. Our results indicate that changes made in the P&P expansion period widened existing gaps between the P&P and regular AER issues in terms of representation of women, the share of mixed-gender author teams, and the breadth of academic institutions where women authors are affiliated.<sup>8</sup> Using time-series information on article citations, we also show that the broader representation was achieved without any decrease in the relative impact of P&P articles, indicating that newly included work was tapping into broad interest in the topics covered and approaches taken. Thus, our analysis suggests there is no trade-off between impact and inclusion.

<sup>&</sup>lt;sup>6</sup> Before the expansion, two sessions were controlled by CSWEP and one each controlled by CEE and the National Economic Association (NEA). Since 2009, CSMGEP has controlled two sessions (with the NEA's allocation becoming part of CSMGEP's allocation) and AEAStat was allocated one. AEA (2007). Siegfried (2009). As of the 2023 P&P issue, CSQIEP also received a session allocation.

<sup>&</sup>lt;sup>7</sup> Card and DellaVigna (2013).

<sup>&</sup>lt;sup>8</sup> The economic profession is severely lacking in representation along many other important dimensions, such as race and ethnicity, that are unfortunately beyond the scope of our dataset.

# **II. Data and Methodology**

# A. Article and Author-level Characteristics

Using EconLit, we compiled a dataset of all articles published in the AER – regular issues and the P&P issue – in the 20 years between 1998 and 2017. For each article, we collected the title; names and institutional affiliations of authors; year and month of publication; page numbers; key words and *Journal of Economic Literature* (JEL) classification codes; and abstract.<sup>9</sup> Over the 20 years in our sample, a total of 3,909 articles were published, with 4,693 unique authors. Among the authors in our dataset, 41 percent authored only regular-issue articles, 40 percent authored P&P articles only, and 19 percent authored both.

To categorize authors by gender, we used genderize.io, an API based on large data sets from over 80 countries that records both name and gender.<sup>10</sup> Genderize output includes a probability that the assigned gender is determinative; in cases where this probability was 0.90 or below, we used faculty web pages and other internet sources to review categorizations. When examining gender, we omitted those few cases where we were unable to find information relevant to determining a person's gender.

To identify authors at top U.S. universities, we compiled published rankings of economics departments that used data from the period covered in the same time period as our study, and from these we identified the 15 departments appearing most frequently among the top 15 to 20 programs in these rankings.<sup>11</sup>

Most articles have more than one JEL code. To reduce the dimensionality of research fields, we used Latent Dirichlet Allocation (LDA), a machine learning method commonly used to sort observations into categories based on text information.<sup>12</sup> We focus on the results for 12 LDA-identified fields, reported below in Table 1.

<sup>&</sup>lt;sup>9</sup> Comments, replies, retractions, etc., are omitted from our analysis. P&P articles did not have abstracts before 2010, nor did a subset of AER regular-issue articles before 2005.

<sup>&</sup>lt;sup>10</sup> We recognize that binary coding of genders based primarily on names may be inaccurate and/or may misrepresent a person's gender identification.

<sup>&</sup>lt;sup>11</sup> Our top 15 are: Massachusetts Institute of Technology, Harvard, Stanford, Princeton, University of Chicago, Yale, UC-Berkeley, UC-San Diego, UCLA, Northwestern, Columbia, University of Michigan, University of Pennsylvania, University of Wisconsin, and University of Minnesota. The rankings used were not exclusively research based. For example, National Academics of Science and Engineering and U.S. News and World Report provide graduate program rankings.

<sup>&</sup>lt;sup>12</sup> Other studies that use machine learning to classify papers by field include Angrist and others (2017) and Conde-Ruiz and others (2022); the latter use an LDA method similar to ours. We use the "Idagibbs" Stata command by Schwartz (2018).

Finally, as a rough proxy for an article's impact on the profession's body of knowledge, we collected article-level citation information by year from Clarivate's citation-tracking product Web of Science, with citation data as of July 2023. To our knowledge, our study is the first to examine annual time-series patterns of article citations, rather than citations at a single point in time.

# B. Empirical Framework

We analyze the evolution of author gender, institutional affiliation, research topics, and citation patterns for P&P and regular-issue articles over two periods, 1998 to 2007 (the baseline period), and 2008 to 2017 (the P&P expansion period). To identify significant variations, we estimate difference-in-difference (DID) regressions for a variety of dependent variables representing inclusivity or impact. For each regression, the estimating equation takes the following form:

(1) 
$$Y_{it} = a + \rho P \& P_i + d_{i2} (\beta_2 + \delta_{i2} P \& P_i) + \varepsilon_{it}$$

where *i*'s are either author- or article-level observations on a particular measure of inclusivity or impact, *t* refers to the time period = zero (1998-2007) or one (2008-2017),  $P\&P_i$  is a dummy variable equal to one if observation *i* appeared in the P&P (regular issue otherwise), and  $d_{i2}$  is a dummy variable equal to one if the observation *i* falls in period 2. The statistical significance of the coefficient  $\delta_{i2}$  indicates whether the change in a given measure of inclusivity or impact between the baseline and expansion periods differed between the P&P and regular issues.

#### **III. Results**

#### A. Inclusivity of the P&P by Gender and Institution

The top portion of Table 1 illustrates broad changes in the characteristics of P&P vs. regularissue authors and articles between the baseline and expansion periods. In particular, we report summary statistics by time period and journal outlet for several key measures of inclusivity, including the prevalence of co-authorship, institutional affiliation, and gender mix of article authors. The key DID coefficient estimates ( $\delta_{i2}$ ) and p-values from the regressions for each variable are reported in the final two columns.

		P&P		Regular issues				
Row		1998- 2007	2008- 2017	1998- 2007	2008- 2017	DID	<i>p</i> -value of DID	
Article or author-level averages:								
1	Number of authors per article	1.9	2.3	1.9	2.3	0.1	0.230	
2	Share of articles with mixed-gender author teams	19.0	31.1	17.2	23.9	5.5	0.040	
3	Share of authors at top-15 institutions	44.2	41.6	35.3	38.0	-5.4	0.014	
4	Women authors as share of all authors	19.5	24.5	12.5	16.0	1.5	0.377	
5	Women authors at US academic institutions outside top 15, as share of all authors	7.2	9.3	4.0	3.6	2.6	0.013	
Average shares of articles by LDA category (JEL codes in parentheses):								
6	Micro theory (D)	4.3	5.7	15.5	19.2	-2.3	0.240	
7	Political economy (D)	3.1	4.3	7.1	5.5	2.8	0.046	
8	Behavioral/experimental (D)	4.9	8.3	6.3	6.9	2.7	0.089	
9	Household & public finances (D/H)	6.9	6.3	7.6	5.6	1.4	0.401	
10	Macro/international (E/F)	13.1	8.3	14.8	10.5	-0.5	0.805	
11	Finance (G)	7.5	11.4	8.8	9.7	2.9	0.119	
12	Health/retirement (I/J)	10.5	7.1	4.0	5.2	4.6	0.004	
13	Labor-demography/education (J/I)	17.4	14.3	5.8	5.9	-3.1	0.118	
14	Labor markets (J)	8.2	10.0	8.4	7.7	2.6	0.156	
15	Industrial organization/firms (L/D)	6.7	6.5	7.9	9.6	-1.9	0.261	
16	Growth/productivity (O)	12.4	6.4	8.8	5.5	-2.8	0.125	
17	Environment/urban-regional (Q/R)	5.0	11.6	5.1	8.7	2.9	0.080	
18	Articles	1574	2610	1614	2557			
19	Authors	839	1115	845	1110			

TABLE 1. CHANGES IN AUTHOR AND ARTICLE CHARACTERISTICS, P&P VS. REGULAR ISSUES

Notes. Rows 1-2 and 6-17 based on article-level data, rows 2-5 based on author-level data. DID regressions for all but row 1 are based on a linear probability regression that an article/author has the given characteristic.

Consistent with patterns observed elsewhere in the literature, we see a marked increase in co-authorship of articles, with averages rising from 1.9 to 2.3 between the two periods for both P&P and regular-issue articles (row 1). In both outlet types, the share of articles by coauthor teams of both men and women rose over time, with increases in P&P articles exceeding increases in regular issues by 5.5 percentage points (row 2).

The results show that the P&P expansion was associated with a shift toward greater inclusion with respect to institutional affiliation (row 3): In the earlier period, authors at top 15 institutions were over-represented in the P&P relative to regular issues, but this group's share dropped in the P&P expansion period. In contrast, among regular-issue articles, the share of authors at top-15 institutions increased in the expansion period. The 5.4 percentage point relative decline in P&P authors at top-15 institutions is statistically significant.

Turning to gender, women's share of all authors (row 4) rose by comparable amounts in the P&P and regular issues; that said, their share in the P&P in the baseline period (19.5 percent) was

already well above the share in regular issues over that same period. Even in the more recent period, women represented only 16 percent of all authors in regular-issue articles, whereas they composed around a quarter of all authors in the P&P.<sup>13</sup> Starting from a low base, women authors at US academic institutions outside of the top 15 (row 5) saw significant increases in their shares of all authors, but no such trends occurred for regular-issue articles.

The bottom portion of Table 1 illustrates how the distribution of research topics and fields evolved between the baseline and expansion periods. Based on the P&P's interest in featuring work on policy and applied topics, our hypothesis was that P&P articles would better represent work in these fields compared with regular-issue AER articles and under-represent micro theory and other relatively technical fields.<sup>14</sup> This hypothesis was confirmed in our data. The share of articles on labor/demography is more than twice as high in the P&P as it is in regular-issue articles (14.4 vs. 5.9 percent), while the share of micro theory articles is less than one-third (5.7 vs. 19.2 percent). Although the P&P expansion did have a few significant effects on the distribution of articles across fields relative to regular issues, the differences appear generally consistent with the changes in topical policy questions at the time of the annual meetings.

# B. Impact of the P&P

Figure 1 shows time trends in average cumulative citations per article, by years since publication.<sup>15</sup> As can be seen by the upward trend lines by year of publication, more recently published articles in both journal outlets have higher cumulative citations than older vintages, consistent with findings for economics journals generally.<sup>16</sup> Comparing trends across our two broad time periods, we see that the upward trend in cumulative citations for regular-issue articles (left panel) is higher than for the P&P (right panel), although articles in both outlets accumulate citations in the years after publication at rates that are similar in percentage terms. Our dataset is the first to show citation dynamics and to reveal these trends across journal outlets.

<sup>&</sup>lt;sup>13</sup> As discussed in Meade, Starr, and Bansak (2021), women's share of P&P authors tracks the share of associate professors in data compiled by CSWEP, e.g., "CSWEP Survey and Annual Report" (<u>https://www.aeaweb.org/about-aea/committees/cswep/about/survey</u>).

<sup>&</sup>lt;sup>14</sup> See Beneito and others (2018); Chari and Goldsmith-Pinkham (2017); Fortin, Lemieux, and Rehavi (2021); Lundberg and Stearns (2019).

<sup>&</sup>lt;sup>15</sup> All citation analyses in our study drop Sir Nicholas Stern's 2008 P&P distinguished lecture on "The Economics of Climate Change," as it was an extraordinary outlier, accumulating more citations than entire P&P issues.

<sup>&</sup>lt;sup>16</sup> See Autor (2012).



Notes: Each line shows average cumulative citations for articles published in each year, as of the indicated year since publication. The horizontal axis shows the publication year. The dashed vertical line delineates the beginning of the expansion period.

As already noted, however, the processes by which regular issues and the P&P are assembled are quite different, with P&P issues selected by committee and organized to cover a wide array of topics. Given the more unified approach to the P&P issue, a reasonable alternative way of comparing the relative impact of these different research outlets is to measure average cumulative citations per issue, as is done in Figure 2. Over the 20 years in our sample, cumulative citations to P&P issues have generally been equal to or higher than average citations to regular issues, showing broad-based interest in the P&P issue. Although these differences widen in the expansion period, this is largely because numbers of articles per regular AER issue declined while the number of articles per P&P issue increased.



FIGURE 2. CITATIONS PER ISSUE BY YEAR OF PUBLICATION, P&P VS. REGULAR AER ISSUE

Notes: Citations are cumulative citations as of the indicated year since publication. For regular issues, the figure shows citations per issue averaged over all regular issues published in the year. The dashed vertical line delineates the beginning of the expansion period.

Applying even further granularity to remove differing trends in page and article counts, Figure 3 illustrates patterns of average citations *per page* for the different research outlets in the years following publication. By this measure, P&P articles clearly pack a punch in terms of their short

length: In every year after publication, citation counts per page are at least as high as regular-issue articles; in fact, average citations per page increased for P&P articles in the expansion period (as seen in the top dashed line), while remaining largely unchanged for regular-issue articles.



FIGURE 3. CUMULATIVE CITATIONS PER PAGE, BY PERIOD AND YEARS SINCE PUBLICATION, P&P VS. REGULAR AER ISSUE

*Notes:* For each outlet type, cumulative citations per page are derived by calculating cumulative citations per page for each year within the data period, then averaging across years within the data period.

As shown in Table 2, the coefficient on the change in the relative impact of P&P articles in the expansion period (row 3) is positive and significant in regressions of citations per article on a variety of article characteristics, including article length, number of coauthors, and research fields. A possible explanation for this pattern is that people responsible for compiling the P&P in the expansion years – the AEA president-elect and program committee plus the AEA standing committees – continued efforts to showcase the high value of the profession's work while also aiming to broaden the diversity of economists making contributions.

Row		Two	Four	Six	Eight	Ten
1	P&P article	-0.400	-0.608	-0.627	-0.623	-0.645
		(0.063)	(0.065)	(0.068)	(0.072)	(0.078)
2	Expansion period	0.287	0.215	0.155	0.093	0.059
		(0.053)	(0.051)	(0.052)	(0.055)	(0.060)
3	DID coefficient	0.032	0.199	0.211	0.217	0.206
		(0.068)	(0.070)	(0.072)	(0.078)	(0.087)
4	Article length	0.037	0.039	0.041	0.045	0.043
		(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
5	# of authors	0.119	0.146	0.157	0.161	0.164
		(0.017)	(0.017)	(0.018)	(0.021)	(0.024)
6	Field controls	Yes	Yes	Yes	Yes	Yes
7	Observations	3840	3840	3602	3149	2717
8	Adjusted R <sup>2</sup>	0.331	0.365	0.361	0.353	0.325

TABLE 2. FACTORS EXPLAINING ARTICLE CITATION COUNTS, BY YEARS SINCE PUBLICATION

Notes. Following Koffi (2021), Card et al. (2022), and Hengel (2022), we express the dependent variable in inverse hyperbolic sine form to account for skewness while allowing for zero values.

## **IV. Discussion**

Over the expansion years, the P&P evolved to become a research outlet that is more inclusive of professional economists and more representative of the broader economics discipline than flagship journals like the AER. Our analysis suggests that the rise in inclusivity occurred without any loss of relative impacts, with citations actually rising relative to regular issues on a per page basis. These results suggest the profession could achieve gains in diversity and inclusion more rapidly by making greater use of research outlets like the P&P that prioritize publishing high-interest work that is broadly representative of the profession and its diverse research fields, rather than relying only on traditional peer review to regulate access to publication opportunities.<sup>17</sup>

Against the backdrop of this analysis, we see a risk that the spinoff of the P&P to a standalone journal in 2018 may lead to an erosion in the visibility of the P&P brand, which in turn could degrade its appeal to economists looking to make impactful contributions to the profession's body of knowledge. Based on only a few years of post-spinoff data, we see measures of inclusivity continuing to rise more rapidly in the P&P than in the AER, but citation data are currently too limited to evaluate the outlet's relative ranking after the spinoff. We plan to examine this issue further when there is more evidence at hand.

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<sup>&</sup>lt;sup>17</sup> As shown in Hengel (2022), peer review may result in women's work being evaluated differently at top journals than men's work. See also Heckman and Moktan (2020).

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