

Pay to cite

Unalaska, 2045. The announcement by the government of the Pacific Union that it will start to tax academic scientists according to their Impact Factor (IF) points has unleashed a storm of controversy. As the field that has traditionally, and for more than half a century, led the citation ratings, molecular biologists consider themselves to be at the forefront of this battle against such a blatant attack on academic freedom.

In the latter half of the twentieth century, a trend began to emerge, initially in the former USA, where scientists were expected to raise a substantial proportion—eventually the entirety—of their salary from competitive research grants. In return, academic institutions freed their professors from the formal responsibility to teach, while recouping enormous financial benefits in the form of what were then called ‘overheads’. In the first decades of the present century, scientists and their personal financial advisors began to realize that this system made them, in effect, self-employed managers of small businesses.

Inexorably, this *de facto* autonomy has become formally enshrined in the academic structures of most advanced countries. Today’s molecular biologists are free agents selling their services to the most competitive bidder. As most university departments are funded largely by direct government subsidies according to their performance, their ability to attract top-ranking scientists is the major determinant of their own profitability. Molecular biologists remain the hottest property in this market. A paper in one of the leading cell biology journals typically earns ten or even 20 times the IF points of a publication in the very top-ranked mathematics or geology journal. With journal citations entrenched as the major performance indicator, a typical GLAMBO member can earn tens of millions of dollars for the institution where he or she is registered as principal researcher.

On the other hand, similarly to most well-run small businesses, molecular biologists

contribute very little, if any, revenue to the state in the form of income or other taxes. In a landmark ruling, the European High Court of Finance recently decided that Ubiquitone Associates, a consortium of five leading protein chemists, was a non-profit organization exempt from VAT, despite the fact that they hold more than 25 patents, most of them admittedly worthless.

Against the backdrop of the economic recession, and a need to restore public finances, the Pacific Union’s decision appears to some like a long overdue measure to redress the balance. However, the widespread perception that molecular biologists are globetrotting superstars who fund a lavish lifestyle off of their ‘research expenses’ is far from the truth. In fact, the very highest earners of IF points also tend to be the ones who spend most of their weekends in the laboratory or reading the literature. Those rewarded with the most prestigious international prizes usually reinvest all of the money into training and laboratory costs. Most scientists’ non-profit status is literally and uncomfortably true, and their minimal tax payments accurately reflect this.

We are now facing a potentially paradoxical situation. Having striven for decades to maximize their academic impact by publishing only in the best journals, molecular biologists now have a strong incentive to downsize their own marks of prestige and achievement. The only alternatives seem to be to relocate to one of the probably rather few countries that will remain outside of the system, or find universities willing to pay IF taxes upfront. The Pacific Union has already served notice that it may outlaw this practice, or at least impose further punitive taxes on it.

Another option may be for scientists to try to recoup the effectively increased costs of publication in the top journals by making downloads and/or manuscript submissions conditional on an agreement to pay a royalty for every citation. Although this may have a negative effect on citations and drive down

impact factors, the power of the citations system is probably sufficient to resist such a trend. In fact, it might have the very opposite effect, as happened during the first decades of the century when the ‘author pays’ model of open access became the norm in scientific publishing: the most successful laboratories were able to pay to be published in the top-ranked journals, which naturally tended to be the most expensive. This generated extra revenue for the ‘premier league’ publishers and universities, and even higher citation ratings for the most influential scientists, who thus sustained or enhanced their research grant income. A citation fee would just be one further author charge to be added to the standard list.

Those who argue that this would be a kind of academic prostitution are, regrettably, behind the times. Science has already become a business, and resisting the market forces that drive it is no longer possible. Impact Factor, which began as an attempt to identify and recognize the academic quality of scientific work, is already a commercial indicator in many ways on a par with the Global Dow Jones Index. Indeed, all efforts to replace it with more sophisticated metrics have only ingrained its power, since they were seen as crude attempts by market losers to recast the rules in their favour.

Someone should perhaps have done something 40 years ago to arrest the trend towards judging the value of scientific work by a self-inflating and, to a large extent, arbitrary number; we all know that a scientific finding’s true value to humanity can only be judged by history. Instead, the most influential scientists of that time simply colluded in the IF system, much in the same way as ordinary home-owners indulge in property speculation, even while complaining bitterly about the way it rules and sometimes ruins their lives.

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