Presence of Women in Economics Academia: Evidence from India

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Abstract

This paper documents the representation of women in Economics academia in India by analyzing the share of women in faculty positions, and their participation in a prestigious conference held annually since 2004. Data from the elite institutions shows that the presence of women as the Economics faculty members remains low. Of the authors of more than 1300 papers which were in the final schedule of the prestigious research conference, the proportion of women authors is again found to be disproportionately low. Our findings from further analysis indicate that women are not under-represented at the master’s level. Further, the proportion of women in doctoral programmes has increased over time, and is now almost proportionate. Tendency of women who earn a doctorate abroad, to not return to India, time needed to complete a doctoral program, and responsibilities towards the family may explain lower presence of women in Economics academia in India.

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1. Introduction

The presence of women and their experiences in academia has been receiving increasing attention. This is particularly true in the case of Economics, which is characterised by a lower share of women faculty which has remained stagnant over time, relative to other social sciences (Lundberg and Stearns 2016; Aurio et al. 2019). Several factors which might cause or exacerbate a situation like this, such as ‘leaky pipeline’, lower productivity due to ‘motherhood’ effects and non-research obligations, gender promotion gap, gender pay gap, tendency to receive less recognition in co-authored works, tougher editorial standards, disadvantages in networking, and biases in evaluation by students, have been documented (Blickenstaff 2005; Ceci et al. 2014; Ginther et al. 2016; Bayer and Rouse 2016; Sarsons 2017). Work by Wu (2018) and a report by the American Economic Association (AEA 2019) have also highlighted an unwelcoming and potentially discriminating environment experienced by women in professional settings.

Why should one worry about the lack of presence of women (and other social groups) in Economics, and more broadly, academia in general? There is a growing body of work indicating why diverse teams perform better (Rock and Grant 2016). Diversity in Economics is even more critical given the involvement of economists in public policy. May et al. (2014) document differences in the views of male and female members of the AEA on several policy-relevant issues such as minimum wages, labour standards, health insurance, explanations of the gender wage gap, and issues around equal opportunity in the labour market. Further, a lack of representation of some social groups is likely to lead to a lack of attention to issues that specifically affect these social groups. This can have grave implications for public policy. For example, the Federal Reserve’s inability to not spot the 2008 financial crisis beforehand is attributed to the lack of a presence of African Americans in the higher echelons of policymaking (Nelson 2018). Having a diverse set of individuals implies that a broader set of issues will be tackled, leading to a relevant, robust and continuously evolving discipline and better policy outcomes (Mester 2019).

This paper documents the presence of women in Economics academia in India by focusing on two dimensions. First dimension is, being a regular, full-time faculty in an ‘elite’ institution offering a postgraduate degree or diploma. Data required to document the presence of women has been meticulously collected mainly from the official websites of 120 ‘elite’ institutions between May 2019 and February 2020. These institutions are spread across multiple states in
India and operating under different regulatory frameworks. Second dimension that we measure is attending and presenting in a prestigious research conference - the Annual Conference on Growth and Development, hosted by the Indian Statistical Institute, Delhi (ISI-D), annually since 2004. Conferences are critical for socialisation, visibility, professional exchange, networking and collaborations, and therefore an important aspect of being an academic (Eden 2016; Leon and McQuillin 2018; Henderson and Burford 2019; Lipton 2019). We have compiled individual author-level data on the basis of more than 1300 papers presented at the ISI conference since its beginning in 2004, until 2017. The lack of access to similar data on other conferences despite our efforts prevents us from including more conferences in our analysis.

What are the main results? Analysing data from elite institutions that employ at least one faculty member with a PhD in Economics, we find that 28.5 percent faculty members are women, with the share being 22.7 percent at Professor level, 32.5 percent at Associate level, and 32.2 percent at Assistant Professor level. Data from the ISI conference reveals that women constitute only 29 percent of the authors of papers presented at the conference for the period 2004 to 2017, and shows no improvement over the years.

What explains this low share of women in Economics academia in India? Using data obtained from various official sources, we show that women are not under-represented at the master’s level. The share of women drops at the PhD level as compared to the master’s, but it has been increasing steadily over time and is approaching 50 percent. Thus, it is higher than women’s share at faculty level. This stands in contrast to the United States, where the percentage of women at the master’s and the doctoral levels has been less than 35 percent (Buckles 2019). Hence, the low share of women among the Economics faculty in India is suggestive of stumbling blocks for women at two stages: a) transition from a master’s degree to a PhD, and b) transition from being a PhD holder to having a faculty position and/or conducting research.

We attempted to shed light on these stages of transition through two ways. First, we tracked the alumni of one of the most prestigious Economics master’s programmes, on the basis of information available in the public domain. It shows that women are more likely to remain abroad, conditional on obtaining the doctoral degree outside India. A large number of faculties in elite institutions have doctorates from institutions in the United States and, to some extent, Europe. Therefore, women’s lower probability to return to India may play a role in keeping the number of women faculty low in elite institutions. To our knowledge, this
factor has not been highlighted in the literature in the Indian context. Secondly, we conducted detailed interviews with a non-random sample of women who have obtained a postgraduate degree in Economics from prestigious institutions in India. These conversations suggest that the time taken to complete the doctoral education (typically four to six years) and the implication it may have on age at marriage is an important consideration, especially in a patriarchal society where there are strong notions about the appropriate marriage age for women. Responsibilities towards the family, especially that of raising children, make it difficult for women to pursue rigorous research either on their own or through collaborations, which then have negative implications on conference participation. These factors have been highlighted before in Indian as well as in other contexts. There could be other factors, such as differential preferences for academic and non-academic jobs after master’s or PhD, socialisation and enculturation during doctoral education, quality of doctoral research, recruitment practices, and workplace environment, to name a few. How these factors impinge on women’s participation in Economics academia in India has not received enough attention, and remains an important area for further exploration.

This paper fits into several strands of literature. It complements an increasing body of research on the lower presence of women (and other social groups) in academia by presenting evidence from India, a large developing country which is ranked 112 out of 153 countries in the Global Gender Gap Index of 2020 (WEF 2020). The evidence so far has mostly focussed on the developed countries though with some exceptions such as Breetzke and Hedding (2017) and Sadiq et al. (2018). Our paper also fits into a growing body of work on the presence, career trajectory, compensation and experiences of women, like lawyers and executives, in high skill professions (Bertrand et al. 2010; Gayle et al. 2012; Azmat and Ferrer 2017; Sterling and Fernandez 2018). The work further contributes to empirical evidence on higher education in India, which has generally been limited to issues of access, financing and equity at various stages of higher education. Only a few studies have discussed the ‘gendered’ career trajectory of women once they are in an institution either as a doctoral student or a faculty member, and that too with a focus towards Engineering, Science and Medicine (Chanana 2003; Gupta 2007, 2016; Karup et al. 2010; SSESS 2017). Finally, it also complements rigorous work on the low and declining participation of women in the labour force in India, which is concerned with the labour market as a whole (Klasen and Pieters 2015; Afridi et al. 2018).
The rest of this paper proceeds as follows. The next section describes the data collected and analysed. Main findings are in section 3, followed by a discussion in section 4. Section 5 concludes.

2. Data

India has 39,931 colleges (typically offering undergraduate level education), 993 universities (typically offering degrees or diplomas at the postgraduate level) and 10,725 stand-alone institutions. Total enrolment in higher education is estimated to be 37.4 million (AISHE 2019). These statistics place the Indian higher education system among the largest in the world.

Women among faculty

Updated data on subject-specific faculty at institutional or aggregate level are not easily available or accessible. Hence, to keep the research feasible and time-bound, we limit ourselves to ‘elite’ institutions that award postgraduate degree or diploma. For the purpose of this paper, we define ‘elite’ institutions as those that appear in the National Institute Ranking Framework (NIRF), an annual ranking exercise conducted by the Ministry of Human Development (MHRD), a federal ministry in charge of policymaking for, and financing of, higher education in the country. NIRF ranks institutions in nine categories: Overall, Universities, Engineering, Colleges, Management, Pharmacy, Law, Architecture and Medical. Overall was introduced as a category in 2019, where any institution, independent of its discipline was given an overall rank if the institution had at least 100 students at the undergraduate and master’s levels. The broad parameters on which these rankings are based, are common across the nine categories, and are as follows:

a) Teaching, learning and resources
b) Research and professional practice
c) Graduation outcomes
d) Outreach and inclusivity
e) Perception

These parameters are given specific weights. Each parameter consists of sub-heads with specific weights too. Table A1 in the online annexure illustrates this for Overall category. We focus on institutions in three categories — Overall, Universities and Management, and
include institutions ranked in the top 50 in *Management*, and institutions ranked in the top 100 in *Universities* and *Overall*.

After identifying the institutions, the next step was to check whether the institution had any regular full-time faculty member with a PhD in Economics. By excluding the institutions that don’t have such a faculty yielded a sample of 56 institutions that are listed in the top 100 in the *Overall* category, 52 institutions that are listed in the top 100 in the *Universities* category, and 33 institutions that are listed in the top 50 in the *Management* category.

Bearing in mind that NIRF rankings are not specific to Economics, we also refer to the rankings of institutions by *Research Papers in Economics* popularly known as RePEc.¹ Out of the 225 Indian institutions that are listed on RePEc, we focus on the top 25 percent as of January 2020.² These rankings are based on the number of (distinct) research works weighted by impact factors.³ Since the ranking is based on research output, the list also includes institutions which are solely focused on research and don’t offer any degree at the postgraduate level. Excluding such institutions yields a final sample of 39 institutions. Combining NIRF and RePEc rankings yields a sample of 120 institutions, i.e. the institutions that are ranked in at least one of the four lists — NIRF top 50 in *Management*, NIRF top 100 in *Universities* and NIRF top 100 in *Overall*, and RePEc top 25 percent.⁴

Once an institution has been identified, we identify individuals with doctoral degrees in Economics, among the regular full-time faculty members. We exclude visiting or adjunct faculty as well as honorary faculty. An individual with a doctorate in Economics can belong to a department other than Economics too, extending the search.⁵ Further, in many instances, details of the faculty’s educational background on the institution website didn’t explicitly mention whether they held a PhD in Economics. Therefore, we had to go beyond institutional websites and search for their personal website, professional profile or CV of the concerned faculty on the internet. We have not included those individuals whose specialisation at the doctorate level was unclear.

Though the sample might appear restrictive due to it being limited to elite institutions, the institutions in the sample are spread across multiple states in India (Table 1). Further, these

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¹ Auriol et al. (2019) also use RePEc in similar work on European institutions.
² The list of institutions is available here: [https://ideas.repec.org/top/top.india.html](https://ideas.repec.org/top/top.india.html)
³ Details are available on RePEc website.
⁴ The list of institution in each of the four categories is available on request.
⁵ Examples in case of management institutions include departments or centres of public policy (e.g. Indian Institute of Management (IIM) Bangalore or Indian Institute of Technology (IIT) Delhi) or Centre for Management of Agriculture in IIM Ahmedabad.
institutions span different regulatory regimes (Table 2). They differ in terms of who established them (an act by the federal or state (regional) government), their funding (fully or partly by government or self-funded), course offerings (full-fledged university with several departments or an institution offering degree or diploma in a specific discipline), recruitment policies, and degree granting powers, just to mention a few examples.\(^6\)

**Women in ISI Conference**

As mentioned before, the *Annual Conference in Growth and Development* (held at ISI-Delhi) is a prestigious conference attended by individuals affiliated with well-known institutions in India and abroad and also includes students, faculty and researchers.

The procedure of manuscript selection at this conference is similar to that of other conferences. The call for papers is announced, the authors submit their manuscripts, the conference organisers inform the authors the status of their submissions, and finally, the authors of the ‘accepted’ manuscripts confirm their attendance and submit an updated version of the manuscript. Some of the waitlisted submissions might move to the selected list if the authors of the originally selected manuscripts convey their inability to attend the conference.

Finally, the conference schedule is uploaded on the conference webpage, and includes details such as paper title, author name(s), and institutional affiliation(s).\(^7\) We downloaded these details for all the years in which the conference was held, i.e. 2004 to 2017. Thus, what we have is the final schedule. We complemented the available details with information on the authors’ gender and whether their institution of affiliation was located in India. These were obtained through profiles and CVs available on personal websites, institutional websites, and in some cases, LinkedIn profiles. We would have preferred to have a list of submitted manuscripts, and information on who dropped out before the final schedule was frozen, neither of which was available.\(^8\)

**Students**

Aggregate information on the number and share of women in master’s, Master of Philosophy (MPhil), and Doctor of Philosophy (PhD or DPhil) programmes has been obtained from various reports of the *All India Survey of Higher Education* (AISHE), an official report put

\(^6\) Details are provided in Table A2 of the online annexure.

\(^7\) Available at: [https://www.isid.ac.in/~epu/acegd2019/past-conferences.html](https://www.isid.ac.in/~epu/acegd2019/past-conferences.html) (accessed on September 15, 2019)

\(^8\) As a result, we can’t assess share of women at the submission stage, the acceptance stage or at any stage from acceptance to the freezing of final schedule. This raises the possibility of our results on proportion of women at ISI conference being understated if one assumes that women are more likely to drop out before final schedule is decided.
Information on the share of women among students in selected prestigious institutions has been obtained through queries under the Right to Information (RTI) Act, links available on the institute websites, and placement brochures which are available in the public domain.

3. Findings

**Women among faculty members**

The percentage of women among faculty members with a doctorate in Economics across all institutions that we have covered is 29.6 percent (Table 3). It varies between 28 percent and 32 percent across the four lists of elite institutions that are in our sample. The share of women faculty that we find in these Indian institutions is higher than what is found in the US, and a number of European countries (Lundberg 2018; Auriol et al. 2019). In all the lists, the percentage is lowest at the Professor level and higher at Assistant and Associate levels. This is consistent with what has been found in other contexts. Interestingly, there is not much difference between the percentage of women at the Assistant Professor and the Associate Professor levels.

Does the share of women faculty vary across types of institutions? Table 4 shows that Central Universities, Institutions of National Importance, institutions recognised by the universities to offer a postgraduate degree, and Indian Institute(s) of Management (IIMs) have a less than 25 percent share of women among their faculty members, while private universities have close to 50 percent. Women faculty constitute roughly one-third of the total faculty strength of stand-alone institutions other than IIMs, ‘Deemed to be Universities’ and State Universities. We are not aware of any literature that has either documented differences in the share of women across types of institutions in India or reasons for such differences. Understanding the causes of these differences should be an important research and policy agenda.

**Women in the ISI Conference**

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9 Reports and data available at: [http://aishe.nic.in/aishe/home](http://aishe.nic.in/aishe/home)
The share of women authors among the authors of accepted papers is around 30 percent after 2006 and has not changed over time (Figure 1). Another way to look at it is Figure 2 which shows that there are over 1.4 men per paper against an average of 0.6 women per paper.\textsuperscript{10} Figure 3 presents the composition of authors disaggregated into three categories: papers with (i) all women authors (one or multiple), (ii) all men authors (one or multiple), and (iii) a mix of men and women authors (at least one male or one female author). We find that a major share of the papers presented is authored by only men and this remains constant over time. The share of papers with all women authors is less than 20 percent and does not show signs of an increase over time. Unlike Chari and Goldsmith-Pinkham (2017) who found a rise in the share of papers with both men and women authors at the NBER conferences, we found that it remains consistent at around 30 percent. Restricting the sample to only co-authored papers, we find that papers authored by only women are less than 10 percent of all co-authored works, while those authored by only men are, on average, close to 50 percent. This is constant as well across years (Figure 4).

4. Discussion

In this section, we explore potentially explanatory factors for the share of women being less than one-third among the faculty members as well as among the presenters at the ISI conference.

Women in Master’s Programmes in Economics

Table 5 depicts the percentage of women who were enrolled in and completed a master’s programme in Economics, across India. This number has been above 50 percent since the beginning of this decade, and has continued to increase. Thus, women have been outnumbering men in postgraduate Economics programmes overall.

Is this trend similar in some of the most prestigious institutions offering a master’s in Economics? We have collected the data for ISI — Delhi and Kolkata (combined), Delhi School of Economics (DSE), Centre for Development Studies (CDS), Indira Gandhi Institute of Development Research (IGIDR) and Centre for International Trade and Development at

\textsuperscript{10} Sabharwal et al. (2019) also find this in their work which is based on administrative data and interviews with faculty in institutions carrying out research in STEM.
Jawaharlal Nehru University (CITD-JNU).\textsuperscript{11} Data is presented in Tables 6 to 9. The tables reveal that though there are fluctuations from year to year, the percentage of women is close to or even above 50 percent with the exception of ISI, where the share for the entire period is 41 percent. These figures are in contrast to evidence from the US and some European countries where the representation of women in Economics is lower at the postgraduate and doctoral levels.

**Women in MPhil. and PhD programmes in Economics**

Next, we examine the share of women in MPhil and PhD programmes. Data from the MHRD suggests that the percentage of women enrolling and earning an MPhil has been almost 50 percent for a decade, and it has continued to increase even further, reaching marginally above 60 percent (Table 10). But it is the PhD programme where a dramatic decline in the percentage of women can be seen. Till 2014-15, around 40 percent of who enrolled in and (and also earned) the PhD were women. Recall that the percentage of women at the master’s level was above 50 percent during this time. Thus, roughly, there is a 10-percentage point gap between the proportion of women at the master’s and the PhD levels. Even though the share of women has improved and has reached closer to 50 percent at the PhD level, it is lower than the fraction of women enrolled in the master’s programmes.\textsuperscript{12}

A number of individuals go abroad to pursue a doctorate in Economics. Table 11 shows the percentage of women among Indian citizens who earned doctorates in Economics in the US, probably the most important destination outside India for those seeking a doctoral degree in Economics. The percentage has always been below 50 percent till 2010. In fact, the share of women among Indian citizens earning a doctorate in Economics for the period 1997-2010 as a whole is 40.3 percent. For the period 2011-2017, the share has increased to 50.4 percent.

Thus, the share of women at the master’s and the PhD levels is much higher than the overall share of women among the faculty members, and importantly, higher than the share of women at the Assistant Professor level, an immediate natural progression for a PhD holder.

**Share of female faculty across locations within India**

Does the location of an institution play a role in impacting the share of women in that institution? One plausible hypothesis could be that women who earn doctoral degree in

\textsuperscript{11} These institutions are also part of our sample of ‘elite’ institutions.

\textsuperscript{12} In fact, there is also a substantial gap between percent of women enrolled in the PhD programme and percent of women who eventually earn the PhD.
Economics would prefer to be located in cities with more job opportunities. They might prefer to marry someone with appropriate levels of education and type of occupation. This suggests higher chances of locating themselves in bigger cities than the smaller ones.

We explore this by comparing the share of women in institutions which are located in six of India’s largest cities, with the rest. Results in Table 12 show that on average, the share of women among faculty members is higher in metros than other cities. What is interesting is that despite the rising share at the PhD level, the share of women has actually gone down (in metros) or has increased only marginally (non-metro locations) at Assistant Professor level compared to Associate Professor level. Further, Table A.3 in the online annexure shows substantial variation even within the metros. Chennai and Hyderabad have a much lower share of women faculty compared to not just other metros but also non-metro locations. Thus, share of women among faculty is low irrespective of location.

**Preference to settle abroad versus in India**

We tracked the alumni of a prestigious Economics master’s programme — Master’s in Quantitative Economics (MSQE) — offered by the ISI through its Delhi and Kolkata centres. 469 individuals graduated from this programme between 1997 and 2019. We obtained the names of these individuals through the link on ISI’s website and the placement brochures available online. Once the list of names was ready, we searched online for whether they had already earned a PhD or were currently enrolled in a doctoral programme, the location of their PhD, and their current location. We were able to find information for 395 individuals.

Of these, 41 percent are women, and 45.3 percent either have a PhD or are enrolled into a doctoral programme. Interestingly, there is no difference in the fraction of PhDs between male and female alumni. Of those who have already earned their PhD, only 12.3 percent have earned it in India. What is important for our purpose is that, of those who completed their PhD abroad, 31.6 percent of male alumni and only 16.3 percent of female alumni are currently in India. Although the sample is from a highly prestigious institution, the findings could be extended to other selective institutions as well, and therefore, suggests another reason why the share of women faculty could be low, especially in elite institutions. To our knowledge, this factor is likely to be relevant to other developing countries as well, and is not highlighted much in the literature.

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13 These cities are Bengaluru, Chennai, Hyderabad, Kolkata, Mumbai, and New Delhi (including and excluding National Capital Region). We show results separately for Delhi and NCR (including Delhi).
Findings from semi-structured interviews with women

To understand what factors are at play in reducing the percentage of women at faculty level and, to some extent at the PhD level, as compared to their presence at the master’s level, we interviewed 12 women in the age-group 25 to 35 years, and who have graduated from prestigious institutions. These were (i) women with a PhD in Economics from an elite Indian institute and currently working as faculty in India, (ii) women currently pursuing a PhD in Economics from an elite Indian institute or with a PhD and currently not working as faculty and (iii) women with a master’s in Economics from an elite Indian institute but did not opt for a PhD.

One of our respondents from the first category mentioned that she did not face any problems from her own parents or in-laws while pursuing her PhD. However, she found it difficult to pursue research work rigorously because of her responsibilities as a mother.14 This, in some way, hindered collaboration with other researchers as well. More often than not, she was unable to fully commit in collaborative efforts that might require online meetings during non-office hours, which in turn, affected the quality time spent with her child. She had missed conferences despite securing funds to travel for the same reason. Notably, she was among the top performers in her class at the postgraduate level.

One of the respondents who opted not to work after the completion of her PhD (second category) said her husband wanted her to take care of their children. Since they were economically better off, she would not need to work regularly. However, she was free to take periodic part-time/short-term teaching assignments, while still devoting much of her time to her kids.

Our analysis from the interviews for the third category revealed that the time required to complete a doctoral programme might discourage women. Even though some of the respondents wanted to pursue a PhD, and while the primary reason for not pursuing one was financial burden, they felt it was difficult to convince family and relatives about the opportunities that may open up post-PhD. Further, there was worry about their marriages getting delayed, which added to their families’ dissuasion. One of the above respondents also happened to be the topper of her batch. One other respondent explained that she was keen to take up admission outside India, specifically in institutions in the US or Europe. She felt that

14 Women with children publish significantly fewer papers than men with children while no gap exists between men and women without children (Ginther et al. 2017).
these countries were safer and more “equal,” had better opportunities for women, and also that the move would help her “move far away from the pressures of marriage,” echoing the general concerns aired by other respondents too.

5. Conclusion

To summarise, there is limited evidence on the presence of women in academia in developing countries including India. We fill this gap through systematic and intensive data collection on the share of women among the Economics faculty in 120 elite institutions that are spread across the country and span different regulatory regimes in the country. We complement this by documenting the share of women participating in a prestigious research conference.

Data shows that only 28.5 percent of the Economics faculty members are women. The percentage is lowest at the Professor level and higher at Assistant and Associate Professor levels. The share of women faculty varies across institutions and locations. Though the share might look higher when compared to the US and some European countries, it is low given that women constitute at least 50 percent of students at the master’s level. The first drop in women’s share occurs at the PhD level. Data suggests that women’s share in PhD is improving over time and now inching towards the halfway mark. But that is not yet reflected in faculty share. This is similar to what is observed in Science disciplines and scientific research institutes in India (Gupta 2016). Compilation and analysis of data of authors of more than 1300 papers which were presented at the prestigious research conference reveals that women constitute only 29 percent of authors in the final schedule. Tracking the alumni of a highly selective master’s programme and conversations with a non-random sample of women suggest that the time taken to complete a doctoral programme, responsibilities towards family post-marriage, preference to stay abroad post-PhD conditional on earning PhD outside India do play a role in keeping the share of women faculty low.

Of course, there could be multiple other explanations for the lower share of women in Economics academia in India. Do women prefer a non-academic job (say private corporate sector or in non-governmental organisations) over an academic one post their master’s or PhD? Is it socialisation and enculturation during the master’s or doctoral programme which is at play (Gupta 2007)? Does the quality of doctoral research vary across gender? Do men and women research different topics, which might have implications for job-market opportunities? Are there biases in recruitment processes? Is the drop in women’s share from
junior to senior faculty explained solely by low number of women PhDs in the years between the 1980s and 2000s or are there organisational factors driving it? Is the conference participation low due to conferences not being ‘family friendly’ (Bos et al. 2017)?

Evidence from Engineering and Science disciplines suggest that a hierarchical culture, lack of time beyond office hours, absence from informal networks, not being ‘visible’ and ‘well-connected’, lack of support from the superiors, ‘hidden’ social exclusion, dual burden (office and home responsibilities) as well as the tendency of seniors and authorities to use ‘dual burden’ as an excuse to not recruit, promote or give additional responsibilities to women make navigating the career path more difficult (Chana 2003; Gupta 2007, 2016; Karup et al. 2010; Sabharwal 2019). Since Economics departments are part of the same organisation and sociocultural milieu, these factors are likely to matter to the career trajectory and experiences of women in academia. But disciplinary differences (say, in carrying out research, importance of funding, collaboration, rules for promotion, academic culture) would have to be kept in mind as well. For example, Cidlinská (2019) finds disciplinary differences to be more substantial than the gender differences in the perceived obstacles to career path in Czech academia where women dominate till the master’s level, but not in research or faculty positions, as we have seen in the Indian context too. Strategies to support women have to be designed accordingly. Economics, in some sense, embodies characteristics of Technical and Natural Sciences on one hand, and Social Sciences and Humanities on the other, thus suggesting the need to borrow relevant strategies from both (broad) disciplines, as well as informed by the evolving local context.
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Figures

Figure 1: Share of female authors among all authors

Source: Annual Conference on Economic Growth and Development at ISI, Delhi from 2004 to 2017
Figure 2: Total number of authors per paper across gender

Source: Annual Conference on Economic Growth and Development at ISI, Delhi from 2004 to 2017
Figure 3: Composition of authors of accepted papers (single or multi-authored)

Source: Annual Conference on Economic Growth and Development at ISI, Delhi from 2004 to 2017
Figure 4: Composition of accepted authors for papers (multi-authored)

Source: Annual Conference on Economic Growth and Development at ISI, Delhi from 2004 to 2017
### Tables

Table 1: State-wise number of institutions included in the sample

| State                  | Combined Freq. | Combined Percent | NIRF UNIV 100 Freq. | NIRF UNIV 100 Percent | NIRF 50 MNMT Freq. | NIRF 50 MNMT Percent | NIRF 100 OVERALL Freq. | NIRF 100 OVERALL Percent | RePEc 25% Freq. | RePEc 25% Percent |
|------------------------|----------------|------------------|---------------------|-----------------------|-------------------|----------------------|------------------------|--------------------------|----------------|------------------|
| Andhra Pradesh         | 8              | 6.67             | 3                   | 5.77                  | 2                 | 6.25                 | 5                      | 8.93                    | 3              | 7.69             |
| Arunachal Pradesh      | 1              | 0.83             | 1                   | 1.92                  |                   |                      |                        |                          |                |                  |
| Assam                  | 4              | 3.33             | 2                   | 3.85                  | 2                 | 3.57                 |                        |                          |                |                  |
| Bihar                  | 1              | 0.83             | 1                   | 1.92                  |                   |                      |                        |                          |                |                  |
| Chandigarh             | 1              | 0.83             | 1                   | 1.92                  |                   |                      |                        |                          |                |                  |
| Chhattisgarh           | 1              | 0.83             | 1                   | 3.13                  |                   |                      |                        |                          |                |                  |
| Delhi                  | 11             | 9.17             | 3                   | 5.77                  | 4                 | 12.5                 | 5                      | 8.93                    | 6              | 15.38            |
| Goa                    | 2              | 1.67             | 1                   | 1.92                  | 1                 | 3.13                 |                        |                          |                |                  |
| Gujarat                | 5              | 4.17             | 2                   | 6.25                  |                   |                      | 4                      | 10.26                   |                |                  |
| Haryana                | 5              | 4.17             | 2                   | 3.85                  | 2                 | 6.25                 | 1                      | 2.56                    |                |                  |
| Himachal Pradesh       | 2              | 1.67             |                     |                       | 2                 | 3.57                 |                        |                          |                |                  |
| Jammu & Kashmir        | 3              | 2.5              | 2                   | 3.85                  | 1                 | 1.79                 | 1                      | 2.56                    |                |                  |
| Jharkhand              | 2              | 1.67             | 2                   | 6.25                  |                   |                      |                        |                          |                |                  |
| Karnataka              | 9              | 7.5              | 4                   | 7.69                  | 2                 | 6.25                 | 3                      | 5.36                    | 4              | 10.26            |
| Kerala                 | 6              | 5                | 5                   | 5.77                  | 1                 | 3.13                 | 3                      | 5.36                    | 3              | 7.69             |
| Madhya Pradesh         | 2              | 1.67             | 1                   | 3.13                  | 1                 | 1.79                 | 1                      | 2.56                    |                |                  |
| Maharashtra            | 8              | 6.67             | 4                   | 7.69                  | 4                 | 12.5                 | 3                      | 5.36                    | 1              | 2.56             |
| Meghalaya              | 2              | 1.67             | 1                   | 1.92                  | 1                 | 3.13                 | 1                      | 1.79                    | 1              | 2.56             |
| Mizoram                | 1              | 0.83             | 1                   | 1.92                  |                   |                      |                        |                          |                |                  |
| Odisha                 | 4              | 3.33             | 1                   | 1.92                  | 1                 | 3.13                 | 3                      | 5.36                    |                |                  |
| Pondicherry            | 1              | 0.83             |                     |                       | 1                 | 1.79                 | 1                      | 2.56                    |                |                  |
| Punjab                 | 3              | 2.5              | 3                   | 5.77                  | 2                 | 3.57                 |                        |                          |                |                  |
| Rajasthan              | 3              | 2.5              | 2                   | 3.85                  | 1                 | 3.13                 | 2                      | 3.57                    | 1              | 2.56             |
| Tamil Nadu             | 14             | 11.67            | 8                   | 15.38                 | 2                 | 6.25                 | 8                      | 14.29                   | 2              | 5.13             |
| Uttar Pradesh          | 8              | 6.67             | 5                   | 9.62                  | 2                 | 6.25                 | 5                      | 8.93                    | 3              | 7.69             |
| Uttarakhand            | 2              | 1.67             |                     |                       | 1                 | 3.13                 | 1                      | 1.79                    |                |                  |
| West Bengal            | 11             | 9.17             | 5                   | 9.62                  | 2                 | 6.25                 | 6                      | 10.71                   | 7              | 17.95            |
| **Total**              | 120            | 100              | 52                  | 100                   | 32                | 100                  | 56                     | 100                     | 39             | 100              |
Table 2: Types of institutions included in the sample (as per the UGC classification)

| Category                                      | NIRF Universities top 100 | NIRF Management Top 50 | NIRF Overall top 100 | RePEc top 25% | All categories |
|-----------------------------------------------|---------------------------|------------------------|----------------------|--------------|----------------|
| Central Universities (Public)                 | 12                        | 1                      | 9                    | 6            | 13             |
| State Universities (Public)                   | 29                        | 0                      | 21                   | 4            | 34             |
| Deemed to be University                      | 9                         | 3                      | 7                    | 4            | 12             |
| Institution of National Importance            | 0                         | 1                      | 16                   | 4            | 19             |
| IIMs                                          | 0                         | 13                     | 1                    | 7            | 13             |
| Private Universities                          | 2                         | 4                      | 2                    | 4            | 9              |
| Standalone institutions                       | 0                         | 10                     | 0                    | 4            | 14             |
| Institutions Recognised by the Universities  | 0                         | 0                      | 0                    | 6            | 6              |
| TOTAL                                         | 52                        | 32                     | 56                   | 39           | 120            |
Table 3: Total faculty, female faculty and fraction of female faculty in ‘elite’ institutions

| Institutions                     | Assistant | Associate | Professor | Overall |
|----------------------------------|-----------|-----------|-----------|---------|
| NIRF Overall top 100             | Female faculty | 59        | 24        | 51      | 136      |
| Total Faculty                    |           | 179       | 77        | 190     | 449      |
| %                                |           | 32.96     | 31.17     | 26.84   | 30.29    |
| NIRF Universities top 100        | Female faculty | 51        | 28        | 51      | 132      |
| Total Faculty                    |           | 146       | 72        | 198     | 419      |
| %                                |           | 34.93     | 38.9      | 25.76   | 31.5     |
| NIRF Management top 50           | Female faculty | 25        | 15        | 21      | 64       |
| Total Faculty                    |           | 80        | 48        | 79      | 217      |
| %                                |           | 31.25     | 31.25     | 26.58   | 29.49    |
| RePEc top 25%                    | Female faculty | 64        | 28        | 50      | 142      |
| Total Faculty                    |           | 185       | 85        | 233     | 505      |
| %                                |           | 34.6      | 32.94     | 21.46   | 28.12    |
| All categories combined          | Female faculty | 121       | 56        | 100     | 278      |
| Total Faculty                    |           | 357       | 168       | 406     | 939      |
| %                                |           | 33.89     | 33.33     | 24.63   | 29.61    |
Table 4: Fraction of female faculty & Type of the institution (category: NIRF Overall Top 100)

| Institutions                          | Number | Assistant | Associate | Professor | Overall |
|---------------------------------------|--------|-----------|-----------|-----------|---------|
| Central Universities (Public) (n=13)  |        |           |           |           |         |
| Female faculty                        | 16     | 6         | 15        | 39        |         |
| Total Faculty                         | 63     | 25        | 87        | 178       |         |
| %                                     | 25.4   | 24        | 17.24     | 21.91     |         |
| State Universities (Public) (n=34)    |        |           |           |           |         |
| Female faculty                        | 31     | 15        | 37        | 83        |         |
| Total Faculty                         | 77     | 40        | 111       | 228       |         |
| %                                     | 40.26  | 37.5      | 33.33     | 36.4      |         |
| Deemed to be University (n=12)        |        |           |           |           |         |
| Female faculty                        | 14     | 7         | 12        | 33        |         |
| Total Faculty                         | 35     | 17        | 42        | 94        |         |
| %                                     | 40     | 41.18     | 28.57     | 35.11     |         |
| Institution of National Importance (n=19) |    |           |           |           |         |
| Female faculty                        | 15     | 6         | 6         | 27        |         |
| Total Faculty                         | 53     | 30        | 41        | 124       |         |
| %                                     | 28.3   | 20        | 14.63     | 21.77     |         |
| Private Universities (n=9)            |        |           |           |           |         |
| Female faculty                        | 17     | 7         | 6         | 30        |         |
| Total Faculty                         | 35     | 9         | 18        | 62        |         |
| %                                     | 48.57  | 77.78     | 33.33     | 48.39     |         |
| Indian Institute(s) of Management (IIMs) (n=13) | | | | | |
| Female faculty                        | 12     | 7         | 6         | 25        |         |
| Total Faculty                         | 39     | 24        | 37        | 104       |         |
| %                                     | 30.77  | 29.17     | 16.22     | 24.04     |         |
| Other Standalone institutions (n=14)  |        |           |           |           |         |
| Female faculty                        | 11     | 5         | 8         | 25        |         |
| Total Faculty                         | 30     | 15        | 29        | 76        |         |
| %                                     | 36.67  | 33.33     | 27.59     | 32.89     |         |
| Institutions recognised by university (n=6) | | | | | |
| Female faculty                        | 5      | 3         | 10        | 16        |         |
| Total Faculty                         | 25     | 8         | 41        | 73        |         |
| %                                     | 20     | 37.5      | 24.39     | 21.92     |         |
Table 5: Fraction of women in Economics master’s programmes (overall)

| Year   | Enrolment in PG (%) | Completed PG (%) |
|--------|---------------------|------------------|
| 2011-12 | 52                  | 52               |
| 2012-13 | 54                  | 56               |
| 2013-14 | 54                  | 56               |
| 2014-15 | 55                  | 53               |
| 2015-16 | 56                  | 57               |
| 2016-17 | 57                  | 59               |
| 2017-18 | 56                  | 60               |

*Source: All India Survey of Higher Education (MHRD, GoI) of the respective years*

Table 6: Fraction of women in Economics master’s programmes (CDS)

| Year   | Total | Female | % Female |
|--------|-------|--------|----------|
| 2012-14 | 15    | 10     | 66.7     |
| 2013-15 | 17    | 5      | 29.4     |
| 2014-16 | 17    | 10     | 58.8     |
| 2015-17 | 20    | 10     | 50       |
| 2016-18 | 21    | 13     | 61.9     |
| 2017-19 | 21    | 8      | 38.1     |
| 2018-20 | 18    | 7      | 38.9     |
| Overall | 129   | 63     | 48.8     |

*Source: Information available on the website*

Table 7: Fraction of women in Economics Master’s programs (IGIDR)

| Year   | Total | Female | % Female |
|--------|-------|--------|----------|
| 2010   | 28    | 17     | 60.7     |
| 2011   | 21    | 6      | 28.6     |
| 2012   | 25    | 15     | 60.0     |
| 2013   | 20    | 10     | 50.0     |
| 2014   | 24    | 17     | 70.8     |
| 2015   | 22    | 14     | 63.6     |
| 2016   | 19    | 12     | 63.2     |
| 2017   | 28    | 13     | 46.4     |
| 2018   | 29    | 16     | 55.2     |
| Overall| 216   | 120    | 55.6     |

*Source: Response from request under RTI Act*
Table 8: Fraction of women in Economics master’s programmes (ISI – Delhi and Kolkata combined)15

| Year | Total | Females | % Female |
|------|-------|---------|----------|
| 1998 | 15    | 5       | 33.3     |
| 1999 | 14    | 3       | 21.4     |
| 2000 | 20    | 7       | 35       |
| 2001 | 13    | 7       | 53.8     |
| 2002 | 22    | 9       | 40.9     |
| 2003 | 22    | 9       | 40.9     |
| 2004 | 19    | 8       | 42.1     |
| 2005 | 20    | 11      | 55       |
| 2006 | 17    | 6       | 35.3     |
| 2007 | 21    | 5       | 23.8     |
| 2009 | 31    | 14      | 45.2     |
| 2010 | 39    | 17      | 43.6     |
| 2011 | 27    | 12      | 44.4     |
| 2012 | 33    | 15      | 45.5     |
| 2013 | 23    | 11      | 47.8     |
| 2014 | 17    | 6       | 35.3     |
| 2015 | 21    | 13      | 61.9     |
| 2016 | 23    | 10      | 43.5     |
| 2017 | 22    | 9       | 40.9     |
| 2018 | 27    | 8       | 29.6     |
| Overall | 446 | 185 | 41.5 |

Source: Information available on the website and placement brochures

Table 9: Fraction of women in Economics master’s programmes (Second Year, Delhi School of Economics)

| Year | Total | Female | % Female |
|------|-------|--------|----------|
| 2011 | 99    | 48     | 48.5     |
| 2017 | 144   | 89     | 61.8     |

Source: Annual Reports, University of Delhi

15 We do not have information on total number of students and their gender for ISI-Kolkata 2014 onward.
Table 10: Fraction of women in MPhil and PhD in Economics (overall)

| Year   | Enrolled (%) |   | Earned (%) |   |
|--------|--------------|---|------------|---|
|        | PhD  | MPhil | PhD  | MPhil |
| 2011-12| 35   | 48    | 32   | 51    |
| 2012-13| 42   | 49    | 42   | 53    |
| 2013-14| 41   | 52    | 37   | 54    |
| 2014-15| 41   | 57    | 40   | 58    |
| 2015-16| 45   | 56    | 38   | 59    |
| 2016-17| 46   | 58    | 43   | 60    |
| 2017-18| 47   | 63    | 40   | 62    |

Source: All India Survey of Higher Education, MHRD

Table 11: Fraction of women earning doctorate in Economics in the US

| Year | Male | Female | Total | % Female |
|------|------|--------|-------|----------|
| 1997 | 31   | 20     | 51    | 39.2     |
| 1998 | 39   | 19     | 58    | 32.8     |
| 1999 | 31   | 15     | 46    | 32.6     |
| 2000 | 21   | 18     | 39    | 46.1     |
| 2001 | 25   | 18     | 43    | 41.9     |
| 2002 | 25   | 20     | 45    | 44.4     |
| 2003 | 19   | 14     | 33    | 42.4     |
| 2004 | 22   | 16     | 38    | 42.1     |
| 2005 | 31   | 17     | 48    | 35.4     |
| 2006 | 30   | 21     | 51    | 41.2     |
| 2007 | 26   | 17     | 43    | 39.5     |
| 2008 | 22   | 21     | 43    | 48.8     |
| 2009 | 36   | 24     | 60    | 40       |
| 2010 | 28   | 21     | 49    | 42.9     |
| 2011 | 33   | 33     | 66    | 50       |
| 2012 | 26   | 36     | 62    | 58.1     |
| 2013 | 23   | 18     | 41    | 43.9     |
| 2014 | 25   | 16     | 41    | 39.0     |
| 2015 | 16   | 19     | 35    | 54.3     |
| 2016 | 20   | 23     | 43    | 53.5     |
| 2017 | 22   | 23     | 45    | 51.1     |

Source: National Science Foundation, National Centre for Science and Engineering Statistics, Survey of Earned Doctorates
Table 12: Fraction of women among faculty members across locations

|                        | Metro Locations |                | Non-metro locations |          |
|------------------------|-----------------|----------------|---------------------|----------|
| **Assistant Professor**|                 |                |                     |          |
| Total faculty          | 57              | 64             |                     |          |
| Female Faculty         | 156             | 201            |                     |          |
| %                      | **36.5**        | **31.8**       |                     |          |
| **Associate Professor**|                 |                |                     |          |
| Total faculty          | 28              | 28             |                     |          |
| Female Faculty         | 73              | 95             |                     |          |
| %                      | **38.4**        | **29.5**       |                     |          |
| **Professor**          |                 |                |                     |          |
| Total faculty          | 63              | 37             |                     |          |
| Female Faculty         | 220             | 186            |                     |          |
| %                      | **28.6**        | **19.9**       |                     |          |
| **Overall**            |                 |                |                     |          |
| Total faculty          | 149             | 129            |                     |          |
| Female Faculty         | 453             | 486            |                     |          |
| %                      | **32.9**        | **26.5**       |                     |          |
Annexure

Table A1: Ranking Parameters for *Overall* Category

| S. No. | Parameters                                                                 | Marks |
|--------|--------------------------------------------------------------------------|-------|
| 1      | Teaching, Learning and Resources (weight 0.3)                            |       |
|        | a) Student strength including doctoral students: 20 marks                | 100   |
|        | b) Faculty-student ratio with emphasis on permanent faculty: 30 marks    |       |
|        | c) Combined metric for faculty with PhD (or equivalent) and experience: 20 marks |       |
|        | d) Financial resources and their utilisation: 30 marks                   |       |
| 2      | Research and Professional Practice (weight 0.3)                          |       |
|        | a) Combined metric for publications: 35 marks                           | 100   |
|        | b) Combined metric for quality of publications: 35 marks                 |       |
|        | c) IPR and patents: published and granted: 15 marks                     |       |
|        | d) Footprint of projects and professional practice: 15 marks            |       |
| 3      | Graduation outcomes (weight 0.2)                                        | 100   |
|        | a) Metric for university examinations: 60 marks                         |       |
| 4      | Outreach and inclusivity (weight 0.1)                                   | 100   |
|        | a) Percentage of students from other states/ countries (region diversity): 30 marks |       |
|        | b) Percentage of women (Women diversity): 30 marks                       |       |
|        | c) Economically and socially challenged students: 20 marks               |       |
|        | d) Facilities for physically challenged students: 20 marks               |       |
| 5      | Perception (weight 0.1))                                                | 100   |
|        | a) Peer perception: Employers and academic peer: 100 marks              |       |
Table A.2: Description of relevant institution types as per the Universities Grants Commission (UGC), a statutory body under the Ministry of Human Resource Development (MHRD), Government of India (GoI)

| Institution                  | Description                                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Central University           | A university established or incorporated by a Central Act (i.e. the act of the Indian parliament)                                             |
| State University             | A university established or incorporated by a State Act (i.e. the act of the State legislature)                                               |
| Private University           | A university established through a State/ Central Act by a sponsoring body viz. a society registered under the Societies Registration Act, or any other corresponding law for the time being in force in a State or a Public Trust or a company registered under Section 25 of the Companies Act |
| Deemed University            | A high performing institute which has been declared as Deemed to be University by the Central government under section 3 of the UGC Act, 1956  |
| Institute(s) of National Importance | An institution established by Act of Parliament and declared as Institution of National Importance such as all Indian Institutes of Technology (IITs), National Institute of Technology (NITs) |
| Institutions recognised by the University | These are the institutions which can run degree programs but are not empowered to provide degrees on their own and hence have to be attached with some university for the purpose of awarding degree |
| Stand-alone institutions     | Stand-alone institutions are outside the purview of universities, and generally run Diploma/ post-graduate Diploma level program for which they require recognition from the appropriate statutory body. There are two main categories of stand-alone institutions:  
1. Indian Institute of Management (IIM) – autonomous institutes of management education and research  
2. Diploma awarding institutions under the control of All India Council for Technical Education (AICTE)  

AICTE is the apex regulatory body for planning, regulation, coordinated development of the technical education system which covers Engineering, Technology, Architecture, Town Planning, Management, Pharmacy, Applied Arts & Crafts, Hotel Management and Catering Technology. Note that IITs, NITs and IIMs don’t fall under the purview of AICTE.
Table A.3: Total faculty, female faculty and share of female faculty across metro cities in India

| City        | No. of institutions | Total faculty | Female Faculty | % female |
|-------------|---------------------|---------------|----------------|----------|
| Bengaluru   | 5                   | 12            | 40             | 30       |
| Chennai     | 6                   | 11            | 45             | 24.44    |
| Hyderabad   | 5                   | 8             | 47             | 17.02    |
| Kolkata     | 6                   | 22            | 69             | 31.88    |
| Mumbai      | 6                   | 31            | 68             | 45.59    |
| Delhi       | 11                  | 39            | 133            | 29.32    |
| NCR (incl. Delhi) | 16       | 65            | 184            | 35.33    |

Note: We do not show level-wise female shares due to lower number of faculty at each level.