

Introduction to Coauthorship and Citation Networks for Statisticians by Pengsheng Ji and Jiashun Jin
Bernard W. Silverman, London and Oxford

It was extremely interesting to read this paper and to hear its presentation at the Joint Statistical Meetings. I would like to thank the Editors for the invitation to contribute some introductory thoughts.

In recent decades, especially, there have been two pressures towards closer scrutiny of the quality of scientific research. Firstly, science is a victim of its own success. There is much more of it than there used to be. Even in our own subject, gone are the days when I knew virtually every researcher in statistics in the UK, and many of those in the US and across the world, when statistics was a quite tight-knit community. And then there are whole disciplines which hardly existed at all not all that many years ago, spurred on by the vast increases in computing power, genetics and genomics, and so on. Secondly, the expenditure of both public and private money is the subject of much closer scrutiny. Transparency is an important part of all funding decisions, and rightly so. The Royal Society of London's Latin motto *Nullius in verba* has been translated "Don't take anybody's word for it" and interpreted on the Society's website as "... an expression of the determination of Fellows to withstand the domination of authority and to verify all statements by an appeal to facts determined by experiment." So it is also with funding decisions: simple "authority" is not sufficient, but decisions need to be supportable by facts. And to the above two reasons I would add a third: research is much more collaborative than it used to be, so it is no longer easy to judge work by considering individual authors.

Many scientists are very uneasy about formulaic approaches to funding decisions, believing, rightly or wrongly, that they do not adequately reflect true quality, and, more insidiously, that they distort research behaviour in dangerous ways, for example encouraging a "Publish [a lot in high impact factor journals] or perish" mentality over genuine originality and impact. I do not want to take sides in this argument, but rather to reflect on the relevance of analyses like those in the present paper may have.

Like it or not, quantitative approaches are likely to play an increasing role in rating researchers and institutions, allocating funding between and within fields, setting targets, and so on. The current authors have given a number of approaches that complement simple citation counting, giving a more in-depth view of the complex interactive system that underpins most research nowadays. I am sure that this paper will spark off further work, especially since all their data is permanently available on the journal website. Such work could have two effects: either, by showing that different ways of looking often give different answers, to encourage more of the old "subjective" approach to quality; or, more likely, to give a wider range of indicators to be used in more quantitative approaches.

If the latter, the ramifications of new techniques should be carefully investigated, well understood and clearly presented. Just one example: I think that the "closeness" measure in Table 3 will identify (more or less) those papers which have the largest citation tree within the dataset considered, because any paper linked by a citation chain will have a fairly small distance, while all the others will have whatever is set as being the maximum distance.

But, leading on from this and most importantly, thinking carefully about what are the real characteristics of important fields, impactful papers, and leading researchers will give interesting future directions for the kind of research that this paper represents, and will help ensure that new methods are genuinely beneficial.