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Do non-academic professionals enhance universities' performance? Reputation vs. organisation

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ABSTRACT

Universities are increasingly engaging with non-academic professionals in facilitating performance outcomes, reaffirming themselves as purposive organisations, i.e. institutions with the ability to organise strategically in the pursuit of goals and standards. However, there is little empirical evidence for the impact of professional staff on university performance. Drawing on a sample of 100 British universities, the author assesses whether the changes in the ratio of professional staff to students (from 2003 to 2011) influence subsequent university performance. The author finds that universities that are moderately increasing their share of professional staff display higher levels of degree completion, but no significant differences can be observed in terms of research quality, good honours degrees and graduate employability. University performance is largely determined by reputation, prestigious universities performing higher in all dimensions. The findings contribute to the emerging empirical research assessing the impact of professional staff in higher education.

KEYWORDS

University performance; non-academic professionals; reputation; purposive organisational action; UK

Introduction

Since the 1970s/1980s, scholars have documented a 'managerial revolution' signalled by the accelerated increase in the number of non-academic professionals working in managerial and service-oriented areas of university administration (e.g. Blau 1973 in the US; Visakorpi 1996 in Finland; Gornitzka and Larsen 2004 in Norway; Gordon and Whitchurch 2007 in the UK; Krücken, Blümel, and Kloke 2013 in Germany; for elaborate reviews of the literature see Leslie and Rhoades 1995; Schneiderberg and Merkator 2013).

The ongoing debate surrounding the increase in the number of non-academic professionals mirrors wider concerns about the nature of universities. The managerial revolution is often invoked to illustrate the controversial transition from the traditional collegial system of decision-making and professorial self-governance (in most European countries) to a performance-oriented model welcoming the contribution of an increasingly professionalised body of administrative staff (Clark 1998; Deem 1998; Hamlin and Patel 2015; Kehm 2015). More recently, numerous institutional studies emphasise the lack of empirical research for the effectiveness of managerial revolution and the capacity of individual institutions to enhance their outputs through developing organisational strategies (e.g. tightening entry standards, consolidating strategic leadership) (Keith 2001; Bryan 2007; Hamlin and Patel 2015). Concomitantly, a wide body of literature originating in the neo-institutional tradition, points towards the diffusion of 'instrumental rationality' as a gold standard of

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institutional identity and purpose (Meyer 2000; Ramirez and Christensen 2013). The proliferation of non-academic professionals is argued to be symptomatic of the university increasingly articulating its identity as a purposive organisational actor i.e. 'an integrated, goal-oriented entity that is deliberately choosing its own actions and that can thus be held responsible for what it does' (Krücken 2011, 4, see also Baltaru and Soysal 2017).

Do non-academic professionals enhance performance in higher education? Or is the engagement with strategically oriented personnel a mere artefact of universities trying to sustain the image of goal-oriented entities, capable of effective self-management? The author addresses this question for the UK by drawing on longitudinal organisational data from 100 British universities in order to assess whether the increase in professional staff in the early 2000s had any impact on subsequent university performance.

The UK context

The UK is among the countries where the performance culture has had the most impact in higher education policy (Teichler 1988). In the late 1970s/1980s, the Conservative government under Margaret Thatcher pushed for more public service accountability. For higher education (HE), seen as indispensable for national growth, this meant that the internal organisation of universities could no longer be left to academic staff alone. Yokoyama (2006) argues that the introduction of the Research Assessment Exercise (RAE), in particular, has encouraged a perception of managerial approaches as indispensable to universities' performance.¹

The emergence of new areas of expertise (e.g. research impact, new learning technologies, equality and diversity standards in student admissions and staff recruitment) has prompted the development of an increasingly professionalised body of non-academic staff. Whitchurch (2004) argues that the openness to new roles became a tool of adaptation for universities as one could 'redefine and push the boundaries' of administrative sub-sections (internally) as well as easily engage with partner institutions (externally). As an example, in the biggest report commissioned by the UK Government since the 1960s (Dearing Report 1997), non-academic professionals are acknowledged as strategic in enabling HEIs to cater for the student body and for external stakeholders. The UK case aligns with the European trend, where universities increasingly engage with professional staff in the development and delivery of educational activities and research (Schneijderberg and Merkator 2013).

An underexplored area of higher education practice

The existing literature exploring university performance as a function of personnel resources typically focuses on top executives and offers a rather descriptive overview of attitudes towards institutional efficiency rather than an assessment of behavioural performance and effectiveness. A range of qualitative studies have documented the perceived characteristics and behaviours associated with the effectiveness of personnel such as pro-vice chancellors (Spendlove 2007), academic programme directors (Ladyshevsky and Vilkinas 2012) and heads of departments (Trocchia and Andrus 2003; Hamlin and Patel 2015).

Other (quantitative) investigations into the determinants of university performance as underlined by institutional ratings have yielded useful insights into the limitations of strategic organisational action (Keith 1994, 1999, 2001; Keith and Babchuk 1998). These studies draw attention to the importance of considering past reputation, defined as 'one's relative standing based on prestige, honor, and deference' (Keith 2001, 496), as yet another factor shaping the perceived merit of individual universities. The role of past reputation in shaping such perceptions is of direct relevance to university performance as universities perceived as meritorious by the public (e.g. prospective students, employers, other universities) are more advantaged than their less prestigious counterparts. The underlying argument is that good students self-select into reputable universities, employers give

higher credit to graduates from prestigious universities, and last but not least, reputable universities continue to benefit from the historical networks and affiliations with other high performing HEIs. As an example, Keith (2001) explores the relationship between organisational attributes underlying performance (e.g. lowering the student staff ratio, increasing entry standards) and institutional reputation (operationalised based on aggregated departmental level ratings and national level ratings) on 138 US universities, while considering the impact of past ratings. The results show that institutional status is rather stable over time (the 1982 score explains 99.7% of the variance in the 1996 score), the changes in universities' organisational attributes (e.g. percentage change in the student/faculty ratio, percentage change in the undergraduate student acceptance rate) being unrelated to the corresponding changes in institutional ratings.

Even fewer studies focus specifically on the relationship between non-academic professionals and university performance. Graham and Regan (2016) provide a qualitative investigation into the contribution of professional staff to student outcomes. The inquiry is based on semi-structured interviews conducted with professional personnel (administration, management, learner support and facilities) from a UK and an Australian institution, in order to draw a list of key factors that enable or limit the contribution of such personnel to institutional outcomes. The results reveal three dimensions associated with the performance of professional staff in both contexts (staff knowledge, attitudes of colleagues and supervisors and job satisfaction) but little can be inferred about the relative impact of professional services on the performance of their respective institutions. Dunder and Lewis (1998) propose a series of institutional features as potential predictors of research productivity within 3600 doctoral programmes in the US, one of which is the availability of support oriented services and facilities. Although the results confirm a positive relationship between such facilities and research productivity, inferences cannot be made about the wider share of professional resources as the indicator solely relies on library expenditures.

The scarcity of evidence concerning the impact of professional staff on institutional outputs provides the impetus for larger scale empirical research into the possibilities and limitations of purposive and strategic organisational action.

Functionalist and cultural perspectives on purposive organisational action

Universities' capacity to act strategically towards enhancing performance can be studied from two perspectives (functionalist and cultural). Each perspective yields very different predictions regarding the relationship between professional staff and university performance.

The promise of purposive organisational action

The taken-for-granted assumption (to be referred here as 'functionalist') is that professional staff can use their expertise to help HEIs transform *inputs* (personnel and non-personnel resources) into *outputs* relevant to the institutional mission (e.g. student attainment in terms of the educative function, research productivity in terms of the knowledge sharing function). The 'input-output model' illustrated by Talbot (2007) along similar models portraying universities as highly rationalised, goal-oriented entities, have provided the conceptual foundation for the 1980s New Public Management reforms in HE. The NPM is a term used to capture the increasing pressure on public institutions to achieve 'value for money' within the context of budget cuts (Tolofari 2005) and increased participation in HE (Brennan and Shah 2000). Eicher (1988) argues that in most Western European countries the decrease in per student expenditure (relative to the national GDP) has prompted HEIs to adopt new managerial solutions. Clark's notion of an 'entrepreneurial university' (1998) characterised by a strengthened steering core and an expanded developmental periphery is another illustrative example of the promise associated with the transformation of universities into effective organisations whose personnel goes beyond the traditional teaching and research staff. The functionalist expectation behind these models is that, by increasing their share of professional staff, universities will eventually improve their performance.

The indicators most frequently invoked in the existing literature on university performance are research output, student attainment and employability (e.g. Bazeley 2010; Grotkowska, Wincenciak, and Gajderowicz 2015; Graham and Regan 2016). While acknowledging the role of academic staff in enhancing performance, many of these studies emphasise the importance of drawing on a more diverse pool of professional resources and of acting strategically in bridging universities with the external stakeholders such as industry (Grotkowska, Wincenciak, and Gajderowicz 2015).

The limitations of purposive organisational action

From a neo-institutionalist point of view, the spread of functionalist approaches is symptomatic of institutions seeking legitimacy by adhering to taken-for-granted models of institutional identity and purpose (DiMaggio and Powell 1991; Meyer 2000; Krücken, Blümel, and Kloke 2013). Within a cultural climate prioritising the rationalisation of action through the articulation of clearly defined means and goals, institutions of all types and from all over the world are being reinvented as 'organisational actors' (Meyer and Bromley 2013). While the engagement with professional staff may reaffirm universities' identity as purposive organisations, the impact of this strategy on subsequent performance risks being overestimated, given the taken-for-granted-legitimacy of professionalised approaches to organisation. This may explain why, despite HEIs' increasing engagement with professional staff, very few studies have examined the actual impact of this type of personnel on university performance. In this sense, Edgar and Geare (2013, 775) point out that 'changes in managerial practices in higher education settings have been significant and far-reaching' nevertheless 'few studies have sought to examine their efficacy' (see also Deem 1998).

The cultural, neo-institutionalist critique questions the very rationale underlying the promise of purposive organisational action. This perspective is echoed by various institutional studies suggesting that the culture of a company and the broader environmental factors limit the potential of change coming from strategic organisational decisions. Keith (2001) illustrates the underlying mechanism. The differential allocation of institutional status (via ratings) is delivered as a meritocratic process based on demonstrable outcomes. In order to allow for comparable outcomes (an essential condition for institutional legitimacy), universities are becoming increasingly isomorphic in their structures (Meyer and Rowan 1977; DiMaggio and Powell 1983). This trend is clearly reflected in the UK HE sector where virtually all universities engage with strategies such as articulating research impact or offering a wide range of employability and academic support. From a neo-institutionalist perspective, institutional status 'is only loosely coupled with these ceremonial structures and activities' as 'organizations within an institutional environment become increasingly homogenous over time' (Keith 2001, 496, see also Meyer and Rowan 1977; Steiner, Sundstrom, and Sammalisto 2013). This entails the emergence of institutional reputation (as opposed to rankings) as the main factor differentiating between universities. As an example, the recent successes of a HEI may not feed into employers' attitudes to the same extent as its reputation, delaying the impact of institutional efforts to enhance subsequent performance in terms of graduate employability. In other words, universities' reputation stemming from the historical ratings may overshadow their current performance in moving up and down the rankings.

Hypotheses

Several empirical implications can be derived as follows. From a functionalist perspective, universities are able to act as strategic organisations by channelling their efforts towards improving performance. Professional staff plays a central role in this endeavour, by supporting the professional development of students and staff, providing academic support tailored towards the needs of individual students, and last but not least, facilitating universities' third mission through societal engagement and research impact (Etzkowitz et al. 2000). Universities are encouraged to diversify their professional resources and engage with an expanded developmental periphery (in addition to the 'academic heartlands') in order to deal with the increasing pressures and expectations coming from

governments and global markets (Clark 1998). With regards to the UK context, Whitchurch (2004) shows that universities increasingly engage with professional staff as a way of pursuing institutional innovation and development (e.g. student services, human resources and research enterprise). From such a perspective, universities having increased their share of professional staff are expected to display higher levels of subsequent performance (H1).

From a cultural perspective, the potential of purposive organisational action is rather limited as universities are deeply immersed in an institutional environment where reputation overshadows the current successes or failures of individual HEIs. Despite universities' efforts to become more entrepreneurial, external stakeholders such as: prospective students, employers and other universities, may continue to largely inform their choices based on reputation (O'Loughlin, MacPhail, and Msetfi 2015). In line with the neo-institutionalist argument, this paper assesses the claim that organisations and their outputs 'are not only the result of conscious design but are also influenced by institutional preferences and culture' (Steiner, Sundstrom, and Sammalisto 2013, 410). That is, reputable universities are expected to display higher levels of university performance (H2A). Furthermore, Steiner, Sundstrom, and Sammalisto (2013) argue that universities are developing in an institutionalised environment that fosters increased homogeneity between structures and activities (see also Meyer and Rowan 1977). As universities are engaging with increasingly similar strategies of facilitating performance (e.g. learning support structures, student placements and internships, professional development courses), reputation grows in importance as a differentiating factor between HEIs (Keith 2001). Accordingly, the author hypothesises that reputation is a stronger predictor of university performance compared to an increase in the share of professional staff (H2B).

Methodology

Sample and timeline

The current paper draws on 100 universities for which data are available in both The Complete University Guide (CUG) and Higher Education Statistics Agency (HESA). CUG (providing ranking tables compiled by Mayfield Consultants) was first published in 2007 in *The Daily Telegraph*. CUG has been chosen over other available rankings (e.g. *The Guardian*, *Times Higher Education*) as it provides detailed performance criteria available over an extended period of time. The CUG indicators are adjusted to take account of the subject mix at the university where applicable. In addition, CUG relies extensively on HESA data which enhance comparability with the HESA indicators used to operationalise the share of academic and professional staff. This sample amounts to approximately 80% of the UK HEIs with a university status (see Government UK [2017] for a full list of officially recognised HEIs) covering every UK region (England, Wales, Scotland and Northern Ireland). The sample includes universities of various sizes from universities of under 5000 students (e.g. University of Abertay Dundee) to universities of over 30,000 students (e.g. University of Leeds), the average number of students being of approximately 16,000.

HESA data on professional staff were extracted from the earliest available time-point (2003) and the latest available time-point with comparable data (2011), as from 2012 the definitional change in the Standard Occupational Classification (SOC) has entailed the merging of non-academic professionals with academic professionals as one category of 'higher education professionals'. For comparability purposes, information for all other predictors was collected for 2003 and 2011. The two time points were used to compute percentage changes in the predictor variables in order to assess whether different organisational strategies (e.g. increasing the proportion of professional staff to students from 2003 to 2011) can be related to university performance in the short run (2011) and in the long run (2017).

The model does not include the changes in the ratio of professional staff to students from 2011 to 2017 (when the SOC definitional change comes into effect), as HESA data differentiating between academic and non-academic professionals is no longer available. Long-term effects are estimated

by using the changes in the ratio of professional staff to students from 2003 to 2011 to predict university performance in 2017, thus accounting for potential time lags in institutional level planning. Such an analysis is possible as the SOC definitional change only affects the way in which HESA counts professional and academic staff. Across the university sector professional contracts continue to be classified as academic and non-academic in their own right, consistent with the occupational structure prior to 2012.

Definitions and variables

University performance has been operationalised based on indicators collected from the CUG League Tables. Among the performance criteria that CUG uses to determine universities' ratings, the author utilises in this paper those that have also been considered by the Higher Education Funding Council for England (HEFCE) in setting quality benchmarks for the UK HE sector (i.e. student attainment and graduate employability). Research quality will also be considered following the engagement of HEIs with the Research Excellence Framework (REF) process.

Student attainment is operationalised based on degree completion and good honours degree. Degree Completion (ranging from 0 to 100) has been derived by CUG from the HESA calculation of anticipated outcomes for a cohort of students i.e. the percentage of students expected to complete their course or transfer to another HEI. Good Honours (ranging from 0 to 100) has been derived by CUG from HESA and it captures the percentage of graduates achieving first or upper second class degrees in the total number of graduates with classified degrees. *Employability* is indicated by graduate prospects. Graduate Prospects (ranging from 0 to 100) has been derived by CUG from HESA, operationalised as the percentage of graduates who engage in employment or further study in the total number of graduates with a known destination (first degree graduates only). *Research Quality* (ranging from 1 – nationally recognised quality to 4 – world leading quality) has been derived by CUG from the REF. Research quality is assessed in terms of originality, significance and rigour with regards to outputs, impact and environment.

Professional staff is the main predictor of interest. It has been operationalised based on HESA staff data which capture the number of staff full-person or equivalent excluding atypical staff whose contracts last less than four consecutive weeks (e.g. guest lecturers, temporary staff contracted for short-term projects).² Although HESA recommends merging the managerial, professional and technical staff in order to distinguish non-academic professionals from the clerical and manual staff, the author applies the technique suggested by Gornitzka and Larsen (2004) and excludes the technical staff. In this paper, professional staff include: managers, senior administrators, planning and support personnel (e.g. student welfare workers, careers advisers, personnel and planning officers), services personnel (e.g. artistic, media, public relations and marketing occupations) and other professional administrators (e.g. academic standards officers). The number of personnel has been considered relative to the total number of students (i.e. the ratio of professional staff to students) in order to account for the challenges of management associated with larger student numbers. Moreover, professional staff has been operationalised as the percentage change in the ratio of non-academic professionals to students (from 2003 to 2011). The indicator was derived by subtracting the ratio of non-academic professionals to students in 2003 from the ratio of non-academic professionals to students in 2011 then transforming the difference in percentages relative to the initial 2003 ratio.

$$\% \text{ change in the ratio of non-academic professionals to students} = \frac{T_{2011} - T_{2003}}{T_{2003}}.$$

The relationship between professional staff and university performance is explored while accounting for *reputation* as a potential determinant of university performance. This predictor is crucial in capturing the broader cultural forces that may overshadow the potential of purposive organisational action underlying universities' engagement with professional staff. Reputation has been operationalised based on data manually collected from an earlier version of The Times Good University Guide (GUG) (O'Leary, Hindmarsh, and Kingston 2002, 49). In 2002, GUG offered a Top 20 list containing

the highest ranked universities based on an evaluation of 3 retrospective factors dating back to the 1990s: the number of appearances in subject tables, the number of times in top 10, and percentage of appearances in top 10. This group of universities will be referred here as 'prestigious universities'.

Organisational controls

The relationships of interest have been assessed while taking into account a series of organisational attributes (other than the share of professional staff), that are also likely to make a difference in terms of university performance. First, the model controls for institution specific personnel (academic staff) primarily responsible for delivering the teaching and research functions of the university thus a widely used indicator in understanding university performance (Grunig 1997; Walker 2016). *Academic staff* is operationalised as the percentage change in the ratio of academic staff to students (from 2003 to 2011). Second, the effects of the staff to student ratios are estimated while controlling for the mode of employment, in order to account for the rise of part-time teaching staff in UK universities (Association of University Teachers 2005). The indicator has been operationalised as the percentage change in the proportion of *part-time staff* (from 2003 to 2011). Third, the model controls for *institutional size* as another institutional characteristic closely associated with university performance (Grunig 1997). Larger universities may display higher levels of subsequent performance as they can draw on a larger pool of human and financial resources, whereby more academic staff cater for larger student numbers and higher income levels allow for higher levels of expenditure. An exploratory factor analysis confirms this expectation empirically, as total expenditure, total students, total staff and total income are highly correlated and they explain approximately 87% of variance in the underlying construct (Cronbach's $\alpha = .71$). The generated variable is measured at the earliest time-point in the analysis (2003), and it has been used as an indicator of institutional size. Fourth, the model controls for whether the university is located in Scotland (as opposed to England, Northern Ireland and Wales), Johnes and Taylor (1990) arguing that Scottish universities may display lower completion rates due to students embarking in longer courses as well as enrolling at an earlier age. Fifth, the foundation period is considered, as age may represent an asset in terms of institutional resources and reputation (O'Loughlin, MacPhail, and Msetfi 2015). A binary indicator is utilised to distinguish older universities from the universities founded in the post-1960 period characterised by great HE expansion.³ Sixth, the model accounts for potential diseconomies of scale (postulating that large scale organisations may encounter a decrease in efficiency after a certain point due to growing costs) by including a squared term for institutional size. A non-linear relationship may also characterise the impact of professional staff as formal organisational structures initially implemented as a response to structural pressures may continue to perpetuate as a legitimising model of institutional action instead (DiMaggio and Powell 1983). In order to account for this dynamic, the model will also include a squared term for professional staff.

Finally, a core factor to be considered in exploring university performance is selectivity or entry standards (Grunig 1997). The indicator must be handled with caution as it is possible that high performing universities display higher selectivity in line with their reputation: 'universities high up the [rankings] table will, in general, [show] higher grades in whatever qualification you are offering than those lower down the table' (O'Leary, Hindmarsh, and Kingston 2002, 36). The striking association between entry standards and university performance is also present in the current data. At the cross-sectional level (for both 2011 and 2017), the bivariate correlations between entry standards and each dimension of university performance (student attainment, research quality and graduate prospects) range from .70 to .91, making the cross-sectional indicator a potentially endogenous predictor. Following the logic applied to all other predictors, the model controls for the percentage change in entry standards as opposed to the cross-sectional measure. This technique helps address the endogeneity issue while focusing on entry standards as an object of purposive organisational action, i.e. allowing the assessment of whether tightening entry standards may affect subsequent university performance. Unlike the other predictors available from 2003 to 2011, CUG data on entry standards are only available from 2008 thus the percentage difference is computed

Table 1. Descriptive statistics.

	Mean	Standard deviation	Min.	Max.	N
Continuous variables					
Good Honours (2011)	62.35	10.12	42.3	85.6	100
Good Honours (2017)	72.81	8.65	50.4	90.7	100
Degree Completion (2011)	84.24	7.49	62.6	97.8	100
Degree Completion (2017)	86.33	6.16	71.1	97.6	100
Graduate Employability (2011)	66.39	8.32	49.2	88.9	100
Graduate Employability (2017)	69.38	9.72	45.2	90.8	100
Research Quality (2011)	2.29	.37	1.37	2.96	100
Research Quality (2017)	2.74	.37	1.63	3.36	100
<i>Non-academic professionals/Students</i>	20.7	72.5	-75.2	236.5	100
2003–2011% change in the ratio of non-academic professionals to students					
<i>Academic Staff/Students</i>	8.9	70.0	-80.2	343.7	100
2003–2011% change in the ratio of academic staff to students					
<i>Part-Time Staff</i>	13.3	47.5	-71.6	137.3	100
2003–2011% change in the proportion of part-time staff in total staff					
<i>Institution Size 2003, factor variable</i>	-0.0	0.9	-1.2	2.5	100
<i>Entry Standards 2008–2011% change in entry standards</i>	2.5	8.0	-24.5	35.1	100
Categorical variables					
	%				
<i>Prestigious Universities</i>	15				100
<i>Post-1960 Founded</i>	18				
<i>Scotland</i>	12				100

Notes: Negative numbers for minimum values should be interpreted as part of factor variables (institution size) or as percentage decreases over time (all staff variables and entry standards).

from the 2008–2011 time interval. The CUG indicator is based on the average UCAS tariff score for new undergraduate students, converting students' examination results in a numerical score (A level A = 120, B = 100, etc.; Scottish Highers A = 80, B = 65, etc). Students in their introductory year were excluded.

Table 1 illustrates the descriptive analysis of the indicators outlined above.

Analytical strategy

An ordinary least square regression (OLS) technique has been used in order to assess the relationship between universities' performance (the dependent variable) and the independent variables and controls outlined above.

Two OLS models have been run in order to enable the detection of immediate effects (university performance measured in 2011) and long-term effects (university performance measured in 2017). Extreme outliers have been removed from the analysis. The sample of 100 universities was kept unchanged across the two regression models (2011 and 2017) based on the sample size in 2011.

Results and discussion

Table 2 illustrates the results from the models predicting universities' performance. The models show how changes in the professional staff to students ratio over a period of time of approximately one decade (2003–2011) may have affected performance on the short term (in 2011) and on the long term (in 2017), while considering the potential impact of prestige/reputation. The relationships are estimated while controlling for the percentage change in: the ratio of academic staff to students, part-time staff, entry standards, as well as for cross-sectional measures of institutional size (2003), foundation period and geographical region.

We can see that universities that have increased their ratio of non-academic professionals to students display slightly higher shares of degree completion both in the short run (2011: $B = .038$, $p < .05$) and in the long run (2017: $B = .038$, $p < .01$) (H1 partly confirmed). This association may point towards the role

Table 2. Linear regression model predicting university performance.

Variables	Good honours		Degree completion		Graduate prospects		Research quality	
	2011	2017	2011	2017	2011	2017	2011	2017
Constant	61.29*** (1.114)	71.44*** (1.091)	83.96*** (.941)	85.97*** (.809)	65.79*** (1.127)	69.56*** (1.249)	2.340*** (.035)	2.788*** (.038)
2003–2011% change in the ratio of non-academic professionals to students	.038 ⁺ (.019)	.013 (.019)	.038* (.017)	.038** (.014)	.018 (.018)	.022 (.023)	.001 (.001)	.001 (.001)
Square term (2003–2011% change in the ratio of non-academic professionals to students)	-.000** (.000)	-.000 (.000)	-.000** (.000)	-.000** (.000)	-.000 (.000)	-.000 (.000)	-.000 ⁺ (.000)	-.000 (.000)
Prestigious universities	9.382** (2.789)	7.845** (2.231)	6.533** (2.151)	4.839** (1.549)	6.725** (1.970)	4.921* (2.403)	.293*** (.081)	.234** (.080)
2003–2011% change in the ratio of academic staff to students	.031 ⁺ (.017)	.033* (.015)	.014 (.012)	.013 (.010)	.026 ⁺ (.014)	.037* (.017)	.001* (.000)	.001 (.001)
2008–2011% change in entry standards	.128 (.154)	-.000 (.079)	-.028 (.136)	-.026 (.059)	.013 (.115)	.070 (.095)	-.003 (.007)	-.009* (.003)
<i>F</i> -test	18.95***	12.04***	13.25***	17.91***	19.47***	14.65***	13.10***	16.00***
<i>N</i>	100	100	100	100	100	100	100	100
<i>R</i> ²	.51	.45	.40	.47	.53	.50	.48	.48

Notes: ⁺*p* < .10, **p* < .05, ***p* < .01, ****p* < .001. Robust standard errors in the parentheses. Coefficients and standard errors rounded at the third decimal. The models control for 2003–2011% change in part-time staff, institution size in 2003 (including squared term), geographical region and foundation period.

that non-academic staff increasingly plays in supporting academic activities such as teaching and tutoring (Whitchurch 2008; Schneijderberg and Merkator 2013; Graham and Regan 2016).

However, the significance of the squared term for degree completion (2011: $B = -.000$, $p < .01$; 2017: $B = -.000$, $p < .01$), as well as good honours (2011: $B = -.000$, $p < .01$) reveals a tendency for student attainment to increase and then decrease at higher levels of non-academic professionals to students. The findings echo neo-institutionalist studies showing that initial adoption of new organisational forms may be related to structural needs, while later adoption no longer responds to such needs 'but is related to institutional definitions of the legitimate structural form' (Zucker and Tolbert 1981; Meyer 1981, cited in DiMaggio and Powell 1983, 149).

Both graduate prospects and research quality are independent from the increase in the ratio of professional staff to students. The absence of significant associations for the two dimensions of university performance disconfirms the wide-spread expectation that universities' engagement with professional and institutional resources and expertise beyond the traditional academic staff would benefit graduate employability (Grotkowska, Wincenciak, and Gajderowicz 2015) and research activity (Dundar and Lewis 1998). By comparison, universities increasing their ratio of academic staff to students display higher research quality in the short run (2011: $B = .001$, $p < .05$), while in the long run they exhibit improved graduate prospects (2017: $B = .037$, $p < .05$) and good honours degrees (2017: $B = .033$, $p < .05$). The positive association with graduate prospects and good honours degrees is also observable in the short run, but at a lower level of significance (Graduate Prospects/2011: $B = .026$, $p < .10$; Good Honours/2011: $B = .031$, $p < .10$).

Reputation is, by far, the main determinant of university performance. Regardless of the changes in staff to student ratios, part-time staff, entry standards, institutional size, foundation period and region, universities consistently ranking highest in the 1990s/early 2000s are on average performing better than their less prestigious counterparts across all dimensions, both in the short run (2011: Good Honours = 9.382, $p < .01$; Degree Completion = 6.533, $p < .01$; Graduate Prospects = 6.725, $p < .01$; Research Quality = .293, $p < .001$), and in the long run (2017: Good Honours = 7.845, $p < .01$; Degree Completion = 4.839, $p < .01$; Graduate Prospects = 4.921, $p < .05$; Research Activity = .234, $p < .01$) (H2A and H2B confirmed). Notice also that the positive association weakens over time (from 2011 to 2017) across all dimensions of university performance. Finally, we can see that universities that have been raising their entry standards do not distinguish themselves through improved subsequent performance. On the contrary, a negative association with subsequent research quality can be observed (2017: $B = -.009$, $p < .05$).⁴ It is possible that the negative relationship reflects the precarious state of universities ultimately attempting to improve performance by tightening entry standards and for whom this strategy was unsuccessful in reducing the downward performance spiral.

The findings clearly show that despite universities' efforts to improve subsequent performance via purposive organisational action and strategy, the social perceptions surrounding the value of universities' credentials is shaped by earlier accounts of performance consolidated as reputation. All models explain at least 40% variance in university performance ($R^2 \geq .40$) which is indicative of a good fit.

Reputation and university performance

A potential criticism may arise if reputation is viewed as merely an indicator of previous university performance, making the relationship between the two tautological. In order to articulate the difference between indicators at the analytical level, the author derives a *post-hoc* hypothesis. The model was re-run to predict universities' performance in 2017 whereby the indicator of reputation was accompanied by a new indicator capturing the percentage change in universities' ranking from 2008 (the earliest date when data are available) to 2017. No issue of collinearity has been identified. If reputation truly captures the social perceptions underlining the value of universities rather than universities' recent performance attainment, we would expect that the positive relationship will

Table 3. Linear regression model predicting university performance in 2017.

Variables	Good honours	Degree completion	Graduate prospects	Research quality
Constant	71.53*** (1.112)	86.11*** (.827)	70.02*** (1.224)	2.785*** (.039)
Prestigious universities	7.863** (2.269)	4.864** (1.554)	5.012* (2.317)	.233** (.081)
2008–2017% change in university rank	.007 (.016)	.012 (.011)	.042** (.015)	–.000 (.001)
F-test	10.98***	15.48***	15.19***	14.16***
N	100	100	100	100
R ²	.45	.48	.54	.49

Notes: ⁺ $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$. Robust standard errors in the parentheses. Coefficients and standard errors rounded at the third decimal. The model controls for: 2003–2011% change in the ratio of: professional staff to students (including squared term), academic staff to students, part-time staff, 2008–2011% change in entry standards, institutional size in 2003 (including squared term), geographical region and foundation period.

continue to be significant while the actual change in university rank will have little to no effect on the dependent variables.

Table 3 displays the results. We can clearly see that reputation is the main determinant of subsequent university performance as opposed to universities' recent success in the ranking tables. The findings illustrate the limited role of purposive organisational action and merit, a core assumption within the functionalist argument. Interestingly, the only dimension of performance that is responsive to the incremental changes in universities' position in the ranking tables is graduate prospects ($B = .042$, $p < .01$). This may show that among the stakeholders in the higher education sector, employers are the most responsive to universities' recent successes in moving up the league tables. Nevertheless, the role of prestige remains dominant also in the case of graduate prospects ($B = 5.012$, $p < .05$).

Reputation vs organisation

Understanding the limitations of purposive organisational action is especially important in a time when universities are enacting taken-for-granted functionalist assumptions by behaving as goal-oriented entities with the ability to make purposive choices and be accountable for their actions (Krücken 2011, 4 see also Ramirez and Christensen 2013). The current aggregate level study provides a point of reference for individual HEIs by illustrating the cross-institutional experience of organising for performance (generally), and of engaging with non-academic professionals (particularly).

The results show that universities that have increased their ratios of non-academic professionals to students display higher levels of subsequent performance solely in terms of degree completion, the relationship being rather weak and inconsistent/non-linear. Taking into account the changes in a wider range of institutional features that universities can manipulate in order to increase performance (ratio of academic staff to students, entry standards, etc.), reputation emerges as the strongest determinant of performance. The results are supportive for the institutionalist studies finding that universities' reputation is the main determinant of subsequent performance, which leaves little space for strategic organisational change (Keith 1994, 1999, 2001; Keith and Babchuk 1998). This is largely related to the slow changes in the public perceptions about the merit of individual HEIs (Keith 2001), whereby reputation feeds into research funding and research networks, shapes employers' perceptions of graduate employability and influences students' choice of university. The findings are equally relevant for the wider neo-institutional literature documenting the diffusion of organisation as a model of institutional identity and purpose (Meyer 2000; Meyer and Bromley 2013; Baltaru and Soysal 2017). In this sense, universities are increasingly behaving as strategic actors, despite there being little evidence for the capacity of individual institutions to produce outputs via purposive organisational action. On a positive note, the current study shows that the impact of reputation tends to decrease over time. Moreover, universities' efforts to improve their performance attainment are not futile, but longer periods of time may be needed for performance attainment to consolidate as reputation. In this sense, O'Loughlin, MacPhail, and Msetfi (2015) suggest that beyond strategic branding and marketing, it is important that HEIs are aware of the subjective nature of institutional reputation which is informally and historically determined.

Finally, lessons can be derived about the external environment in which universities operate. Policy-makers may consider the implementation of alternative league tables that rank universities based on their improvements relative to their previous performance, as opposed to the classic approach providing a cross-sectional comparison of performance scores. This measure may encourage the responsiveness of external stakeholders (e.g. prospective students, employers and funding councils) to universities moving up the ranking tables, while providing a challenge to already prestigious universities.

Notes

1. The RAE started being conducted by the UK funding councils every five years since 1986 as a tool of evaluating research quality in British higher education institutions. In 2008 it was followed by the REF.
2. According to the HESA Guidelines for Staff,

Individuals can hold more than one contract with a provider and each contract may involve more than one activity. In analyses staff counts have been divided amongst the activities in proportion to the declared FTE [full-time equivalent] for each activity. This results in counts of full person equivalents (FPE). Staff FPE counts are calculated on the basis of contract activities that were active on 1 December of the reporting period (using the HESA staff contract population). (HESA Website, Definitions: Staff, accessed on 10 November 2017)

3. Examples include the 'plateglass universities' and the former Colleges of Advanced Technology achieving university status after the Robbins Report in 1963.
4. A sensitivity analysis was conducted in order to address the limited timespan for the change in entry standards. The model was re-run to predict university performance in 2017 based on the percentage change in entry standards from 2008 to 2017. The negative and significant relationship between the change in entry standards and university performance was replicated, this time for all dimensions of university performance. The finding supports the possibility that the existence of a positive relationship between entry standards and university performance solely at the cross-sectional level is an artifact of reputation, whereby performant students self-select into prestigious universities.

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