The real cost of overpaying for journals is that we put highly skilled research scientists in an office looking at science rather than doing it

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*In a world with limited resources, do we spend them on an Aston Martin, a blinged up banger, or should we use what we have to simply fill up the tank? **Cameron Neylon** asks if instead of overpaying for journals, we could funnel those limited funds into bench research.*

It is clear to anyone who followed the debate between publishers and academics around the Research Works Act that the argument was fundamentally about money. Commentary from scholarly publishers both those for and against the Act has been consistent in pushing the line that they need "more money" to support public access to published science. What hasn't been discussed in any detail is how much money is involved, and how the public can tell whether it is getting value for money. In an environment of economic adversity is research communication pulling in its belt like the rest of the research process?

At the prestige end of the science communication market, the Bentley or Aston Martin equivalent is publication in Nature and Science. Neither of these journals publish articles that the public can see. Nature has estimated that the cost per article is around $30,000. Science and Nature might be argued to produce a higher quality product than most other journals, but how can the public, or indeed researchers choosing to publish there, tell whether that extra incurred cost is represents good value for their money?

One way is to compare them to a newer breed of journals. These were built from the ground so that researchers could afford to pay up front to make their papers openly accessible to all. PLoS Biology, one of the top journals in biological sciences charges $2900 to peer review and publish articles which are then available for anyone to read or use as they please. PLoS Biology rejects around 90% of the articles it receives. Nature rejects a bit more than 90% at ten times the price and a very similar peer review process, if rejection rates are anything to go on. Even if the prestige marque is a bit better, can we really justify the extra cost when the more modern and economical model does basically the same job for a tenth of the price?

But Nature and Science are a very small proportion of all papers, what about the majority of published research? A useful comparison point is with Elsevier, the main player behind the Research Works Act. You can't get a cost per subscription article for Elsevier but the company does offer an option where authors can pay up front to make their articles publicly accessible. For $3000 the papers are made publicly accessible albeit under a more limited license than for PLoS.

This price is only a little higher than PLoS Biology but remember PLoS Biology is a top journal. A better comparison for most Elsevier journals would be one of the BioMedCentral journals ($1700-2300) or PLoS ONE ($1350). You might hope that the higher price from Elsevier means a better product but there's no good evidence for this. It's very difficult to do an object quality comparison, particular to compare one journal with several thousand but on one measure, the widely used (and abused) Impact Factor, PLoS ONE with 4.4 compares well to much of the Elsevier stable. (Full disclosure: I am an academic editor for PLoS ONE and a BMC journal). So peer review looks good, better licensing arrangements, and less than half the cost. The comparison here is not so much with a high priced prestige brand but a new fuel-efficient car with a blinged up banger.

So why do researchers pay these high prices? Basically because we have not traditionally paid directly for those journal subscriptions we haven't directly felt the pain of the price difference. Until now. With everyone tightening their belts institutions are having to make the hard choice between cutting back on journal

subscriptions or cutting back on research.

And this is the real tragedy. Because the money that is being overspent on inefficient prestige journals and blinged up bangers is money that would otherwise be spent on research. Publishers are justifiably proud of their staff; PhD level scientists, who work hard on improving manuscripts and spotting the important gems. These are people with real research experience who in many cases left bench science because there was insufficient money to keep them on. The real cost of overpaying for journals is that we pay a huge number of highly skilled research scientists to sit in an office, *looking* at the science, rather than having them in the lab *doing* it.

In a perfect world we would have both. We could do all the research we need and pay for the highest possible quality journals. We don't live in a perfect world. We live in one with limited resources. And that's not going to change any time soon. It is time to ditch the old models, and use the money we save to fill up the tank so we can actually afford to *go* somewhere.

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