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KENAN **INSIGHTS**

Fixing the Leaky Gender Equality Pipeline

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The COVID-19 crisis has brought gender disparities within professional settings into sharp relief. U.S. Bureau of Labor Statistics data suggest that, in sectors ranging from leisure and hospitality to government to retail, women account for a disproportionate number of pandemic-related job losses (approximately 4.6 million net jobs).[1] Further, nearly 38% of jobs lost by women during the early months of the pandemic have not been recovered.[2]

Much of the public discourse has centered on women who lost employment during the pandemic. There is, however, a more nuanced but growing appreciation of the critical impact the crisis has had on women who have retained their jobs, but whose careers have been seriously disrupted. In this Kenan Insight, we argue that these more subtle asymmetries in the pandemic impact merely highlight far broader issues that, even during more settled times, affect women in an important subset of professions where *path dependence* particularly matters for success. We refer to women's career paths in highly specialized fields such as academia, law and management consulting, along with female executives on their way to the C-suite. We first describe the present landscape in terms of representation, then follow with a discussion of some of the impediments. Finally, we conclude with a sampling of practices and policies that have or might bear fruit in addressing these challenges.

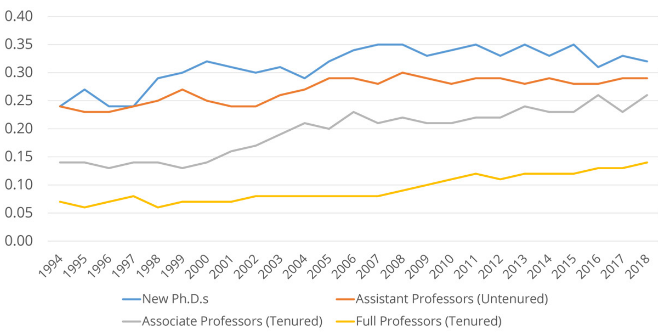
Economics and Business School Faculty

We begin our characterization of the current landscape by examining academia. This is a helpful example because we have reasonably good data on representation, the trajectory of an economics or finance faculty member is highly path dependent, and, interestingly, within rank the gender pay gap is smaller in academic economics and finance compared to the overall economy, though there are significant gender disparities within more senior ranks (for which successful pathways and pipelines are so important). Although serious discussions of these issues emerged some years ago, the pandemic accelerated such conversations. For instance, during the summer of 2020, faculty panels discussed the burden the pandemic had imposed on female faculty, especially those with young children underfoot as daycare facilities and schools closed.[3,4] Elevated concerns about a worsening "leaky pipeline" in academia began to be voiced. The leaky pipeline refers to the fact that many specialized professions have a more equitable gender balance at entry level, yet something happens to female representation along the way to the very top of these professions. So what is going on?

Long before the pandemic hit, academic economics has grappled with the gender gap in faculty representation. The discussion began with documenting pipeline issues, such as an annual survey from the Committee on the Status of Women in the Economics Profession (CSWEP) showcasing the pipeline for women from economics departments with doctoral programs (Figure 1).[5] In 2020, women received approximately 35% of doctorate degrees in economics. The female share of tenure-track assistant professors (the first rank) in economics departments was an all-time high of 31%. However, only 27.5% of tenured associate professors (the next rank after tenure is awarded) are women. Finally, women account for only 14.8% of full professors (the most senior rank) in economics.[i] An influential study that examines the gender promotion gap showed that women in economics are less likely to get tenure, and take longer to achieve it.[6] Further, the female share progressively worsens once departmental rankings are taken into account (higher-ranked schools exhibit high degrees of underrepresentation).

To be fair, it's worth noting that these numbers represent a vast improvement from the data when the survey began in 1994. Nevertheless, these problems are not unfamiliar in other set-

The Leaky Pipeline in Economics



Source: Committee on the Status of Women in the Economics Profession (CSWEP) Annual Survey of U.S. Economics Departments

tings where gender gaps abound, such as law firms, management consulting firms, the judiciary, politics and the corporate world. While we focus on pipeline issues for academic faculty, a 2019 study by the American Bar Association found that women make up approximately 47% of law firms' entering associates — but only one in five women make it to the rank of equity partner.[7] Similarly, while two-fifths of consulting firms employees are female, women account for only 17% of partners.[8] Leaky pipeline issues, therefore, permeate many white-collar professions where gender disparities in representation are evident throughout the path from hiring to retention to promotion.

Faculty discussions during the pandemic naturally turned to the implications for the research productivity of junior women faculty on the tenure track in particular. Promotion and tenure in an academic setting remain critically linked to research output; "publish or perish" remains in full effect. In the early days of the pandemic, evidence started to emerge very quickly about the sharp differences between men and women in working paper production and other research productivity metrics.[9,10] Although overall journal submission rates increased sharply,[ii] submissions from women economists declined, especially in the early days of the pandemic.[11,12] As one editor of a major journal points out, submissions in 2020 reflect near-complete work at the start of the pandemic.[13] Combined with evidence that a gender gap opened up in the flow of new female-authored working papers, women's journal submissions in 2021 and beyond warrant attention.[14] The unpleasant reality is that if women do not publish sufficiently, they will not get tenure, thereby perpetuating gender-based promotion gaps.

Impediments are Nuanced

Even leaving aside the unique challenges of the current crisis, mounting evidence suggests that we cannot explain the long-standing representation gender gap by attributing it to personal preferences and productivity.[15] This no doubt brings to the fore the fact that more nuanced barriers stand in the way of women faculty achieving success in academic ladder ranks commensurate with their male peers.[16] What are some of the factors that *can* explain the gender gap among academic economists? Why does the pipeline remain leaky even when women are hired into tenure-track ranks? Do specialized professions have a glass ceiling or a sticky floor? Once women get in the door, do they face additional barriers to success?

Lundberg and Stearns (2019) propose that the differential assessment of men and women is a crucial factor in explaining women's stalled progress in academic economics. They argue that promotion and tenure processes reflect gendered institutional policies and implicit bias. For example, on average, women publish at lower rates in high-ranked journals.[17, 18] Evidence suggests that women may be held to higher standards during the peer review process and subject to longer review times.[19,20] As a compelling testament to that hypothesis, post-publication citation data show that female-authored papers receive about 25% *more* citations (a metric often employed to assess impact).[21] All else being equal, journal submission reviewers may hold female-authored papers to a higher bar than male-authored papers, so those that do survive review are, on average, more influential.

Evidence also suggests that women economists have smaller co-author networks and collaborate more often with each other and more repeatedly with the same co-authors.[22] Network effects may also perpetuate the observed gender gap, given that more extensive collaborative networks are associated with higher research output and co-author networks display gender homophily. In addition, only about 20% of academic economists are women.

Finally, a significant component of the research and publication process is communication through academic conferences and seminars, at which researchers disseminate and receive feedback on their work and build professional networks. Recent evidence suggests that female-authored research is less likely to be accepted to major economics conferences.[23] Women economists are also less likely to receive invitations to present their work in economics seminars.[24]

Collectively, the data suggest that addressing the gender gap in economics and finance will require fundamental shifts in culture, practices, and policies. In particular, the American Economic Association's report on climate issues in economics documented disturbing accounts of harassment, discrimination, exclusion and unfair or disrespectful treatment of women economists.[25] Evidence of an unwelcoming or stereotypical culture for women showed up in an anonymous job market forum.[26] A recent study of the seminar culture, crucial to disseminating research and developing networks, found that women economists faced hostile, demeaning and patronizing questions that ultimately discouraged them from seeking opportunities to present their work.[27] These findings corroborate earlier research suggesting that implicit attitudes and institutional practices may be contributing to the underrepresentation of women in economics.[28]

The findings on culture and the differential treatment and experiences of women suggest that bias, implicit or explicit, may impede women's advancement in economics. Cognitively, stereotyping and bias could also imply that women face a higher bar.[29,30] Women may be subject to extra scrutiny and shifting criteria or judgments about their competence and ability. While changing deeply ingrained attitudes is difficult, it is not impossible. It requires a purposeful and deliberate resetting of group norms to be more inclusive and promote diversity. A recent NBER working paper shows that female representation in a STEM selection committee leads to more female appointments "after — and only after — adopting cultural norms that support diversity."[31] By culture, the paper refers to "holistic, informal norms, both societal and organization-specific, i.e., public speeches, codes of conduct, and other activities that are technically unconnected with the appointment process, but whose effect is to change members' attitudes towards certain gender stereotypes." The paper provides strong evidence that Internet Engineering Task Force (IETF) culture changed around 2012 "because of both active efforts from inside the organization and a broader societal shift in attitudes regarding gender diversity and inclusion in STEM professions."

Important Next Steps and Experimentation

In academic economics, the conversation has significantly shifted to issues or steps that can be taken to counter and mitigate the gender imbalance.[32] Next, we outline some policies and practices that have been put in place by universities and the economics profession that may have the potential to alleviate these barriers for women to make progress. We'll discuss which measures have borne the greatest fruit and can inform pipeline issues and the gender gap in other fields as well.

Kasey Buckles provides a toolkit of interventions for individuals, organizations and academic units working to attract and retain women students and faculty at each stage of the pipeline.[33] The focus is on smaller-scale, targeted interventions, evaluated in a way that allows for the credible estimation of causal effects.

Practices and policies that have achieved success include targeted and purposefully designed mentoring programs, exposure to role models, targeted nudges and anti-bias training.[iii,34]

For example, the AEA's Committee on the Status of Women in the Economics Profession's (CSWEP) CEMENT initiative provides an annual, intensive, two-day mentoring workshop on topics ranging from publishing to getting tenure to work-life balance. The workshop exposes mentees to successful female role models and provides a forum for developing research networks. Further, the mentoring workshop was designed as a randomized trial as part of a National Science Foundation grant.[35,36] It revealed that women who participate in the workshop publish more papers, more of which appear in top journals, and receive more federal research grants. Later results also showed that, relative to women in the control group (non-mentees), mentees are more likely to stay in academia and receive tenure in the top 30-50 economic departments globally.[37] Additionally, a targeted intervention by the European Central Bank served to reduce the gender promotion gap significantly.[38] Purposeful mentoring efforts within departments can therefore be an action item for tenured faculty.

In addition to hiring practices, a relatively easy change for academic departments to make is to issue more inclusive seminar invitations and make efforts to increase the representation of female-authored work on conference programs.[39] To this end, projects that provide lists of speaker names from underrepresented groups are a step in the right direction. Critically, establishing group norms (rules) and understanding best practices for codes of conduct during seminars will also matter.[40,41] For example, designating a senior faculty member as a moderator could shift the culture, allowing for inclusive and productive discourse. Another change might be to co-opt gatekeepers, such as editors of academic journals, to ensure that female authors receive fair treatment during the publishing process.

Finally, given evidence that changes in cultural norms matter in making more fundamental shifts that allow for the successful progression of women in the pipeline, we suggest it is important for departments to have purposeful conversations about what they're trying to accomplish as they address the gender gap, and to set expectations to create a more inclusive and supportive departmental culture.[42,43] To set the stage, gender-based implicit bias tests and anti-bias training could also play a role.[44]

Conclusion

Gender disparities in professional settings manifest most acutely across rank. Many career paths, of which academia is just one example, are characterized by far more equitable gender ratios at entry level. A leaky pipeline yields significant differences at the most senior ranks. The path-dependent nature of these career trajectories suggests that something significant is happening along the way to impede promotion.

Surely, hiring practices require modification, but the leaky pipeline also demands a cultural shift. Talented women are walking through the door, but we need to foster an environment that permits them to equitably climb the stairs. Mentoring programs and other targeted nudges have exhibited early success.[45] From here, an open environment that fosters intelligent experimentation to achieve broader cultural shifts is required. Although we've specifically focused on the gender gap here, based on what we know, we can infer that similar impediments may apply to career advancement along racial dimensions as well. A targeted effort to hire underrepresented minorities, for example, is unlikely to fundamentally alter the racial diversity at higher ranks without complementary support systems and cultural adaptation. The leaky pipeline is pervasive.

Figure 1: American Economic Association. Committee on the Status of Women in the Economics Profession. Committee on the Status of Women in the Economics Profession (CSWEP) Annual Survey of U.S. Economics Departments, United States, 1994-2018. Inter-university Consortium for Political and Social Research [distributor], 2020-02-26. https://doi.org/10.3886/ICPSR37118.v4

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[i] A related study of female representation in the academic finance profession finds that, though the female share of untenured faculty is 21%, women in tenured ranks account for only a 9.9% share.

[ii] Many annual reports from editors of major economics and finance journals report the significant increase in submissions. For example, see the annual report from the Review of Economics Statistics, which shows that in 2020 the journal received 1,666 submissions, up 25% over 2019, and up 70% since 2016.

[iii] At UNC, an NSF grant has sponsored Team ADVANCE, which looks at boosting mentorship programs to address the unique needs of women faculty in STEM fields.

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UNC Kenan-Flagler Business School

Christian Lundblad
UNC Kenan-Flagler Business School

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