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Facts and fads in academic research management: The effect of management practices on research productivity in Australia

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ABSTRACT

As a response to competitive market forces and governmental steering policies, Australian universities have strengthened considerably their internal research management in the last two decades. This paper examines empirically the effect of management on academic research productivity. The results suggest that management practices indeed seem to have some positive effect on research productivity, and the effect is consistent in the earlier (1995–2000) and later (2001–2007) time period. Universities with a more intensive management approach not only have higher absolute level of research productivity but they demonstrate also faster growth in productivity. An omitted variable bias and robustness of the results to the choice of the output measure are under a particular attention and call for some caution in interpreting the results.

1. Introduction

In the last decade or two, academic research performance has become a highly visible and much discussed issue in many countries. In today's environment universities can hardly leave their research 'unmanaged', solely a responsibility of individual academics. Taylor (2006) discovered that university administrators in the US and UK often reject the notion that they 'manage' research but nevertheless they have developed policies to steer research performance, either indirectly through internal competition or directly through monitoring and support. A comparative OECD study (Connell, 2006) found several common trends in the academic research management in different countries. Universities nowadays specify their research priorities and develop strategic plans; they evaluate regularly their research performance and develop principles for ethical conduct. Furthermore, research management has become 'professionalized', i.e. universities appoint high-level academic and administrative staff whose sole responsibility lies in overseeing research activities.

While knowledge about general trends in research management practices is accumulating, evidence about the effect of these practices on research performance is still scarce. If universities are indeed 'seeking ways to best manage research' (Connell, 2006), it is the information on the effective practices, not merely on possible practices, that is crucial for success. There is a lot of evidence from other sectors, both private and public, that management practices may be overenthusiastically adopted due to fad and fashion, or due to ideology and belief (Staw and Epstein, 2000). The university sector has proven to be equally vulnerable to these tendencies (Birnbaum, 2000). However, we can also see accumulating empirical evidence that management does matter for performance. A positive effect of human resource management is perhaps most convincingly established (Huselid, 1995; Black and Lynch, 2001), but also other performance management practices demonstrate consistent positive effects in various industrial sectors (Bloom and van Reenen, 2010; van Reenen, 2011), including complex professional organizations such as hospitals (Bloom et al., 2008).

A number of interesting studies have emerged recently that examine the effect of some organizational choices and strategies on research productivity. Carayol and Matt (2004) and Bonaccorsi and Daraio (2003, 2005) examine an optimal size and personnel composition for highly productive research units. Schubert (2009) studies the internal governance in German universities and demonstrates a positive effect of strong central leadership, operational flexibility, goal agreements, and an internal evaluation system. Goodall (2009) follows up the recent interesting research from other sectors showing that the leader (the CEO) matters significantly for organizational performance (Bennedsen et al., 2006). Goodall (2009) demonstrates that a university president who him(/her)self is an accomplished scholar has a significant positive effect on overall research performance of the university.

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Management is thus an important factor in explaining research productivity. Furthermore, management practices seem to be an important mediating variable in explaining why leaders matter (Bertrand and Schoar, 2003) or why competitive environment boosts performance (van Reenen, 2011). This paper hopes to contribute to the empirical evidence about the effectiveness of management in the academic research sector and it tests the assumption that specific university level management practices indeed contribute to better research performance. Data from Australian universities over the 1995–2007 period will serve as an empirical evidence base for our study. Before describing data, methods and the results of the study, the next section will offer a brief overview of research management in Australian universities.

2. Research management in Australian universities

Australia is known for its radical reforms in the higher education sector, starting in the end of the 1980s. The binary system of universities and Colleges of Advanced Education (CAE) was replaced with a unified university system; government established performance monitoring in the sector, introduced performance-based funding, and encouraged competition between universities (Valadkhani and Worthington, 2006; Meek and Hayden, 2005; Marginson and Considine, 2000). Australian universities have become significantly more research productive over the time period and this is clearly associated with the new performance-based policy approach in the early 1990s (Butler, 2003).

While the national policy reform has received quite a lot of attention, the role of internal management in explaining the growth is rather unexplored. These two are of course closely linked. The new policies not only create strong incentives for universities to improve their performance, they target university governance and management systems also directly. The 'revolutionary' White paper by the education minister John Dawkins in the late 1980s pointed out a need for stronger internal governance and management within universities (Dawkins, 1988), and the White paper of 1999 *Knowledge and Innovation* introduced mandatory *Research and Research Training Management Reports* (RRTMRs) that required universities to report not only on their performance but also on their management. It is no surprise that internal research management has developed considerably over the last two decades.

How do Australian universities manage their research? Institutional audit reports of the Committee for Quality Assurance in Higher Education (CQAHE) in 1995 and the Australian University Quality Agency (AUQA) in 2002–2007, and institutional RRTMRs show quite an evolution in this area. Most universities revised their organizational structure and strengthened their research leadership. Universities established a new high-level administrative position that is devoted entirely to research, usually called 'Pro Vice-Chancellor (Research)', if such a position did not exist before, and strengthened the role of the Dean in managing research within faculties. Inter-disciplinary research centers became a new locus for research activities, next to traditional faculties and departments. Strategic planning became a regular practice in all universities. With a stimulus from government, universities started to develop institution-wide research strategies. Research performance data has been collected and monitored in universities for almost two decades, ever since the government required universities to present data on publication numbers and on external grant funding. Universities have also specified their internal rules and regulations related to research, e.g. intellectual property rights and codes for ethical conduct.

All these practices are common to (almost) all universities and were developed in a relatively early phase of the higher education reform cycle. Some other practices are used less uniformly. In this study we will focus on the instruments that were adopted in Australian universities in a different point of time and/or to a different extent and therefore provide an opportunity for a systematic empirical analysis. The analysis is limited to practices that are formulated at the central level, ignoring practices that are initiated at the faculty and department level. Based on a systematic analysis of the CQAHE and AUQA audit reports, we can identify seven categories of practices which are quite diverse in their nature and target different organizational levels.

2.1. Practices targeting faculties and schools

At the level of faculties and schools we will consider two practices: *performance monitoring* and *performance-based funding*. Regular performance reviews focus attention on what each of the university's schools and faculties has accomplished. Many universities in Australia have implemented regular formal faculty reviews. This is a thorough examination of performance outputs in research and teaching as well as an evaluation of resources and practices, usually every four or five years. Some universities do also an interim assessment of their sub-units with respect to main performance indicators.

The performance monitoring may be linked to the internal budget allocation system but this is not necessarily the case. Since universities receive their research budget from a government according to a performance based formula (including publication numbers, external grants, and doctoral graduates), some universities have adapted the formula for their internal money allocation. Some other universities consider research performance in internal resource allocation but have not developed a clear formula for resource allocation, and the rest base internal money allocation primarily on student load or other input related criteria.

2.2. Central institutional practices

At the institutional level, *benchmarking* and *concentration* are two prominent management tools. Benchmarking is an instrument that has been strongly encouraged by the Australian government. Government initiated and funded the development of a detailed benchmarking manual for universities (McKinnon et al., 2000), which is a well-known source in universities and often cited in institutional reports. All Australian universities seem to compare their performance data with those of their competitors to some extent, which is facilitated by the fact that performance data are easily and publicly available. However, benchmarking is a more systematic exercise than merely comparing outputs. The extent to which the comparisons are systematic, examine not only outputs but also processes, and are considered in the management system varies across the sector.

Concentration of research activities in certain study areas is another institutional level policy that is strongly encouraged by the government (e.g. Kemp, 1999) and which has been implemented in universities to a varying degree. Some universities have clearly identified their research priorities and consider these in their resource allocation or staff hiring. Other universities have identified areas of strength but do not provide any additional resources or preferential treatment to related research groups. In some cases a bottom–up selection mechanism is in use. Faculties and departments can create research centers but the center first has to prove itself. If it is successful, then the area of research becomes an official concentration area and the center can enjoy some preferential treatment.

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