

F-score mapping of sectional committees of a typical learned society

There are several learned societies or academies of science in the country. These were set up to promote science in the country and to harness scientific knowledge for the cause of humanity. This could not have been more felicitously expressed than by the injunction that learned societies should

endeavour 'to enlarge the fund of human knowledge and to diminish the sum of human misery.' I have always associated this noble expression with Lord Bertrand Russell but a Google Search failed to confirm this. As academies are no more than an association of elected members, it is important that the best and most

eminent be chosen to the body. Also, it is important that all areas be represented, but because the election process is never guided by logic or science, these representations are often uneven and rarely give even justice to the various sections.

Some work^{1,2} on the research trends in the country using what is called an

Table 1. F-score mapping of the total activity in various areas and the Fellowship count of the corresponding sections of a well known Academy in the country

Academy X			F-score		
Area	Count	Count	Area	Count	Count
Animal sciences	68	197	Agricultural and biological sciences	2,324.3	2,324.3
Agricultural sciences	60				
Plant sciences	69				
Chemical sciences	127	127	Chemistry	8,741.92	13,950.65
			Chemical engineering	5,208.73	
			Pharmacology, toxicology and pharmaceuticals	3,077.66	3,077.66
Earth and planetary sciences	66	66	Earth and planetary sciences	1,760.32	1,760.32
Engineering and technology	101	101	Engineering	38,887.78	59,869.2
			Environmental science	1,951.05	
			Computer science	14,778.86	
			Energy	4,251.51	
Materials science and engineering	13	13	Materials science	14,263.13	14,263.13
Mathematical sciences	76	76	Mathematics	7,281.23	7,281.23
Physics	135	135	Physics and astronomy	25,925.64	25,925.64
Microbiology and immunology	21	21	Immunology and microbiology	613.72	613.72
Cell and biomolecular sciences	102	102	Biochemistry, genetics and molecular biology	2,108.51	2,108.51
Health sciences	85	85	Medicine	5,685.57	5,685.57

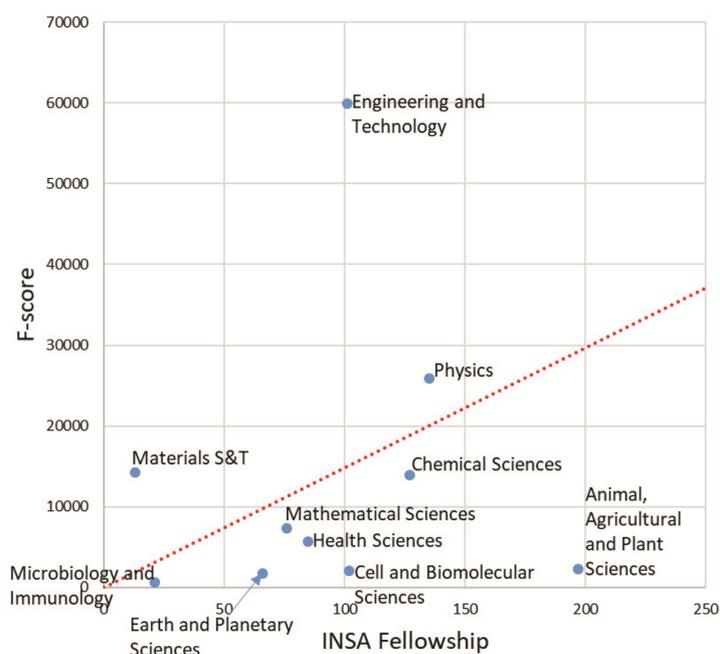


Figure 1. A scatter plot of the F-score for major areas and the corresponding fellowship count of eminent academicians elected to that sectional committee.

CORRESPONDENCE

excellence mapping approach³⁻⁵ led to the following highlights:

'It would seem from this that India concentrates its strengths and its research institutions in the physical sciences and engineering sectors, and only a token presence is seen in the life sciences, medical and biotechnology sectors. There seems to be no visible output at the highest levels regarding the attention it needs to give to various social and economic challenges.'

'India's research base is completely skewed towards the Physical Sciences and Engineering with very little for Biological Sciences and Medicine and virtually none in Social Sciences and Arts and Humanities when excellence at the highest level is considered.'

Very broadly, in the physical sciences and engineering, nearly 10 times as much

work is done as in the life sciences, etc. if the F-score¹ is used as a second-order measure of activity in the corresponding area(s). More precisely, one can actually take F-scores from the various major areas of research used in the Scopus database and try to match them as far as possible to the fellowship count of the eminent academicians elected to that sectional committee of a leading science academy, anonymised as Academy X in Table 1. This can be displayed as a scatter plot in Figure 1. The dashed line shows an academy average. We see that the engineering and technology and the materials science and technology disciplines are grossly under-represented (i.e they are grossly underserved) while there are other disciplines that are correspondingly glaringly over-represented. Physics and chemistry are close to the average.

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1. Prathap, G., *Curr. Sci.*, 2016, **111**(3), 470–474.
 2. Prathap, G., *Scientometrics*, 2017, **110**(3), 1085–1097.
 3. Bornmann, L., Stefaner, M., de Moya Anegón, F. and Mutz, R., *Online Inf. Rev.*, 2014, **38**(1), 43–58.
 4. Bornmann, L., Stefaner, M., de Moya Anegón, F. and Mutz, R., *J. Inform.*, 2014, **8**(3), 581–593.
 5. Bornmann, L., Stefaner, M., de Moya Anegón, F. and Mutz, R., *COLLNET J. Scientometrics Inf. Manage.*, 2015, **9**(1), 61–68.
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