



## Peer review versus citations – An analysis of best paper prizes

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### ABSTRACT

In this paper, I analyze the ‘best paper’ prizes given by economics and finance journals to the best article published in their journal in a given year. More specifically, I compare the citations received by best paper prize-winning papers to citations received by papers that are awarded runner up prizes and to citations received by non-winning papers. In this way, I evaluate to what extent evaluation outcomes based on peer review correspond to evaluation outcomes based on citation counts. The data show that the paper that gets the ‘best paper’ prize, is rarely the most cited paper; is, in a small majority of cases, cited more than the runner up papers and is, in most cases, cited more than the median paper. I also explore whether characteristics of the prizes or the papers correlate with this difference in outcomes between peer review and citation counts and find there is no easy way to reduce the difference in outcomes between these two evaluation methods

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### 1. Introduction

In an attempt to make the distribution of research money more performance based, several governments have developed research assessment systems that evaluate the research output of university departments. In the UK, for example, there is the Research Excellence Framework (the former Research Assessment Exercise), in Australia there is the Excellence in Research for Australia (the former Research Quality Framework) and in Italy, there is the Valutazione Triennale della Ricerca (VQR) (which replaced the Valutazione Triennale della Ricerca (VTR)). As illustrated by the name changes, many of these governments are still in the process of fine-tuning their assessment systems.

One of the important questions in this search for the ideal research assessment system is whether such system should be based on bibliometrics (i.e. citation counts) or peer review. Some systems include bibliometrics, like the Flemish system (Debackere and Glänzel, 2004), while other focus on peer review like the UK Research Assessment Exercise. That this question is controversial is best illustrated by the heated debates in the UK that were caused by the proposal to replace the peer review based Research Assessment Exercise by the Research Excellence Framework in which bibliometrics would play a much more important role (see for example, Corbyn, 2009). In the end, the Higher Education Funding Council (HEFCE) made the use of citation counts optional rather than imposed (see Richardson, 2011).

This paper contributes to this discussion by evaluating to what extent decisions based on peer review correspond to decisions based on citation counts. Both peer review assessments and citation counts can be considered as imperfect measures of the true academic quality that the assessment systems are trying to capture. Many authors indeed have illustrated the problems with peer review (see Bornmann, 2011 for a review). It has been shown that important papers are sometimes not recognized by reviewers (Gans and Shepherd, 1994), that the more productive economists do not necessarily get selected by the best universities (Smeets et al., 2006) or that not only quality matters in whether a grant proposal (Broder, 1993), a paper (Blank, 1991) or a candidate for honorary fellowships gets accepted (Hamermesh and Schmidt, 2003). Similarly, the use of citations to measure academic quality is not undisputed (see for example, Bornmann and Daniel, 2008 for a review). Citation counts are imperfect measures as, amongst others, they can be manipulated through self-citations, they include ‘negative’ citations (when a paper is cited as an example of how not to do something) and authors can cite selectively, only referring to works of their friends. Given that both peer review and citation counts measure academic quality with error, it is unlikely that an evaluation based on one of them will correspond perfectly to the evaluation based on the other. The questions I try to answer in this paper are, first, how different are the outcomes of an evaluation based on peer review from the outcomes of an evaluation based on citation counts and second, what factors can explain these differences.<sup>1</sup>

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<sup>1</sup> Another interesting question is whether peer review or citation counting gives the best proxy for academic quality. To be able to answer this question, however,

This paper is not the first paper that studies the link between citations and peer review. Mahdi et al. (2008), for example, find that for most of the 2001 RAE assessment units (which broadly correspond to specific disciplines and university departments) there is a significant rank correlation between the 2001 RAE (peer review) ranking and a citation ranking based on publications submitted for the 2001 RAE. At the same time, they stress that a significant correlation does not necessarily mean a very high correlation as for many assessment units the rank correlation is only between 0.4 and 0.7. In this paper, rather than studying university-wide aggregates, I focus on the link between citations and peer review at the level of individual papers. This focus on individual papers not only generalizes the analysis that exists at the aggregate level but is also closer in spirit to the UK assessment system that in 2008 represented assessment scores in the form of ‘quality profiles,’ which gives the distribution of the ‘research activity’ of a given assessment unit over 5 different quality levels and hence implicitly requires the separate assessment of each specific ‘research activity’.<sup>2</sup>

Studies that focus on the so called ‘predictive power’ of peer review (that is, the extent to which peer review ‘predicts’ citations) rarely study individual articles and if they do, mostly focus on medical journals (see Bornmann, 2010, 2011). In addition, these articles typically compare citations of papers published in a given journal to the citations of papers that were rejected by that journal but published in another journal. The problems with this approach are twofold. First, when papers are resubmitted to a different journal they typically are different from when they were submitted initially as authors will try to incorporate the comments of the initial set of referees. Second, the citations of an article might be influenced by the journal in which it has been published, making it hard to compare citation counts of articles from different journals. In my case, I avoid these problems by using data from best paper competitions, in which juries evaluate articles within a given journal.

Every year, several journals give a prize to the ‘best’ article published in their journal over a specific period of time. These best paper prize competitions are a good example of peer review as the jury consists of a number of scientists who are asked to evaluate all the articles published in the journal in a given time period. Most often peer review is used in a similar ‘short-run’ context—referees, when evaluating papers for publication, and senior faculty, when deciding about the hiring of assistant professors, do not have much information about how important a paper will become or how productive a job market candidate will be. Also in the context of peer review based research assessment systems, many papers that need to be evaluated will only be published shortly before the review process start and hence only very short citation windows will be available for these.<sup>3</sup> For example, in 2014 the peer review panels in the next UK Research Excellence Framework will evaluate publications in the period 2009–2013.

In this paper, I check whether papers that were selected ‘best paper’ by a given journal in a given year also turn out to be the

one would need to know the true academic quality which is unknown. Note also that even if the citation counts and peer review give the same outcome, this does not necessarily mean that both reflect the same underlying true quality as there is the possibility that both could be biased in the same way.

<sup>2</sup> In previous RAEs, the assessment categories also reflected the need for each research activity to be evaluated separately, for example a 5\* meant “Research quality that equates to attainable levels of international excellence in more than half of the research activity submitted and attainable levels of national excellence in the remainder.”

<sup>3</sup> A recent study by Waltman et al. (2011) gives for several exact sciences the correlation between citations counts of specific articles over different time horizons. For mathematics, the citation count after the first year is relatively weakly correlated with the citations count after five years (around 0.33). Given that publication lags in economics and finance are longer than in mathematics (see Table 2 in Ellison, 2002) this correlation is likely to be even weaker for economics and finance journals.

highest cited paper among all papers published in that journal and competing for that year’s best paper prize.<sup>4</sup> I use best paper competitions from the four top journals in finance, the Journal of Finance (JoF),<sup>5</sup> the Journal of Financial Economics (JFE), the Review of Financial Studies (RFS) and the Journal of Financial and Quantitative Analysis (JFQA). I chose the first three finance journals because in addition to the best paper prize, they also award runner up prizes to the second, and sometimes even, third best paper, which allows me to check not only whether best paper prizes are best in terms of citations but also to compare the citations of best paper prize winners and runner up prize winners. I add the fourth finance journal, and three economics journals with a long standing tradition of giving a best paper prize (the Journal of Economic History (JEH),<sup>6</sup> the Southern Economic Journal (SEJ) and the Canadian Economic Journal (CJE) to have a wider variety of characteristics of prizes and juries. This allows getting some tentative evidence about whether these characteristics influence the extent to which peer review and citation counts lead to the same conclusions.

I find that only in a small number of cases, the best paper is the most cited paper. I also find that in a large majority of cases, the best paper is cited more than the median paper in competition for the best paper prize, and that in a small majority of cases the best paper prize has a higher citation count than the runner up paper(s). This suggests that ‘subjective’ peer review will often coincide with ‘objective’ citation counts when distinguishing between highly cited and infrequently cited papers, but that differences between the two methods will be larger when a distinction has to be made among highly cited papers.

I do not find strong evidence that the difference between peer review and citation counts is related to characteristics of the prize, such as the amount of prize money or the number of jury members or how many years the prize has been awarded. There is some evidence, however, that using longer citation windows to count citations improves the match between the two evaluation methods if this match is measured in terms of the percentage of prize winning papers that are cited more than the median. As far as characteristics of the papers are concerned, I do find some evidence that the difference between peer review and citations counts is related to page length (with longer papers being more likely to have received a best paper prize after controlling for citations).

The remainder of the paper is organized as follows. Section 2 presents descriptive information about the best paper prizes in economics and finance. Section 3 focuses on the sample I use in this paper and present the basic analysis. In Section 4, I provide econometric estimates that model the chance a paper has won a prize as a function of the characteristics of that paper. Section 5 concludes.

## 2. The best paper prizes in economics and finance

Out of the 100 most cited economics and finance journals in 2009, 26 journals currently have a regular best paper prize.<sup>7</sup> An

<sup>4</sup> One could argue that the extra attention that a winning paper gets will increase its citation count. If this is the case, my results would be biased towards finding that citations and peer review give similar results. The extent of such bias is likely to be small however as the winners are announced only once, at an association meeting, in a newsletter or in an announcement in the journal itself. After that, one has to search really hard to find which paper won the prize. Indeed, for several journals I was not able to find all prize winners, even after an extensive Internet search. Hence, it is unlikely that such short run extra attention would significantly affect the long term citation count.

<sup>5</sup> The conference issues of the JoF are excluded from the competition and hence from the sample.

<sup>6</sup> I excluded the notes and discussions from the sample as they are not considered for the best paper prize.

<sup>7</sup> Using ISI’s 2009 Journal Citation Reports. I combined the journals classified by ISI as ‘economics’ and ‘business and finance’ and deleted the pure

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