UK pips US at the post in research poll

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Scientists from the United Kingdom have a greater impact on the international community than their United States counterparts, according to a new study.

The challenge to the accepted picture of US scientific superiority has emerged from work that has found a fundamental flaw in the way research standing is calculated.

Ranking on the basis of the number of citations that academic papers receive from other scientists has proved controversial but has gained favour among policy-makers. Sir Robert May, the government's chief scientific adviser, has used such bibliometric analyses to emphasise the strength of UK science and support his contention that universities are the best place to do research.

The scientific output of the US dwarfs that of smaller nations and most studies show that US papers have the greatest impact. But this appears not to be the case, according to Sylvan Katz, a senior research fellow of the SPRU Science and Technology Policy Research Unit at the University of Sussex.

He argues that other researchers have used data from the Institute for Scientific Information in the US too literally and that some of the basic analysis methods are inadequate.

"The error artificially boosts the standing of US researchers and skewed other attempts to compare the impact of science from different nations or institutions.

"There may be a strong relationship between the size of a group, institution and nation and the amount of recognition it receives. Size does matter," he said.

In two papers, one of which forms the basis of a report for the Economic and Social Research Council, Dr Katz explains that the size of the research community artificially boosts the number of citations it receives.

To compare the research impact of different nations or institutions, traditional methods attempt to take size into account.

Dr Katz's findings, based on a sophisticated analysis of citation data, suggest they do not go far enough.

In another, unpublished, paper, Dr Katz revises national performance tables to correct this problem. This sees smaller nations such as Switzerland do well and the UK surpass the US. Sir Robert's own research had reached similar conclusions by bringing each nation's population into the equation.

Dr Katz said the standard calculation gave the US a higher ranking than the UK in five out of six key disciplines. The new approach switches those positions around, and he said the suggestion was this would also be true in a host of other areas.

In another study published last September, Jonathan Adams, of the Centre for Policy Studies in Education at the University of Leeds, analysed the number of citations per paper in 69 areas defined by the research assessment exercise. Data from 22 of these were inadequate for analysis: England came first or second in half of the remaining 47 categories.

Dr Adams urged caution in interpreting the results of Dr Katz's study. He said: "It may be that the achievements of smaller countries are under-estimated using conventional measures, but at the end of the day, the US is achieving more globally and the UK, France and Germany more in Europe."

A spokesman for the Office of Science and Technology said the government bibliometric analysis was an important tool used to monitor the performance of UK science.

Dr Katz's research: http://www.sussex.ac.uk/Users/sylvank/