



The public science paradox

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Abstract

Claiming that publicly funded scientific knowledge is not publicly open would be a contradiction, but saying that it is would be false. This paradox is set in complex dynamics created by agents with divergent interests.

*‘Knowledge from public science, paid for by public funds,
ends up being not publicly open — a paradox, indeed.’*

Perdicoúlis, 2015c, Ch. XI

1 Introduction

Science¹ refers to a body of trustworthy and specialised knowledge, as well as to the associated procedures² regarding its obtention, handling, and use (Perdicoúlis, 2013b). To the extent that there is public interest in a body of knowledge, national and international organisations invest public money in activities related to its quest and dissemination, commonly entrusted to universities and research centres.

Over time, the need to record and organise the valuable scientific knowledge in a responsible manner has involved professionals such as publishers, printers, indexing services, registration agencies, and libraries (Perdicoúlis, 2014c). Curiously, the evolution of needs and opportunities have resulted in a marketplace on a public service (science) and associated goods (body of knowledge) where the private share has attained a dominant role (Perdicoúlis, 2015a). It is interesting to explore the current arrangement, so much for its ingeniousness and tenacious success as for the concerns it raises about the access to publicly funded scientific knowledge.

¹*Scientia* [L], knowledge, skill, from *scire* [L], to know; the equivalent in Greek is *επιστήμη* [Gk], knowledge, from *επίστασθαι* [Gk], to know, to know how to do.

²Typically research (from *re-*, expressing intensive force + *cerchier* [F], search) and development (Perdicoúlis, 2013b, 2015c).

2 The public pathway

Public science is primed by public funds, both creates and uses public knowledge in a reinforcing feedback loop (R_1), and eventually makes a contribution to the public welfare — Figure 1. In such an ideal situation, knowledge can be shared through public-domain options such as curated repositories (Perdicoulis, 2014a,c).

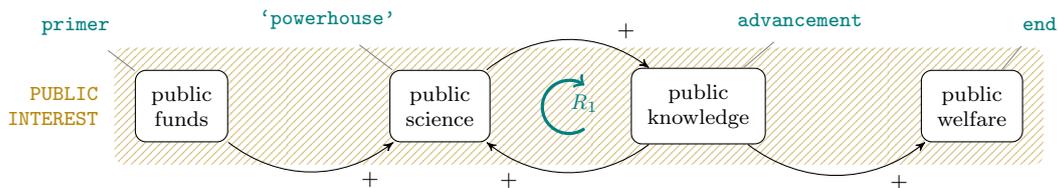


FIGURE 1 The public pathway

3 Commercial takeover

The basic private participation is through professional publishing — Figure 2. The release of scientific knowledge upon sale (or after its validity or relevance has waned) creates (a) profit for the private entities that commercialise them³, (b) impedance in the dissemination of knowledge, and (c) a financial burden for the public funds, which now include the purchase of articles so that research can be carried out. As the flow of knowledge from science is choked by sales, the flow of knowledge to science is also weakened — hence, the reinforcing loop (R_1) has a reduced effect comparing to its full force in the exclusively public pathway of Figure 1.

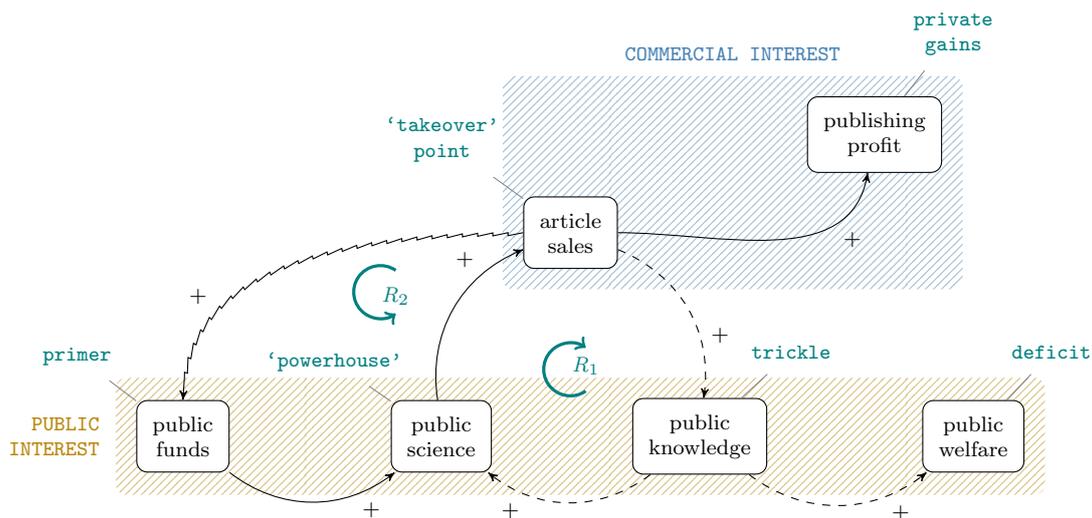


FIGURE 2 Commercial takeover

³Authors are typically excluded from the sales dividends of articles, but included in the case of books.

4 Sophisticated establishment

The basic publishing business opened up a market for ancillary services such as journal rating and ranking (Perdicoulis, 2014c), but this market would not be self-sufficient without the commitment of the ‘producers’. Hence, statistics such as article citations and journal ranking became ‘objective criteria’ for assessing the people who ‘do science’ towards their career tenure and/ or promotions. From that point onwards, scientists find themselves working not ‘for the sake of science’, as before, but for the virtual ‘currency’ they need in order to secure their jobs (Perdicoulis, 2015a, 2013a). At the same time, the science marketplace secures its production through a number of reinforcing loops (R_1 – R_5), while the public knowledge becomes less available publicly.

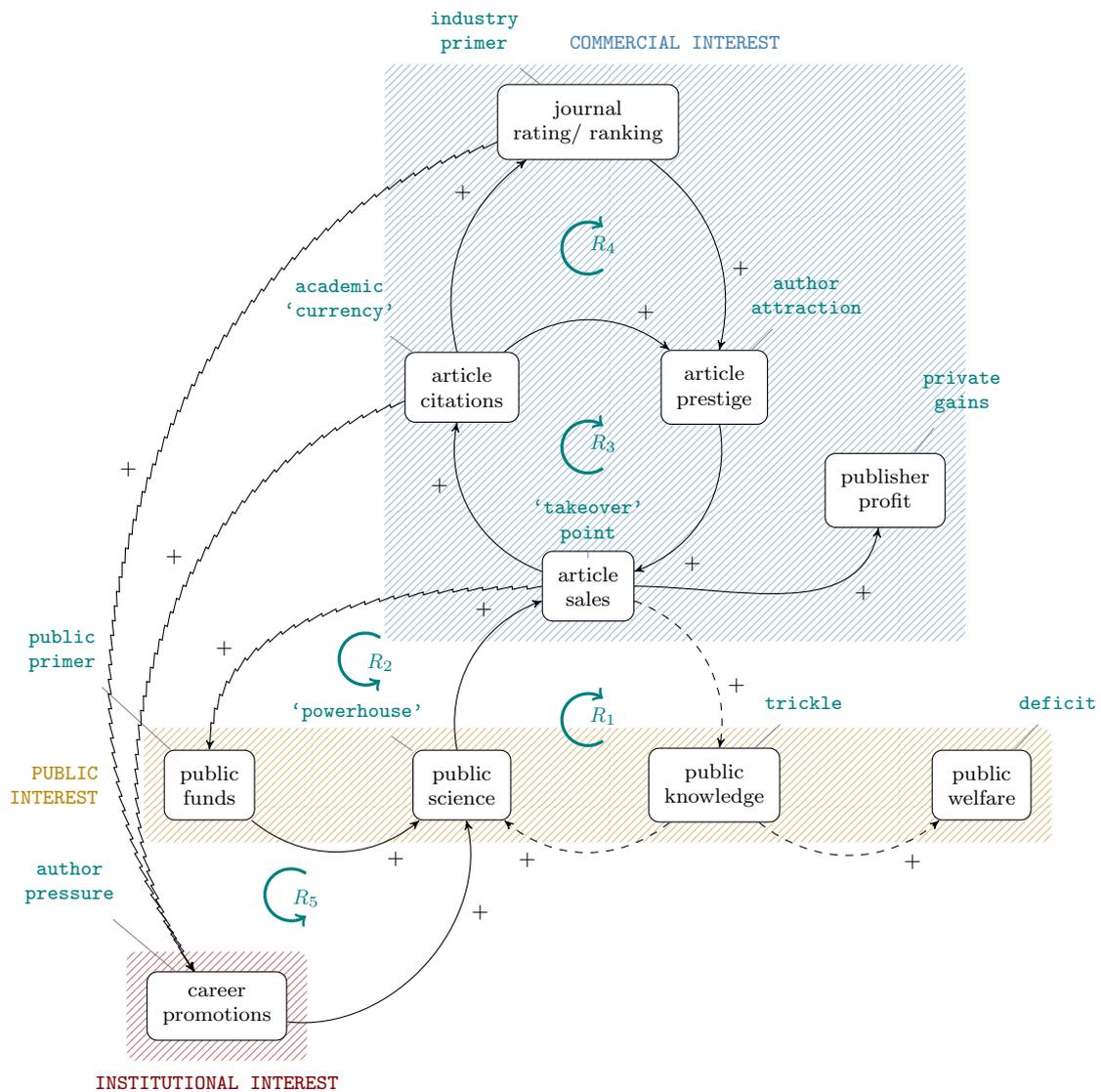


FIGURE 3 Sophisticated establishment through a number of reinforcing loops — a.k.a. vicious cycles

5 Discussion

Introducing private trading in public affairs appears to have been beneficial for the growth of the private business, but retarding or suffocating for the public science and knowledge. Owing to the pressure on the ‘producers’ of public science, backed by institutional commitments for ‘more science’, the public–private marketplace is not at an immediate risk of collapse. If anything, the future looks more ‘productive’ for everyone, as the reinforcing loops are working well synchronised.

From the public point of view, where it all started and whose good function still is the prime concern, the indicative sign of dysfunction is the persistent difficulty of the public⁴ to have full access to trustworthy knowledge on public science subjects. Perhaps more worrying than the price of access (Perdicoulis, 2015b) is the precedence of ‘contaminated’ knowledge produced and disseminated unscrupulously (Perdicoulis, 2014b).

6 Challenges

Realising the current state and dynamics of public science, a re-assessment seems in order — for instance, the ‘science makers’ considering whether the current business model adequately serves public science, themselves and their institutions, and the public in general. Then, practical considerations may arise — for instance, how to eliminate the ‘brokers’ and still ‘get the job done’. Long-established reinforcing feedback loops are hard to eradicate, but the challenge to create a modern system that supports the original public pathway (Figure 1) should provide a great motive.

References

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⁴This should include scientists from public research institutions, as well as the general public.