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What year? Difficulties in identifying the effect of policy on university output



In 2003, Linda Butler made a straightforward point in papers published in *Research Policy* and *Research Evaluation*, namely that the Australian national research evaluation system during the 1990s rewarded publication in WoS journals. So publication in WoS journals increased. The increase was greatest for journals with lower impact factors, presumably easier to get into. Subsequent national research evaluation systems, such as the Norwegian model, have taken note by differentiating journals into two or more categories and awarding more points to publications in higher ranked categories. Van den Besselaar, Heyman and Sandstrom's attempted take-down of Butler is interesting principally for its illustration of two informal fallacies of argumentation: moving the goalposts and straw man arguments.

First, the goalposts are moved. The year of policy effect was moved from 1993 (Butler) to 1998 because "the full impact of changes cannot have occurred" earlier (Van den Besselaar et al., pp. 4–5). The question was changed, because the "interesting question" is not Butler's question of how Australian universities responded to an evaluation system that did not differentiate publication outlets by quality, but rather whether "the contribution of Australia to the progress of science" increased. The indicators were changed, and the quartiles Butler focused on were not examined, rather the share of top 10% most cited papers, along with uncited publications were introduced. A concept not discussed by Butler, salami slicing, was introduced. To those who read Butler's piece on its own terms, none of this is relevant.

Second, a straw man argument is made about the policy conclusions of Butler's analysis. Butler did not throw doubt upon merit of national performance based funding systems, "claiming that the Australian science policy in the early 1990s made a mistake by introducing output based funding" (van den Besselaar et al., p. 1). Rather her analysis offered a note of caution as to the design of those systems. Systems are designed differently as a result.

No matter how careful we are in our empirical work, any analysis could be subject to a reading which moves the goalposts and argues against things we never claimed. The prospect is sobering.

Taking a different approach to reading van den Besselaar et al., we could choose to overlook the sniping at Butler's analysis and instead view the paper as an attempt to link national research policies to developments in national research output. Over the past few decades there have been quite a few changes in national research policy for universities. As countries have varied in the policies introduced and in their timing, a set of natural experiments awaits analysis to reveal the causal effects of policy on research output. Unfortunately, experience suggests such analyses are beset with identification issues (Aksnes et al. 2017; Osuna et al., 2011). I here focus on one of those issues, the year in which analysts say a policy is introduced.

At first sight, the problem seems to be relatively straightforward – examine trends in some measure of national research excellence before and after the introduction of a significant national policy for university research. One hopes to find research excellence increasing faster after the policy was implemented than before. Fig. 1 illustrates the general idea, with excellence on the y-axis and years on the x-axis, and the year of policy introduction marked by the vertical line. However, this conceptual clarity soon dissolves when data gathering begins.

First, the policy to be examined may be less than clear. One only has to read Auranen and Nieminen (2010), Aagaard and Schneider (2016) or Geuna and Martin (2003), each a very fine grained analysis of policy change in relation to national output, to realize that multiple policy changes occur in most systems over the several decade span of time examined in analyses of policy effects.

Second, the official date of policy implementation may not precisely mark the beginning of its effects. If universities anticipate policy introduction, and change behavior as soon as they believe the policy is coming, as Butler suggests they did in the case of Australia in the early 1990s, behavior change may anticipate the policy implementation. Alternatively, as with the first round of the UK Research Assessment Exercise (RAE), universities may not believe the change to be important and so ignore it at first leading to lagged changes in behavior (Martin and Whitley, 2010; Wang and Hicks, 2013).

Perhaps more surprising, van den Besselaar et al.'s disagreement with Butler over the year of policy impact is quite common. Analysts seldom agree on the year in which policies were introduced. Table 1 exposes some of these disagreements. The table compiles a list by country of policies affecting university research and the year they were introduced, according to various authors. Studies looking across countries for a before/after difference in research performance in relation to

Table 1

University research policies and their year of implementation according to studies of policy effects.

Year	Policy change	Sources
Australia		
1988	Unified National System of universities introduced	Geuna and Martin (2003)
1989–92	institutes of technology converted to universities	Wikipedia
1991	Baldwin announces audit scheme	Harman (1998)
1993–5	university audits conducted, 95 covers research	Harman (1998)
1992	publication collection begins	Butler (2003a)
1993	publication collection begins	Butler (2003b)
1995	money distributed based on composite Index	various
1996	some features of system implemented	Auranen and Nieminen (2010)
2002	year core funding system implemented	Auranen and Nieminen (2010)
2006	RQF	Franzoni et al. (2011)
2010	ERA	Hicks (2012)
Belgium		
2003	output related performance data incorporated into the BOF key	Hicks (2012); Debackere and Glanzel (2004)
2006	BOF-key	Franzoni et al. (2011)
2008	BOF-key revision	Hicks (2012)
Denmark		
1993	center of excellence scheme established, new Danish university act strengthened university central governance	Aagard and Schneider (2016); Langfeldt et al. (2015)
1993	year of implementation of analyzed core funding system	Auranen and Nieminen (2010)
2000s	more output oriented system adopted	Auranen and Nieminen (2010)
2006	globalization strategy	Aagard and Schneider (2016)
2007	university and research institute mergers	Aagard and Schneider (2016)
2008	globalization strategy	Franzoni et al. (2011)
2009	introduction of the Norwegian model	Sivertsen (2016)
Finland		
1995	classic center of excellence scheme	Langfeldt et al. (2015)
1998	funding formula for allocation of university resources	Hicks (2012)
1998	some features of system implemented	Auranen and Nieminen (2010)
2004	year of implementation of analyzed core funding system	Auranen and Nieminen (2010)
2010	revision	Hicks (2012)
2015	introduction of the Norwegian model	Sivertsen (2016)
Germany		
1990s	or before that (each state has its own funding system)	Auranen and Nieminen (2010)
2004	ProfBesReformG/professor salary reform law, passed in 2002, implemented in 2004	Franzoni et al. (2011)
2006	clusters and universities of excellence initiative	Möller, Schmidt, and Hornbostel (2016)
Norway		
2002	year of implementation of analyzed core funding system	Auranen and Nieminen (2010)
2003	classic center of excellence scheme	Langfeldt et al. (2015)
2004	Norwegian model introduced	Sivertsen (2016)
2005	Norwegian model influenced funding	Sivertsen (2016)
2006	Norwegian model (new model for result-based university research funding)	Hicks (2012), Franzoni et al. (2011)
Spain		
1989	<i>sexenio</i>	Hicks (2012), Jiménez-Contreras, de Moya Aneón, and López-Cózar (2003)
2001	ANECA evaluates tenures and promotions	Franzoni et al. (2011)
New Zealand		
2002	performance based research funding introduced	Franzoni et al. (2011)
2003	performance based funding introduced	Hicks (2012)
Italy		
2006	VTR	Hicks (2012)
2009	university programming and evaluation	Franzoni et al. (2011)
Sweden		
1997	most features of analyzed system implemented	Auranen and Nieminen (2010)
2000	year of implementation of analyzed core funding system	Auranen and Nieminen (2010)
2006	classic center of excellence scheme	Langfeldt et al. (2015)
2009	new model for allocation of resources	Hicks (2012), Sivertsen (2016)
United Kingdom		
1986	RAE introduced	various
1989	RAE 2, linked to more funding, total # of papers submitted	Martin and Whitley (2010)
1992	polytechnics converted to universities	Wikipedia RAE page
1996	RAE – shift to quality	Moed (2008)
2002	year of implementation of analyzed core funding system	Auranen and Nieminen (2010)
2014	REF	Wikipedia REF page

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