

ITHI Working Paper Series

#6. “Is science academia inherently resistant to gender equality?”

by Namrata Gupta and Henry Etzkowitz

Two main approaches of Equity and Equality to enhancement of women’s participation in academic science may be identified. The former comprises policies and practices measured by attainment of objectives with consequences for lack of improvement, “hard” measures, for example Norway’s Balance project that requires plans for achievement of objectives tied to provision of funding (Lund, 2019). The latter, like the US ADVANCE program supports models for emulation, encourages networks and other “soft” measures to facilitate improvement (Rosser, 2020). Neither approach fully considers the underlying structural dimensions of academic science that inhibit women’s participation and rise.

Of all the factors that advance or inhibit women’s scientific careers, perhaps the most intractable is the implication of a tenure track hiring and career review system. Focusing on early accomplishment, coinciding with child birth and early child rearing years, the “tenure track” has been inimical to women’s advance in scientific careers (Etzkowitz, Kemelgor and Uzzi 2000). Originating in the US, where it has become codified as a seven year regime; the model has spread globally in the wake of US scientific prestige. Other hiring systems with a modest probationary period, without the “up or out criteria of tenure ,are gradually but inexorably being replaced. The contradiction between the tenure clock and the biological clock is rooted in a “male model of science” with corollaries that include an mistaken emphasis on youth as the locus of achievement (Zuckerman and Merton, 1972) and an implicit “asexual reproduction system” in which senior males replicate themselves with persons whom they see in their own image. A competing “family friendly’ model of organizing science is emerging but it is subsidiary model, to date.

As faculty roles increase, something has to give. Only by reducing responsibilities in one area can they be increased in another, without significant loss. When faculty engage in firm formation, increasing external responsibilities, their attention to internal duties declines, creating conflict of commitment issues that have been resolved by instituting leave procedures and other means of balancing like having graduates of a research group take the entrepreneurial role. Similarly, reduced teaching schedules have been identified as a way to balance women’s roles but this has been instituted as an individual accommodation rather than a general policy, to date (Etzkowitz, Kemelgor and Kehl, 2020).

Structural resistance to gender equality

While the female-male ratio in academia has been increasing in STEM fields in several countries including India and the US, the proportion of women at senior positions and in the elite institutes remains low. India has a different model of the probationary system. Under this, faculty members who receive a positive assessment at the end of their first year are given permanent positions as assistant professors. After another five years, they can apply to become associate professors — a position with higher rank and pay. If they are unsuccessful, however, their appointments are not terminated. Faculty members can stay at their institutions as assistant professors until they retire. In India, the Ministry of Human Resource Development

last year introduced five-year tenure track system. While this has been approved by the IIT Council, the decision to implement it has been postponed. The tenure system already exists in IISc Bangalore and might now extend to the IITs. The debate on the tenure system among the faculty members in India helps to understand its implications for India and to extrapolate for women scientists.

The reactions are mixed among the faculty on this issue. Those in favour of the tenure system argue that it is difficult to properly assess a researcher's progress in a single year of probation; that the tenure-track system provides scientific accountability and allows a candidate who has been given strong support and regular feedback to receive a comprehensive assessment at the end of five or sometimes seven years. Those against the system argue that it will increase job insecurity and put pressure on new faculty members to pursue only short-term research goals during that period; that varying quality of institutional support available to young faculty members in India and uniquely Indian problems will affect their productivity and therefore tenure. Further, in India, there is a paucity of fallback options for candidates who are unable to secure tenure. India has few second- or third-tier research institutions where a scientist whose bid for tenure is rejected elsewhere can seek another appointment, and few commensurate industry positions. As a measure to reduce the numbers of non-performers, it mainly targets the young recruits while the senior faculty remains unevaluated ¹.

These arguments reflect different models that visualize efficiency at individual and organizational level. These visions are related to a meritocratic order and to that extent underlines equality including gender equality. Thus, we may call them what Blau et al. (2008) outline as varying visions of gender equality in organizations. However, there are inherent contradictions in both models. This is because, as Blau et al point out, in organizations men accumulate human capital more quickly as they are freed from childbirth/pregnancy/domestic duties that typically affect women's labor supply. Thus, whether it is a prolonged tenure system or a short probation period, both will affect women's careers. In the first case, the permanent position will be delayed and in the second, the rise in hierarchy. The maternity leave provision (six months paid leave) that is liberal in India enables women to retain their position but hinders their flight up the ladder (Ananth 2014).

A radically egalitarian vision that seeks to delegitimize such inequality would entail special measures. For instance, Ananth (2014) suggests that for women scientists taking maternity leave, 3/2 multiplicative factor to the work she completed during the period should be applied when considering evaluation. However, there is a lack of support for such alternatives. The inertial force here is equality itself: the measure is perceived against fairness (unfair to men).

However, researchers report a support for a bureaucratic vision that enshrines efficiency and treats all inequality emanating from an efficiency imperative as wholly unproblematic (Blau et al. 2008). In the Indian context, bureaucratic structures of institutions do not enable efficiency; this is because inefficiencies arising due to red-tapism and favoritism hinder gender equality (Gupta 2016) and therefore greater

¹ Barath, H. (2019): India debates a nationwide tenure system. Nature. 24 July 2019

<https://www.nature.com/articles/d41586-019-02296-y>; Tenure track system at the IITs is a recipe for failure, The Hindu, October 5, 2019 <https://journalofindia.com/2019/10/05/iit-tenure-track-india/>; Menon, G.I. (2019), In India, IITs' Decision to Use Tenure to Improve Research Could Backfire. 19 Nov 2019 <https://thewire.in/science/council-of-iit-tenure-track-research-put-open-access-impact-factor>

efficiency in bureaucratic procedures will have the side-effect of gender equality.

Finally, there are degrees of efficiencies in different organizations as some are less discriminatory than others. This is more so in the developing countries with limited resources and few institutions of top quality. The male character in the elite institutes (also more efficient) is more pronounced and women's credentials more suspicious and therefore more scrutinized. In such a situation, although all forms of discrimination are vehemently denied, it is also most pronounced. These are usually subtle and difficult to detect forms of organizational inefficiencies that perpetuate gender inequalities (for instance, assumptions about women's roles affecting hiring). Hence, even if credential-based hiring is enhanced through bureaucratization, such inequalities might hinder integration of women in the system.

Lesser reputed institutes are also less efficient. In developing countries such institutes usually lack funding and therefore has inadequate infrastructure for research. In such institutes, it is easier for those in power to grab the best resources and this again affects women as social networks of men is related to power and men have greater and more powerful networks than women. On the other hand human capital alone is insufficient to propel an individual to power. The number of women might be more in such institutes but it fails to translate in to power.

Organizational resistance to gender equality also arise from the nature of credentials required for academic positions. For instance, doctorate degree from abroad and need to prove among the peers in the West might be a credential in elite Indian institutes. It is easier for men to travel abroad for higher degrees than for women and therefore fewer women than men would have those credentials (Gupta 2020).

Organizations are also impacted by the limitations of political narrative for gender equality in science. The US federal government's effort has been driven primarily by an emphasis on equal opportunity rather than the equalization of outcomes (Blau et al. 2008). The main possible exception to this generalization is affirmative action. In India, the Science, Technology and Innovation Policy (2013) highlights 'gender parity' as its goal which indicates the emphasis on enhancing numerical participation of women in science. This is an extremely limiting narrative (Gupta 2020). While there are several laudable initiatives by the Indian government, there is a lack of an overall framework for discourse on the issue Gupta, Forthcoming). The recent announcement² by the government to grade institutes on gender equality (on the pattern of

Athena Swan in UK) has come as a measure from 'top' which might lead to a discourse within the organizations.

Conclusion:

² Top institutes will now be graded on gender equality

Rohan Dua, TNN, Jan 16, 2020. At: <https://timesofindia.indiatimes.com/india/top-institutes-will-now-be-graded-on-gender-equality/articleshow/73283922.cms>

Organizational resistance to gender equality stems from resistance to structural change which would also require understanding gender inequality as ‘multilayered power dynamics’ (Verloo 2005) and entailing disruptions to the structures of power and privilege. While this is true for fields other than science also, the particular aspect to this resistance in academic science is the hegemony of men and men’s practices not only in the organizations but also in the science system with its awards, journals, membership of committees, etc. The theorists for dual agenda argue for redefining ‘ideal worker’ so as to include organizationally effective work-life balance policies for men and women at workplace (Charlesworth and Baird 2007). In academia, one might perhaps redefine the concept of an ‘ideal scientist’ and thereby overwrite the ‘male model’ of science. Also, gender equality measures to fulfill the second of the ‘dual agenda’, that is, organizational effectiveness is perhaps not easily visible or demonstrated in academia compared to other work organizations. Commitment and discourse at political, organizational and individual levels might overcome resistance to change.

References:

Blau, Francine D., Brinton, Mary C. and Grusky, David B. (2008). The declining significance of gender? In Francine D. Blau, Mary C. Brinton, and David B. Grusky (eds) *The Declining Significance of Gender?* Russel Sage Foundation: New York, (pp 3-34).

Ananth, Sudarshan. (2014). Women leaders in Indian science. *Current Science*, 107 (9): 1366. At: <https://www.currentscience.ac.in/Volumes/107/09/1366.pdf>

Charlesworth, S. and Baird, M. (2007). Getting gender on the agenda: the tale of two organisations, *Women in Management Review*, 22 (5): 391-404. At: <https://doi.org/10.1108/09649420710761455>

Etzkowitz, H. C. Kemelgor and B. Uzzi (2000) *Athena Unbound: The Advancement of Women in Science and Technology* Cambridge; Cambridge University Press

Etzkowitz, Kemelgor and Kehl, (2020) *Gendered Resistance and Advance in Academic Science and Innovation in Gender, Science and Innovation: New Perspectives* Lawton Smith, H., C. Henry, H. Etzkowitz, A. Poulouvassilis (Eds) Cheltenham: Edward Elgar

Gupta, Namrata. (2016). Perceptions of the Work Environment: The Issue of Gender in Indian Scientific Research Institutes, *Indian Journal of Gender Studies* 23 (3): 437-466.

Gupta, Namrata (2020). *Women in Science and Technology: Confronting Inequalities*, New Delhi: Sage Publications.

Gupta, Namrata (Forthcoming). Rationalizing Gender Inequality at Scientific Research Organizations: A Reproduction of the Indian Socio-Cultural Context. *Journal. Equality, Diversity and Inclusion: An International* 26

Lund, R. (2020) “‘Becoming a Professor requires saying No’: Merging Equality and Quality agenda in a Norwegian Gender Balance Project” in *Gender, Science and Innovation: New Perspectives* Lawton Smith, H., C. Henry, H. Etzkowitz, A. Poulouvassilis (Eds) Cheltenham: Edward Elgar

Rosser, S. (2020) “The National Science Foundation’s ADVANCE Program: Issues for Senior Compared to Junior Academic Women Scientists” in *Gender, Science and Innovation: New Perspectives* Lawton Smith, H., C. Henry, H. Etzkowitz, A. Poulouvassilis (Eds) Cheltenham: Edward Elgar

Verloo, Mieke (2005). Displacement and Empowerment: Reflections on the Concept and Practice of the Council of Europe Approach to Gender Mainstreaming and Gender Equality, *Social Politics: International Studies in Gender, State & Society*, 12 (3): 344–365. At: <https://doi.org/10.1093/sp/jxi019>

Zuckerman, H and R. Merton (1972) *Age, Ageing and Age Structure in Science* In *Ageing and Society*. Riley, M et.al. (eds) New York: Russell Sage Foundation