COLLOQUIUM

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Modelling the Variability of Rankings

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Abstract

For better or for worse, rankings of institutions, such as universities, schools and hospitals, play an important role today in conveying information about relative performance. They inform policy decisions and budgets, and are often reported in the media. While overall rankings can vary markedly over relatively short time periods, it is not unusual to find that the ranks of a small number of "highly performing" institutions remain fixed, even when the data on which the rankings are based are extensively revised, and even when a large number of new institutions are added to the competition. In this talk we endeavour to model this phenomenon. We interpret as a random variable the value of the attribute on which the ranking should ideally be based, and we interpret data as providing a noisy approximation to this variable. We show that, if the distribution of the true attributes is light-tailed (for example, normal or exponential), then the number of institutions whose ranking is correct, even after recalculation using new data and even after many new institutions are added, is essentially fixed. Cases where the number of reliable rankings increases significantly when new institutions are added are those for which the distribution of the true attributes is relatively heavy-tailed.

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