Gender Differences in Peer Recognition by Economists*

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Abstract

We study the selection of Fellows of the Econometric Society, using a new data set of publications and citations for over 40,000 actively publishing economists since the early 1900s. Conditional on achievement, we document a large negative gap in the probability that women were selected as Fellows in the 1933-1979 period. This gap became positive (though not statistically significant) from 1980 to 2010, and in the past decade has become large and highly significant, with over a 100% increase in the probability of selection for female authors relative to males with similar publications and citations. The positive boost affects highly qualified female candidates (in the top 10% of authors) with no effect for the bottom 90%. Using nomination data for the past 30 years, we find a key proximate role for the Society's Nominating Committee in this shift. Since 2012 the Committee has had an explicit mandate to nominate highly qualified women, and its nominees enjoy above-average election success (controlling for achievement). Looking beyond gender, we document similar shifts in the premium for geographic diversity: in the mid-2000s, both the Fellows and the Nominating Committee became significantly more likely to nominate and elect candidates from outside the US. Finally, we examine gender gaps in several other major awards for US economists. We show that the gaps in the probability of selection of new fellows of the American Academy of Arts and Sciences and the National Academy of Sciences closely parallel those of the Econometric Society, with historically negative *penalties* for women turning to positive *premiums* in recent years.

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1 Introduction

The Econometric Society (ES) is one of the oldest and most prestigious societies in economics. Its Fellows have a remarkable track record: over 90% of Nobel Memorial prize winners have been ES Fellows. As in the upper echelons of business and government (Bertrand, 2018), women make up only a small share of these Fellows. Figure I shows that the fraction of women among the newly elected Fellows was near 0 until 1970, and remained under 5% until the 1990s, but has recently risen to 20%. Similar trends are evident among newly elected fellows of the American Academy of Arts and Sciences (AAAS), the National Academy of Sciences (NAS), the American Economic Association (AEA), and among Alfred P. Sloan Foundation Fellows. The patterns in Figure I raise two important questions. To what extent did the historically low share of female Fellows reflect a lack of qualified women, versus a lack of recognition for female scholars? And how can we account for recent increases in the representation of women?

In this paper we develop a simple framework for answering these questions and for analyzing gender differences in peer recognition in academia. Specifically, we study the gender gap in the probability of selection as an ES Fellow (1,021 Fellows since 1933) from the underlying population of active scholars. Our framework, which incorporates both the *nomination* and *election* phases of a multi-stage process like the one used by the ES, is motivated by three factors. First, the low rate of selection as a Fellow of the ES is largely driven by the low probability of nomination. In 2015, for example, there were over 1,500 economists with at least three "top 5" publications who were not yet ES Fellows (see Table AI for the listing of "top 5" journals). Of these, only 57 were nominated; ultimately 12 were elected. It is therefore crucial to study gender gaps in both the nomination and election processes.[1] Second, an advantage of studying the relative recognition of women in an academic setting is that we can measure the population at risk for receiving an honor, and quantify the accomplishments of different candidates. Parallel analyses for CEO's or political office holders are infeasible, making it virtually impossible to assess whether there is a shortage of qualified women for top posts, or a preference for males among the set of qualified candidates. Third, our models could be used to identify candidates for nomination who have been overlooked.

We begin by constructing a data base of economists who have authored at least one paper in a set of 36 high-impact journals, yielding a list of over 40,000 scholars from the early 1900s to 2019. After assigning gender using methods developed in Card et al. (2020), we construct dynamically evolving CVs for each economist that incorporates their cumulative publications (in any of the 36 journals) and cumulative citations (for papers in the "top 5" economics journals) up to the current year. We then estimate hazard-style models for the probability that someone who is not yet a Fellow is elected in a given year, conditional on publications and citations up to that point, allowing people to remain at risk for selection for up to 18 years after their last publication.

Our sample includes nearly a century of data, from 1933 to 2019. Recognizing the Society's emphasis on "economic theory in its relation to statistics and mathematics" (Roos, 1933), we allow

[1] An earlier study by Hamermesh and Schmidt (2003) focuses only on election conditional on nomination.

for differing effects of publications and citations in each of the top-5 journals. We also allow separate effects for publications in the other 31 journals (e.g., *Journal of Econometrics* v. *Journal of Labor Economics*), implicitly controlling for field and methodological focus. We fit separate models for three broad periods – 1933-79, 1980-99, and 2000-19 – allowing the effects of gender to vary by decade within each period.

Across all three periods we find that publications and citations are strong predictors of election to Fellow. Cumulative *Econometrica (EMA)* publications play an especially large role, with those in the *Review of Economic Studies (REStud)* matter slightly less. Publications in the other top 5 journals and in the field journals also matter, as do citations.

While the effects of publications and citations are relatively consistent over time, the impact of author gender shifts dramatically. For the period up to 1979 we estimate a large *negative* impact of female gender on the probability of selection as a Fellow (141 log points – a penalty equivalent to about 1.5 extra *EMA's* in models that control only for top 5 publications). For the 1980s, 1990s, and 2000s we estimate positive but more modest effects (all statistically insignificant). We then estimate a larger and highly significant effect (93 log points) in 2010-2019, equivalent to an additional *EMA* publication.

These changing gender gaps are readily apparent in the raw data. Figure II shows the female share of newly elected ES Fellows and of nominees, along with the share of females among all active publishers, the share with at least one *EMA* or *REStud*, the share with at least one *Quarterly Journal of Economics (QJE)*, and those with at least 3 top-5's. Prior to 1980 the share of female Fellows was clearly below the share of female economists with 3+ top-5 publications. By the early 1980s, however, the female share of Fellows had caught up, and the two shares trend upward together until about 2010. Thereafter, the female share of newly elected ES Fellows rises sharply, and is now approaching the female share of active publishers.

An important question is whether the recent boost for female candidates applies to all authors, to highly-qualified authors, or only to super-star candidates. Our basic logistic regression models assume that the female effect is proportional to the probability of selection ignoring gender. We evaluate this assumption and find a fairly consistent boost of around 98 log points for female authors ranked in the top 10% of potential candidates. We find no evidence of a boost for candidates in the bottom 90% of authors (for whom the probability of selection is extremely low).

A concern with our analysis is that we may be more likely to undercount publications for women than men, due to name changes at marriage. We conduct a detailed audit of our constructed CV's for 150 scholars and find an error rate of <2% in the attribution of published papers for both men and women. A second concern is that the publication bar in economics is higher for women (Hengel, 2018; Card et al., 2020), or that citation rates are lower for female-authored papers, leading us to undercount the true productivity of women. While acknowledging these possibilities, we emphasize that they cannot account for the dramatic changes in the gender gap in the probability of selection as an ES Fellow. We also note that the estimated selection *premium* for women tends to get larger when we control for broader measures of past productivity - the opposite of what might be expected

under a mismeasurement concern.

Fellows of the Econometric Society can be nominated by either existing Fellows or, since 1995 on, by the Society's Nominating Committee. About three quarters of the nominees are nominated by existing Fellows, while about a quarter of the nominees are by the Fellow Nominating Committee. Nominees who receive a minimum share of votes cast in the annual election are then elected. To gain additional insights into the drivers of the gender gap in selection rates, we use confidential ES data on the nominees – available (with some gaps) from 1990 onward – to analyze gender effects on nomination and election.

Considering the probability of nomination, conditional on publications and citations, we find an inconsistent gender gap for the period 1995-2011, but a clear 60 log point gap advantage for women (s.e.=23 points) for the period 2012-2019. An important component of this effect arises through a shift in choices of the Nominating Committee, which since 2012 has had an explicit mandate to put forward the names of highly qualified female economists.

Turning to the probability of election, conditional on nomination and controlling for publications and citations, we find an inconsistent pattern for the period 1995-2011, and a positive election premium for females in the period 2012-2019. We also find that over the past 15 years Committee nominees have had a higher probability of election, irrespective of gender. The emergence of this preference for Committee nominees coincides with a switch from paper to electronic voting in 2006, and a new procedure for explicitly designating Committee nominees on the ballot.[2] The high fraction of female candidates nominated by the Committee since 2012, together with voters' preferences for Committee-nominated candidates, imply that the choices of the Nominating Committee have played an important proximate role in the rising recognition of female scholars.

Next, we focus on three mechanisms that potentially mediate gender differences in the probability of selection. First, female economists may be differentially visible to members of the ES. To measure visibility we use appointments to editorial roles at *EMA*. Second, female economists may be less connected to existing Fellows (e.g., Nielson, 2015). We therefore control for coauthorships with current Fellows, and with members of the Nominating Committee. Third, Sarsons et al. (2021) show that women receive less credit for coauthored work than men in tenure decisions. We thus test whether coauthored papers by women receive a lower weight.

We find that visibility and connections both matter. Serving as Associate Editor of *EMA* leads to a large increase in the probability of selection as a Fellow. Coauthorships with ES Fellows increase the probability of nomination as an ES Fellow, while coauthorships with members of the Nominating Committee matter for the probability of being nominated by the Committee. Nevertheless, adding these controls has almost no effect on the estimated gender gaps. With respect to coauthorships, we do not find that women receive less recognition for coauthored work. Thus the gender gaps in selection as an ES Fellow are largely unaffected by differences in coauthorship patterns.

Having documented the impact of gender, we go on to consider geographic diversity. Although

[2]We also identify a second impact of the design of the ballot, which until 2020 listed candidates alphabetically: candidates with last names earlier in the alphabet are more likely to be elected (but no more likely to be nominated).

we do not observe the locations of all actively-publishing economists, we see affiliations of the nominees. In the period up to 2005 we find an election premium for nominees based in top US schools and in Europe (relative to those in lower-ranked US schools), but no such premium for those based in Asia, Australia, Latin America, or Africa. Starting in 2006, however, we see a large boost in the probability of election for nominees from these under-represented areas – a boost that is 2-4 times as large as the boost for female candidates post-2012.

Similar to the case for gender, we document a role for the Nominating Committee, which since the mid-1990s has made an effort to expand geographic diversity in the Society. Interestingly, prior to the mid-2000s these efforts had minimal impact. After the ballot started to identify Committee nominees, however, Committee nominees from under-represented areas became much more likely to be elected, holding constant prior publications and citations.

Finally, we examine whether the changing pattern of gender gaps in fellowship selection are specific to the Econometric Society, or reflect more general patterns in the economics profession. We consider the selection as a Fellow of the AAAS (537 Fellows elected since 1931), the NAS (119 Fellows since 1968), the AEA (172 Fellows elected since 1965), and as a winner of an Alfred P. Sloan Foundation Fellowship (305 awards since 1981). We fit hazard-style models similar to the ones for the ES.

We show that the pattern of gender gaps in selection as a Fellow of the AAAS and NAS, which have similar selection processes as the ES, are remarkably similar to the pattern for the ES. Before 1980, women appear to have faced a higher bar for selection as a Fellow of both Societies. In the 1980s and 1990s the gender gap became positive, if statistically insignificant, and in the most recent decade we estimate large positive selection premiums for female scholars at both Societies (larger in magnitude than for the ES). We also document positive female selection premiums as AEA Fellows and (with smaller magnitudes) as Sloan Fellows. The parallel pattern of gender gaps at the three Societies suggests to us that similar forces may have been at work, and leads us to emphasize that the Nominating Committee's role at the ES is only a *proximate* cause of the changes there. External forces may have worked through different channels at the AAAS and NAS, but appear to have had the same overall effect as at the ES.

Our findings make three main contributions. First, we contribute to an emerging literature within economics on gender-related differences in the evaluation of scientific work, including studies by Chari and Goldsmith-Pinkham (2017) and Hospido and Sanz (2019) on conference submissions, Card et al. (2020) on journal submissions, and Sarsons et al. (2021) on coauthorship and promotions. In contrast to these papers, we focus on recognition for the highest levels of achievement. This difference may be important if, for example, evaluators hold stereotyped priors on women at entry to the field that lead them to under-value the work of female researchers, resulting in a paucity of women at higher levels. Under such circumstances, Fryer (2007) showed that beliefs may "flip," leading to a presumption that successful females are actually better-qualified than men, consistent with the findings by Bohren et al. (2019) and Kahn (2012).

Second, we contribute to the literature originating with Rossiter (1993) on the recognition of

female scientists. Recent studies document the under-representation of women in the American Academy of Physical Medicine and Rehabilitation (Silver et al., 2017), the American Academy of Neurology (Silver et al., 2018), and as winners of top prizes in the biomedical sciences (Uzzi, 2019), anesthesiology (Ellinas et al., 2019), and STEM fields as a whole (Lincoln et al., 2012). Relative to these studies, we measure not only the number of females in a field who are at risk to win an award, but also their scientific contributions as measured by publications and citations.

Finally, we also contribute to the small literature on honors in Economics, including the studies of elections for ES Fellows by Hamermesh and Schmidt (2003) and for members of the AEA Executive Committee by Donald and Hamermesh (2006). Our innovations are to consider the joint process of nomination and election, which is particularly important given the low probability of nomination, and to broaden the set of honors under consideration.

2 Data and Summary Statistics

Our analysis combines data from public sources and confidential records of the Econometric Society. In this section we briefly describe our data sets of actively publishing economists and of scholars nominated and elected as Fellows. Online Appendix A presents additional details on the data set and discusses changes from our pre-registered analysis plan.

2.1 Data Set of Actively Publishing Economists

Sample of Journals and Articles. We constructed a sample of actively publishing economists from information on articles in the 36 journals listed in Appendix Table AI. These include the top-5 journals, 8 other general interest journals (counting *AER/AEA Papers and Proceedings* as a separate journal), and 23 field journals (many of which only started publishing in the 1970s or later). Given the focus of the ES on contributions in theory and econometrics, we oversample field journals in these fields and include the *Journal of the American Statistical Association*. We downloaded all articles in each journal from its earliest publication date, eliminating notes and comments. The final data set contains 103,563 separate articles.

From this data set we construct an annual CV for each author, containing the cumulative set of papers published by a given scholar in the 36 journals up to that year. We consider an economist to be an active publisher from the year of his or her first paper (in the set of 36 journals) to 18 years after his or her last publication (unless he or she died before). We supplement publication counts with cumulative citations to a scholar's prior publications in each of the top 5 journals up to that year, extracted from SSCI/Web of Science. (Citations are set to zero for individuals with no publications in the relevant top-5 journal up to that year).

Disambiguating Names. To construct accurate CV's we need to disambiguate author names. Appendix A contains a detailed description of our process, which included using undergraduate assistants to look up first names for authors with only a first initial. After merging and correcting records, our database of actively publishing economists includes over 40,000 unique names.

Fellowships. Information on the Fellows of the ES, the AAAS, the NAS, the AEA, and the Sloan Foundation was obtained from webpages of these institutions. All but 28 of the 1,021 ES Fellows selected from 1933 to 2019 are included in our data base of active publishers. The excluded group consists mainly of statisticians and methodologists from other fields (see Appendix A).

Gender Coding. We identify gender using the protocol laid out in Appendix Figure 1 of Card et al. (2020). We were able to identify gender for about 93% of actively publishing economists, leaving 2,894 names (6.8% of ever-active scholars) with unknown gender.

Wiki Profiles. We identify all available Wikipedia pages for authors in the sample and use it to identify gender (from the pronouns used) and year of death (if available). We use the gender information to validate the gender coding and resolve some cases of unknown gender. We exclude individuals from the sample after their year of death.

Accuracy Check. Despite our best efforts, our measures of gender and our CV's have some measurement errors. A particular concern for our analysis arises if the error rate in disambiguating names is higher for female candidates, for example because some women change their name at marriage. To assess the error rate we conducted an audit of 150 economist names, 100 classified as male and 50 as female. The names were randomly drawn from the subset of authors with a first publication after 1979 and at least 2 top-5 publications by 2019. As shown in Appendix Table AII, an extensive hand checking revealed that our gender coding was correct in 100% of the cases. Among the 145 economists for whom we could find an actual CV, we measure two types of errors in our constructed CV's: missing publications; and incorrectly attributed publications. Reassuringly, the error rate in our constructed CV's is low. Only 4 publications were incorrectly attributed, and only 13 (out of 2,305) were missing: 2 due to a name change at marriage; 8 due to use of different first names, and 3 due to erroneous or missing meta data. While the error rate is higher for females (11/629=1.8%) than for males (6/1,676=0.4%), the difference is substantively small.

Measure of Connection. We define "connection to an ES Fellow as of year t" as the event of having coauthored at least one paper with that Fellow in years up to and including t in our data set of 36 journals.[3] Similarly we define connection to a member of the Nominating Committee. Unlike the measure of connections to ES Fellows (which can only increase over time), this variable reverts to 0 when the Committee member to whom a person is connected rotates off the Committee.

2.2 Confidential Nomination Data and Nomination Process

Nomination Data. We obtained confidential data on nominations and votes for ES Fellows from the ES and other sources. We use the same data as Hamermesh and Schmidt, 2003 for 1990-2000, supplemented with parallel information for 2001-2002. These data include a list of nominees, whether the person was nominated by the committee (available starting in 1995), and the institution of affiliation (coded in 7 categories). The data for 2006-2019 include additional information on the number of votes received by each nominee, the number of Fellows endorsing the nomination, and

[3]This variable increments by 1 when an economist publishes a new paper coauthored with an existing Fellow (to whom the economist is not yet connected), or when a coauthor of a previously published paper is elected as a Fellow.

the nomination statement. For the years 2003-05 we obtained the list of nominees from copies of the paper ballots. We were also able to identify the nominees by the committee (which are not listed separately on the ballot) for the years 2004 and 2005, but not for the year 2003. We thus omit 2003 from most of the nomination analysis.

Nomination and Election Process. Appendix Table AIII describes the nomination and election process from 1933 on, drawing on documents in *EMA*. In the years 1990-2019, the process involved two main steps. First, scholars were nominated, either by at least 3 current Fellows, or by the Nominating Committee. Second, the list of nominees was circulated to the current Fellows, who voted; nominees with the support of at least 30% of the ballots cast were elected.

Within this framework there were a few important changes to the election process over time. From 1990 to 2005 the ballot was a paper form and nominees (typically around 50) were listed alphabetically, with no indication of whether the nomination came from the committee or other Fellows. In addition, a separate document with the nominating statement for each candidate was provided to voters, including information on the source of the nomination.

Starting in 2006 the ES used an online ballot (with the nominees still listed alphabetically) that provided access to the nominating statement by clicking on a nominee's name. From 2007 to 2010, a single-click feature allowed Fellows to vote for all the candidates nominated by the Committee. This feature was discontinued in 2011 out of concern that it provided an excessive advantage to Committee nominees. Thereafter, Committee nominees were still identified on the ballot by an "(N)" next to their name. Starting in 2009, the ballot listed nominees by region, starting from the regions with the lowest representation in the Society, in alphabetical order within a region.

There have also been changes in the mandate of the Nominating Committee. Anecdotal sources suggest that in the early 1990s the Committee was tasked with bringing forward names of candidates in under-represented regions (e.g., Asia and Latin America). Starting in 2012 a parallel mandate was issued to nominate female candidates. Specifically, the Executive Vice-President noted: "The committee is expected to nominate candidates who might have been overlooked, with special consideration to geographical and field diversity. Gender was recently added to the list and it is now in the mandate of the 2012 Fellows Nominating Committee."[4]

In light of the changes in 2006 (ballot format) and 2012 (mandate for the Nominating Committee), in our analysis of the nomination process we split the years 1990-2005, 2006-11, and 2012-19.

2.3 Summary Statistics

Tables I and II show summary statistics for our author×year data base of actively publishing economists and for the newly elected ES Fellows, respectively. We present data for the 1933-79 period (columns 1-3), for 1980-99 (columns 4-6) and for 2000-19 (columns 7-9). Within each period, we present characteristics of all authors/Fellows and for males and females separately.

The female share of actively publishing economists was only around 5% in the 1933-79 period

[4]This is from a 2012 note from the Executive Vice-President, posted on a Fellows forum.

but has risen to 17.1% in the latest period.[5] Among newly elected ES Fellows the female share is even smaller. Indeed, between 1933 and 1979 only 3 women were selected: Dorothy Brady in 1950, Irma Adelman in 1968, and Anne Carter in 1973. As shown in Figure I, however, the female share of new Fellows has risen, averaging just over 12% in the 2000-2019 period. Among actively publishing economists, the share with unknown gender is 12.5% in the earlier years, but is just 3.4% in 2000-19. This difference is largely accounted for by a stark decrease over time in the share of authors with first initials only, which we cannot gender, from 10% in the earlier years to about 1% recently. In contrast, the share of authors with full name that we cannot gender remains about 2.5-3% of the sample throughout. The genders of all the ES Fellows and nominees are known. For simplicity, in the remainder of the paper we drop all authors with unknown gender from our analysis.

The second panel of Table I gives the percent of active publishers who have been selected as Fellows of the ES, AAAS, NAS, AEA, and as Sloan Foundation Fellows. ES Fellows are most numerous, reflecting the longer history of the ES Fellows program and the low numbers of economists selected by the AAAS and NAS. The corresponding panel in Table II shows that only a small share of new ES Fellows are already AAAS or NAS Fellows. Sloan Fellowships (which are awarded relatively early in a career) are more common among new ES Fellows. Indeed, a remarkable 44% of newly elected female Fellows in the 2000+ period had received a Sloan award, and 24% of newly elected males during the same period.

The remaining rows of Tables I and II summarize the publication and citation records of active publishers and newly elected Fellows. Focusing first on top-5 publications, publishing in these journals is relatively rare, with fairly stable cumulative averages of about 0.2 *EMA* papers, 0.1 *REStud* papers, and 0.3 *AER* papers per active economist. Among newly elected Fellows the averages are much higher, with around 1.9 *EMA* papers, 1.1 *REStud* papers, and 1.6 *AER* papers per new Fellow in the most recent decade. Citations to papers in the top-5 journals tell the same story. In the most recent decades, newly elected Fellows have on average about 426 cumulative citations to their top-5 publications, compared to an average of 72 among all actively publishing economists. Newly elected Fellows also have more publications in the non-top-5 journals.

Finally, we report the average number of years since first publication. In the earlier years newly elected ES Fellows were "younger" than a typical active economist (9.3 years since first publication versus 11.5 years) but more recently the new Fellows are further along in their careers (17.7 years since first publication versus 12.8), consistent with increasing competition for Fellows slots.

Table III shows summary statistics on nominees (columns 1-4) and newly elected ES Fellows (columns 5-8) based on confidential data from the ES, with additional detail in Appendix Table AIV. There are 771 nominations for 460 economists in the years 1990-2005 and 1,017 nominations of 493 economists in the years 2006-19. On average one quarter of nominees were put forward by the Nominating Committee, though this share is higher for female nominees in recent years, as we discuss below. The share nominated by the Committee is larger among elected Fellows, reflecting

[5]See Bayer and Rouse, 2016 and Lundberg, 2017 for a discussion of the low female share in economics today.

the higher election success of Committee nominees, especially in the later period. The number of votes is around 80-90 for an average nominee and 120 for an elected Fellow.

The publication and citation data in Table III show a number of interesting differences between male and female nominees and new Fellows. In the 2006+ period nominated and elected female scholars tend to have relatively fewer publications in *EMA* and *REStud* than males but relatively more papers in the *AER* and *QJE.* Elected females also stand out for the relatively high numbers of citations for their past work, particularly for their *QJE* papers.

There are also some relatively large gender differences in institutional affiliation. Female nominees and new Fellows are particularly concentrated in top-5 US departments, are less likely to be from Asia or Australia, and are virtually absent from Latin America and Africa. The lack of female economists from under-represented regions suggests that gender diversity and regional diversity are potentially conflicting goals for the ES, a point to which we return below.

3 Gender Differences in Selection of Econometric Society Fellows

In this section we present our main results on gender differences in the selection of ES Fellows. We begin with simple logistic regression models that describe the probability of being selected as a new Fellow in year t, conditional on cumulative publications and citations up to t.[6] The risk set in each year includes actively publishing fellows who are not yet Fellows (allowing a scholar to remain at risk for 18 years after his or her last publication in the 36 journals in our sample, or until death). We then turn to an analysis of the nomination and election data, decomposing the gender gaps in selection as a Fellow into gaps in the probability of nomination and probability of election, conditional on nomination. Lastly, we analyze several possible mechanisms.

3.1 Selection of New Fellows

Table IV summarizes the key coefficients from our new Fellow selection models. To account for changes in publication and citation practices and the entry of new journals, we estimate the models separately for the periods 1933-79, 1980-99 and 2000-2019. All the models include year fixed effects that adjust for year-to-year differences in the numbers of Fellows selected relative to the population at risk.[7] Our main focus is the female coefficients, which measure the difference in log-odds of selection for females versus males, conditional on publications and citations. Since the probability of selection is low, this is approximately the gender gap in the log of the probability of selection. Given the small number of women selected as Fellows before 1980 we assume a constant gender effect in the first period. For the two later periods, we allow the gender gap to vary by decade.

In our first specification (columns 1, 4, and 7) we control for an authors' cumulative count of papers in each of the top-5 journals. In all three time periods the strongest determinant of selection

[6] As noted by Efron (1988), this specification closely approximates a standard discrete time hazard model.

[7] Years in which no individuals are elected as Fellows, such as 1934 or 1969, are automatically dropped in the logit specification given the presence of year fixed effects.

is the number of *Econometricas*: each *EMA* article increases the probability of selection by about 100 log points (s.e.=7) in the earliest decades and by 99 log points (s.e.=6) in the most recent period. A publication in the *REStud* has the next largest impact, with an impact of 64 log points (s.e.=7) early on and 53 log points (s.e.=8) more recently. Publications in the other top-5 journals have smaller coefficients, especially in the earlier decades.

In our next set of models (Columns 2, 5, and 8), we add controls for the inverse hyperbolic sine of total cumulative citations to the author's prior publications in each of the top-5 journals.[8] Citations have a relative large effect on the probability of selection and their addition leads to some diminution in the effect of counts of papers. In the most recent period, for example, the elasticity of the probability of selection with respect to cumulative *EMA* citations is 0.26, with smaller elasticities in the other top-5 journals. We also add controls for the cumulative numbers of publications in each of the other 31 journals we consider, with the coefficients on these variables reported in Appendix Table AV. We find sizable impacts of publications in some field journals (e.g., the *Journal of Economic Theory*) particularly in the early period. In the latest period, we also find relatively large effects of publications in several newer journals (e.g., *AEJ: Applied*). Articles in the *AEA Papers and Proceedings* are strong predictors since 1980.

In our most comprehensive specifications (Columns 3, 6, and 9) we add four additional groups of controls: (i) indicators for the number of top-5 publications, 1, 2, 3,..., up to 7+, to estimate the importance of such publications; (ii) indicators for 1, 2, and 3+ cumulative publications for *EMA* and similarly for each of the other top-5 journals, to allow for a non-linear effect of such publications; (iii) indicators for percentiles of cumulative citations in top-5 journals (50-70, 70-80, 80-90, 90-95, 95-97.5, 97.5-99, 99+) to allow for effects not captured by the asinh functional form; (iv) a proxy for academic age, with fixed effects for 10-19, 20-29, and 30+ years since first publication. The additional controls raise the R^2 significantly, in the most recent period from 0.359 to 0.423. Among the control variables (reported in Appendix Table AV), in the last 4 decades the presence of at least 1 or 2 top-5s is a very strong predictor: 118 log points for 1 top-5 and 294 log points for 2 top-5s in the last 2 decades. The first or second *EMA* publication also has a disproportionate effect, and there is a negative impact of 30+ years since first publication.

Focusing on the most comprehensive specification, the estimated female coefficients in Table IV parallel the patterns in Figure II. In the 1933-79 period there was a large negative gender gap (-141 log points) suggesting that female economists faced a significantly higher bar for selection as a Fellow (equivalent to about 1.5 extra *EMA* publications in models that only use top-5 publications). In the 1980s, 1990s, and 2000s, the gender gap turns positive though not statistically significant: 65 log points (s.e.=48 points) for the 1980s, 6 log points (s.e.=48 points) for the 1990s and 55 log points (s.e.=34) for the 2000s. Finally, in the 2010s we detect a larger and statistically significant positive effect of 93 log points (s.e.=24 points) for 2010-2019.

We stress that the qualitative patterns for the gender coefficients are not sensitive to having a

[8] We use the *asinh* transformation to approximate the natural logarithm but accommodate zero citations. We note that for $x > 2$, $asinh(x) \approx log(2x)$.

more parsimonious set of controls (as in columns 1, 4, and 7) or an extensive set (as in columns 3, 6, and 9). Further, a very parsimonious specification which only includes counts for the number of top-5 publications and the quantiles for top-5 citations (Columns 2, 5, and 8 in Appendix Table AVI) yields very similar coefficients to our benchmark model. We also get similar results excluding fellows elected before their first publication (Columns 3, 6, and 9 in Appendix Table AVI).

To put the estimated female coefficients from our richest specifications in perspective, we calculated the number of female Fellows that would have been selected in the absence of a female disadvantage in the 1933-79 period, or a female advantage in the 2010-2019 period. This analysis shows that the number of female Fellows selected up to 1979 would have risen from 3 to about 13 – an addition of 10 extra female Fellows – while the number of female Fellows selected from 2010 to 2019 would have fallen from 28 to about 12 – a loss of 16.

Graphical Evidence. Figures IIIa-b display the average probability of election for male and female candidates, within each bin of the probability of election, for the years 1960-79 and 1980-99 (Figure IIIa) and 2000-09 and 2010-19 (Figure IIIb). Specifically, we re-estimate the models in columns 3, 6, and 9 of Table IV just for male authors. We then generate the predicted probability of election for each active scholar and form percentile bins based on these probabilities. Finally, for each gender group and percentile bin we calculate the average probability of selection as a fellow.

The figures show that, irrespective of gender, almost no one is elected as a Fellow in bins below the 90th percentile, and the probability is still very low in the 95th to 97.5th percentile. It rises in the next percentile, and reaches 5-10% in the 99th percentile. Within a given percentile, the probability of election is lower in the most recent years, reflecting the rise in the number of actively publishing economists and a fairly constant number of elected Fellows.

Turning to the gender differences, Figure IIIa shows that in the 1960-79 period the election probability for females was clearly lower than for males in the same percentile bucket, consistent with the estimates in Columns 1-3 of Table IV. The selection rates for females and males are more comparable in the 1980-99 period. In the last 20 years (Figure IIIb) female candidates have approximately a 2 times higher probability of election than similarly qualified males, again consistent with the estimates in columns 7-9 of Table IV.

An important question is whether our logistic regression models, with a single coefficient for female authors, are able to replicate the patterns of election probabilities shown in Figures IIIa-b. To assess this visually, we used the models in columns 3, 6 and 9 of Table IV to estimate the predicted probabilities of election for economists in each of the percentile bins. As shown in Appendix Figure AI, the logit models do a good job of capturing the patterns of actual selection probabilities for both male and female economists in the various percentile bins.

As a further check, we estimated a logit model for the years 2000-19, including the index used for the percentile bins in Figure IIIb (estimated using only the data for males) and a set of indicators for females in each percentile bin.[9] This specification allows the effect of gender to vary

[9]To increase the statistical power of these models we pooled the 2000-2009 and 2010-2019 decades. However, specifications that allow separate female effects for each percentile bin and decade suggest relatively small differences between the decades for females in each percentile bin (Appendix Figure AII).

across the percentile bins in an unrestricted manner. We also estimated specifications that include the estimated index and dummies for each of the percentile bins, to test whether the logit model provides a good fit to the election probabilities of highly qualified men (see Appendix Table AVII).

The estimated female effects by percentile bin are plotted in Figure IIIc. For reference, we show the pooled female effect for the two decades, which is 0.69 – about half way between the estimated effects for 2000-2009 and for 2010-2019 reported in column 9 of Table IV. Reassuringly, the female effects for each of the four highest bins (covering the top decile of authors) are close to the pooled estimate. The point estimate of the female effect for authors in the bottom 90% is actually negative, but very imprecise, reflecting the fact that almost no authors (of either gender) are elected as fellows from this group. Thus a simple logit model with a single coefficient for female economists provides a remarkably good description of the gender gap in election probabilities. Moreover, as shown by the additional specifications in Appendix Table AVII, the logit model also provides a relatively good fit for the election probabilities of highly qualified men.[10]

3.2 Decomposing Differences in Election Probabilities

Framework and Basic Summary Statistics

In this section we attempt to shed light on the sources of the remarkable changes in the fraction of females selected as new Fellows documented in Section 3.1. We ask how much of the change is due to changes in the probability that women are nominated versus changes in the probability of election conditional on nomination. To set the stage, let F denote female gender, let E denote the event of election, and let N denote the event of nomination. Using Bayes law,

$$P[F|E] = \frac{P[E|N,F]}{P[E|N]} \times P[F|N] \tag{1}$$

Thus the fraction of females among newly elected Fellows can be decomposed into two factors: (1) the relative election success of female candidates compared to all candidates who are nominated, and (2) the fraction of females who are nominated. If, for example, female nominees have the same election probability as male nominees, then changes over time in the fraction of females among newly elected Fellows will be entirely driven by changes in the fraction of female nominees.

We can further distinguish between nomination by the Nominating Committee (denoted by N_c) and nomination by a group of Fellows (N_f). Specifically:

$$P[F|N] = P[F|N_c] \times P[N_c|N] + P[F|N_f] \times P[N_f|N]. \tag{2}$$

[10] In contrast, column 8 of Table AVII shows that the specification with fewer controls used in column 2, 5, and 8 of Table IV does not pass the test, as the percentile indicators for men are highly significant and we confidently reject a coefficient of 1 on the index.

Combining (1) and (2) we can write:

$$\begin{aligned} P[F|E] &= \frac{P[E|N_c,F]}{P[E|N]} \times P[F|N_c] \times P[N_c|N] \\ &\quad + \frac{P[E|N_f,F]}{P[E|N]} \times P[F|N_f] \times P[N_f|N] \end{aligned} \tag{3}$$

This decomposes the overall fraction of females among newly elected Fellows into shares attributable to the nominees of the committee and the nominees of the Fellows. For each subset of nominees, the contribution to the overall share of female Fellows depends on the relative election success of the female nominees in that group, and the fraction of female nominees in the group.

Table V presents the mean values of the probabilities in equations (1)-(3) using data from 1995 forward. Based on the timing of key institutional changes in 2006 and 2012 discussed above, we consider 3 intervals: 1995-2005, 2006-2011, and 2012-2019, with year-by-year evidence in Appendix Table AVIII. The first row shows that the average fraction of females among newly elected Fellows (i.e., $P[F|E]$) was 6.2% in the 1995-2005 period and 5.6% in the 2006-2011 period, but then rose to 19.3% in the 2012+ period. Next, we show the fractions of female nominees ($P[F|N]$), and the fractions of females nominated by the Committee ($P[F|N_c]$) and by the Fellows ($P[F|N_f]$). The fraction of female nominees rises from 5.4% in the first interval, to 5.7% in the second and 12.6% in the third, driven by a large increase in the share of female Committee nominees. If the relative election success of females and males had remained constant, equation (1) suggests that this 2.3× increase in $P[F|N]$ would have increased $P[F|E]$ from 6.2% to 14.2% in the latest interval – a little over one-half of the actual rise. Thus, the total increase in $P[F|E]$ can be attributed approximately equally to a rise in the fraction of female nominees and a rise in their election success.

The Nominating Committee has put forward about one-quarter of nominees, with a slight decline from the first interval (26.8%) to the last (22.5%). This modest share means that despite the rapid rise in the female share of the Committee's nominees, the share of female nominees attributable to the committee rose only modestly, from 29.6% in 1995-2005 to 40.5% in 2012-2019.

The election success ($P[E|N]$) has declined from about 29% in the late 1990s to 21% recently. The election success of Committee nominees, however, actually rose from 39% in 1995-2005 to 51% most recently, offset by a steady decline in the success of the Fellow's nominees. Below we suggest that the increase in success of Committee nominees was at least partly due to an endorsement effect: starting in 2006, with the switch to online voting, Committee nominees were identified on the ballot and this shift led to an immediate rise in their election success rate.

The election success rate of the Committee's female nominees closely followed the trend for all their nominees, rising from 38% to 53% most recently. The females nominated by the Fellows experienced a decline in selection success quite similar to that for all Fellow nominees.

Figure IV presents year-by-year data on the female shares of Committee and Fellows' nominees and newly elected Fellows. From 1995 to 2011 the four series track each other with about 5% females in each group. In 2012, however, the female share among the Committee nominees increased to over 20 percent, and has remained at that level in most years since. Correspondingly, there is

an increase in the female share among the overall nominees and among the elected Fellows. This shift in the gender composition of Committee nominees appears to reflect the new mandate for the Nominating Committee to seek out female nominees – a policy that seems to have largely worked.

Models of Nominations and Election Outcomes

The data in Table V suggest that the rise in the female share of newly elected Econometric Society Fellows can be traced to three main *proximate causes:* (i) a sharp rise in the share of females nominated by the Nominating Committee; (ii) a more modest but still important rise in the share of females nominated by the Fellows; (iii) the relatively high and rising election success rate of nominees put forward by the Nominating Committee. Of course the probabilities reported in the table take no account of changes in the relative qualifications of actively publishing female economists, or of the potential selectivity of the (relatively small number of) nominees of either gender put forward by the Nominating Committee. To address these factors we turn to a series of simple models that adjust for the detailed publication and citation data.

Panel A of Table VI presents a set of nomination and election models, fit to pooled data for the period from 1995 to 2019 but allowing a separate coefficient on female gender for each the three time periods. These models use the same controls as those in Columns 3, 6 and 9 of Table IV; the other coefficient estimates are reported in Appendix Tables AIX and AX.

The first model is a logistic regression for the probability of election as a Fellow, fit to the sample of actively publishing economists who are not yet Fellows. The estimates for the first two periods fluctuate, with a positive and sizable female coefficient in 1999-2005 and a smaller, negative coefficient for the 2006-2011 period, consistent with the fluctuations in Figure II for this period. In the more recent period, 2012-2019, we detect a large positive coefficient, consistent with Table IV.

Next we present a model for the probability of nomination as a Fellow. The female coefficients for 1995-2005 and 2006-11 are relatively similar to the female coefficients in the model for selection as a Fellow in that interval, implying that, conditional on the controls, there was relatively little gender difference in the probability of election given nomination in these periods. In the third interval, however, we estimate a +0.6 boost in the log odds of nomination for female candidates – about half as big as the boost in the log odds of selection as a Fellow. Thus, about half of the large boost in the probability of selection as a new Fellow for women in the 2012+ period is attributable to a boost in their log probability of being nominated, and half to their higher election success.[11]

Next we present separate models for the probability of nomination by the Committee or by one or more Fellows. In the first two time intervals neither of these has a large or statistically significant female gap. In the most recent interval, however, we see a large positive female effect for nomination by the Committee, consistent with the patterns in Figure IV and Table V. These

[11]Since $P(E) = P(N) \times P(E|N)$, the male-female gap in the log of the probability of selection as a Fellow is equal to the sum of the gender gaps in the log probabilities of nomination and election conditional on nomination. And because $P(E)$ and $P(N)$ are both small, the male female gaps $\ln P(E)$ and $\ln P(N)$ are approximately equal to the female coefficients in the logit models for these outcomes. For $P(E|N) \approx 0.21$, the gender gap in $\ln P(E|N)$ is approximately 0.8 times the female coefficient in the logit model for election conditional on nomination.

patterns point to two conclusions. First, as noted above, the Nominating Committee appears to have shifted toward a strong positive preference for female candidates in the 2012+ period. Second, while the fraction of female candidates proposed by the Fellows also rose between the second and third intervals (from 5.6% to 9.7% – see Table V), this increase reflected a relative rise in the fraction of qualified female economists, rather than a change in preferences of the Fellows.[12]

Panel B of the table presents a series of models for election outcomes, conditional on nomination. We begin with a logit model for the probability of election that includes controls for the candidate's publications and citations, and for the year of election. The results are consistent with the patterns for selection as a Fellow (row 1 of the table) and for nomination (row 2).

The next model adds a control for whether the candidate was nominated by the Committee, and an interaction between female gender and nomination by Committee. Prior to the ballot change in 2006, Committee nominees had only a slightly higher probability of election. After the change explicitly identifying Committee nominees, the boost became very large (around 300 log points) and highly significant, implying a strong endorsement effect on Fellow voting. The interaction effects between Committee nominees and female gender are insignificant, suggesting a similar endorsement effect for men and women, though we cannot rule out small or moderately large interactions. In the most recent interval we also estimate a sizable, if not statistically significant effect for female gender, suggesting that the ES voters shifted to exhibit a preference towards female candidates, even controlling for the source of the nomination.

The next three models in Table VI are Poisson regressions for the number of votes received. We estimate them over the last two time periods (since vote counts are only available after 2006), allowing the effects of the key variables to vary by interval. Consistent with the results above, we find that votes received by female candidates rose substantially in the latest period (by 15%), that Committee nominees receive many more votes, and that even controlling for Committee nominee status, there was some evidence of a rise in the votes received by female candidates (by 9%).

In the last row we estimate Poisson models for the number of endorsements for nominations by Fellows. We find no gender differences in either period; we do not study endorsements any further.

3.3 Nomination Statements

Each nomination is accompanied by a short statement from either the Fellows submitting the nomination or the Nominating Committee. In light especially of the analysis of Wu (2018), we consider if the nomination statements show any differences between male and female nominees, or between successful and unsuccessful nominations.

We analyze 1,017 nominations from 2006 to 2019, identifying all word stems used in at least 20 statements. This process yielded 567 words. Panels A-D of Appendix Figure AIV show all words with an odds ratio above 2 for predicting gender (Panels A and B), and a successful nomination (Panels C and D). Comparing the words most predictive of gender, we see that female words like "measurement" and "experiment" reflect a more applied orientation, while male words like

[12] Appendix Figure AIII presents parallel graphical evidence on nominations along similar lines to Figure III.

"bayesian" and "strategy" reflect a more theoretical orientation. We do not find any systematic evidence of the differential use of words characterizing the quality or impact of the work in female nomination statements. Similarly, the words most predictive of election success or failure seem to largely reflect the substantive orientation of a nominee's work.

We also examined the correlation between the effects of different words in identifying gender versus election success (see Appendix Figure AV). There does not appear to be any systematic correlation (positive or negative) in the effect of a given word across these two domains. Appendix Table AXI presents further evidence on words that are predictive of the various outcomes, controlling for publications and citations, yielding similar results. Overall, we do not find any obvious evidence of gender stereotyping in the nominating statements.

3.4 Mechanisms: Visibility, Networks and Credit for Collaboration

In this section we examine three potential mechanisms for the gender differences in recognition in Economics. First, we consider the visibility of a scholar to other members of the ES. One obvious indicator of visibility is being named to the editorial board of *EMA* (though admittedly it is also a signal of quality).[13] Motivated by Einav and Yariv (2006), who find that ES Fellows are more likely to have last names earlier in the alphabet and attribute this to visibility of their work, we control for the quantile of the first letter of the last name within the sample of active publishers.

Next we consider the potential role of personal connections. Specifically, we examine the effect of having previously coauthored with existing ES Fellows, as well as coauthorships with members of the Nominating Committee in a particular year. We also examine the impact of the share of female economists serving on the Nominating Committee.

Table VII presents our models for the effects of these two channels on the probabilities of selection and of nomination as an ES Fellow for the years 1990 on. The specification in column 1 mirrors the one in Table IV, except that for parsimony the coefficients on the control variables are kept constant from 1990 on; the estimated gender coefficients are very close to those in Table IV. Similarly, in columns 3, 5, and 7 we replicate the specifications on nomination as Fellow from Table VI, presenting the gender effects by decade (1990-99, 2000-09, 2010-19).

In columns 2, 4, 6, and 8 we add the visibility and connection controls. We find that having served as Associate Editor at *EMA* has a large positive effect on both selection as an ES Fellow and on nomination. In column 2 we also replicate the finding of Einav and Yariv (2006) that economists with names later in the alphabet are less likely to be elected Fellows. Contrary to a visibility explanation for this finding, however, we do not find a statistically significant effect on nominations either by Fellows or the Nominating Committee. This suggests a different interpretation, based on ballot design: the nominees are listed in alphabetical order, and candidates near the top of the (long) ballot likely capture more votes. If true, a reform in 2020 to randomize the order of candidates is a valuable innovation.

[13] We also considered the impact of being named co-editor or editor at *EMA*. Since virtually all editors and co-editors are already Fellows at the start of their term, however, this measure is not very useful.

We also find that previous coauthorships with ES Fellows have a significant effect on the probability of selection as a Fellow and nomination as a Fellow (both by existing Fellows and the Nominating Committee). Interestingly, connections with members of the Nominating Committee also matter a lot for the probability of being a Committee nominee, but not for nomination by other Fellows, with thus a muted impact on ultimate selection as Fellow. We also find suggestive evidence that a higher share of women on the Nominating Committee increases the likelihood that female candidates are nominated by the Committee.

Overall, visibility and connections matter for election as Fellow of the ES. Nevertheless, the estimated gender gaps are largely unchanged when we control for these features, suggesting that male-female differences in connections or visibility cannot account for the gender gaps.

In Appendix Table AXII we examine whether females receive different credit for their coauthored works than males, as suggested by Sarsons et al. (2021) in the context of tenure decisions. We create an index of publications in the 36 journals and citations taking as weights the coefficients from the ES selection regression as in Table IV, column 9 (except that we run it over the years 1990-2019 and just for male authors). We then create an additional index which uses the same coefficients as the main index but counts only single-authored papers. The coefficient on this index would be positive if authors (of either gender) get less credit for joint papers. Finally, we create an index capturing the remaining controls ("Remaining Index") used in Table IV, column 9, to match our benchmark specification. All indices are re-centered around their mean for newly elected fellows.

In column 1 we estimate a specification with these indices, not splitting by the gender of the economist. The coefficient on the single-authored index is not significantly different from zero: we cannot reject a point estimates of zero discounting for joint work – consistent with the finding by Ellison (2013) that job placements of recently tenured economists are best explained by a model of academic credit that barely discounts co-authored work.

Next we examine whether these findings differ for female authors. For the coauthored papers (captured by the overall index), we cannot reject that women get the same credit as men. For the single-authored papers, we find suggestive evidence of more weight on such papers for the selection of females as ES fellows, but no such difference for either source of nomination as ES fellows, or for selection as AAAS or NAS fellow (which we discuss in Section 5). Furthermore, allowing for these index variables has little impact on the estimates of the key female coefficients. We conclude that differential credit for coauthored work does not appear to account for the gender gaps.

4 Geographic and Institution Differences in Election to ES Fellows

While gender differences in the selection of ES Fellows are the focus of this paper, the ES Nominating Committee has had a mandate to expand the geographic diversity of Fellows for many years, and the ballot in recent years lists nominees by region to draw attention to the issue. In this section we explore the gaps associated with geography and institutional prominence in elections for ES Fellows, using information drawn from the nomination forms. Unfortunately, such information is

not readily available for the overall population of actively publishing scholars.

In Table VIII we estimate a logit model of selection as ES Fellow conditional on nomination, equivalent to the model in Table VI but adding characteristics of the institution of affiliation (with non-top-17 US departments as the omitted category). As with gender gaps, we find a very different pattern of effects associated with affiliation in earlier and later years. In the 1995-2005 period, economists in top-5 or top-6-to-17 US Departments had the highest likelihood of election, conditional on publications and citations, while those in Asia, Australia, and Latin America appear to have faced a higher bar for election. Since 2006, however, we observe very large election premiums for economists from Asia or Australia and from Africa and Latin America in the order of 200 to 400 log points, 2-4 times larger than the parallel estimated premiums for gender.

Thus, within the short span of a decade, the group with the highest chance of election (conditional on publication and citations) changed from economists at top US universities to economists in under-represented regions of the world.

In the second panel of Table VIII, we pool all the under-represented regions and add a control for the source of nomination. As in Table VI, we find that Committee nominees have received significantly more support in the years since 2006.[14] Even controlling for this factor, though, nominees from underrepresented regions are significantly more likely to be elected.

Importantly, adding information on institutional affiliation leads to an *increase* in the magnitude of the gender effects in Fellow elections. Comparing the specifications in Table VI to those in Table VIII, we find a female effect on the log odds of election in the 2012-2019 period of 82 log points (s.e.=37) without controls for institutional affiliation and 131 (s.e.=39) with such controls. Female scholars are less likely than males to come from under-represented areas (i.e., female and under-represented region are negatively correlated). To the extent that the ES desires both to have gender diversity and geographic diversity, the two objectives are therefore in conflict.

In Figure V we present year-by-year evidence on the share of nominees and elected Fellows from underrepresented regions. The figure shows a spike in such nominations from the Committee starting in 2007-08, and a concomitant rise in the share of elected Fellows from under-represented regions. This pattern parallels the one for the nomination and election of female economists, except that it occurs a few years earlier. In addition, the figure shows that in the 1995-2001 period there had been a relatively high share of Committee nominees from underrepresented regions, but few were ultimately elected. It seems that the change in the ballot to explicitly identify Committee nominees was crucial in raising their electoral success.

5 Peer Recognition in Other Societies: AAAS, NAS, AEA, Sloan

In this section we consider four other salient honorific Fellowships awarded to economists: AAAS, NAS, AEA and the Sloan Foundation. Lacking data on nominees for these honors, we focus on hazard-style models for the probabilities of selection as a Fellow, similar to the models in Table IV.

[14] In Appendix Table AX we replicate the other specifications in Table VI, controlling for institutional affiliation.

The processes for selecting Fellows of the AAAS and NAS are broadly similar to that of the ES: nominations are received from one or more existing Fellows, and then the Fellows vote for names on the nominee list. The AAAS considers nominees from groups of at least two Fellows, one of whom must be from the U.S. The NAS also collects nominations from existing Fellows: NAS Fellows must be U.S. citizens, although a small number of "Foreign Associates" is also selected. For both AAAS and NAS, we consider only Fellows with Economics as primary field. We present additional details on the sample construction in the Online Appendix.

In contrast to ES, AAAS, and NAS, the AEA Distinguished Fellows are nominated by a Nominating Committee and voted on by a combination of the Nominating Committee and the AEA Executive Committee. Past presidents of the AEA are automatically recognized as Distinguished Fellows; up to four additional scholars are recognized each year for "lifetime research contributions." The Sloan Foundation Fellowships are limited to economists up to 6 years from the PhD (up to 2019) or untenured (but tenure-track) scholars (since 2019) at U.S. and Canadian universities. Nominations are submitted by department chairs, with a maximum of 3 nominees per department. Fellows are selected by a committee of 3 senior scholars.

Appendix Table AXIII(a)-(b) present summary statistics for the Fellows in the year of election. The publications and citations for the AAAS, NAS, and AEA new Fellows are on average even higher than for new ES Fellows, a gap that is unsurprising since these awards are typically given later in life. The opposite is true of Sloan awards which are given to more junior scholars.

Table IX presents parallel specifications to Table IV for these honors.[15] Instead of estimating separate models for each time period, we estimate a single model but fully interact the controls with indicators for the time periods (pre-1980, 1980-1999, and 2000-2019), yielding identical estimates to the approach in Table IV. (The coefficients are reported in Appendix Tables AXIV-AXV).

Compared to their importance in predicting ES Fellows, *EMA* and *REStud* papers are less predictive of selection as AAAS or NAS Fellows, with more weight on citations to papers in the other top-5 journals. This could reflect different methodological and field weights, or a larger US focus, compared to the ES. Publications in some applied journals, such as the *Journal of Economic History,* carry higher weight for the AAAS and NAS models.

Interestingly, the patterns of gender gaps in the models for selection into the AAAS and NAS (columns 3-6) are quite similar to those we estimated for the ES. In all three cases we find evidence of a higher bar for female candidates in the earlier period, conditional on publications and citations. Indeed, in the case of NAS Fellows the female coefficient cannot be estimated since no women were elected to the NAS until 1989. In the 1980s and 1990s the estimated gender gaps are positive, if

[15] We estimate in the odd-numbered columns of Table IX a more parsimonious specification paralleling column 8 of Table IV and in the even-numbered columns of Table IX a specification similar to column 9 of Table IV, except that we omit some of the control variables to avoid over-specifying the model, in light of the significantly smaller number of awardees, especially for the NAS and AEA Fellows. See the list of variables in Appendix Tables AXIV-AXV. We also report a more parsimonious specification with only counts of top-5 publications and percentiles of top-5 citations in Appendix Table AXVI. For the Sloan Fellows, to mimic the eligibility restrictions, we limit the sample to individuals up to 8 years since their first publication, a proxy for time of PhD. The results are insensitive to varying this time window.

statistically insignificant, for both Societies, similar to the pattern for the ES. Finally, in the most recent two decades we estimate large positive effects of female gender on the probability of selection as an AAAS or NAS Fellow, with a magnitude larger than the one for the ES (+211 log points for the AAAS in 2010-19, s.e.=35; +285 log points for NAS in 2010-19, s.e.=78).

Turning to the selection as a Fellow of the AEA in columns 7 and 8, the pattern is somewhat different, with no evidence of a higher bar for female candidates prior to 1980. Similarly to the other fellowship, we detect a large positive effect (+226 log points, s.e.=53 points) in the most recent decade. Finally, the results for selection as an Alfred P. Sloan Fellow (which only started in 1981) display a modest and consistent positive effect (around 40-70 log points) for female candidates.

It is interesting that the three fellowships with a similar selection model — nominations by other Fellows and then voting by the full body of Fellows — yield a similar pattern of gender gaps over time, with a higher bar for female candidates in the pre-1980 period and a significantly lower bar in the most recent decade. The two fellowships that rely on a committee for selecting new Fellows display a more stable pattern of moderately positive female advantage over time.

In Appendix Table AXVII we present models for the probability of election as President or Vice-President of the American Economic Association (see Donald and Hamermesh (2006) for an earlier analysis of these outcomes). The President is chosen by the Executive Committee of the AEA and runs unopposed, while the two Vice-Presidents are chosen via ballot out of 4 candidates.[16]

In the years 1933-79, selection to president or vice president of the AEA appears to have been approximately gender-neutral, with a relatively small and statistically insignificant female effect. Since 1980, however, there appears to have been a substantial premium for female candidates, ranging from 246 log points (s.e.=59 points) in 1980-89 to 539 log points (s.e.=76 log points) in the most recent decade. This substantial positive preference for female candidates predates the preferences exhibited in the selection of ES, AAAS and NAS Fellows by at least two decades.

6 Discussion and Conclusion

How does gender affect peer recognition in economics? We take a comprehensive approach studying not only the probability of election to the Econometric Society but also the two stages of the process —nomination and election conditional on nomination. We compare the findings for gender to the findings for geographic diversity, another relevant consideration for the Society. We then extend the study of the role of gender to other important societies: AAAS, NAS, AEA and Sloan Foundation.

Controlling for the effects of prior publications and citations, we find that gender exerts an effect on selection rates that varies substantially over time, suggesting that the recognition given to female scholars, *conditional on their publications and citations,* has changed over the last century. In the first five decades of the Society (1933-79), we estimate a large *negative* coefficient of female gender on the probability of selection. For the 1980s and 1990s, by comparison, we estimate a smaller, positive, if statistically insignificant, effect of female gender on the probability of selection

[16] We do not analyze the election to ES President, a position that up until 2020 has been held only by men.

as a Fellow. Finally, we estimate a modest positive effect for the 2000-2009 period, and a larger, statistically significant positive effect for the 2010-2019 period. Thus, in the most recent decade, the effect of female gender has switched from the historically negative pattern to a positive benefit. We document an important role for the Nominating Committee which in the most recent period has put forward a number of highly-qualified female candidates, and whose nominees tend to receive more votes when they are easily identified on the ballot.

We find some parallel patterns for geographic diversity. While in the 1990s the candidates most likely to be elected (conditional on publications and citations) were economists in top US universities, since 2006 nominees from underrepresented regions have a substantially higher probability of election, conditional on their contributions. We again find an important role for the Nominating Committee in this shift, aided by changes in ballot design to emphasize regional diversity.

Similar evolving patterns of gender are present in AAAS and NAS, the two institutions with a similar election system, where existing Fellows vote for the new Fellows. In contrast, the Sloan and AEA fellowships that rely on a committee mechanism for selecting new Fellows display a more stable pattern of positive female advantages over time.

Methodologically, we view these estimates as illustrating the benefit of our approach of estimating the selection of Fellows out of the underlying population of active economists while controlling for a rich set of publication and citation measures. This allows us to obtain relatively precise estimates of gender differences in peer recognition, and benchmark their magnitudes against the effects of publications and citations, which are highly predictive of peer honors. In addition, our approach has the benefit that it could help identify highly deserving candidates who are not currently Fellows.

Our findings raise the question of what factors account for the changing gender gaps in peer recognition in economics. Although an answer is beyond the scope of this paper, we believe that the findings for the 1933-1980 period will not be too surprising to most readers. The "Matilda Effect" hypothesized by Rossiter (1993) was in fact present in the election of Fellows to the ES (to the AAAS and NAS) until the 1970s. In this era we estimate that women were about 4 times less likely to be selected as ES Fellows as men with comparable records.

More surprising is our finding that from 1980 to 2000 there were relatively small gender differences in the probability of selection as a Fellow of the ES, AAAS, and NAS, conditional on academic achievements as measured by publications and citations. We caution that this finding has to be interpreted carefully in light of evidence that female scholars may face somewhat higher barriers to publishing. Specifically, recent studies by Ginther and Kahn (2004), Hengel (2018), Sarsons et al. (2021), and Card et al. (2020) point in this direction. If so, then women who succeed in publishing in top journals may in fact be better scholars than males with the same record.

Finally, our most surprising finding is that in the past two decades, and especially after 2010, female economists are more likely to be selected as Fellows of ES, AAAS, and NAS than males with similar publication records and citations. Such a positive preference for females was also found by Donald and Hamermesh (2006) in their study of AEA officer elections. Holding constant publications and citations, women were more than twice as likely as men to be selected as a Fellow

of the ES, AAAS or NAS in the last decade.

There are at least three possible explanations for this positive preference for female candidates. The first is that as economists have become more aware of the higher bar for publishing and career success faced by female economists, they have lowered the bar for subsequent honors (consistent with the "belief flipping" hypothesized by Fryer, 2007). A second possibility is that Fellows of these Societies may have decided to try to redress the past under-recognition of female scholars. If so, then we might expect the positive female effects in the selection process for new Fellows to eventually disappear – though even after a decade or more of positive preferences, the fraction of female Fellows in the ES is still relatively low at over 6 percent. A third possibility is that Fellows may believe there is value in admitting a share of females that is approximately equal to the share of females in the broader population of active publishers. Such a choice could have the benefit of demonstrating that successful economists value the contributions of female scholars.

References

Altonji, Joseph G., Todd E. Elder and Christopher R. Taber 2005. "Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools." *Journal of Political Economy* 113(1): 151-184.

Bayer, Amanda, and Cecilia Elena Rouse. 2016. "Diversity in the Economics Profession: A New Attack on an Old Problem." *Journal of Economic Perspectives*, 30(4): 221-42.

Bertrand, Marianne. 2018. "The Glass Ceiling." *Economica*, 85 (338): 205-231.

Bohren, J. Aislinn, Alex Imas, and Michael Rosenberg. 2019. "The dynamics of discrimination: Theory and evidence." *American Economic Review* 109 (10): 3395-3436.

Card, David and Stefano DellaVigna. 2020. "What do Editors Maximize? Evidence from Four Economics Journals." *Review of Economics and Statistics*, 102.1: 195-217.

Card, David, DellaVigna Stefano, Funk, Patricia and Nagore Iriberri. 2020. "Are Referees and Editors in Economics Gender Neutral?" *Quarterly Journal of Economic*s, 135(1): 269-327.

Chan, Ho Fai and Benno Torgler. 2012. "Econometric Fellows and Nobel laureates in economics". *Economics Bulletin* 32(4): 3365-3377.

Chari, Anusha and Paul Goldsmith-Pinkham. 2017. "Gender Representation in Economics Across Topics and Time: Evidence from the NBER Summer Institute." NBER Working Paper No. 23953.

Donald, Stephen G. and Daniel S. Hamermesh. 2006. "What is discrimination? Gender in the American Economic Association, 1935-2004." *American Economic Review* 96(4): 1283-1292.

Econometric Society. 1952. "Constitution of the Econometric Society." *Econometrica* 20 (1): 115-119.

Efron, B. 1988. "Logistic regression, survival analysis, and the Kaplan-Meier curve." *Journal of the American Statistical Association*, 83(402): 414-425.

Einav, Liran and Leeat Yariv. 2006. "What's in a Surname? The Effects of Surname Initials on Academic Success." *Journal of Economic Perspectives*, 20(1): 175-187.

Ellinas, Elizabeth H. Elizabeth Rebello, Rekha Chandrabose, Sasha Shillcutt, Mike Hernandez, and Julie Silver. 2019. "Distinguished service awards in Anesthesiology specialty societies: Analysis of gender differences." *Anesthesia and Analgesia* 129(4): e130-e134.

Ellison, Glenn. 2013. "How Does the Market Use Citation Data? The Hirsch Index in Economics" *American Economic Journal: Applied Economics*, 5(3):63-90.

Fryer, Roland G. 2007. "Believe flipping in a dynamic model of statistical discrimination." *Journal of Public Economics* 91: 1151-66.

Ginther, Donna K. and Shulamit Kahn. 2004. "Women in Economics: Moving up or falling off the academic career ladder?" *Journal of Economic Perspectives* 18(3): 193-214.

Gordon, Robert J. 1997. "What is the econometric society? History, organization, and basic procedures." *Econometrica* 65(6): 1443-1451.

Hamermesh, Daniel S., and Peter Schmidt. 2003. "The determinants of Econometric Society Fellows elections." *Econometrica* 71(1): 399-407.

Hospido, Laura, and Carlos Sanz. 2019. "Gender gaps in the evaluation of research: evidence from submissions to economics conferences." *Oxford Bulletin of Economics and Statistics,* 83(3): 590-618.

Hengel, Erin. 2018. "Publishing while female. Are women held to higher standards? Evidence from peer review," Working paper.

Kahn, Shulamit. 2012. "Gender differences in academic promotion and mobility at a major Australian university." *Economic Record,* 88(282):407-424.

Lincoln, Anne E., Stephanie Pincus, Janet Bandows Koster and Phoebe S. Leboy. 2012. "The Matilda Effect in science: Awards and prizes in the US, 1990s and 2000s." *Social Studies of Science* 42(2): 307-320.

Lundberg, Shelly. 2017. "Report: Committee on the status of women in the Economics profession (CSWEP)." *American Economic Review* 107(5): 759-76.

Nielsen, Mathias W. 2015. "Limits to meritocracy? Gender in academic recruitment and promotion processes." *Science and Public Policy* 43(3): 386-399.

Roos, Charles F. 1933. "Constitution of the Econometric Society." *Econometrica* 1(1): 106-108.

Rossiter, Margaret W. 1993. "The Matthew Matilda effect in science." *Social Studies of Science* 23(2): 325-341.

Sarsons, Heather, Klarita Gërxhani, Ernesto Reuben, and Arthur Schram. 2021. "Gender Differences in Recognition for Group Work." *Journal of Political Economy* 129 (1): 101-147.

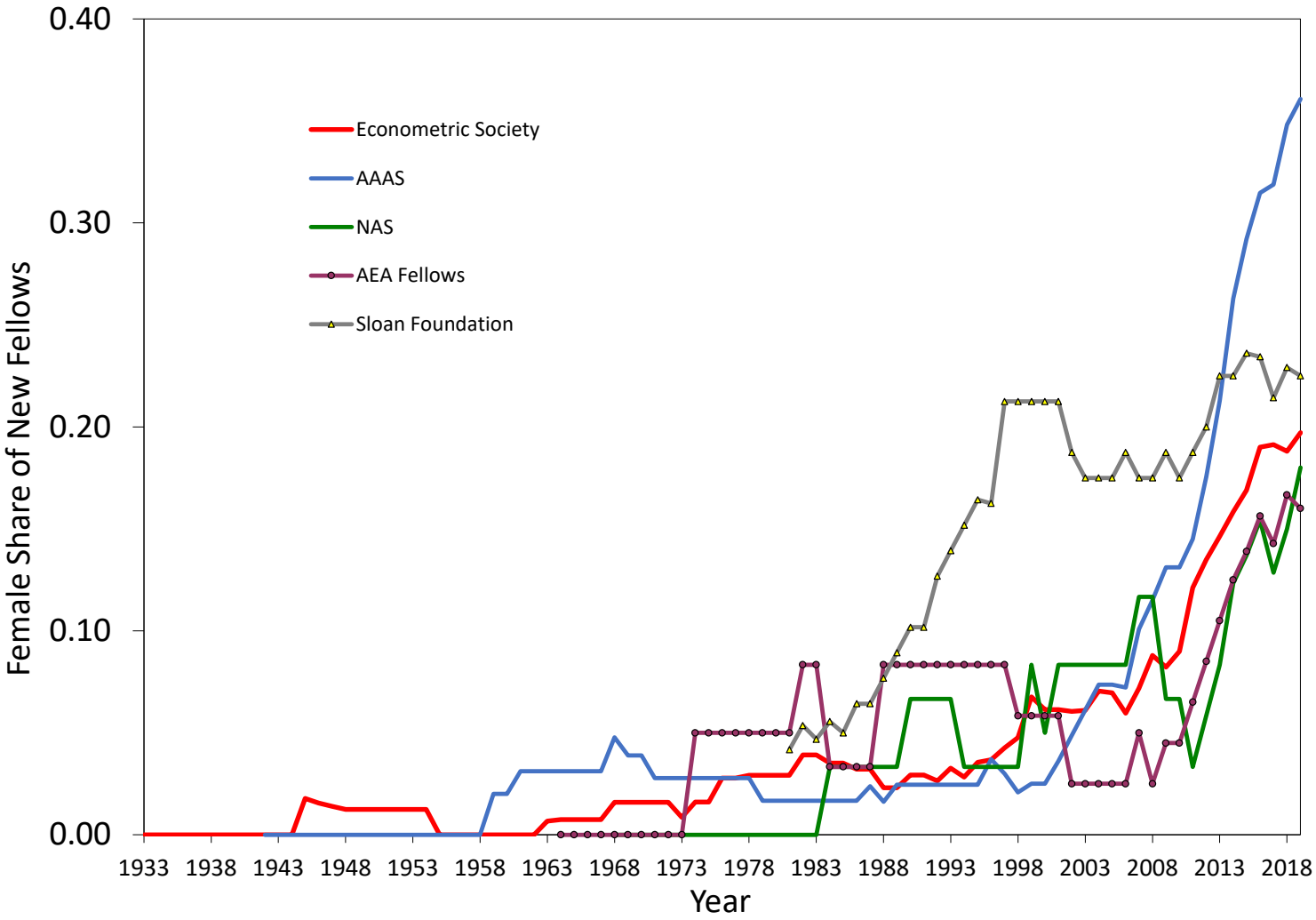
Silver, Julie K., Saurabha Bhatnagar, Cheri A. Blauwet, Ross D. Zafonte, Nicole L. Mazwi, Chloe S. Slocum, Jeffrey C. Schneider, and Adam S. Tenforde. 2017. "Female physicians are underrepresented in recognition awards from the American Academy of Physical Medicine and Rehabilitation." *American Journal of Physical Medicine and Rehabilitation* 9:976–984.

Silver, Julie K., Anna M. Bank, Chloe S. Slocum, Cheri A. Blauwet, Saurabha Bhatnagar, Julie A. Poorman, Richard Goldstein, Julia M. Reilly, and Ross D. Zafonte. 2018. "Women physicians underrepresented in American Academy of Neurology recognition awards." *Neurology* 91(7): e603-e614.

Uzzi, Brian. 2019. "Women are winning more scientific prizes, but men still win the most prestigious ones." *Harvard Business Review* February 14, 2019.

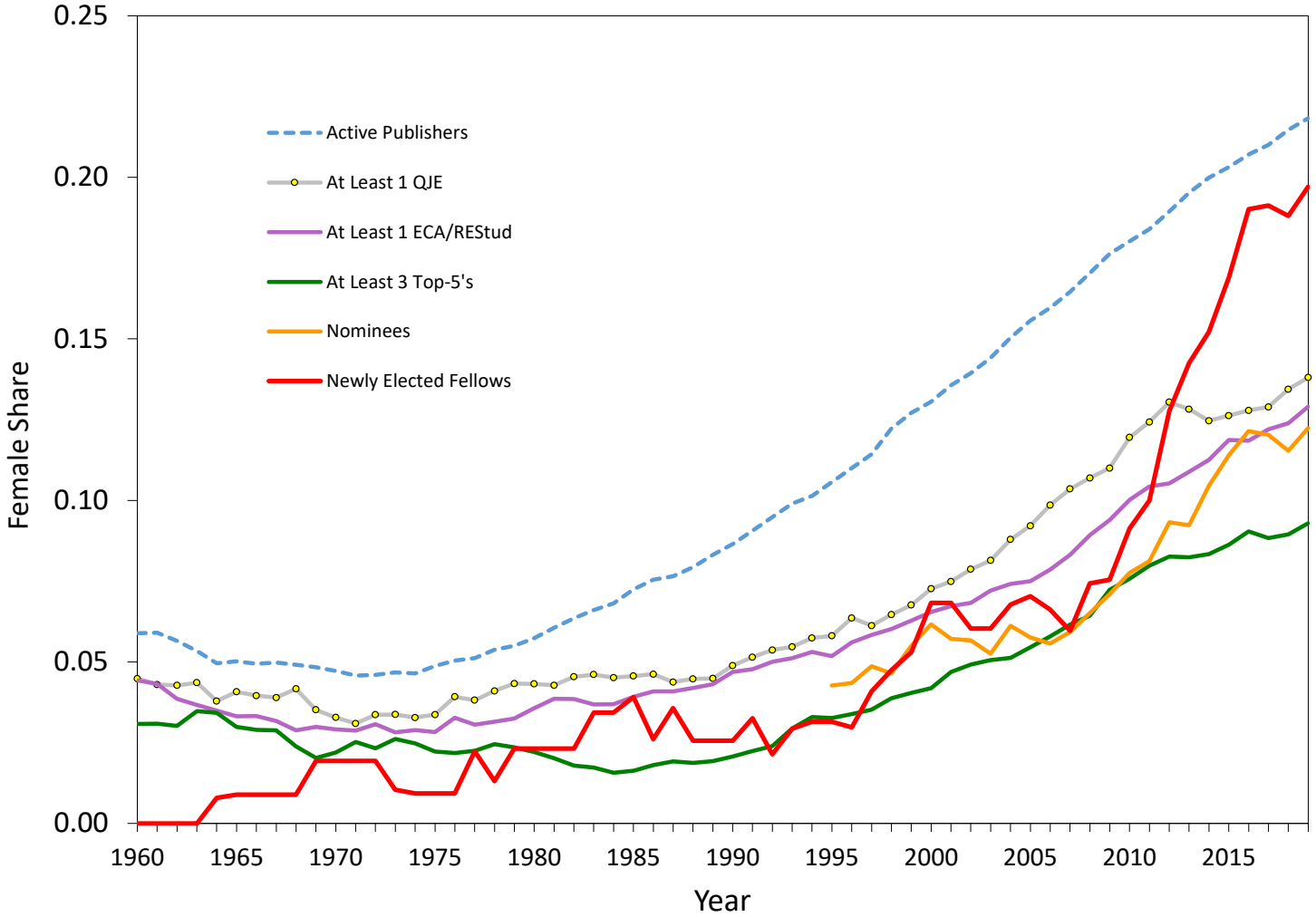
Wu, Alice H. 2018. "Gendered Language on the Economics Job Market Rumors Forum." *AEA Papers and Proceedings*, 108:175-79.

Figure I. Female Share of Newly Elected Fellows, for Five Fellowships



Notes. The figure presents a 10-year moving average of the fraction of female economists among the newly elected Fellows to 5 distinguished fellowships. In the calculations we include also the small number of new Fellows that do not appear in our sample of actively-publishing economists (see online appendix for detail). For the AAAS and NAS we include only Fellows with economics as primary field, as in our main analysis.

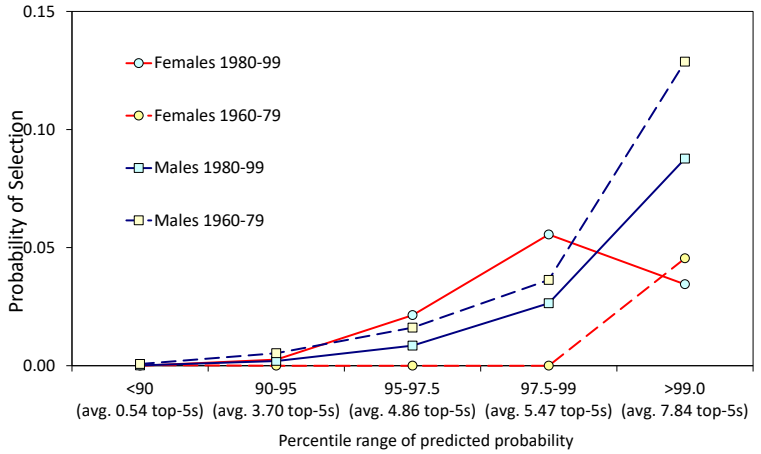
Figure II. Female Share of Active Scholars, Nominees, and Newly Elected Fellows to the Econometric Society



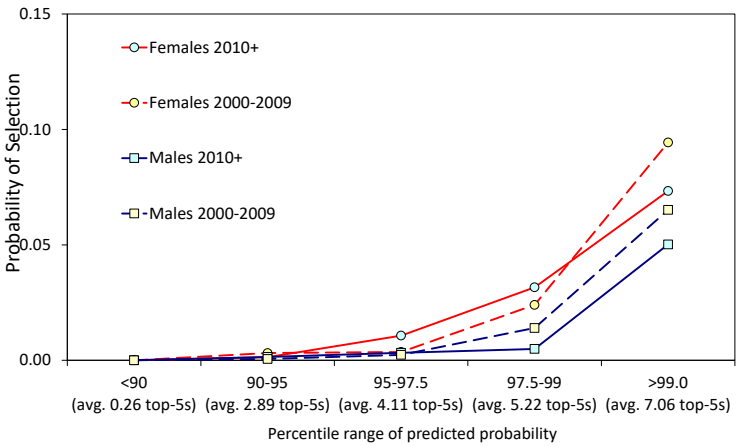
Notes. The figure presents the fraction of female economists among the sample of active publishers (Table I), among a sample of economists with at least 1 *Econometrica* or *Review of Economic Studies* publications, among economists with at least 1 *Quarterly Journal of Economics* publication, among economists with at least 3 "top-5" publications, among the Econometric Society nominees, and among the newly elected Econometric Society Fellows. The female shares of nominees and elected Fellows are smoothed using a centered 9-year moving average. The fraction female is computed excluding from the denominator economists with unknown gender. The information on nominees is only available from the year 1990.

Figure III. Election as ES Fellow by Gender, Decade, and Predicted Probability

a. 1960-1979 and 1980-1999



b. 2000-2009 and 2010+



c. 2000-2019

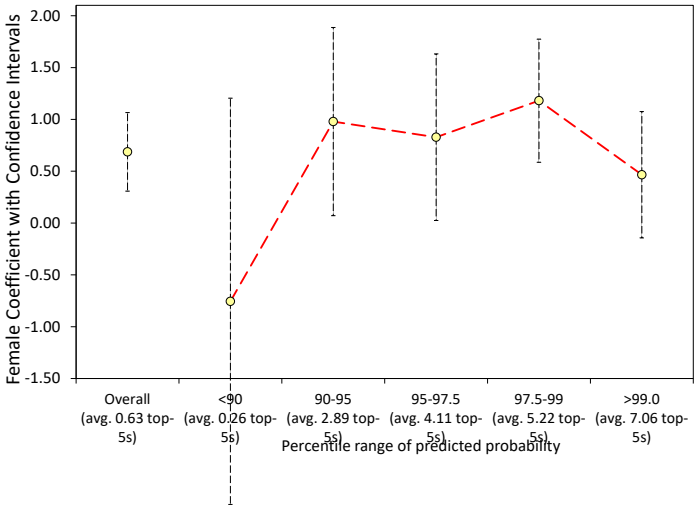


Figure IV. Female Shares Among New Fellows and Nominees, by Year

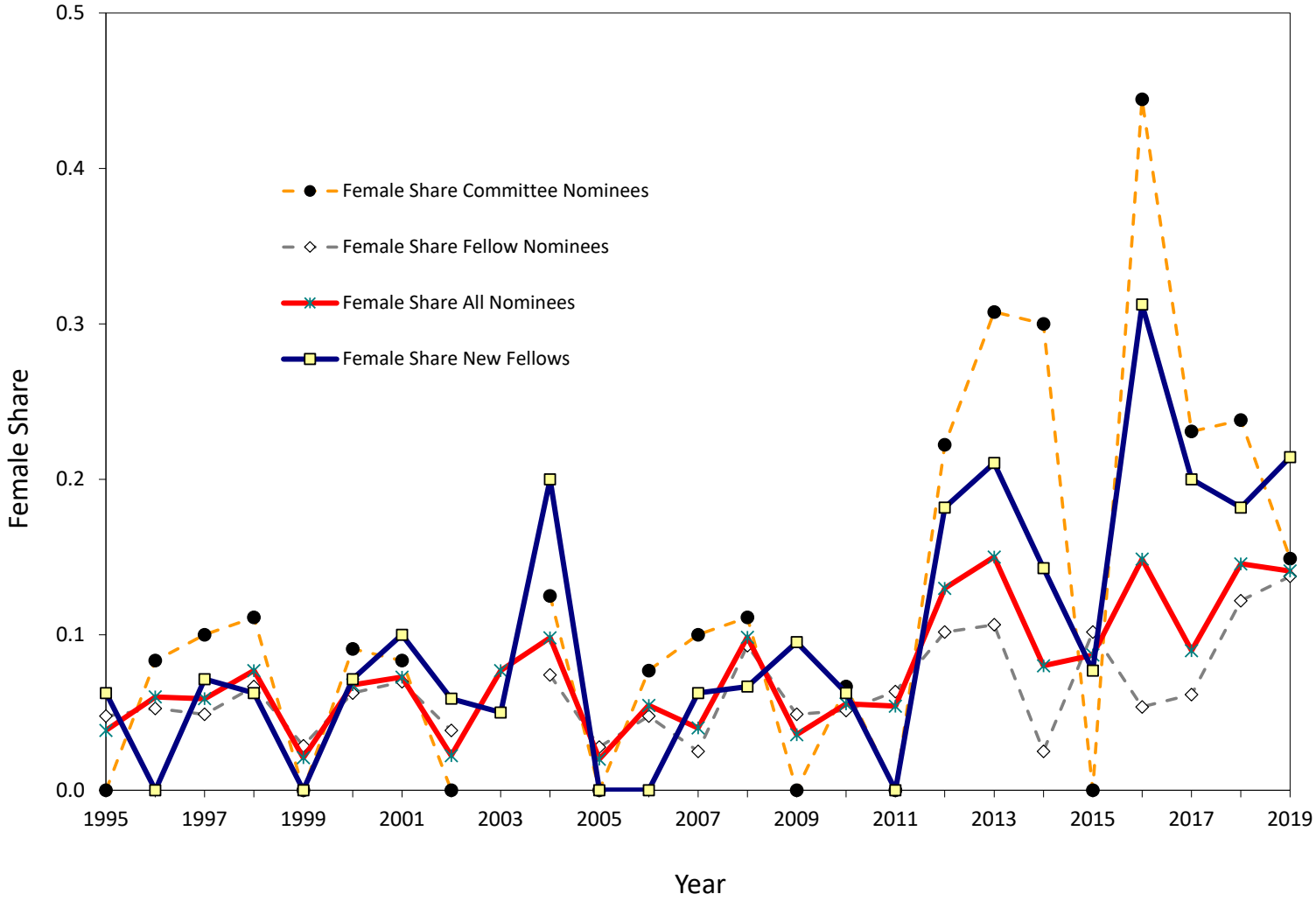
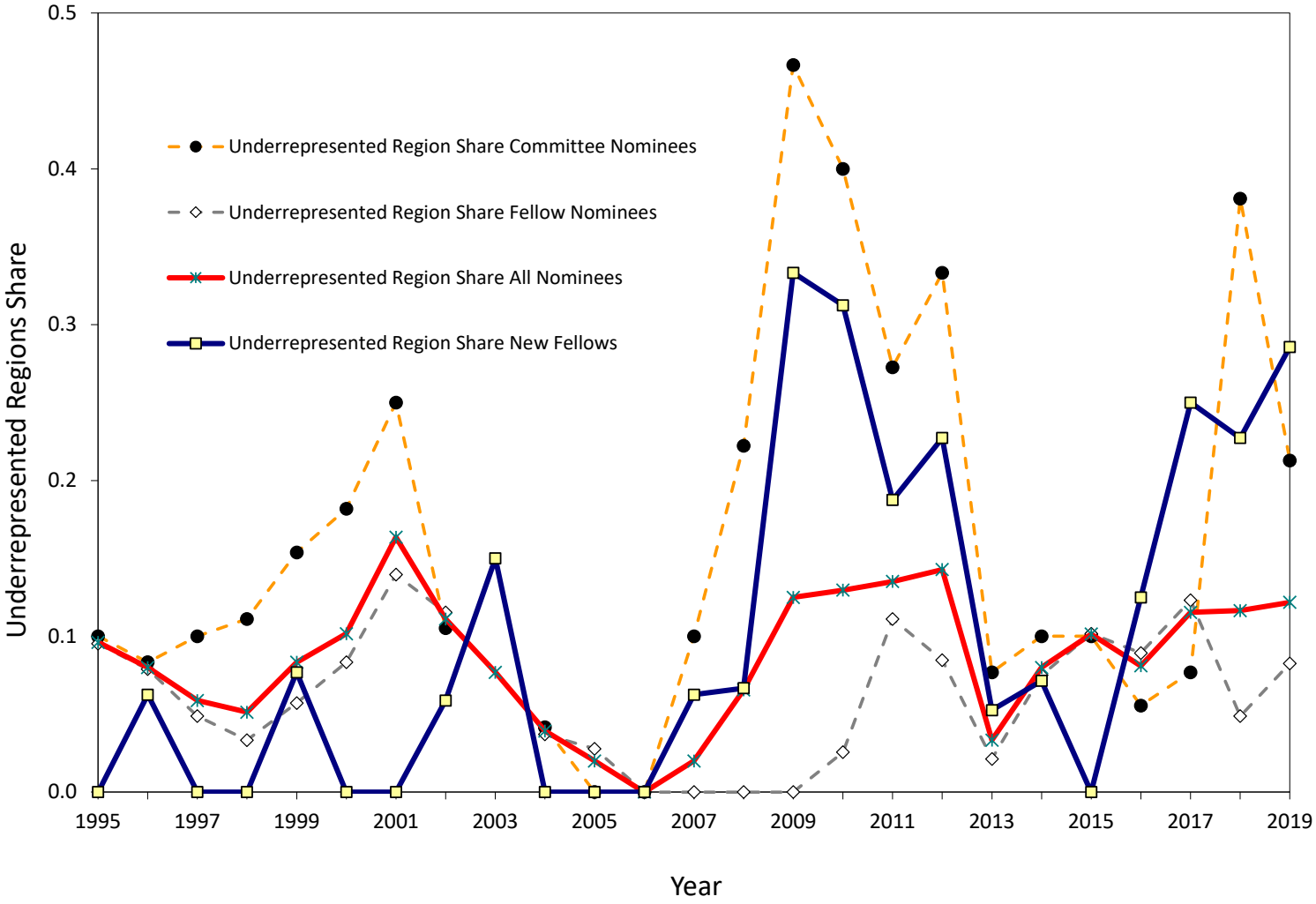


Figure V. Share from Underrepresented Regions among Nominees and New Fellows, by Year and by Source of Nomination



Notes. The plot presents the share from underrepresented regions (Asia, Australia, Latin America, Africa) by year among newly elected Fellows, among nominees, and separately for nominees by source of nomination. The information on source of nomination is not available for 2003.

TABLE I
SUMMARY STATISTICS FOR DATA SET OF ACTIVELY PUBLISHING ECONOMISTS

	Economists with at Least One Paper Published in Set of Leading Journals								
	1933-1979			1980-1999			2000-2019		
	All	Male	Female	All	Male	Female	All	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Percent Female	4.98	0	100	8.20	0	100	17.12	0	100
Percent First Initial Only, Unknown Gender	9.99	0	0	4.50	0	0	1.08	0	0
Percent Full Name, Unknown Gender	2.52	0	0	2.98	0	0	2.29	0	0
Percent Fellows (as of current year)									
Current Fellow of ES Society (1933+)	3.52	4.22	0.65	3.74	4.35	0.81	3.12	3.76	0.75
Current Fellow of AAAS (1931+)	2.19	2.63	0.40	1.58	1.83	0.48	1.29	1.54	0.39
Current Fellow of NAS (1968+)	0.10	0.13	0	0.41	0.48	0.06	0.32	0.38	0.10
Current Fellow of AEA (1965+)	0.17	0.21	0.01	0.39	0.45	0.15	0.32	0.38	0.11
Recipient of Sloan Fellowship (1981+)	0	0	0	0.67	0.74	0.59	1.19	1.29	0.97
Cumulative publications in top-5 journals									
Econometrica	0.21	0.23	0.06	0.28	0.31	0.07	0.22	0.26	0.05
REStud	0.14	0.14	0.12	0.16	0.18	0.05	0.14	0.17	0.05
AER	0.36	0.40	0.29	0.29	0.32	0.14	0.26	0.30	0.14
QJE	0.35	0.39	0.23	0.17	0.19	0.08	0.14	0.16	0.07
JPE	0.38	0.43	0.25	0.24	0.27	0.09	0.16	0.19	0.06
Cumulative citations in top-5 journals									
Econometrica	1.21	1.37	0.31	6.82	7.86	0.98	18.42	22.41	3.27
REStud	0.32	0.36	0.17	2.26	2.58	0.43	6.51	7.75	1.92
AER	1.06	1.23	0.57	6.73	7.69	2.33	19.44	22.21	10.04
QJE	0.54	0.61	0.36	2.37	2.67	1.05	13.15	15.17	6.24
JPE	0.85	0.99	0.29	5.83	6.71	1.64	14.8	17.75	3.95
Cum. publ. in gen. interest journals									
JEP+JEL	0.01	0.01	0.01	0.05	0.05	0.03	0.11	0.12	0.07
AEA Papers&Proceedings	0.31	0.35	0.16	0.2	0.21	0.21	0.22	0.23	0.22
JEEA	0	0	0	0	0	0	0.05	0.06	0.04
EJ	0.30	0.28	0.24	0.18	0.18	0.09	0.20	0.23	0.12
REStat	0.30	0.33	0.25	0.30	0.32	0.25	0.23	0.25	0.15
Economica+IER	0.20	0.20	0.12	0.27	0.29	0.12	0.24	0.27	0.12
Cum. publications in field journals									
Theory (JET+ET+GEB+IJGT+JMaE+TE)	0.04	0.04	0.01	0.31	0.34	0.14	0.72	0.81	0.33
Econometrics (EcT+JEc+JASA)	0.22	0.24	0.19	0.32	0.35	0.14	0.45	0.51	0.18
Micro (AEJMicro)	0	0	0	0	0	0	0.01	0.01	0.01
Macro (AEJMacro+JME)	0	0	0	0.08	0.09	0.05	0.15	0.17	0.08
AEJ Applied	0	0	0	0	0	0	0.01	0.01	0.03
Quantitative Economics	0	0	0	0	0	0	0.01	0.01	0
Development (JDE)	0	0	0.01	0.09	0.09	0.10	0.15	0.15	0.14
Finance (JF)	0.21	0.24	0.12	0.30	0.33	0.11	0.24	0.27	0.11
Health (JHE)	0	0	0	0.04	0.04	0.06	0.13	0.12	0.16
History (JEH)	0.10	0.11	0.08	0.09	0.09	0.12	0.07	0.07	0.05
International (JIE)	0.01	0.01	0	0.09	0.09	0.06	0.14	0.15	0.11
Industrial Organization (RAND)	0.02	0.02	0.01	0.11	0.12	0.08	0.11	0.13	0.07
Labor (JoLE)	0	0	0	0.03	0.03	0.05	0.07	0.07	0.07
Public (JPubE+AEJPolicy)	0.01	0.01	0.01	0.12	0.14	0.08	0.23	0.26	0.17
Number of years since first publication	11.51	11.73	10.69	11.47	11.85	8.25	12.79	13.62	9.24
Number of Author-Year Observations	144,426	119,165	7,196	209,718	176,834	17,197	376,849	299,630	64,520
Number of Authors	10,514	8,623	554	17,999	14,828	1,814	33,406	25,760	6,255

Notes. Data set contains author-year observations on "actively publishing" economists. An economist becomes active upon publishing a paper in one of the journals listed in Appendix Table 1, and remains active for 18 years after the last publication except if death is recorded in the Wiki pages. Gender is based on name or internet search -- see text. Citations in top-5 journals are measured from Web of Science SSCI and are cumulative up to that year.

TABLE II

SUMMARY STATISTICS FOR ECONOMETRIC SOCIETY FELLOWS IN ELECTION YEAR

	Newly Elected Fellows in Year of Election								
	1933-1979			1980-1999			2000-2019		
	All	Male	Female	All	Male	Female	All	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Percent Female	0.85	0	100	3.14	0	100	12.23	0	100
Percent Unknown Gender	0	0	0	0	0	0	0	0	0
Percent Fellows (as of current year)									
Current Fellow of ES Society (1933+)	100	100	100	100	100	100	100	100	100
Current Fellow of AAAS (1931+)	5.10	5.14	0	1.26	1.30	0	6.90	5.36	17.95
Current Fellow of NAS (1968+)	0	0	0	0	0	0	0.31	0.36	0
Current Fellow of AEA (1965+)	0.57	0.57	0	0	0	0	0.63	0.36	2.56
Recipient of Sloan Fellowship (1981+)	0	0	0	15.09	15.26	10	26.65	24.29	43.59
Cum. publications in top-5 journals									
Econometrica	1.28	1.29	0.33	2.22	2.24	1.50	1.93	2.03	1.21
REStud	0.75	0.76	0	1.10	1.12	0.60	1.11	1.18	0.64
AER	0.68	0.67	1.33	1.04	1.06	0.40	1.55	1.55	1.51
QJE	0.70	0.70	0.67	0.79	0.79	0.80	1.11	1.03	1.67
JPE	0.83	0.84	0	0.97	0.98	0.80	0.96	1.01	0.59
Cum. citations in top-5 journals									
Econometrica	6.54	6.55	4.67	59.03	60.49	14.0	102.81	102.01	108.59
REStud	2.82	2.84	0	13.82	14.14	4.0	39.71	37.09	58.56
AER	4.69	4.69	4.67	23.87	24.48	5.1	101.28	97.32	129.74
QJE	2.39	2.39	2.33	12.18	12.35	6.9	114.86	94.43	261.56
JPE	3.76	3.79	0	26.83	27.42	8.8	67.26	69.11	53.92
Cum. publ. in gen. interest journals									
JEP+JEL	0.02	0.02	0	0.19	0.19	0.10	0.50	0.47	0.72
AEA Papers&Proceedings	0.48	0.49	0	0.62	0.62	0.50	1.05	0.94	1.85
JEEA	0	0	0	0	0	0	0.45	0.43	0.62
EJ	0.59	0.60	0.33	0.40	0.41	0.10	0.54	0.51	0.69
REStat	0.57	0.55	2.00	0.34	0.35	0	0.45	0.44	0.59
Economica+IER	0.63	0.64	0	1.03	1.04	0.60	0.70	0.71	0.64
Cum. publications in field journals									
Theory (JET+ET+GEB+IJGT+JMaE+TE)	0.45	0.45	0	2.11	2.11	2.20	3.18	3.41	1.51
Econometrics (EcT+JEc+JASA)	0.58	0.58	1.00	1.18	1.21	0.10	1.46	1.48	1.36
Micro (AEJMicro)	0	0	0	0	0	0	0.09	0.08	0.15
Macro (AEJMacro+JME)	0.01	0.01	0	0.31	0.31	0.10	0.61	0.61	0.54
AEJ Applied	0	0	0	0	0	0	0.12	0.09	0.31
Quantitative Economics (QE)	0	0	0	0	0	0	0.05	0.04	0.10
Development (JDE)	0.02	0.02	0	0.10	0.10	0	0.19	0.18	0.26
Finance (JF)	0.10	0.10	0	0.27	0.28	0	0.25	0.26	0.21
Health (JHE)	0	0	0	0.01	0.01	0	0.11	0.08	0.33
History (JEH)	0.03	0.03	0	0.05	0.04	0.50	0.04	0.04	0.05
International (JIE)	0.05	0.05	0	0.29	0.30	0	0.24	0.24	0.28
Industrial Organization (RAND)	0.06	0.06	0	0.46	0.46	0.50	0.51	0.52	0.44
Labor (JoLE)	0	0	0	0.19	0.19	0.20	0.18	0.18	0.23
Public (JPubE+AEJPolicy)	0.07	0.07	0	0.47	0.48	0.10	0.69	0.64	1.08
Number of years since first publication	9.33	9.31	12.33	12.57	12.63	10.6	17.65	17.76	16.82
Number of Authors	353	350	3	318	308	10	319	280	39

Notes: Table presents characteristics of "actively publishing" economists who were elected as Fellows of the Econometric Society, as of the year of their election. See notes to Table I.

TABLE III
SUMMARY STATISTICS FOR NOMINEES AND ELECTED FELLOWS

	Nominated Fellows				Elected Fellows			
	1990-2005		2006-2019		1990-2005		2006-2019	
	Male	Female	Male	Female	Male	Female	Male	Female
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nomination								
Percent Nominated by Fellows (1995-)	73.36	70.37	78.86	62.50	63.70	0.67	45.69	34.38
Percent Nominated by Committee (1995-)	26.64	29.63	21.14	37.50	36.30	0.33	54.31	65.63
Number of Votes (2006-)			80.55	92.12			120.14	127.91
Number of Endorsements (if nom. By Fellows)	13.72	13.06	10.89	10.51	19.55	18.50	12.36	18.08
Institutional Affiliation								
Percent Top-5 US University	7.09	18.42	17.42	29.81	14.86	0.25	22.84	34.38
Percent Top-6-17 US University	21.56	21.05	20.81	20.19	28.51	0.25	20.30	21.88
Percent non-Top17 US University	33.97	23.68	24.53	29.81	26.91	0.08	14.72	18.75
Percent Europe	28.24	26.32	26.73	17.31	23.69	0.33	22.34	21.88
Percent Asia or Australia	7.64	*	7.34	*	4.02	0	11.68	3.13
Percent Latin America or Africa	1.50	*	3.18	*	0	0.08	8.12	0
Cum. publications in top-5 journals								
Econometrica	1.94	1.24	1.94	0.98	2.10	2.00	2.03	1.03
REStud	1.10	0.55	0.94	0.54	1.37	0.58	1.04	0.63
AER	0.92	0.29	1.34	1.74	1.33	0.25	1.58	1.78
QJE	0.62	0.42	0.70	1.30	0.98	0.42	1.06	2.00
JPE	0.73	0.50	0.81	0.59	1.08	0.58	0.95	0.59
Cum. citations in top-5 journals								
Econometrica	50.48	27.68	120.2	73.51	77.54	38.17	118.76	120.94
REStud	15.83	5.45	38.31	37.97	22.04	9.25	39.89	68.53
AER	29.46	10.11	117.96	151.41	40.84	1.92	112.26	157.41
QJE	16.34	5.47	83.97	190.42	25.53	2.25	117.41	318.53
JPE	22.2	7.47	64.97	55.09	34.39	7.92	80.15	62.88
Cum. publications in field journals								
Theory (JET+ET+GEB+IJGT+JMaE)	3.03	2.82	3.96	1.03	2.87	4.17	3.35	0.66
Econometrics (EcT+JEc+JASA)	2.09	0.45	2.15	1.57	1.45	0.08	1.41	1.66
Empirical Micro (AEJApplied/Policy+JoLE+JEH+JHE+JPube+JDE)	0.72	0.84	1.11	1.94	0.97	0.83	1.34	2.66
Number of years since first publication	15.68	13.89	19.56	16.39	14.63	13.92	18.53	17.09
Number of Year-Author Observations	733	38	913	104	249	12	197	32
Number of Authors	434	26	436	57	249	12	197	32

Notes: Table presents characteristics of economists who were nominated (Columns 1-4) or elected (Columns 5-8) as Fellows of the Econometric Society, as of the year of their nomination/election. The percent with unknown gender is 0 in these samples. See notes to Table I. We do not report the percent Asia or Australia or Latin America or Africa in Column 2 and 4 for confidentiality reasons.

TABLE IV

PREDICTORS OF SELECTION AS ECONOMETRIC SOCIETY FELLOW

	Logit Regression for Selection as Econometric Society Fellow in Year t:								
	1933-79			1980-99			2000-19		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female × (pre-1980)	-2.209	-1.919	-1.412						
	(0.737)	(0.733)	(0.611)						
Female × (1980-89)				-0.127	-0.046	0.647			
				(0.528)	(0.520)	(0.480)			
Female × (1990-99)				-0.593	0.062	0.062			
				(0.455)	(0.471)	(0.474)			
Female × (2000-09)							0.338	0.393	0.550
							(0.326)	(0.320)	(0.339)
Female × (2010-19)							0.787	1.106	0.931
							(0.219)	(0.227)	(0.240)
# Papers in *Econometrica*	1.000	0.546	0.243	0.820	0.366	0.219	0.988	0.677	0.301
	(0.069)	(0.099)	(0.173)	(0.063)	(0.064)	(0.077)	(0.056)	(0.078)	(0.121)
Asinh citations in *Econometrica*		0.508	0.027		0.491	0.117		0.260	-0.094
		(0.082)	(0.094)		(0.052)	(0.089)		(0.050)	(0.070)
# Papers in *Rev. of Econ. Studies*	0.640	0.420	-0.387	0.451	0.062	-0.120	0.528	0.274	0.321
	(0.071)	(0.117)	(0.245)	(0.078)	(0.107)	(0.184)	(0.084)	(0.108)	(0.176)
Asinh citations in *REStud*		0.186	-0.014		0.178	0.037		0.121	-0.010
		(0.133)	(0.103)		(0.077)	(0.077)		(0.062)	(0.072)
# Papers in *Am. Econ. Review*	0.129	-0.117	0.183	0.166	0.052	0.114	0.297	0.088	0.087
	(0.052)	(0.096)	(0.120)	(0.079)	(0.107)	(0.133)	(0.064)	(0.095)	(0.135)
Asinh citations in *AER*		0.150	0.066		0.018	-0.098		0.140	-0.037
		(0.108)	(0.102)		(0.071)	(0.083)		(0.053)	(0.066)
# Papers in *Quarterly J. of Econ.*	0.052	-0.018	-0.021	0.332	0.160	0.075	0.474	0.237	0.208
	(0.020)	(0.049)	(0.081)	(0.086)	(0.137)	(0.179)	(0.065)	(0.110)	(0.117)
Asinh citations in *QJE*		0.309	0.121		0.096	0.046		0.020	0.017
		(0.101)	(0.114)		(0.084)	(0.093)		(0.060)	(0.088)
# Papers in *J. of Political Economy*	0.058	-0.013	0.013	0.129	-0.174	-0.191	0.213	0.105	-0.030
	(0.032)	(0.062)	(0.065)	(0.067)	(0.095)	(0.120)	(0.088)	(0.107)	(0.170)
Asinh citations in *JPE*		0.244	0.010		0.264	0.160		0.153	0.046
		(0.103)	(0.109)		(0.062)	(0.086)		(0.052)	(0.074)
Indicator for 1 top-5 publication			-0.237			1.905			1.186
			(0.274)			(0.592)			(0.682)
Indicator for 2 top-5 publications			0.519			3.288			2.943
			(0.334)			(0.587)			(0.648)
Controls for publications in general interest/field journals	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Additional controls for levels of top-5 publications, citations, and years since first publication	No	No	Yes	No	No	Yes	No	No	Yes
N	110,061	110,061	110,061	186,509	186,509	186,509	352,725	352,725	352,725
Pseudo R-squared	0.188	0.236	0.290	0.247	0.343	0.404	0.293	0.359	0.423

Notes: Standard errors, clustered by author, in parentheses. Table entries are logistic regression coefficients: models are fit to set of active economists in a given year who are not yet Fellows of the Econometric Society. Economists with unknown gender are excluded from the sample. Measures of publications and citations represent numbers of papers published, and citations received, up to current year. All models include year fixed effects. The full list of controls in in Appendix Table AV.

TABLE V
SUMMARY STATISTICS ON NOMINATION AND ELECTION RATES, BY GENDER

	Time Interval:		
	1995-2005 (except 2003)	2006-2011	2012-2019
	(1)	(2)	(3)
Fraction of Females Among New Fellows: P[F|E] (x100)	6.22	5.62	19.29
Characteristics of Nominees			
Fraction of Females Among Nominees: P[F|N] (x100)	5.40	5.71	12.59
Fraction of Females Among Committee Nominees: P[F|N_c] (x100)	5.97	6.10	22.67
Fraction of Females Among Fellow's Nominees: P[F|N_f] (x100)	5.19	5.60	9.67
Fraction of All Nominees from Committee: P[N_c|N] (x100)	26.80	23.43	22.49
Fraction of All Female Nominees from Committee: P[N_c|N,F] (x100)	29.63	25.00	40.48
Measures of Election Success, Conditional on Nomination			
Fraction of All Nominees Elected: P[E|N] (x100)	28.80	25.43	20.99
Fraction of All Committee Nominees Elected: P[E|N_c] (x100)	38.81	63.41	50.67
Fraction of All Fellow's Nominees Elected: P[E|N_f] (x100)	25.14	13.81	12.38
Fraction of All Female Nominees Elected: P[E|N,F] (x100)	28.66	28.03	29.39
Fraction of All Female Committee Nominees Elected: P[E|N_c,F] (x100)	37.50	60.00	52.94
Fraction of All Female Fellow's Nominees Elected: P[E|N_f,F] (x100)	31.58	13.33	18.00

Notes: Table presents means for years indicated by column heading of fractions indicated by row heading. In the probability statements, E denotes the event of election as a new Fellow, N denotes the event of nomination as a Fellow, N_c denotes nomination by the Nominating Commmittee, N_f denotes nomination by existing Fellows, and F denotes female gender.

TABLE VI

GENDER DIFFERENCES IN NOMINATION AND ELECTION AS ECONOMETRIC SOCIETY FELLOW

	Various Models on ES Nomination/Election		
	1995-2005 (except 2003)	2006-2011	2012-2019
	(1)	(2)	(3)
Panel A: Sample of Actively Publishing Economists			
Logit Model for Selection as Fellow (N=397,227)			
Female Economist	0.878	-0.292	1.158
	(0.352)	(0.485)	(0.257)
Logit Model for Nomination as Fellow (N=397,227)			
Female Economist	0.497	-0.114	0.594
	(0.259)	(0.259)	(0.229)
Logit Model for Nomination by Committee (N=397,227)			
Female Economist	0.617	-0.043	1.209
	(0.386)	(0.550)	(0.252)
Logit Model for Nomination by Fellows (N=397,227)			
Female Economist	0.426	-0.136	0.280
	(0.286)	(0.311)	(0.288)
Panel B: Sample of Nominees for Econometric Society Fellowship			
Logit Model for Selection as Fellow, Cond. On Nom. (N=1,517)			
Female Economist	0.752	-0.397	0.822
	(0.381)	(0.579)	(0.365)
Logit Model for Selection as Fellow, Cond. On Nom. (N=1,517)			
Female Economist	0.957	-0.215	0.639
	(0.508)	(0.702)	(0.478)
Committee Nominee	0.448	3.265	2.723
	(0.253)	(0.448)	(0.290)
Committee Nominee × Female	-0.425	-0.485	-0.333
	(0.925)	(1.334)	(0.661)
Poisson Model for Number of Votes (N=1,017)			
Female Economist	--	-0.033	0.147
		(0.094)	(0.043)
Poisson Model for Number of Votes (N=1,017)			
Female Economist	--	-0.084	0.095
		(0.075)	(0.053)
Committee Nominee	--	0.439	0.348
		(0.037)	(0.030)
Committee Nominee × Female	--	0.179	-0.005
		(0.096)	(0.069)
Poisson Model for No. of Endorsements (if Nom. By Fellows) (N=1,057)			
Female Economist	-0.007	-0.272	0.124
	(0.143)	(0.175)	(0.141)

Notes: Standard errors, clustered by author, in parentheses. Table entries are either logistic or poisson regression coefficients. Models are estimated over all observations of actively publishing economists (Panel A) and economists nominated for Econometric Society Fellow (Panel B). The estimates in Columns 1, 2, and 3 come from one regression covering the time period 1995-2019 (except for year 2003), allowing the coefficient reported (e.g., the female economist coefficient) to differ for the 1995-2005 (except 2003) period, the 2006-2011 period and the 2012-2019 period. Columns 1, 2, and 3 report those respective coefficients. The models include the full set of controls as in Columns 3, 6, and 9 of Table IV --top-5 publication/citations, publications in field journals, citation percentiles, years from first publication, and year fixed effects-- which are assumed to have the same coefficient over the time period 1995-2019. Economists with unknown gender are excluded from the sample.

TABLE VII

EFFECT OF VISIBILITY AND CONNECTIONS ON PROBABILITY OF SELECTION AND NOMINATION AS FELLOW

	Logit Regression for Selection/Nomination as Econometric Society Fellow in Year *t*							
	Selection as Fellow		Nomination as Fellow		Nomination by Fellows		Nomination by Committee	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Authors' Gender (Omitted: Male Author)								
Female × (1990-99)	0.432	0.455	0.535	0.483	0.525	0.451	0.850	0.836
	(0.464)	(0.483)	(0.276)	(0.266)	(0.392)	(0.382)	(0.610)	(0.600)
Female × (2000-09)	0.380	0.420	0.201	0.153	0.099	0.177	0.378	-0.140
	(0.344)	(0.408)	(0.236)	(0.269)	(0.263)	(0.319)	(0.468)	(0.594)
Female × (2010-19)	0.868	0.934	0.470	0.439	0.226	0.292	1.054	0.779
	(0.234)	(0.340)	(0.213)	(0.230)	(0.268)	(0.306)	(0.242)	(0.292)
Measure of Academic Visibility:								
Associate Editor at *Econometrica*		1.056		1.323		1.273		0.886
		(0.213)		(0.183)		(0.194)		(0.291)
Measure of Ballot Visibility:								
Quantile of First Letter of Last Name		-0.572		-0.140		-0.180		-0.162
(A=0, Z=1)		(0.185)		(0.154)		(0.189)		(0.227)
Measures of Connections:								
# Connections with ES Fellows		0.243		0.207		0.212		0.117
		(0.034)		(0.030)		(0.034)		(0.040)
Impact of Nominating Committee:								
# Connections with ES Nominating Committee		0.252		0.549		0.089		1.160
		(0.261)		(0.162)		(0.215)		(0.253)
Share Women in Nominating Committee		-0.075		0.227		-0.488		2.053
×Female		(1.549)		(0.837)		(1.320)		(1.348)
Years Included	1990-2019				1995-2019 (except 2003)			
N	461,341	461,341	461,341	461,341	397,227	397,227	397,227	397,227
Pseudo R-squared	0.418	0.433	0.428	0.441	0.417	0.431	0.392	0.403

Notes: Standard errors, clustered by author, in parentheses. Table entries are logistic regression coefficients in models for selection as a Fellow of the Econometric Society (columns 1-2) and as nominee for Fellow (columns 3-4), also separately by nomination source (columns 5-8). See notes to Table IV. The models include the full set of controls as in Columns 3, 6, and 9 of Table IV --top-5 publication/citations, publications in field journals, citation percentiles, years from first publication, and year fixed effects. Economists with unknown gender are excluded from the sample.

TABLE VIII

GEOGRAPHIC DIVERSITY AND ECONOMETRIC SOCIETY ELECTION AND NOMINATION

	Models for Selection as Econometric Society Fellow in Year *t*		
	1995-2005 (except 2003)	2006-2011	2012-2019
	(1)	(2)	(3)
Sample of Nominees for Econometric Society Fellowship			
Logit Model for Selection as Fellow, Cond. On Nomin. (N=1,506)			
Female	0.971	-0.193	1.311
	(0.401)	(0.574)	(0.389)
Top-5 US University	0.755	2.048	0.638
	(0.484)	(0.648)	(0.419)
Top-6-17 US University	0.882	0.655	0.425
	(0.282)	(0.465)	(0.398)
University in Europe	0.447	0.988	0.987
	(0.301)	(0.501)	(0.396)
University in Asia or Australia	-0.385	3.988	2.610
	(0.550)	(0.649)	(0.542)
University in Latin America or Africa	0.000	3.851	4.686
	(.)	(0.635)	(0.913)
Logit Model for Selection as Fellow, Cond. On Nomin. (N=1,517)			
Female	0.987	-0.283	0.901
	(0.410)	(0.573)	(0.400)
University in Underrepresented Regions	-1.038	2.352	3.182
(Asia, Australia, Latin America, Africa)	(0.688)	(0.694)	(0.550)
Committee Nominee	0.385	3.005	2.584
	(0.261)	(0.496)	(0.269)

Notes: Standard errors, clustered by author, in parentheses. Table entries are logistic regression coefficients. Models are estimated for economists nominated for Econometric Society Fellow. The estimates in Columns 1, 2, and 3 come from one regression covering the time period 1995-2019 (except for year 2003), allowing the coefficient reported (e.g., the female economist coefficient) to differ for the 1995-2005 (except 2003) period, the 2006-2011 period and the 2012-2019 period. Columns 1, 2, and 3 report those respective coefficients. The omitted category for institutional affiliation is non-top-17 US university. The models include the full set of controls as in Columns 3, 6, and 9 of Table IV, which are assumed to have the same coefficient over the whole time period. The percent with unknown gender is 0 in the sample.

TABLE IX

MODELS FOR ELECTION TO OTHER FELLOWSHIPS

	Logit Regression for Selection as Fellow in Year t:									
	Econ. Society		AAAS		NAS		AEA		Alfred P. Sloan	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Authors' Gender (Omitted: Male Author)										
Female × (pre-1980)	-1.919	-1.412	-0.867	-0.787	--	--	1.099	1.670	--	--
	(0.733)	(0.611)	(0.547)	(0.523)			(1.040)	(1.074)		
Female × (1980-89)	-0.046	0.647	-0.170	0.375	0.490	1.280	0.265	1.344	0.291	0.454
	(0.520)	(0.480)	(0.987)	(1.012)	(1.164)	(1.331)	(1.094)	(1.100)	(0.543)	(0.565)
Female × (1990-99)	0.062	0.062	0.543	1.146	0.346	1.017	0.715	1.382	0.629	0.739
	(0.471)	(0.474)	(0.707)	(0.689)	(1.101)	(0.740)	(0.716)	(0.798)	(0.322)	(0.334)
Female × (2000-09)	0.393	0.550	1.005	1.351	1.822	3.172	-0.204	1.246	0.417	0.463
	(0.320)	(0.339)	(0.446)	(0.461)	(0.791)	(0.763)	(1.072)	(1.099)	(0.333)	(0.333)
Female × (2010-19)	1.106	0.931	2.128	2.106	2.121	2.849	1.001	2.257	0.540	0.518
	(0.227)	(0.240)	(0.337)	(0.347)	(0.620)	(0.781)	(0.503)	(0.528)	(0.313)	(0.290)
Restrict to ≤8 yrs. since 1st pub.	No	No	No	No	No	No	No	No	Yes	Yes
Controls for publications in 36 journals and citation in top-5 Jrls. x 3 Time Periods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls for levels of top 5 and top 5 citations x 3 Time Periods	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
N	649,295	649,295	664,683	664,683	595,246	558,383	606,074	602,617	232,122	232,122
Pseudo R-squared	0.326	0.384	0.351	0.381	0.42	0.472	0.354	0.461	0.306	0.365

Notes: Standard errors, clustered by author, in parentheses. Table entries are logistic regression coefficients: see Table IV *notes*. The sample excludes economists with unknown gender. All models include controls for the number of publications in each of the top-5 journals, interacted with indicators for the periods (pre-1980), (1980-99) and (2000-19). The models also include controls for year fixed effects. The controls in the odd-numbered columns are as in Columns 2, 5, and 8 of Table IV, while the controls in even-numbered columns are as in Columns 3, 6, and 9 of Table IV (except that the indicators for top-5s span a longer number of publications for NAS, AAAS, and AEAF). Sample periods vary by fellowship: see text. Models for NAS fellowships only include authors whose primary field is economics. Models for Sloan Fellowships are restricted to up to 8 years from the first publication in the sample.