

Bibliometric indicators and academic recruitment – simulating the effect of different measures

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Bibliometric indicators are increasingly used in the (pre)selection of hiring academic staff. This paper describes various evaluation criteria and related indicators, with a special focus on practices in the Italian academic system. We discuss the effect of different criteria, simulating an 'artificial' recruitment process. We analyse mathematically the interplay among some bibliometric indicators (in particular impact factor related) and the distribution of skills in an artificial applicant group. We focus on the sensitivity of ordering induced by ranking criteria and on the subsequent instability of visualization through dendrogram structures. The application of bibliometric indicators aims at supporting an effective and objective decision for the best candidate for a scientific institution. But, if the complex nature of scientific knowledge production and the mathematical feature of used indicators are insufficiently understood, the effect can be opposite. Based on our rather simple analysis we argue for the use of multiple criteria and a combination of qualitative and quantitative analysis.