

Why have universities transformed their staffing practices?

An investigation of changing resource allocation and priorities in higher education

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EXECUTIVE SUMMARY

Introduction

Recent decades have seen enormous growth in higher education worldwide, including in the UK. Many observers, notably academics, media commentators and staff unions, have argued that during this same period there have been major associated changes in the university workforce, with consequences for both quality and efficiency ; but there has been little in-depth analysis of these. This project provided extensive data on staffing developments in UK universities since 2000, with new information on both numerical trends and their underlying causes.

The research focused on the two most discussed issues. The first is the perceived decline of ‘traditional’ permanent academic jobs which carry both teaching and research responsibilities, and the growing prevalence of part-time and teaching-only academic staff. The second is changes in the nature of non-academic staffing, with a perceived growth in administrative numbers, and the research focused in particular on changes in senior managerial and non-academic professional posts.

In both cases, growth in numbers was perceived by many commentators to be substantial. Our research confirms that this is correct: *both teaching-only and senior managerial and non-academic posts have indeed grown very rapidly in absolute terms and as a proportion of the workforce*. Most academic commentary, in the UK and elsewhere, has also argued that such changes reflect and strengthen worrying shifts in the ethos, objectives and quality of university activity. However, they might also in principle improve teaching, free up academic time, and/or improve the quality of student life and study. Our research was unable to measure the direct impact of these trends on learning or student life. It did, however, make clear that these developments are in substantial part the result of changes in the external funding and regulatory environment, and of internal university structures. They are not driven by theories, or direct examination, of academic pedagogy or student learning.

Research questions

Our research was structured around seven specific research questions, formulated on the basis of existing research (largely American), and of our own and others’ work on recent developments in the UK university sector, including rapid rises and falls in English universities’ enrolments, the growing importance of overseas student fees, the emergence of highly visible ‘league tables’ (national and international) and the role of UK government ‘quality-related’ research funding for universities. The first five of these questions relate and refer to ‘contingent’ academic staff, understood here to mean staff who have only teaching duties, especially those on part-time and/or fixed term contracts, as opposed to those with traditional teaching-and-research or research-only positions .

RQ1: Are staffing trends uniform across the sector, and are they largely stable over time?

RQ2: Are proportions of, and increases in, ‘contingent’ staff higher in universities which have experienced high instability in student application and recruitment numbers?

RQ3: Are proportions of, and increases in, 'contingent' staff higher in universities which have (a) high research ratings and/or league table positions or (b) have improved their ratings significantly during the period in question?

RQ4: Are proportions of, and increases in, 'contingent' staff greater in universities which have high turnover of permanent staff (indicating a tendency to replace permanent with contingent positions as permanent staff leave or retire)?

RQ5: How far, within institutions, are there major differences between departments in the number of permanent and 'contingent' academic staff, and are these differences related to research quality measures, or to fluctuations in enrolment which depart significantly from the institution's average?

The final two questions related to changes in non-academic ('professional services') staff. There was very little research literature on which to draw in this area, and so our analyses were more exploratory. The research questions reflect our interest in whether institutions were linking internal professional services decisions to differential departmental missions and success, as might be expected if they were made on clear strategic and efficiency criteria; and in whether there had been a shift in resources (and so possibly power) between academic departments and central management.

RQ6: How far, within institutions, are there major differences between departments in the ratio of academic to professional services/administrative staff, and are these differences related to research quality measures, or to fluctuations in enrolment which depart significantly from the institution's average?

RQ7: How far are changes in non-academic staff numbers found in (a) academic departments and (b) central services?

Methods and data

The project used a mixed methods approach. The quantitative component of the project drew extensively on administrative data held by the Higher Education Statistics Agency (HESA). Annual data, including information on numbers and types of staff, were used to track staffing trends over the last 15 years and analyse variation within the sector.

Our sample comprised 117 UK HE institutions. They are generalist institutions covering most of the HE sector, and fall into four broad categories: 'Russell Group' members, who are research-intensive and include the largest and most prestigious research universities; other 'old' or pre-1992 institutions; ex-polytechnics, all of which became universities in 1992, and other 'new' (post-92) universities many of which existed in other forms before becoming universities. We excluded from our analysis institutions which were small, specialist or otherwise atypical.

We also carried out six case studies of universities' staffing developments and decisions. Senior management team members, and senior members of professional services were interviewed and we also examined financial records in the public domain.

Our sample was a convenience sample but deliberately included two Scottish universities. Given differences between England and Scotland in terms of funding policies and funding levels for 'home' students, and also the existence of number caps in Scotland, but not England, we aimed to explore what effect, if any, these differences might have on staffing changes. The comparison is made easier by the fact that Scotland is part of the same research funding regime as England and the contribution of international fees to total teaching income is critically important in both.

Findings (1): Changes in academic staffing

In aggregate, the rise in teaching-only staff numbers has been remarkable. The total number employed in universities rose by more than 50 per cent between the academic years 2005/06 and 2016/17 to over 45,000 in total. This was over three times the rate of increase for 'traditional' teaching and research staff (i.e. lecturers, professors etc who both teach students and conduct research). Their numbers only rose by about 16 per cent over the same period to just over 92,000. The proportion of full-time workers among teaching-only staff has gradually increased but more than two-thirds remain part-time. This is in contrast to the rest of the academic workforce - teaching & research staff and research-only staff have been, and remain, overwhelmingly full-time workers.

This growth in teaching-only staff was *not* uniform across the sector (Research Question 1). Increasing employment of teaching-only staff by the Russell Group universities was responsible for much of the change: half of the growth in these staff –almost 9,000 from a total increase of about 16,000 – occurred within the Russell Group. Many Russell Group universities had relatively few teaching-only staff among their academic workforces in 2005/06 and there was a general pattern of institutions with low proportions of teaching-only staff in 2005/06 tending to catch up over the years through to 2016/17. In both the Russell Group and the other pre-92 universities the average number of students per (traditional) teaching & research academic has increased, although the ratio of students to all teaching staff (traditional plus teaching only) has held steady across the sector.

Why did some universities have much more growth of teaching-only staff than others (Research Questions 2,3 and 4)? The most important factor identified in our statistical analyses was simply the university's own growth. It was not instability that mattered (Research Question 2), but growth in overall size: the faster a university grew, the faster more teaching-only staff were hired. More specifically, a model which looked at the level of teaching-only staff in 2005/06, growth in student numbers up to 2016/17 and the growth in numbers of teaching/research staff accounted for just over half of the total variation in the growth of teaching-only staff. Other factors, including the proportion of postgraduates at the institution, the mix of subjects at the university, or measures of its financial position were generally not significant. Many of the fastest-growing universities have been from the Russell Group, because of their success in overseas recruitment and in taking an increasing number of uncapped home students; so this is a partial (but only partial) explanation of why these institutions have been the biggest recent source of teaching-only growth.

These broad sectoral trends were reflected at our case study institutions. However, our respondents were united in their denial of any strategic or centrally-driven attempts to replace teaching and research academics with teaching-only staff. Indeed they appeared mostly to be unaware of their own institutional figures.

Instead, teaching-only staff appointments were often linked to universities' focus on research productivity and excellence, notably in the government's 'Research Excellence Framework' (REF) review, for which numbers and percentages of 'research-active' staff are important. So, especially in research-intensive universities, teaching-only appointments might be to cover for permanent staff bought out by research commitments or taking up their entitlement to regular sabbaticals (which were importance for strengthening their own, and hence their institution's, research profile).

Recruitment to permanent academic posts was very closely scrutinised from the centre, and especially in 'research-intensive' universities, research excellence was a key criterion for appointment. When these posts were not filled, or not approved, but student numbers still grew, short-term staff would most likely be appointed instead. This was reported by our case study respondents to be especially likely in medicine and business, where it was often hard to find permanent research stars who also had the relevant teaching expertise: this provides a partial answer to our Research Question 5.¹

Post-92 institutions, where teaching loads were usually heavy, research less all-pervasive, and sabbaticals rare, were sometimes able to buck the general trend and *increase* the proportion of staff on traditional teaching and research contracts. In both post-92 case study institutions, senior managers told us that they had concluded that there was no advantage in having large numbers of staff on teaching-only contracts, and some real disadvantages.

Additional support for the idea that the REF is critically important for UK hiring practice is the 'spike' in the number of teaching only contracts immediately before the last REF census. There was then fairly little change until 2018, but recently released data seem to indicate another pre-REF rise. At that point in the cycle, some staff in research-intensive universities may be shifted to teaching-only contracts, rather than risk a reduction in the quality verdict returned by the assessor panels.

Findings (2): Changes in non-academic staffing

The UK university sector currently employs roughly equal numbers of academic and non-academic staff, and at this aggregate level, over the last thirteen years, the proportion of staff who are non-academic has fallen somewhat. However, this was also a period when there were varying amounts of outsourcing – and reversal of outsourcing. It was also when various IT-based changes (e.g. centralised on-line admissions, integrated financial software) should have affected staff numbers for some specific departments and functions. To examine what had been happening, we therefore broke non-academic employee data down into 11 broad occupational categories. Major reclassifications in the HESA data made this

¹ We were unable to tackle Research Question 4, on the impact of turnover, because of data limitations.

challenging but we were able to create (at least approximately) consistent categories across the entire period from 2005 to 2018. However, it was essential to treat the large, senior group of managers and non-academic professionals – MNAPs - as a single category since many were re-classified from one side of the ‘Manager- Non-Academic Professional’ boundary to the other by the HESA re-classification exercise that took effect from 2012/13 onwards.

At this level of disaggregation, some very different and contrasting developments become obvious. The number of senior managers and non-academic professionals rose from just under 32,000 in the academic year 2005/06 to almost 51,000 by 2017/18, an increase of some 60 per cent over 12 years (compared to a 16% increase in ‘traditional’ academic numbers). ‘MNAP’ staff comprised less than a fifth of all non-academic staff in 2005/06 but more than a quarter of them by 2017/18.

Meanwhile, the number of secretaries, typists and receptionists declined by more than 50% and fell from 10% of non-academic staff to 4% while staff in ‘elementary occupations’ such as cleaners, caterers, security, porters and maintenance fell from 17% to 12%, and from 28,855 to 23,211. This latter group covers many of the areas in which outsourcing has been most evident. In contrast, the huge fall in numbers of ‘secretaries, typists, receptionists and telephonists’ almost certainly reflects real changes in how work within the university sector is organised. Our case studies confirm this: most evident is the sharp reduction in direct secretarial and administrative support for academics. This is across the board, with no major differences by department. (Research Question 6)

Growth – and/or a perception of growth – in administrator numbers is remarked upon by university observers in a range of countries. Some of the likely drivers and enabling factors are clearly identifiable in the external environment. Over the last twenty years, universities have faced increasing competition for students, notably for overseas students, and have developed major marketing departments. Increased size and complexity, and regulatory changes also affect institutions although we found, somewhat surprisingly, that research income, used as a proxy for research intensiveness, did not seem to play any major role in determining the number of senior managers.

A development of particular significance in the UK was a growing preoccupation in the sector with improving student services and with using this to increase ‘student satisfaction’ (especially as measured on the government-mandated National Student Survey). Associate professional employees dealing with the ‘student experience’, including welfare workers and career advisors, more than doubled their numbers over 2005/06 to 2017/18, as did marketing/media staff. Case study evidence was consistent: perceived contributions to ‘improving the student experience’ were highly important in justifying new professional services jobs.

All of these changes tended to increase professional staff numbers in central departments at the expense of academic ones (Research Question 7) , and centralisation of professional services was a consistent development in case study institutions. Even when professional services staff were situated in academic departments, they increasingly and overwhelmingly

reported to managers in the centre: senior teams believed this both increased effectiveness and decreased costs.

However, while these external forces are common across the sector, there is enormous variability in professional services employment patterns among universities, including within university groupings, and very marked differences in the proportion of staff who hold senior managerial and non-academic positions. Clearly it is possible to run an institution with a variety of very different policies regarding professional services appointments and expenditure, and nothing to suggest that MNAP levels are strongly related to research intensity or teaching income.

The case study evidence confirms the importance of universities' internal structures in explaining the steady increase in senior managerial posts overall, but also the major differences between institutions. Senior professional service posts were approved (or not) centrally in all the institutions we visited, as, increasingly, are academic appointments. But senior leadership teams often lack expertise on professional service matters. Vice-chancellors and their 'deputy' and 'pro' vice-chancellors are almost always academics who can and do argue about academic strategy, and compare one faculty or department with another when making decisions on new academic posts. Professional Services, although its headcount, across the sector, is more or less the same as for all academic staff, is typically a single fiefdom, reporting to just one senior member of the leadership team (e.g. a COO or University Secretary) and through them to the Vice Chancellor.

This makes it much easier for a steady upward movement in highly paid professional services jobs to occur – or perhaps more accurately, much harder to create institution-wide structural barriers to and constraints on such drift than is the case with academic posts. It is also much more difficult to evaluate candidate quality using 'objective' criteria (typically research-related for academic appointments) or gauge the impact of the post on university activity and reputation. Professional services hiring is thus susceptible to the argument that 'we must be competitive' and get the 'best' candidates by offering a high salary and senior job title. In a number of our case study universities, interviewees remarked on the number of 'managers' they had accumulated who had very few people to manage.

Cutting back on professional services can be done but requires very active management if it is to be accomplished. The normal scenario operates in the reverse direction, a gradual upward drift. Overall, what our case studies suggest is that without constant monitoring, it is very easy for an institution to end up with serious and expensive 'grade creep' in professional services especially in times when finances are reasonably buoyant. If, as seems likely, the next decade is more fiscally challenging than the last, tensions around these budgets, as well as around changes in the teaching workforce, are very likely to increase.

SECTION 1: INTRODUCTION

The aims of this research were to describe fully and to investigate the reasons behind reported major changes in the staffing patterns of UK universities. These are much discussed in the specialist academic press, often by commentators who are academics themselves, and believe that current changes reflect developments in higher education to which they are opposed. However, until now, there has been little in-depth, longitudinal analysis, and discussion tends to focus on annual and headline figures.

Higher education is a very large sector, which in recent decades has both expanded enormously and recruited growing proportions of international students, who pay large fees and contribute large and growing proportions of the sector's income. It has also, in England, moved from being financed in large part from central government teaching grants to being financed from home student fees paid over from the Student Loan Company and secured against loans to individual students. Governments in all parts of the UK are concerned with total costs, and with the degree to which the sector contributes to wider economic goals, and promotes social mobility. And as more and more young people enter university, there is also increasing media coverage of the sector, focusing not simply on headline events but on whether students receive 'value for money', and on academic standards.

As for any other organisation, how a university plans its workforce reflects both its actual objectives and priorities, and affects how efficiently it will achieve these. 'See what they do, not what they say' and 'Follow the money' are recommendations which are as relevant to understanding higher education as they are any other institution or sector. This project, while limited in size and scope, is nonetheless a more ambitious attempt to examine spending on staffing than any previous UK research.

The research focused in particular on growth in numbers of part-time and teaching-only academic staff in the UK higher education sector since 2000, and on the growth of numbers of senior managerial and academic professional staff in UK universities relative to those of academics. That choice reflects recurrent concerns in both education research and the wider education press and employer/union discussions at individual university and national level. Both areas of growth are perceived by many to be both large in scale and indicative of shifts in the ethos, objectives and quality of university activity. However, it is also possible that they reflect changes which actually improve teaching, free up academic time, and/or improve the quality of student life and study. Either way, it is important to understand their scale, and what drives them.

Quantitative analysis in the report is based on previously under-utilised administrative data while qualitative results draw on case studies undertaken with a sample of universities in England and Scotland. This report falls into four sections. In this introductory section, we present our research questions and the methods used to address them. Section 2 sets out in detail the results of our analysis of academic staffing, while Section 3 does the same for non-academic staffing. Section 4 draws together our conclusions and puts the findings into context.

Background: academic staff developments

In recent decades, the numbers and proportions of young people entering higher education have expanded rapidly in many countries including the UK. And, at the same time, there appear to have been substantial changes in the ways that universities are staffed.

The traditional model in the UK is one of teaching by research-active academics, originally tenured and more recently on long-term permanent contracts of a 'research and teaching' nature. However by 2014, following a long-term downward trend, slightly less than half (49%) of academic staff in UK universities, were on such traditional 'research and teaching' contracts. The other 51% were classified as 'teaching only' or 'research only' (Locke *et al*, 2016).

Moreover large numbers of academic employees are now on fixed-term, hourly, or other 'contingent' contracts. This is highly evident in the US, where Bowen and Tobin (2015) estimated that the proportion of faculty who were tenured or tenure-track fell from 78% in 1969 to 34% by 2009. But parallel changes are reported in the UK and in other countries, albeit from a different base, and at different speeds (Cross & Goldenberg, 2009; Ryan *et al*, 2013; Fitzgerald *et al*, 2012; Locke, 2014; Afonso, 2016; UCU, 2016) and are discussed in more detail in section 2.1. Given the very different ways in which different parts of higher education have developed in the UK, it is likely that the incidence and rate of change in non-traditional and contingent employment vary considerably between institutions, although prior to our research there had been no detailed sector-wide analysis of these differences, or of their correlates.

Is the shift towards non-traditional types of academic staffing beneficial or harmful to students? Information on this comes almost exclusively from the United States. Using cross-sectional survey data on over 17,000 faculty members from some 130 US higher education institutions, Umbach (2007) showed that, compared with their tenured and tenure-track peers, contingent faculty, particularly part-timers, were less effective in their delivery of undergraduate instruction. Ehrenberg and Zhang (2005) analysed panel data on over 700 universities and colleges in the United States. Their estimates revealed that, other factors held constant, increases in either the percentage of faculty that were part-time or the percentage of full-time faculty that were not on the tenure-track route, were associated with a reduction in graduation rates. Using a similar methodology, Jacoby (2006) found that public two-year colleges that relied more heavily on part-time faculty had lower graduation rates. Bettinger and Long (2010) report that, among their sample of students attending public HE institutions in Ohio, those whose first-year class schedules involved many part-time and non-tenure track staff were less likely to persist in college after their first year; Jaeger and Eagan (2011) found a similar result for public two-year college students, also within a single state system.

Part-time lecturers in the US are almost always teaching-only staff; and on balance the impact on student outcomes of using more part-timers appears negative. However, this is not a self-evident finding. If there are advantages to specialisation, a move to more teaching-only staff might in principle improve student attainments, as they should be able

to devote themselves to teaching, without the distractions of research expectations (Ehrenberg, 2006). Recent discussions and developments in the UK (notably the introduction of the Teaching Excellence Framework, and, in many universities, the introduction of a new 'teaching-oriented' career pathway), reflect the belief that a heavy emphasis on research activity may not be the best pathway to high quality teaching. So why the apparent negative effects?

It seems that, as least in the US, adjunct appointments are often of an ad hoc nature, with part-time tutors having very high teaching loads, often combining several part-time contracts across multiple institutions. Research correspondingly found that part-time faculty therefore interacted with students less frequently, used active and collaborative techniques less often, spent less time preparing for class, and had lower academic expectations of students than tenured and tenure-track faculty members (Umbach, 2007).

Traditionally, academic staff would be full-timers combining both research and teaching duties and '*contingent*' could be very broadly defined to mean any academic not employed in that way. However, the term has acquired a narrower meaning, relating to those on short-term and fixed contracts. Faculty with such contingent appointments were likely, according to US research, to earn lower wages, received little support for professional development, and worked in environments that often marginalised them (Baldwin & Chronister, 2001; Gappa & Leslie, 1993). A link between poorer working conditions and less effective performance is very much in line with research on contingent workers in other sectors (Connelly & Gallagher, 2004; Capelli & Keller, 2013). Most of the evidence from the US, then, is consistent with part-time teaching-only staff being less effective than full-time, tenured or tenure-eligible staff.

Apart from students, changing patterns of work will also impact on academic staff themselves. Casual and fixed term contracts will mean staff being affected by various forms of uncertainty including financial constraints, the need to continually be on the hunt for the next job, and future plans generally. Given the importance of research outputs for forging lasting academic careers in HE, appointment to a teaching-only contract may restrict career progression, particularly for young academics who could become trapped on short-term contracts or in unrewarding work.

Background: non-academic staff

Universities, of course, have two broad categories of staff, both very large. Academics engaged in teaching and/or research have attracted by far the most attention, but universities also employ many non-academic 'support' or 'professional services' staff. Hogan (2011) and Whitchurch (2012) both indicate that, in the UK, the proportion of the university workforce and expenditures involved in administration and central services has grown. Shattock (2013; see also Shattock and Horvarth, 2020) argues that, since 2000, there has been a general trend towards centralised decision-making in the UK, with a growth in the number of senior management posts. This may be in line with trends elsewhere. Bowen and Tobin (2015) estimate that managers and non-academic professional staff numbers in the

US have also increased more rapidly than those of academic staff: Musselin (2019) argues the same for France.

Key questions here relate both to the drivers of expansion and to whether they reflect the effective use of resources. If there has been a growth in managerial numbers, are those additional staff justifiable in terms of the changing demands made of the organisation? Or, as argued in some of the US literature, is the explanation that, in times of plenty, with money to spend, colleges and universities 'chose not to spend it on expanding their instructional resources i.e. faculty. They chose, instead, to enhance their administrative and staff resources' (Ginsberg, 2011, pp 26-7). A further possibility is that reducing administrative staffing levels is problematic in higher education institutions and tends only to occur in times of crisis. As was the case with teaching-only staff, we have, until now, had little systematic information on any of this for universities in the UK.

In this research project we contribute new information on both academic and non-academic staffing in UK HE institutions. We are interested in two things. Firstly, whether and how far there has been a decline of 'traditional' permanent academic jobs with both teaching and research responsibilities as opposed to more specialised roles comprising just teaching or just research. Secondly, we seek to understand changes in non-academic staffing relative to academic employees. How have the numbers of non-academic staff changed in recent times relative to the number of academics? How much variation in this academic to non-academic staffing ratio exists within the sector? And can we identify the drivers of change?

Research questions

We pose seven specific research questions. These were developed to reflect our hypotheses about potential drivers of change. Several of our research questions refer to 'contingent' academic staff. Usually when we use the term in this report we are referring to staff who have only teaching duties, especially those on part-time and/or fixed term contracts.

RQ1: Are staffing trends uniform across the sector, and are they largely stable over time?

RQ2: Are proportions of, and increases in, 'contingent' staff higher in universities which have experienced high instability in student application and recruitment numbers?

RQ3: Are proportions of, and increases in, 'contingent' staff higher in universities which have (a) high research ratings and/or league table positions or (b) have improved their ratings significantly during the period in question (2005 to 2018)?

RQ4: Are proportions of, and increases in, 'contingent' staff greater in universities which have high turnover of permanent staff (indicating a tendency to replace permanent with contingent positions as permanent staff leave or retire)?

RQ5: How far, within institutions, are there major differences between departments in the number of permanent and 'contingent' academic staff, and are these differences related to research quality measures, or to fluctuations in enrolment which depart significantly from the institution's average?

RQ6: How far, within institutions, are there major differences between departments in the ratio of academic to professional services/administrative staff, and are these differences related to research quality measures, or to fluctuations in enrolment which depart significantly from the institution's average?

RQ7: How far are changes in non-academic staff numbers found in (a) academic departments and (b) central services?

Data and methods

This set of research questions implies the need for a mixed-methods approach. Using different methods enables us to be clear on broad, emerging trends within the sector and to gain an in-depth understanding of the specific factors underlying those trends. In this project we therefore drew on administrative datasets for the UK HE sector generally and on case studies of a sample of individual universities.

The value of the mixed methods approach, then, is that it combines the scope for identifying general patterns offered by quantitative analysis with the strengths of qualitative interviewing for addressing 'why' questions and offering explanations.

There are several ways of doing mixed methods research which can be distinguished broadly by the questions of priority - do the quantitative and qualitative components have equal weight or is one predominant? And by sequence - does the quantitative phase precede the qualitative phase, or *vice versa*? (Creswell and Plano Clark, 2011; Bryman, 2016, pp. 637-640; Bazeley, 2018, pp. 7-27). In our research the quantitative phase was predominant – in terms of amount of time spent on it – and preceded the qualitative phase, with the quantitative results raising issues which were then pursued further in the qualitative interviewing.

Quantitative data

For the quantitative component of the project we looked in detail at administrative data held by the Higher Education Statistics Agency (HESA). Despite being readily-accessible the HESA data have seen remarkably little use by researchers to date. HESA collects a wide range of data annually, including information on numbers and types of staff, and the data will be used here to track staffing trends over the last 15 years and analyse variation within the sector. Some of the data has been downloaded from the HESA website and some has been accessed via the HEIDI-plus² data management system.

We make comparisons between different types of HE institution (Russell Group, other pre-92 universities and post-92 universities). The data also include a wide range of information which can be used to construct explanatory predictors (e.g. student numbers, student types, subject mix), as well as financial data on income and expenditure. It can be augmented by merging in data from other sources e.g. measures of student satisfaction from the National Student Survey (NSS), results of the 2008 RAE and 2014 REF or the *Times Higher* world

² Higher Education Information Database for Institutions: see Glossary

rankings. (Readers who are less familiar with the jargon of higher education may wish to refer to the Glossary at the end of this report).

We apply exploratory data analysis and regression models. Since much about the nature and extent of change in the academic workforce is unclear at present, so some of our research is avowedly exploratory and descriptive. We map trends over time - for example, is there a steady growth in teaching-only staff, or do increases occur only in the run-up to REF/RAE dates? We look at how staffing patterns vary by characteristics of universities (e.g. status, size and type). Multiple regression was used in order to enable the research to progress beyond basic descriptives. In considering an outcome of interest such as the number of part-time academic staff, and how it may vary across different HE institutions multiple regression can control for any characteristics which we can measure in our dataset. In this instance, explanatory variables might include the size of the university, the type of students who attend (such as proportion of graduates, proportion from the EU), and measures of research prestige of the university.

The data are mostly on a headcount basis unless otherwise stated. Our sample comprises 117 UK HE institutions. The institutions have been selected as generalist institutions covering most of the HE sector, and fall into four broad categories: 'Russell Group' members, who are research-intensive and include the largest and most prestigious research universities; other 'old' or pre-1992 institutions; ex-polytechnics, all of which became universities in 1992, and other 'new' (post-92) universities many of which existed in other forms before becoming universities. We excluded from our analysis institutions which were small, specialist, otherwise atypical and those which lacked reliable data (see Appendix for further discussion and a full list of institutions included in the analysis). All statistical data, including data for named institutions, are in the public domain: equally, discussion of our case study universities is fully anonymised.

Qualitative data

In order to gain further understanding of the underlying dynamics at work, we also carried out a number of case studies of universities' staffing developments and decisions over the period under study. We interviewed senior management team members, and senior members of professional services, as well as examining financial records in the public domain, in order to understand better how new posts get approved, how any cut-backs are achieved, and the extent to which these processes reflects clear staffing strategies across the institution.

Our sample was an 'opportunity sample': i.e. it consisted of universities where we had personal contacts, and so could gain access to discuss what are inevitably seen as sensitive issues. We provided our primary contact (in each case either the Provost or Vice-Chancellor) with a summary of the research project and in five of the six cases, our interviews were concentrated into a one or two day visit, organised by a member of the VC's office in discussion with us. The sixth case was carried out in a more ad hoc fashion. In two cases, the university organised a roundtable with all the staff involved: in the other four, interviews were carried out individually/one-to-one.

The precise job roles of those interviewed differed somewhat from institution to institution, mostly because of people’s diaries and also because we asked to meet people who had been at the institution for some time. Typically, we met the director of planning or their deputy; the head or a very senior manager from HR/People Services; the Director of Finance or one of their senior deputies; and one or more PVCs. In retrospect, we should also have been more systematic in requesting interviews with at least one current faculty Dean: in the event we met with a number of people who had been Deans but only interviewed current Deans in two institutions. We originally aimed at completing full case studies in six universities: two Russell Group, two pre-92 non-Russell Group, and two new/post-92 universities. Unfortunately, one of the latter withdrew cooperation before we had completed interviews there, so we have at present only 5 complete case studies, and one partial. A further unavoidable problem derives from staff turnover, and the resulting lack of institutional memory: but in every case we were able to talk to a sizeable number of people who had been in post for many years.

We included two Scottish universities among our case study institutions. Given differences between England and Scotland in terms of funding policies for ‘home’ students (and the funding levels for these) and also the existence of number caps in Scotland, but not England, we aimed to explore what effect, if any, these might have on staffing changes. The comparison is made easier by the fact that Scotland is part of the same research funding regime as England and the contribution of international fees to total teaching income is also fairly similar at country level: so *a priori* it is not obvious whether or not there are likely to be substantive differences between staffing at Scottish and English institutions.

Some salient features of the six case study institutions are shown below including changes in student numbers, whether there had been internal re-organisation or a financial crisis during the period under review and the proportion of senior professional services appointments (‘managerial and non-academic professional (MNAP) staff’) relative to academic staff.

The case study institutions: 2005-18

	A	B	C	D	E	F
Type	Pre-92	New	Russell	Ex-poly	Russell	Pre-92
% change in student nos 2005/6-12/13	+17%	+69%	+50%	-4%	+25%	+6%
% change in student nos 2012/13-17/18	-3%	-33%	+26%	+1%	+28%	+15%
Internal reorganisation	Y	Y	Y	Y	Y	Y
Financial crises?	Y	Y	N	Y	N	N
% MNAP posts 17/18 (as % Academic posts and relative to sector overall)	26 (Medium)	26 (Medium)	20 (Low)	27 (Medium)	20 (Low)	23 (Medium)

As the table above shows, none of the institutions concerned is at the high end of the 'MNAP' distribution (partly because we reached out to institutions well before completing our quantitative analyses and so did not identify this group as of particular interest in advance). However, they are very varied in their histories. Most universities retain a great deal of choice and freedom to vary their management practices, and to succeed and fail. Our sample contained, for example, two institutions where previous Vice Chancellors and leadership teams had made some serious financial miscalculations and errors, leading to retrenchment and redundancies which had nothing to do with the overall national environment. In a third, there had been a huge growth in administrative posts, especially at senior levels, under a previous Vice-Chancellor, which had been cut back by the present incumbent. That said, there were also some strikingly common trends apparent which help to explain national developments.

SECTION 2: ACADEMIC STAFFING

In recent years universities in the UK have seen an increasing diversification in their staff profiles. Growing numbers of staff have been employed on teaching-only contracts, other staff have been employed solely as researchers, alongside a stable, or declining, core of 'traditional' academics who have contracts for engaging in both teaching and research.

Our research seeks both to map changes in the staffing patterns of teaching academics and to understand why such change has occurred. We begin with an overview of the international literature on the topic in Section 2.1. We then provide detailed evidence on the numbers of different types of academic staff working in UK universities. Our quantitative evidence is contained in Sections 2.2 to 2.6, and summarized in Section 2.7. The numbers are broken down across the different types of university within the rather diverse HE sector; and we investigate trends in academic staffing over a twelve-year time frame. We focus particularly on the key aspect of change: the growth in numbers of teaching-only academic staff. Interviews with senior staff in six universities then provide information on the processes underlying change in the sector. This qualitative evidence is set out at length in Section 2.8.

2.1. Literature review

In recent decades, there appear to have been substantial changes in the ways that universities are staffed. Finkelstein *et al* (2016) show that, in the US, the growth of 'non-traditional' staff, as a percentage of the total workforce, is a long-term trend. Those on tenured and tenure-eligible appointments shrank from 29% to 17.2% and 16.1% to 7% respectively between 1979 and 2013. Those on full-time fixed-term (non-tenure track) appointments rose from 10% to 15% of the total workforce. While part-timers were about 25% of instructional staff in American HE institutions in 1979 they accounted for 43% by 2013. Parallel changes are reported in other countries, but from a different base, and at different speeds (Cross & Goldenberg, 2009; Ryan *et al*, 2013; Bryson, 2013; Fitzgerald *et al*, 2012; Locke, 2014; Afonso, 2016). In Australia, it has been estimated that 61% of academics were employed on casual contracts by 2011 and up to 80% of first-year teaching was undertaken by sessional staff (May *et al*, 2013).

Nowadays just under half of academic staff in UK universities are on traditional 'research and teaching' contracts with others classified as 'teaching only' or 'research only' (Locke *et al*, 2016; Scott, 2019). Large numbers of academic employees in the UK are now on fixed-term, hourly, or other 'contingent' contracts (UCU, 2016). Prior to our study there had been no detailed sector-wide analysis of these differences in the UK, or of their correlates.

Consequences for HE staff

In principle the growth of non-traditional employment, such as teaching-only, in HE could be beneficial – a sensible specialisation of roles enabling individuals to concentrate on what they are best at. On the other hand, those in teaching-only roles may find them precarious or stressful. The proliferation of contingent employment could make the entry of younger academics into established posts more protracted too. Spending all one's time teaching

leaves few opportunities to obtain research grants and progress. What does the evidence say about the experience of being a contingent worker in HE?

As noted above, it was established in the early US literature that faculty in contingent appointments were likely to earn lower wages, received little support for professional development, and worked in environments that often marginalized them (Baldwin & Chronister, 2001; Gappa & Leslie, 1993). The burgeoning international literature since then has shown that this continues to apply in the US and elsewhere. Terminology such as the 'gig academy' and the 'academic precariat' have circulated in the literature as a way of drawing parallels between these trends in the academy and poor quality jobs in the economy more generally. Consistent themes in this body of literature are: the institutional invisibility of casual academic staff, the poor conditions of work for contingent academic staff including lack of access to facilities, training and collegial support, the gendered nature of casual academic employment and the growing separation of contingent academic employment from permanent academic employment (Bryson, 2013; May et al, 2013; Crimmins, 2017; O'Keefe and Courtois, 2019; Ivancheva et al, 2019; Childress, 2019). As discussed earlier, the outcomes do not appear to be favourable for students either.

Studies on the UK specifically are few in number. Bamber *et al* (2017) conducted interviews with 51 teaching-only staff in Russell Group universities. Staff were in business schools or engineering faculties as these are regarded as two of the subject areas which tend to have high concentrations of teaching-only (TO) staff – an assumption which was borne out in our case study institutions. Some 94% of respondents had entered academic life after an earlier career elsewhere. Hence most respondents had more experience in professional practice than in university teaching.

Many of the respondents felt that teaching in their institution was undervalued relative to research. TO staff were regarded as 'second-class citizens'. As research was more highly regarded than teaching many felt that their chances of advancement to higher points in the hierarchy were very limited. The inferior position of TO staff was entrenched by management decisions to allocate much of the administrative and institutional citizenship work to them in contrast to research-active staff who were often spared administrative burdens. The lack of proper academic status was frustrating and unsettling for TO staff.

In response, TO staff tried to access high visibility senior administrative roles; they might also try to engage in research themselves although having limited time to do so; or they might make a virtue of necessity and focus strongly on enhancing the student learning experience. TO staff were then, according to this study, trapped in a state of 'occupational limbo'. This was reinforced by their lower status relative to research-active staff; by the lack of promotion opportunities for TO staff in these institutions; and the fact that they were asked to shoulder the burden of much administrative work in their institutions.

Those working on temporary contracts were studied by Loveday (2018). She interviewed 44 academic staff working on fixed-term contracts in UK universities as part of a project that aimed to explore the subjective experience of casualised labour. Respondents were interviewed on up to three occasions over a 21-month period so that changing circumstances could be tracked over time: These staff were found to be anxious about their

situation and the financial uncertainty that this implied. They often felt marginalised, sometimes not truly an academic – this could be the case even for those in quite senior positions. They were concerned that they would not be able to forge a successful academic career. Morrish (2019) drew on data from 59 UK HE institutions who responded to FoI requests to document an apparent steep rise in academics and professional service staff accessing university counselling services, as well as similar increase in referrals to occupational health services, between 2009 and 2016. Potential causes of increased stress include growing workloads, performance audit, but also the stress and insecurity of short-term, fixed term and casual contracts.

Locke *et al* (2018) conducted a large-scale survey of recent doctoral graduates in social science disciplines in the UK, along with 35 follow-up interviews with survey respondents and nine interviews with experts. While many of the respondents had found their way into academic careers there was a widespread sense in the interview data that the path towards their desired career outcome had taken longer than expected, and the journey had been stressful, frustrating and not as straightforward as they had envisaged. There was a general sense both from the doctoral graduates themselves and from the expert commentators of an over-supply situation in the labour market for doctoral graduates, at least in social sciences, which was unlikely to disappear.

Bryson (2013) surveyed progress in supporting sessional staff (hourly-paid and other workers on atypical contracts) in the UK, looking at matters such as institutional facilities and professional development, concluding that progress had been very slow and remained extremely limited.

In terms of an underpinning theoretical framework, notions of a segmented labour market are common in the international literature. There is 'a tenured core and a tenuous periphery' (Kimber, 2010), with the core comprised of secure academics and the periphery as all the casual and sessional staff. It is argued that these operate in separate labour markets. Working as contingent staff may make it difficult to move to a secure position, perhaps by sending signals about the quality of the employee, or because they lack research publications. Hence staff may become trapped in the contingent sector (Childress, 2019; May *et al*, 2013; Mauri, 2019).

Afonso (2016) provides a typology of academic labour markets in Europe, and argues that, because the number of PhD students and graduates has increased much faster than the number of academic posts across Europe and the US, conditions exist which facilitate the development of segmentation. There is a ready supply of qualified staff willing to take temporary and part-time positions which they hope will lead to more permanent ones. However, he also argues that the extent of segmentation is affected by specific as well as general conditions. What, then, are the general and local factors which explain changes in staffing patterns?

The determinants of staffing changes

Evidence on *why* universities have moved away from the traditional mode of securely-employed academic staff towards increasing numbers of non-traditional academic

employees, such as part-time, fixed-term and casually employed workers, is rather limited. There are very few published quantitative studies, and all use data for the US. Liu and Zhang (2013) analysed the proportion of part-time teaching staff in US academia. At the time of their study they say part-timers comprised about 40% of the faculty. They utilised cross-sectional data for 2005/06 for a sample of 1,364 4-year colleges and universities; they applied multiple regression techniques with the proportion of part-time staff as the dependent variable.

Private institutions employed more non-tenure track faculty than their public counterparts, perhaps indicating that private institutions had more flexibility in faculty employment, and thus were more likely to pursue cost savings. The proportion of part-time students at the institution and the share of institutional revenues derived from tuition and fees were positively associated with part-time faculty employment. Institutions that had limited resources and those paying high salaries to their full-time faculty members tended to employ a high proportion of part-time faculty. These results suggest that the employment of part-time faculty was significantly associated with a set of organizational attributes and characteristics such as institutional type, sources of revenue, and part-time student enrolment.

The main limitation of the Liu and Zhang paper is the cross-sectional nature of the data, meaning that change over time could not be addressed. However, Zhang *et al* (2015) extend the analysis using data for selected years from 1993 to 2012 on a sample of 1,463 institutions – all of them 4 year colleges and universities. They performed various analyses, focusing on part-time and also non-tenure track faculty. The results were broadly similar to their earlier paper but they also found that changes in the number of part-time faculty were negatively related to changes in the numbers of full-time lecturers/instructors and associate/full professors, which is consistent with the notion that part-time faculty were hired to fulfil teaching needs that are unmet by full-time faculty members. Wealthier institutions tended to employ fewer part-time faculty while, in addition, numbers of faculty employed in all categories was positively influenced by student enrolments. There were some differences across disciplines. Institutions with medical schools employed a much higher proportion of non-tenure track faculty than institutions without medical schools. This was most likely because medical schools have a tradition of hiring clinical faculty in addition to large numbers of research faculty whose contracts are tied to the durations of external grants.

These quantitative studies, although small in number, are informative. But they do not tell us about the processes underlying the decisions to hire more contingent staff. A handful of mixed-method and qualitative studies, again largely American, provide some insights on this. Monk *et al* (2009) used national data for US research universities plus a case study of Penn State University. They maintain that universities were trying to strike a balance between the low-cost advantages of employing more non-tenure track faculty and the need for more expensive tenured faculty who could take a lead in research. They also argue that the gradual shift towards more contingent appointments was not the result generally of a deliberate top-down strategy but was probably better characterised as an incremental, “muddling through” approach by academic departments.

Studies of developments in the US generally conclude that a strategy of attracting and paying for research 'stars' is important in driving hiring behaviour. In interpreting US evidence, British readers should, of course, bear in mind that the USA has no national policy of funding universities directly for research, as opposed to contracts and grants for individual researchers and research teams. The UK approach, providing Quality Related funding to institutions based on research performance in (most recently) the 'Research Excellence Framework', is possible because ours is a national system. Other European countries (notably Sweden) pursue similar, if less ambitious and labour-intensive policies, that provide 'block' funding to leading research institutions. In the US, there are multiple funders of research, but individual contracts from federal agencies (notably the National Science Foundation and National Institute of Health) are critically important.

Although staffing trends in US universities are the most studied, researchers concentrate almost entirely on research universities and business schools. Callie and Cheslock (2008) examined US Business Schools from 1997 to 2006. Elite schools' deans described a strategy of reducing the size of the tenure-track, increasing the proportion who are top researchers, with low teaching obligations, and increasing total student numbers. The authors report an enormous increase in the number of instructors (teaching fellows); and an absolute decline in the number of full professors in top schools, with flat-lining elsewhere. Courant and Turner (2017) look at two major public research universities in the United States, and argue that they deploy resources efficiently given their objectives and environment. They conclude that, among research universities, salaries are largely determined by research output. Average salaries vary between departments and disciplines. However, given very different class sizes and proportions of 'contingent' staff, faculty compensation *per student enrolled* is much more uniform across departments than raw data would suggest.

Cross and Goldenberg (2009) also studied elite US research universities, and found a steady growth of about 3 per cent a year from 1990 onwards in the relative share of non-tenure-track in faculty headcounts; that most non-tenured staff are concentrated in the first and second years of undergraduate programmes; and that teaching loads for tenure-track academics in these elite institutions have fallen significantly, by 25% between 2000 and 2010, and by as much as 50% compared to 1970. Expenditure decisions were made, at department level, to pay for academic 'stars'. Increased 'productivity' was achieved largely by increasing the number of total classes (and students) and hiring contingent junior staff.

The incentive to seek gains in reputation exists across universities globally. However Cross and Goldenburg emphasise that standard American institution-wide systems also create budgetary incentives to make positions non-tenured. A US academic department will typically not lose resources year on year, even if it closes courses,. So when a tenured faculty member leaves or retires, the department has a strong incentive to move to a cheaper non-tenured position: and once a post has become a 'non-tenured' post it almost always stays that way, the money 'saved' having been re-allocated elsewhere. This structurally-based one-way ratchet is consistent with a steady growth of contingent contracts over time in elite US universities.

May (2014) conducted a mixed methods study of casualisation in Australian universities, where the funding and regulatory environment is more like that of the UK than is the case with American universities. In Australia the growth of contingent academic staff has mainly taken the form of sessional staff paid by the hour. The qualitative component of May's research took place in two universities and included interviews with senior managers and also academics with responsibilities for managing hourly-paid teaching staff. Staffing decisions were ostensibly devolved to departmental and faculty level, but in practice centrally-determined budgets, were the major determinant of and the major constraint on, staffing decisions. Senior managers frequently described, in interviews, the impact of tight budgets on their capacity to establish new academic positions or plan ahead to improve academic staffing levels. Resource constraints and volatility in funding and student numbers meant that managers felt compelled to cover their teaching needs with sessional staff rather than permanent academic appointments. Decisions were made within a series of constraints, and judgements exercised within those contexts, often against wider interests or better judgements. The lack of strategic planning or a considered approach to workforce development was very evident from the interviews at both the universities.

Although the growing number of contingent academic teaching staff is a topic for discussion and debate in the UK we are not aware of any previous studies which have systematically investigated the strategies and processes underlying hiring decisions here.

2.2. Academic staffing: an overview

Tables 1 and 2 compare numbers of academic and academic teaching staff in UK universities in 2005/06 and 2016/17. On a headcount basis there was an increase in total academic staffing of about 40,000 among our sample of 117 universities over this period. The number of teaching-only staff rose from 29,610 in 2005/06 to 45,390 by 2016/17.

Most of the growth in academic staffing was in the Russell Group – some 25,515 extra staff out of the overall increase of 40,180 were at the Russell Group. Most of the increase in teaching-only staff was also among Russell Group universities (Table 3).

At the start of the period, in 2005/06, teaching-only staff accounted for rather more than a quarter - 27.2% - of all staff with teaching contracts (including teaching-and-research) or just over a fifth, 20.5%, of all academic staff: see Table 4. They accounted for just 1 in 10 of all academic staff at Russell Group universities, and 17.5% of Russell Group academic staff with teaching contracts. So if there had been no change in the way universities managed their teaching, their numbers might have been expected to increase roughly in line with those initial proportions.

However, the growth in teaching-only staff between then and 2016/17 was much greater than this. In fact, additional teaching-only staff accounted for almost two-thirds of extra *teaching* staff (on a headcount basis) among Russell Group universities, and about 55% of the increase across all universities in the sample (Table 5). Although they accounted for barely more than a fifth of all academic staff in 2005/06, almost two-fifths of the additional academic staff over this period were teaching-only staff.

Table 1: All academic staff numbers 2005/06 and 2016/17

	All academic staff	
	2005/06	2016/17
Russell	60,435	85,950
Other old	33,005	38,655
Ex-poly	38,610	43,820
Other new	12,315	16,030
All univs*	144,425	184,605

*Sample size is 117. Includes Buckingham. Academic staff classified as 'neither teaching or research' excluded.

Table 2: Teaching staff numbers 2005/06 and 2016/17

	Teach-only		Teach & research		All teaching	
	2005/06	2016/17	2005/06	2016/17	2005/06	2016/17
Russell	6,115	15,040	28,780	33,850	34,895	48,890
Other old	10,200	12,830	15,915	18,230	26,115	31,060
Ex-poly	9,465	12,285	26,730	29,575	36,195	41,860
Other new	3,795	5,130	8,050	10,545	11,845	15,675
All univs*	29,635	45,390	79,475	92,235	109,110	137,625

*Sample size is 117. Includes Buckingham. Academic staff classified as 'neither teaching or research' excluded.

Table 3: Growth in numbers of academic staff 2005/06 to 2016/17

	Teach-only	All teaching	All academic staff
Russell	8,925	13,995	25,515
Other old	2,630	4,945	5,650
Ex-poly	2,820	5,665	5,210
Other new	1,335	3,830	3,715
All univs*	15,755	28,515	40,180

*Sample size is 117. Includes Buckingham. Academic staff classified as 'neither teaching or research' excluded.

Table 4: Percentage teaching-only staff in all academic staff, 2005/06

Teaching-only staff as percentage of ->	All teaching staff	All academic staff
	%	%
Russell	17.5	10.1
Other old	39.1	30.9
Ex-poly	26.2	24.5
Other new	32.0	30.8
All univs	27.2	20.5

*Sample size is 117. Includes Buckingham. Academic staff classified as 'neither teaching or research' excluded from all calculations.

Table 5: Percentage of growth in academic staffing accounted for by teaching-only staff, 2005/06 to 2016/17

	All teaching staff %	All academic staff %
Russell	64	35
Other old	53	47
Ex-poly	50	54
Other new	35	36
All univs	55	39

Students and academic staffing

Across the sample of 117 universities FTE student numbers were about 15 per cent higher in 2016/17 than they had been in 2005/06. Growth was more substantial for postgraduates than for undergraduates. And growth was fastest for the Russell Group universities, where overall numbers rose by about 30 per cent between 2005/06 and 2016/17. Changes in student numbers are summarised in Figures 1 to 4.

Overall, the increase in teaching staff was sufficient to at least hold the student-to-staff ratio constant, or for it to decrease in some of the HE sectors (Figure 5). However, as discussed further below, these overall staff-to-student ratios incorporate a deterioration in the ratio of students to traditional ‘teaching-and-research’ academics. Given the research findings on outcomes for teaching-only and ‘contingent’ staff, the much faster growth in numbers of academic staff on teaching-only contracts may be a cause for concern.

Figure 1: FTE Student numbers: Undergraduate. N = 116 universities

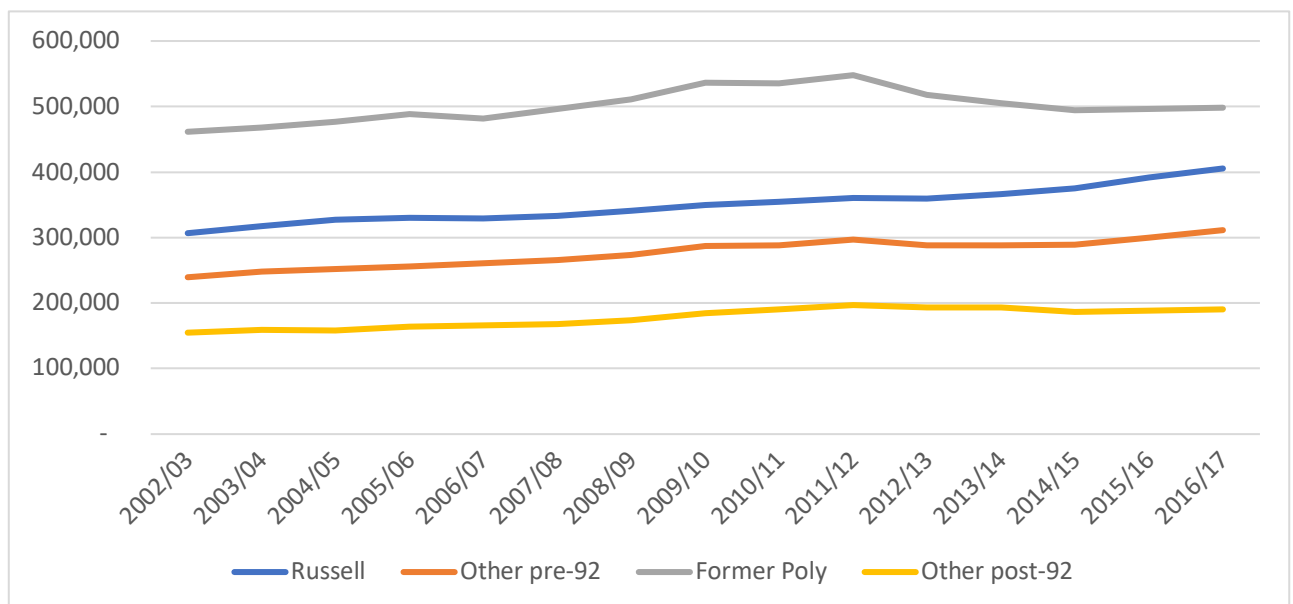


Figure 2: FTE Student numbers: Postgraduate. N = 116 universities

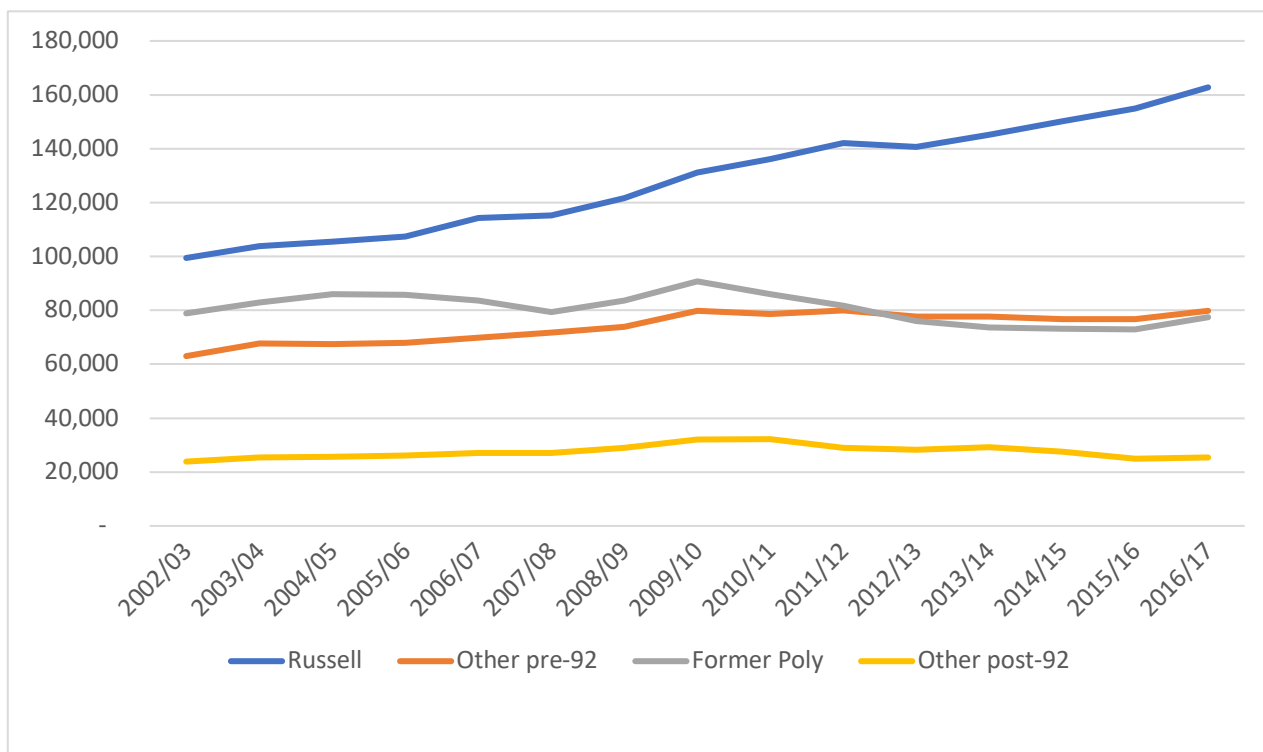


Figure 3: FTE Student numbers: All HE students. N = 116 universities

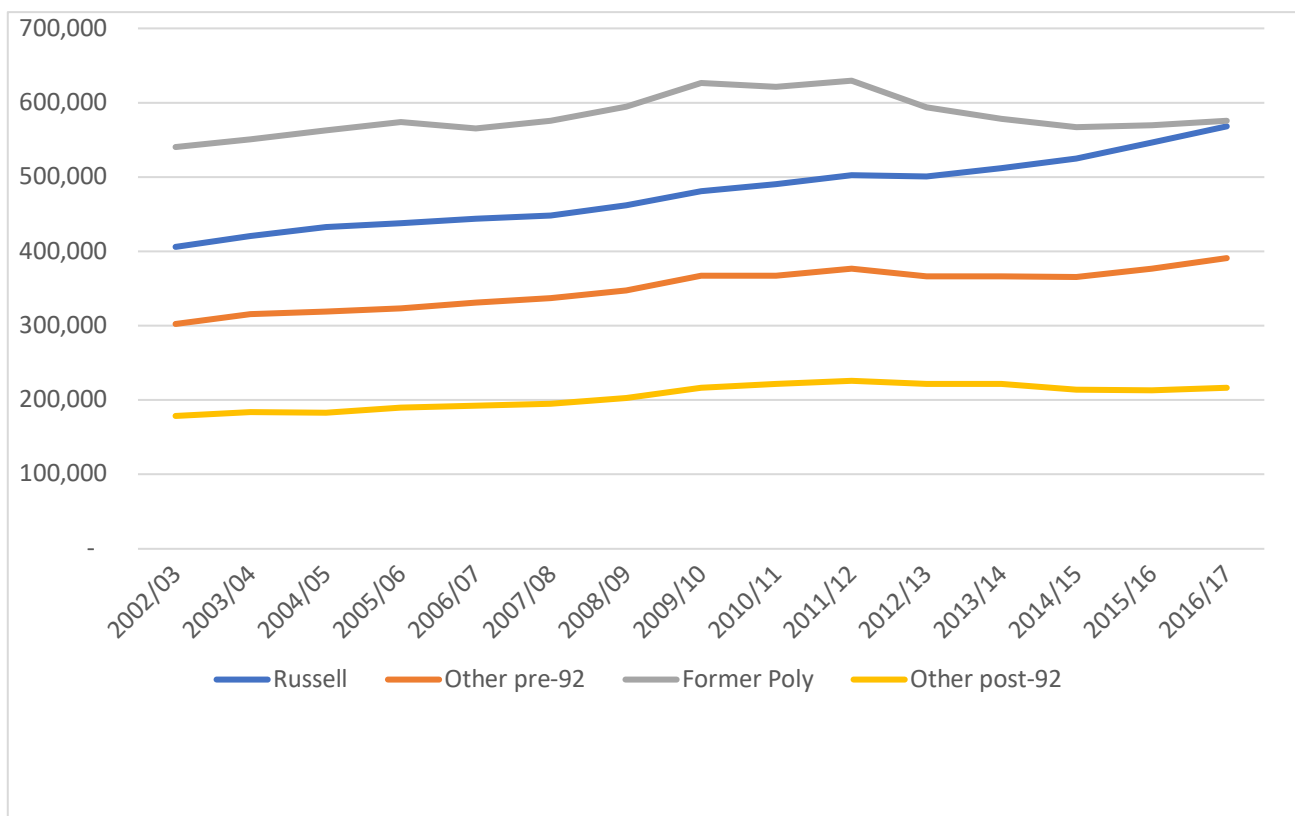


Figure 4: Growth in FTE Student numbers: 2002/03 to 2016/17 (per cent). N = 116 universities

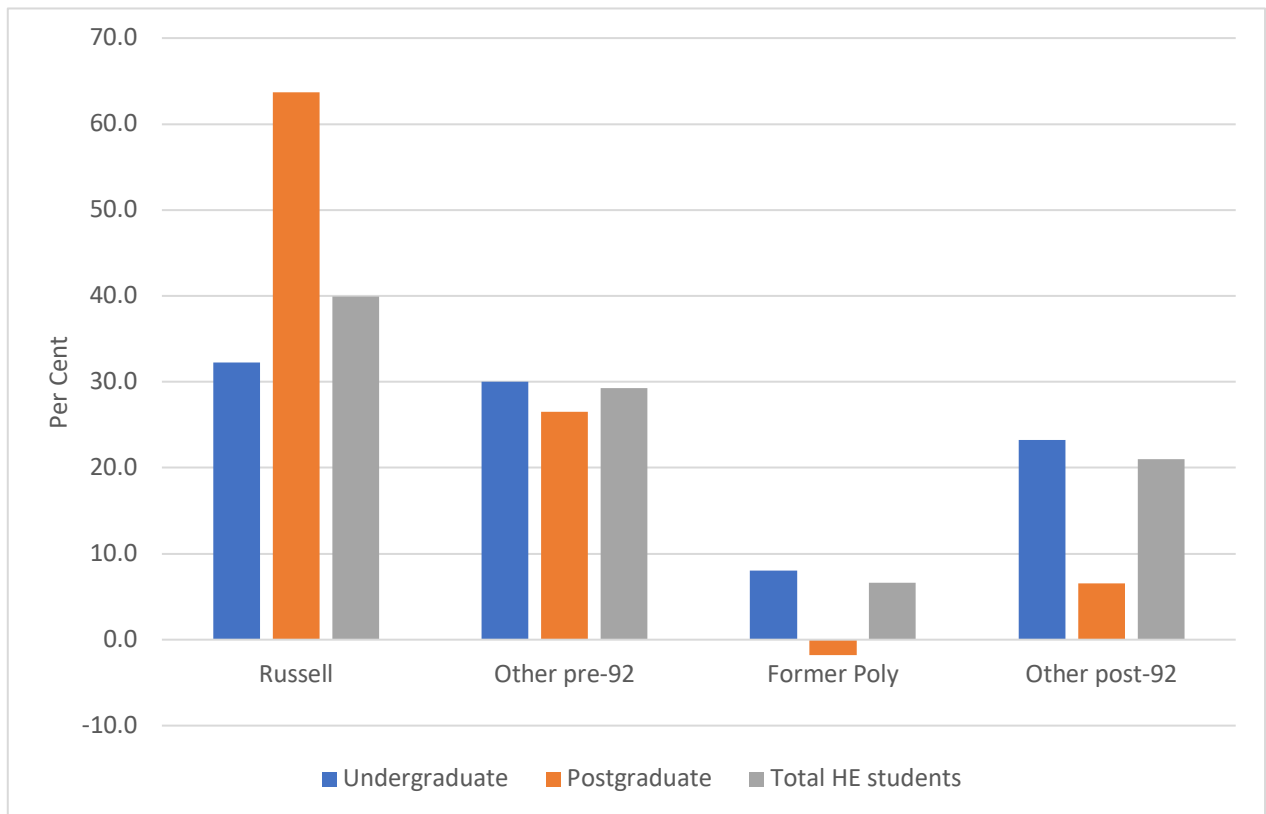
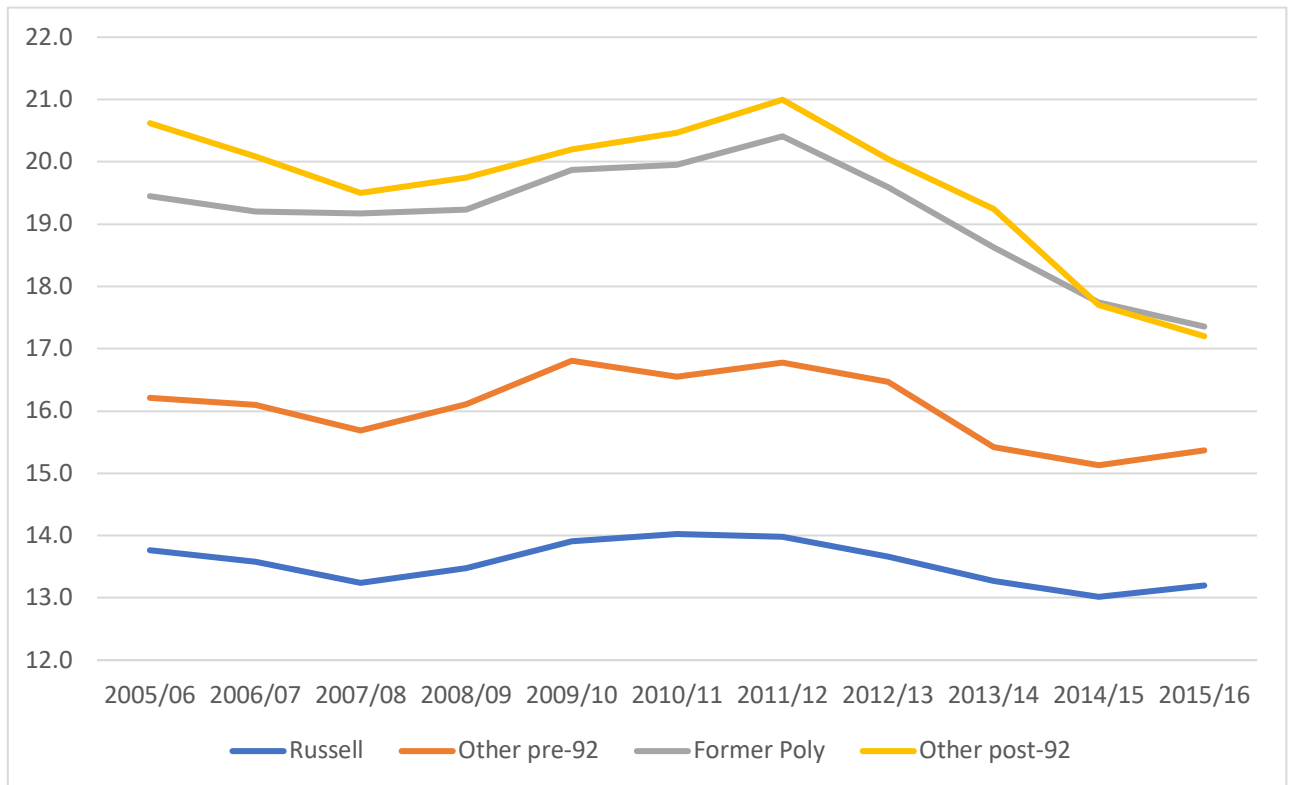


Figure 5: Student-Staff-Ratio by Sector: Unweighted averages



2.3. The growth of teaching-only staff

Growth in numbers of teaching-only staff

For the main sample of 117 universities, the number of teaching-only academic staff, as reported in Table 6, stood at 29,610 in 2005/06 and this had increased to 45,405 by 2016/17. Overall, there was some increase, of about 2.4 percentage points on average, in the proportion of teaching-only staff as a proportion of all staff with teaching responsibilities. The Russell Group universities employed just one-fifth of the teaching-only staff in 2005/06 but this had increased to about one-third by 2016/17 (see Table 7).

Increasing employment of teaching-only staff by the Russell Group universities was therefore responsible for much of the increase in this type of staff over the period. Indeed over half of the growth in teaching-only staff –almost 9,000 from a total increase of less than 16,000 – occurred among the Russell Group, as is apparent in Table 8.

The strong growth of teaching-only staff in the Russell Group is also apparent in Figures 6 and 7. The Russell Group had, on average, substantial increases in both part-time and full-time teaching-only staff (Figures 8 and 9).

Table 6: Numbers of teaching-only staff, 2005/06 to 2016/17

		Teaching only		
		Full-time	Part-time	All
All	2005/06	6,515	23,095	29,610
	2016/17	14,295	31,110	45,405
Russell	2005/06	2,090	4,025	6,115
	2016/17	5,855	9,185	15,040
Other old	2005/06	1,755	8,440	10,195
	2016/17	4,035	8,800	12,835
Ex-poly	2005/06	1,770	7,700	9,470
	2016/17	3,195	9,095	12,290
Other new	2005/06	845	2,925	3,770
	2016/17	1,145	3,990	5,135

All universities in main sample (n = 117).

Note: the 'All' row also includes one private sector university, Buckingham

Table 7: Numbers of teaching-only staff, 2005/06 to 2016/17

		All	Share %
Russell	2005/06	6,115	20.7
	2016/17	15,040	33.1
Other old	2005/06	10,195	34.4
	2016/17	12,835	28.3
Ex-poly	2005/06	9,470	32.0
	2016/17	12,290	27.1
Other new	2005/06	3,770	12.7
	2016/17	5,135	11.3
All	2005/06	29,610	100.0
	2016/17	45,405	100.0

All universities in main sample (n = 117).

Note: the 'All' row also includes one private sector university, Buckingham

Table 8: Growth in numbers of teaching-only staff, 2005/06 to 2016/17

	Growth: Numbers	% of total growth in numbers
Russell	8,925	56.5
Other old	2,640	16.7
Ex-poly	2,820	17.9
Other new	1,365	8.6
All	15,795	

All universities in main sample (n = 117).

Note: the 'All' row also includes one private sector university, Buckingham

Figure 6: Numbers of teaching-only staff, 2005/06 and 2016/17, by university type. Total sample is 116 universities.

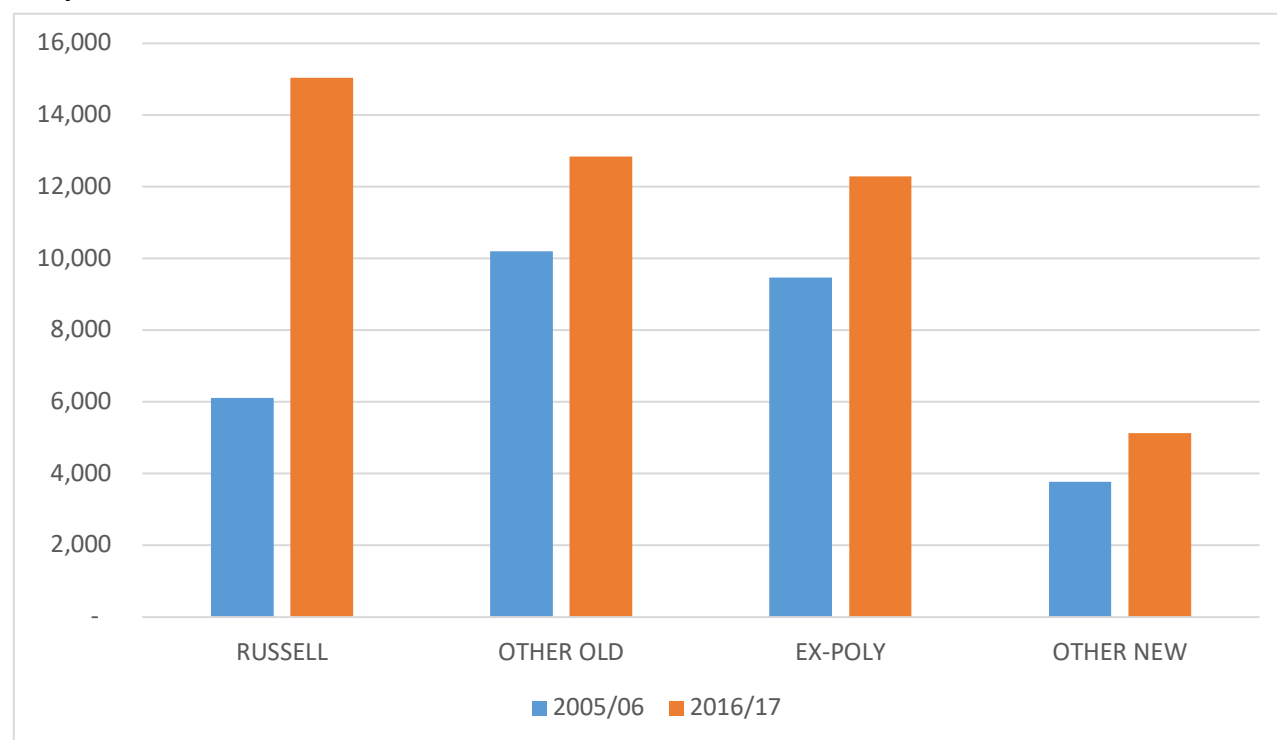


Figure 7: Numbers of teaching-only staff, 2005/06 to 2016/17, by university type. Total sample is 116 universities.

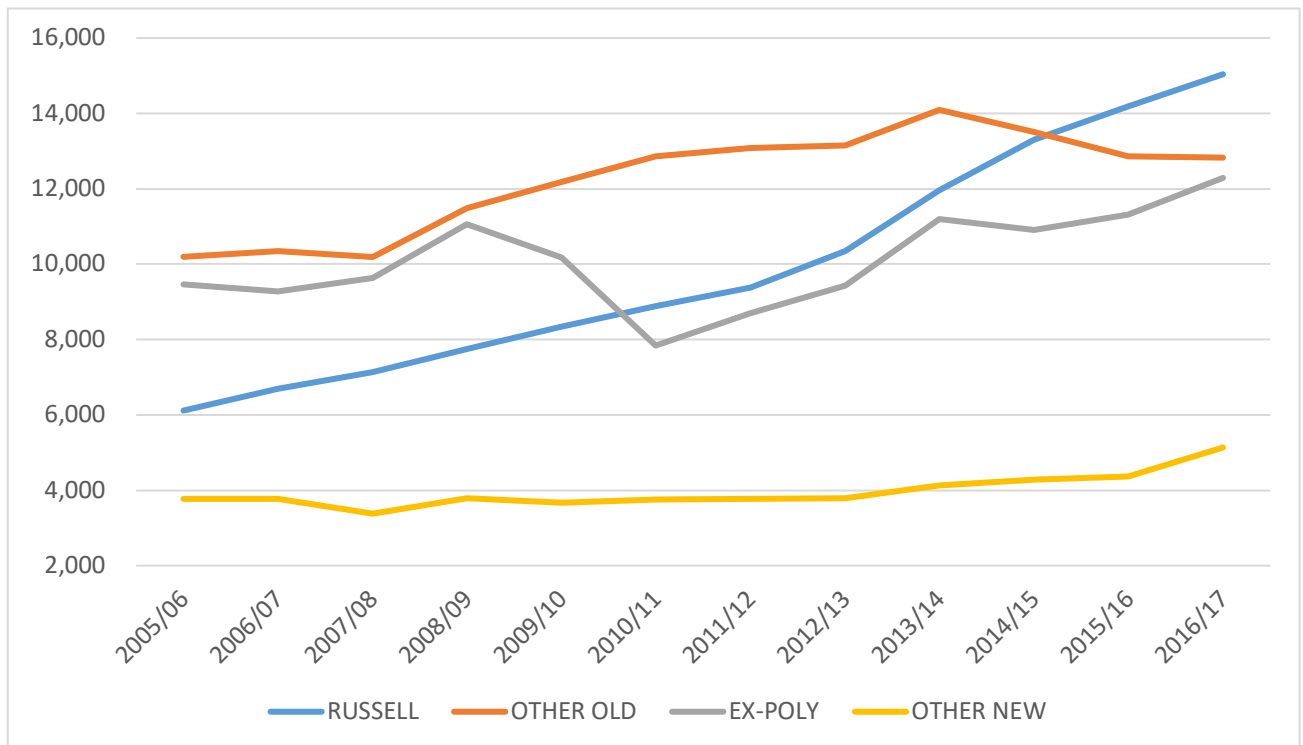


Figure 8: Numbers of full-time teaching-only staff, 2005/06 to 2016/17, by university type. Total sample is 116 universities.

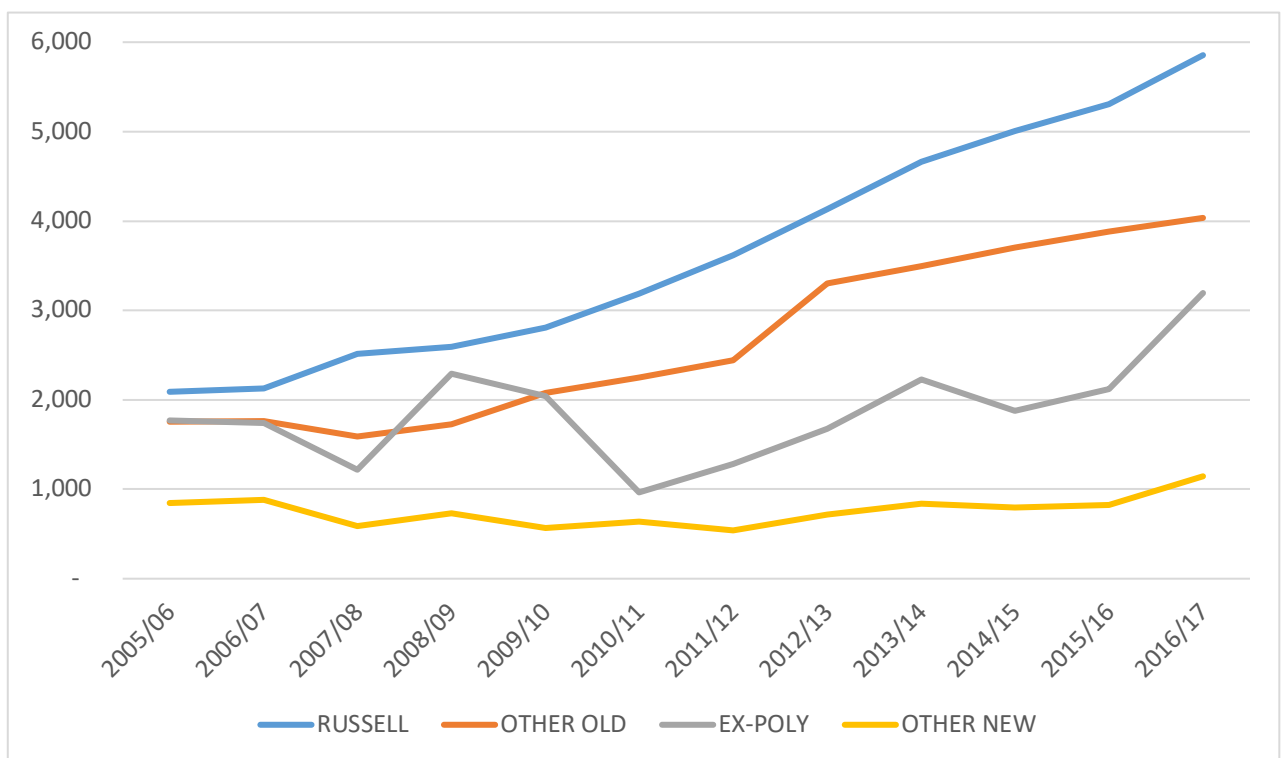
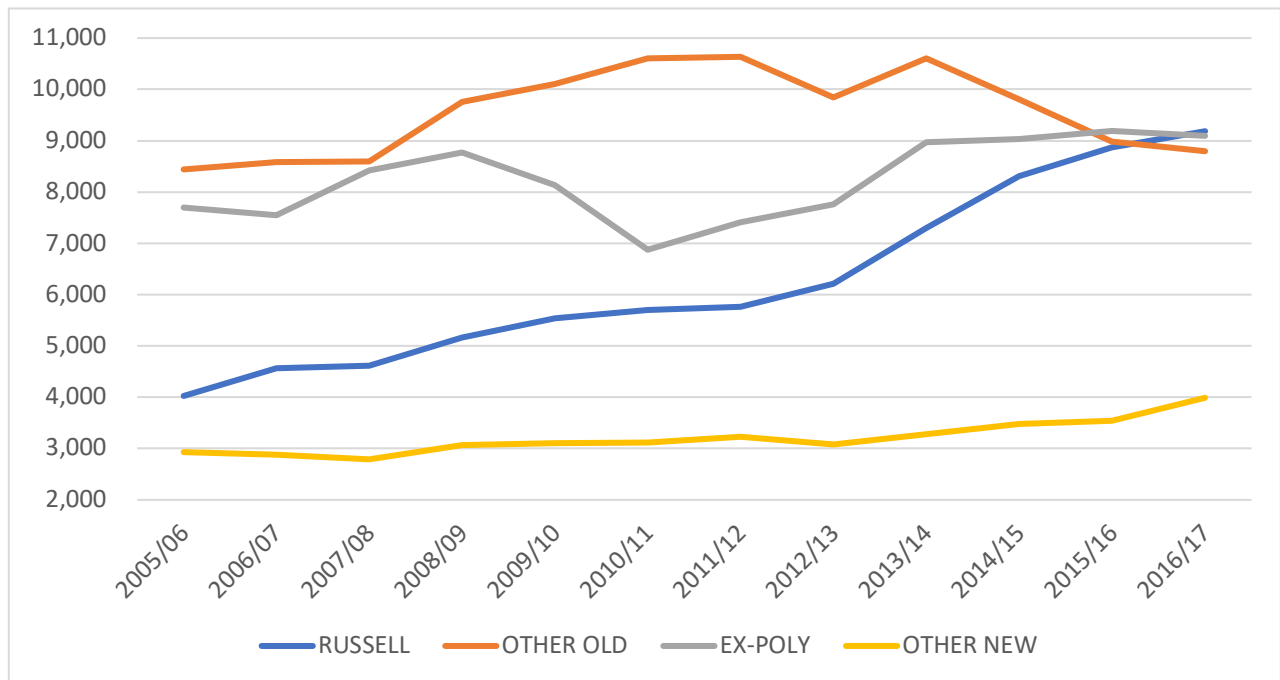


Figure 9: Numbers of part-time teaching-only staff, 2005/06 to 2016/17, by university type. Total sample is 116 universities.



Growth in the proportion of teaching-only staff

Figure 10 summarises changes in the proportion of teaching-only staff as a percentage of all staff with some teaching responsibilities, over the period 2005-17. There was enormous variation around this central point, as can be seen, from -92% to +78%. However, comparing the start and end of this period of time, we can see that the proportion in 2016/17 was positively related to that in 2005/06. This is apparent in Figure 11. The correlation between the two variables in the scatter plot here is 0.3 and statistically significant.

Nevertheless, these figures also give a sense, accurately, that those institutions with low proportions in 2005/06 were tending to catch up over the years up to 2016/17. There is in fact quite a strong negative relationship between the level in 2005/06 and growth between 2005/06 and 2016/17 (see Figure 12 below). And Figure 13 confirms that the Russell Group (which started with the lowest percentage on average) tended to have the highest growth over this period.

Taking the sample as a whole Table 9 shows, as indicated above, that there was a gradual increase in the mean percentage, from 29.1 in 2005/06 to 31.5 by 2016/17 and also a decrease in the amount of variation with the SD falling from 21.6 to 18.3 over this period.

Figure 10: Summarising the change in the proportion of teaching-only staff, 2005/06 to 2016/17

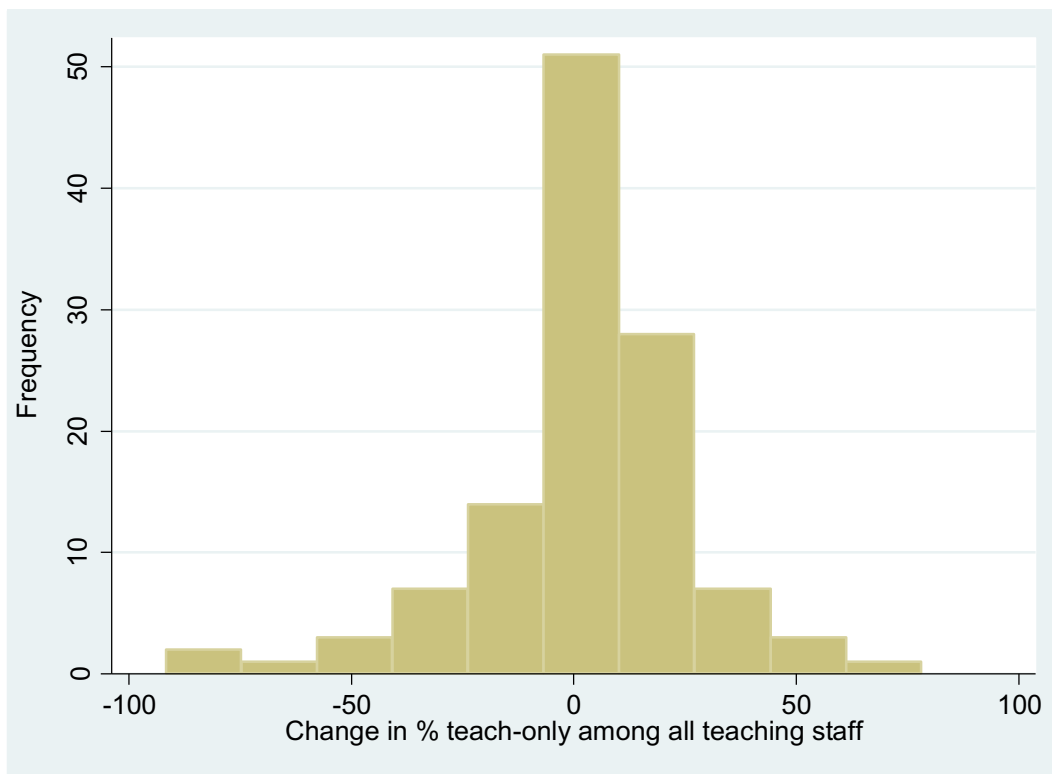


Figure 11: Teaching-only staff (as per cent of teaching staff) in 2016/17 and in 2005/06.

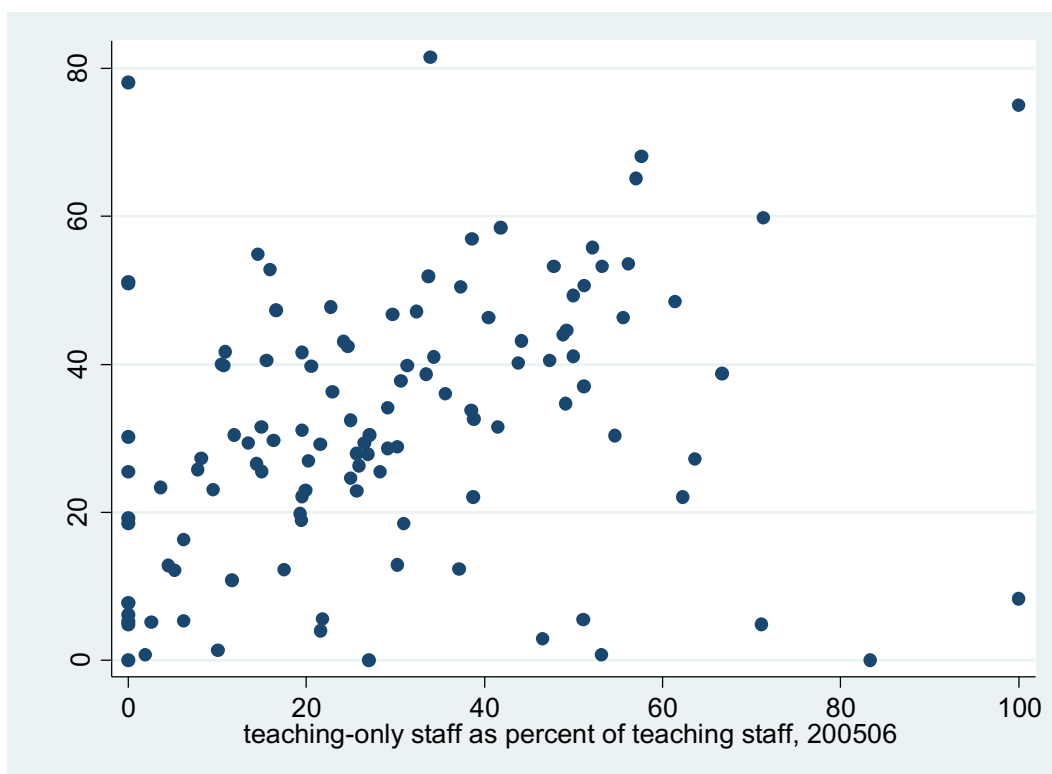


Figure 12: Change in teaching-only staff between 2005/06 and 2016/17 and the level in 2005/06.

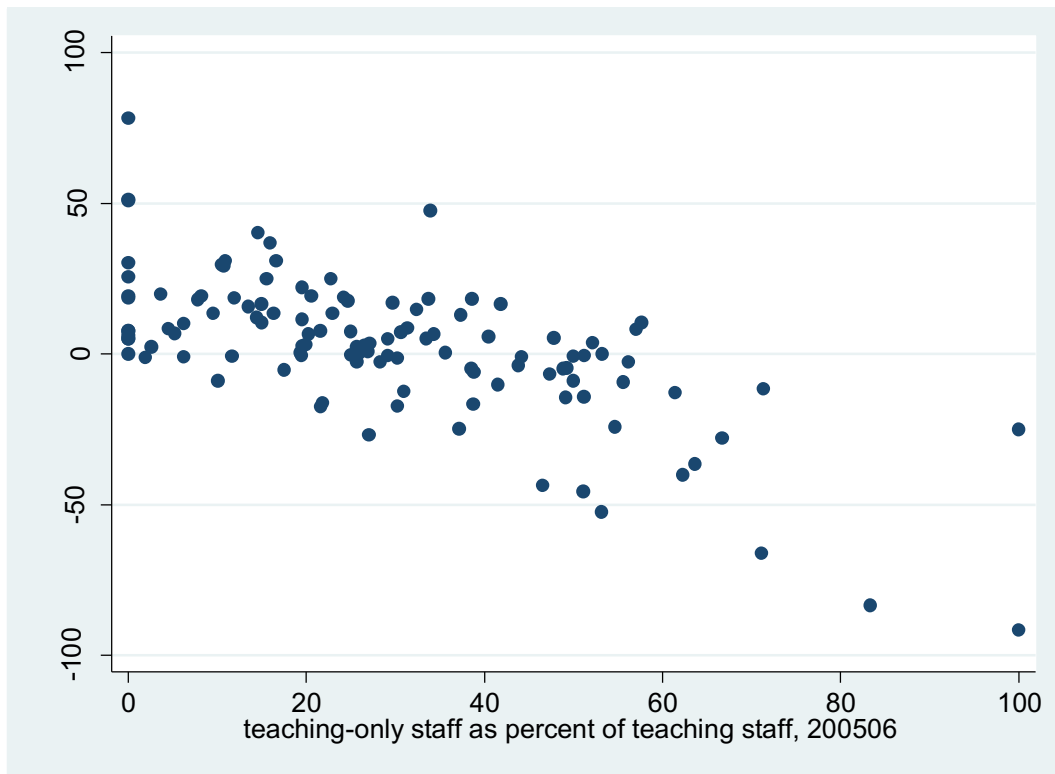


Figure 13: Change in teaching-only staff 2005/06 to 2016/17, by type.

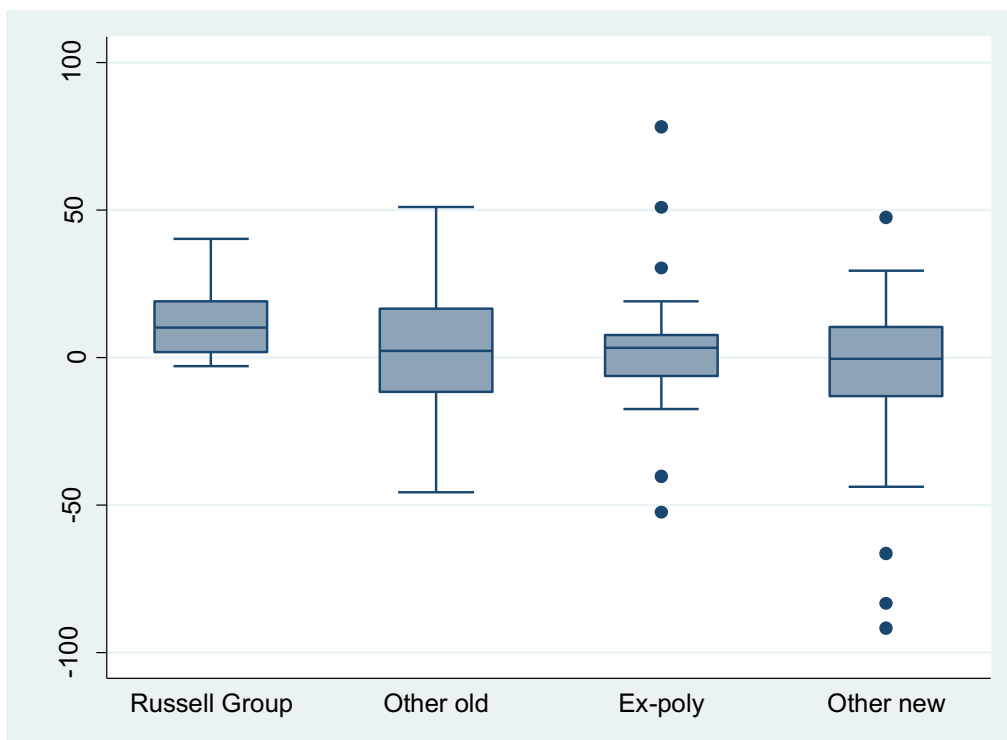


Table 9: Percentage of teaching-only staff among all staff with teaching responsibilities: mean and SD at selected time points: all cases

	Obs	Mean	SD
2005/06	117	29.1	21.6
2009/10	117	29.2	22.8
2013/14	117	30.9	19.0
2016/17	117	31.5	18.3

2.4. Teaching-only staff: the situation in UK universities in 2016/17

Figure 14 shows the proportion of teaching-only staff amongst **all** academic staff (including research-only) and Figure 15 the proportion of them amongst staff with teaching responsibilities (i.e. excluding academics on research-only contracts). Both distributions show great variation from zero to around 80%, a handful of universities having a very high proportion of teaching-only staff in 2016/17. The three institutions with the highest proportions of teaching-only staff in 2016/17 were Buckingham (75%), South Bank (78%) and Gloucestershire (82%). At the other end of the scale there were three institutions with no staff on teaching-only contracts, including Newman University in Birmingham, Plymouth Marjon and University of Chester. Both the variability and the characteristics of institutions at the two extremes show that there is unlikely to be a single factor at work here: and we note that, while we hypothesised that research-intensity might be an important factor (Research Question 3), none of these ‘universities is research-intensive. As discussed further below, the case-studies were designed to shed light on the factors driving decisions at institutional level.

For a more general picture we turn to the box plots by type in Figure 16. In 2016/17 the proportion of teaching-only academic staff in the Russell Group was similar, on average, to the new university sector. The proportion of teaching-only staff tended to be highest among the other old group of universities whilst there was great variation among the post-92 ‘other new’ group of universities.

Figure 14: Histogram of teaching-only staff as proportion of all academic staff in 2016/17

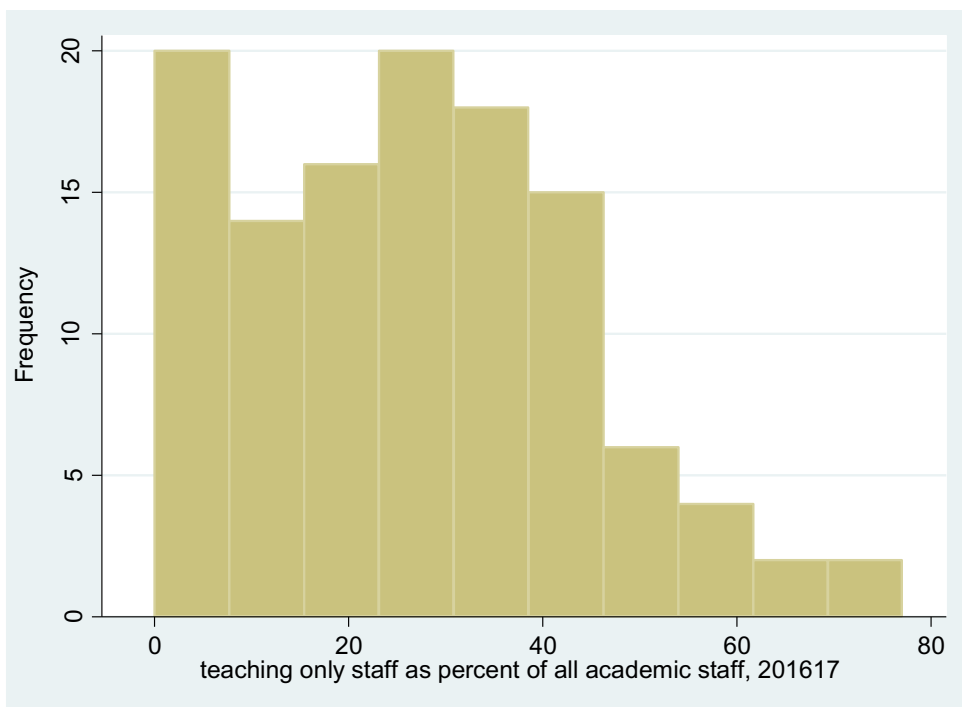


Figure 15: Histogram of teaching-only staff as percent of teaching staff in 2016/17

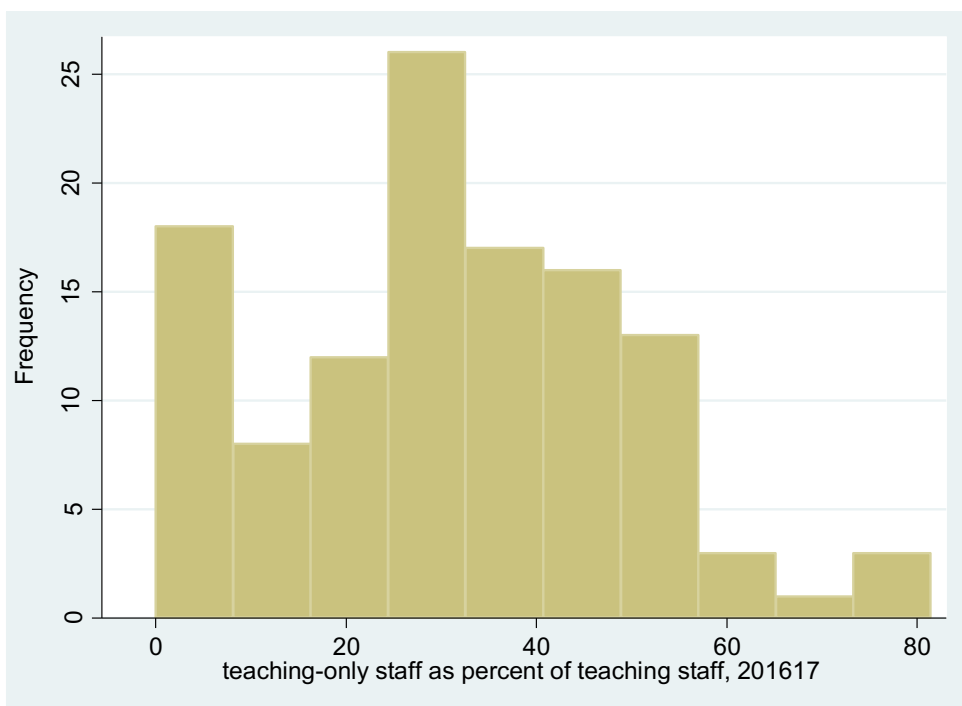
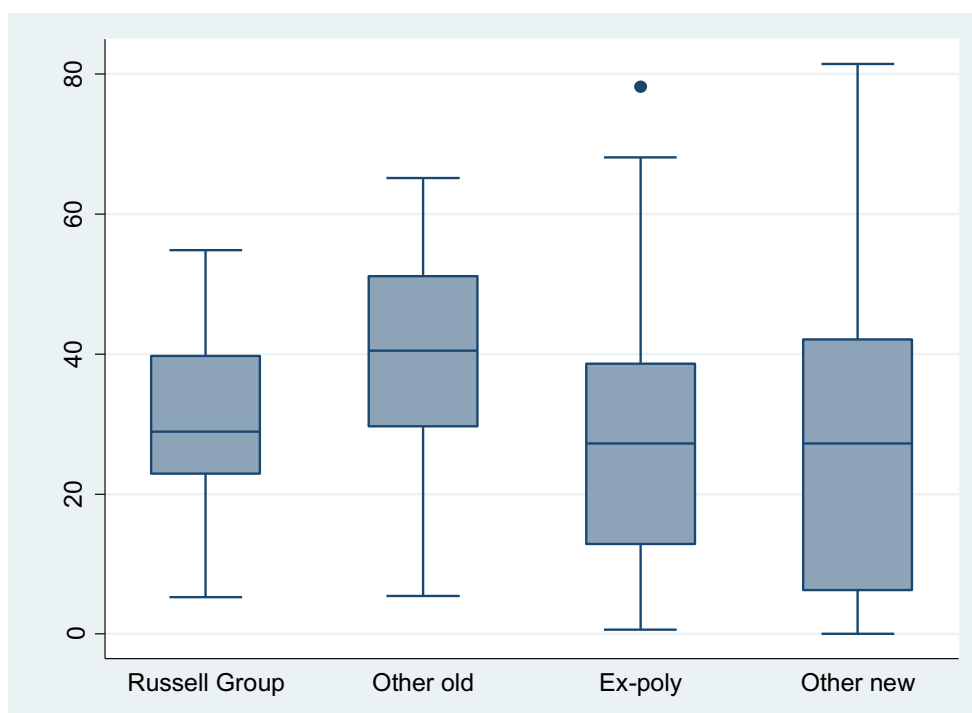


Figure 16 teaching-only staff as proportion of all staff with teaching responsibilities in 2016/17, by type



2.5. Types of teaching-only staff: full-time vs part-time and fixed-term vs permanent staff

Among teaching-only academics part-time staff remain the majority by a large margin but there has been an increasing proportion of full-timers in most sub-sectors except for the other new universities (Table 10). Teaching & research academics and research-only academic staff were overwhelmingly full-time, as is apparent in Tables 11 and 12.

Although there has been growth across all contract types of teaching-only staff, growth has been particularly strong amongst those on open-ended/permanent full-time contracts. The US literature reports the ongoing growth of a sizeable academic workforce who are peripatetic, balancing multiple short-term contracts at different sites: but this has not happened in the UK. The proportion on fixed-term part-time contracts declined from about three-fifths to two-fifths over the period 2005/06 to 2016/17 (Tables 13 and 14).

Nevertheless, these fixed-term part-time staff are still the largest proportion among the four types of teaching-only staff.

As for other types of staff, there has been strong growth in the numbers of research-only staff on open-ended/permanent full-time contracts but a large majority are still fixed-term full-timers, while teaching & research staff have remained predominantly on full-time permanent/open-ended contracts. In fact the number of fixed term contracts has declined.

Table 10: Summary of teaching-only staff numbers by whether full-time or part-time and type of university, 2005/06 and 2016/17.

	Full-time n	Part-time n	Full-time %	Part-time %
Russell				
2005/06	2,090	4,025	34	66
2016/17	5,855	9,185	39	61
Other old				
2005/06	1,755	8,440	17	83
2016/17	4,035	8,800	31	69
Ex-poly				
2005/06	1,770	7,700	19	81
2016/17	3,195	9,095	26	74
Other new				
2005/06	845	2,925	22	78
2016/17	1,145	3,990	22	78
All				
2005/06	6,515	23,095	22	78
2016/17	14,295	31,110	31	69

Table 11: Summary of teaching & research staff numbers by whether full-time or part-time and type of university, 2005/06 and 2016/17.

	Full-time n	Part-time n	Full-time %	Part-time %
Russell				
2005/06	25,835	2,945	90	10
2016/17	29,885	3,960	88	12
Other old				
2005/06	14,260	1,645	90	10
2016/17	15,950	2,305	87	13
Ex-poly				
2005/06	21,035	5,730	79	21
2016/17	22,490	7,055	76	24
Other new				
2005/06	6,485	1,560	81	19
2016/17	8,260	2,290	78	22
All				
2005/06	67,615	11,880	85	15
2016/17	76,610	15,620	83	17

Table 12: Summary of research-only staff numbers by whether full-time or part-time and type of university, 2005/06 and 2016/17.

	Full-time n	Part-time n	Full-time %	Part-time %
Russell				
2005/06	21,835	3,695	86	14
2016/17	31,090	5,960	84	16
Other old				
2005/06	5,400	1,475	79	21
2016/17	6,020	1,590	79	21
Ex-poly				
2005/06	1,855	560	77	23
2016/17	1,365	630	68	32
Other new				
2005/06	350	105	77	23
2016/17	235	110	68	32
All				
2005/06	29,440	5,835	83	17
2016/17	38,715	8,295	82	18

Table 13: Teaching-only staff numbers by type and mode of contract, 2005/06 to 2016/17.

	Fixed-term Full-time	Fixed-term Part-time	Open-ended/ Permanent Full-time	Open-ended/ Permanent Part-time
2005/06	2,320	17,815	4,205	5,285
2006/07	1,790	16,875	4,800	6,680
2007/08	1,330	16,455	4,625	7,965
2008/09	1,460	17,755	5,905	9,065
2009/10	1,450	17,610	6,105	9,370
2010/11	1,565	18,270	5,500	8,160
2011/12	1,635	18,435	6,270	8,615
2012/13	2,230	17,405	7,650	9,450
2013/14	2,320	19,105	9,025	11,065
2014/15	2,340	19,255	9,080	11,425
2015/16	2,455	18,810	9,715	11,820
2016/17	3,055	18,545	11,255	12,545

n = 117 universities

Table 14: Teaching-only staff percentages by type and mode of contract, 2005/06 to 2016/17: percentages.

	Fixed-term		Open-ended/Permanent		TOTALS
	Full-time	Part-time	Full-time	Part-time	
	%	%	%	%	
2005/06	8	60	14	18	100
2006/07	6	56	16	22	100
2007/08	4	54	15	26	100
2008/09	4	52	17	27	100
2009/10	4	51	18	27	100
2010/11	5	55	16	24	100
2011/12	5	53	18	25	100
2012/13	6	47	21	26	100
2013/14	6	46	22	27	100
2014/15	6	46	22	27	100
2015/16	6	44	23	28	100
2016/17	7	41	25	28	100

2.6. Analysis of growth in the numbers of teaching-only staff

In this section we seek explanations for the patterns in teaching-only staff observed. Why has there been so much variation between universities in their use of teaching-only academic staff? How can we explain the growth of teaching-only staff since 2005/06? What are some of the key factors which are associated with cross-sectional variation and/or growth over time? We will investigate first via exploratory plots and then more formal statistical analysis (regression models).

From the description of the data so far it seems that different types of university have different levels of teaching-only staff and have displayed differing growth trajectories for these staff over the period studied. Type of university may thus be an important factor in accounting for overall within-sector variation and growth over time in the numbers of teaching-only staff.

The HESA data show that most of the growth in teaching-only staff in this period has been among the Russell Group universities. Figure 17 compares the Russell Group with the rest of the HE sector combined. The denominator is the number of staff with teaching responsibilities (i.e. it excludes staff on research-only staff, but includes both teaching-only staff and teaching & research staff). On this basis the Russell Group has caught up very considerably and almost converged with the rest of the sector, taken as a whole. If the 'rest of the sector' is disaggregated into its three component parts then it is apparent that the Russell Group has, for the last three or four years, had very similar proportions of teaching-only staff as both sets of new universities, which was not the case in 2005: but they all remain some way behind the 'other pre-92' group (Figure 18). The Russell Group is also the group to have shown by the far the largest average change.

It also matters what the denominator is. If it is taken as all academic staff, so including research-only staff, then the Russell Group remains some way behind the other university types (Figures 19 and 20) because so many of the research-only staff are in the Russell Group. This way of measuring the proportion also brings the other pre-92 group closer to the new universities.

We also considered whether there was any relationship between the size of a university and the extent to which it used teaching-only staff. Looking at data for single years showed that there was perhaps some evidence of a weak relationship between proportion of teaching-only staff and the size of the university .

It might be conjectured that universities with less buoyant finances would be more likely to make greater use of teaching-only staff. Exploration of cross-sectional data provided some support for this hypothesis. The correlation between income per student and the number of teaching-only staff was 0.18 for our sample of institutions in 2016/17 but this was just significant at the five per cent level ($p = 0.048$). We investigate further in the regression analyses reported later in this paper.

The extent to which an institution uses teaching-only staff could be lower the greater the proportion of postgraduates at that institution – because teaching-only staff might not be sufficiently well-qualified themselves to teach postgrads. Again preliminary exploration of the HESA data suggested weak evidence that those universities with a higher proportion of postgraduates among their students tended to have a lower proportion of teaching-only staff.

Some subjects make greater use of teaching-only staff than others. These will likely be subjects which are more practical or vocational in orientation where practitioners will have been employed to do some of the teaching rather than career academics. The extent to which a university uses teaching-only staff would then depend on the subject mix at that university. Exploratory data analysis for particular years showed that business and law and art & design tended to have higher proportions of teaching-only staff among their academic staff, while maths, physics and engineering tended to have lower proportions. Whether changes in subject mix had any influence on the growth of teaching-only staff numbers is studied further in the next section.

Figure 17: Teaching-only staff as percentage of all staff with teaching responsibilities. Total sample is 116 universities.

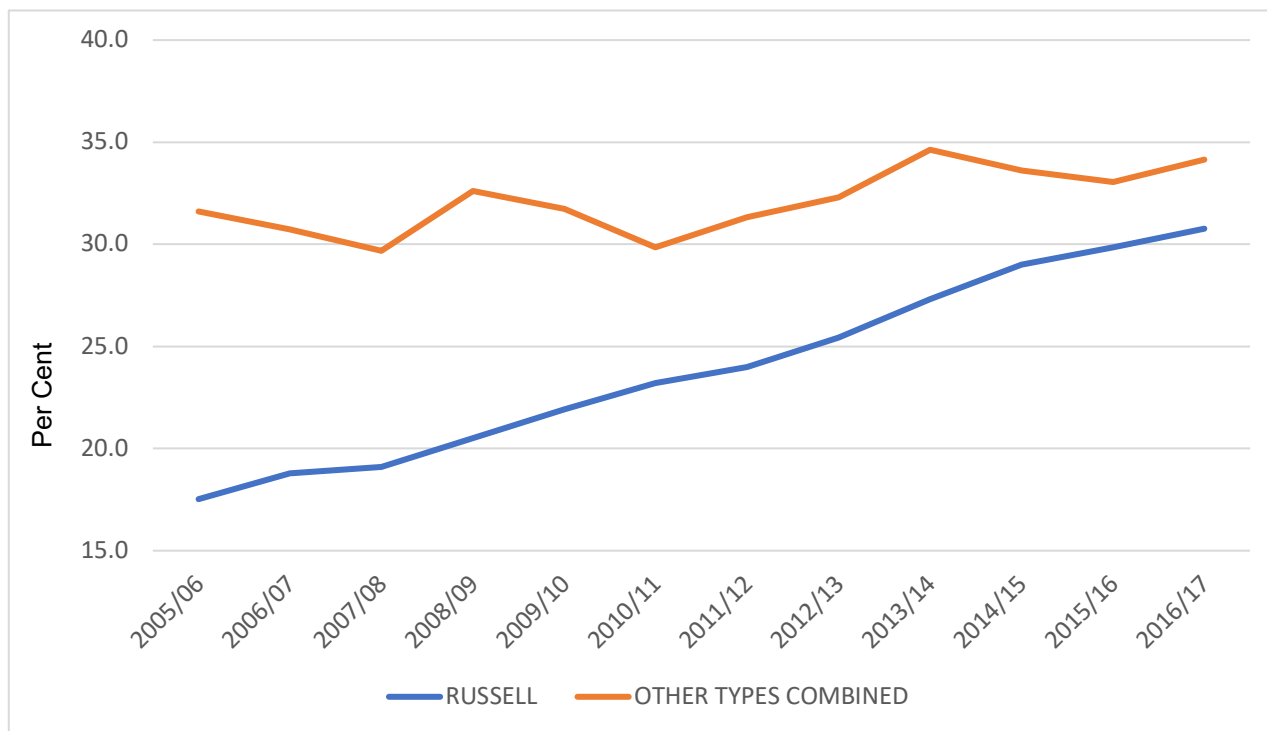


Figure 18: Teaching-only staff as percentage of all staff with teaching responsibilities. Total sample is 116 universities.

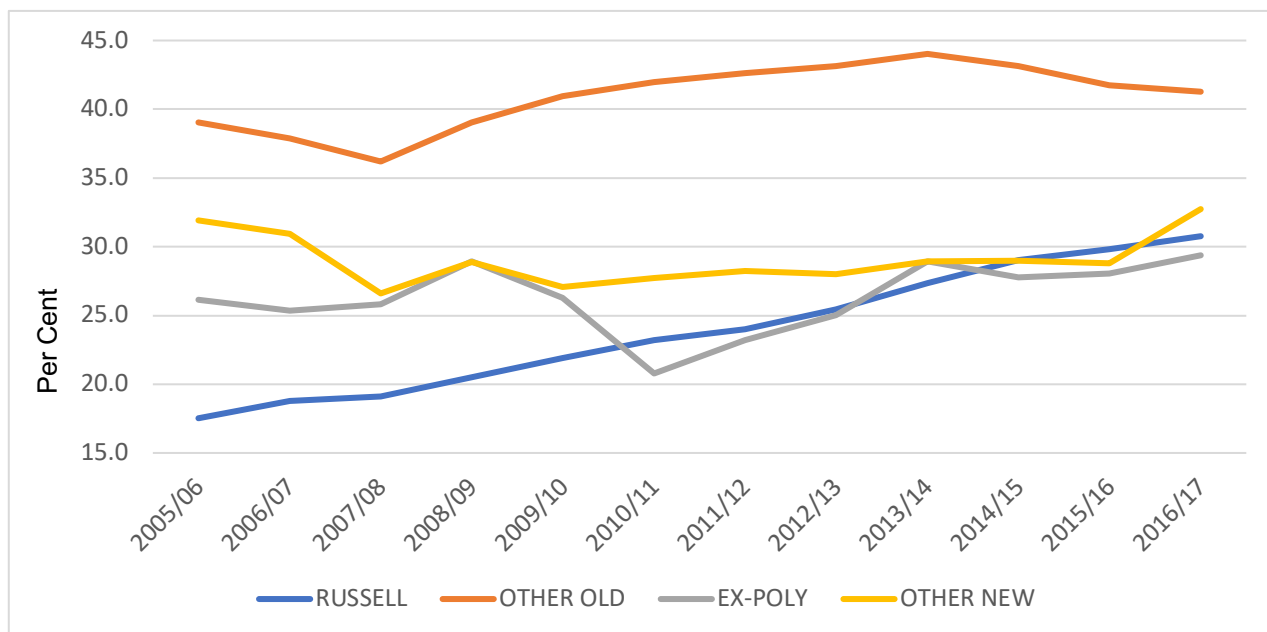


Figure 19: Teaching-only staff as percentage of all academic staff.* Total sample is 116 universities.

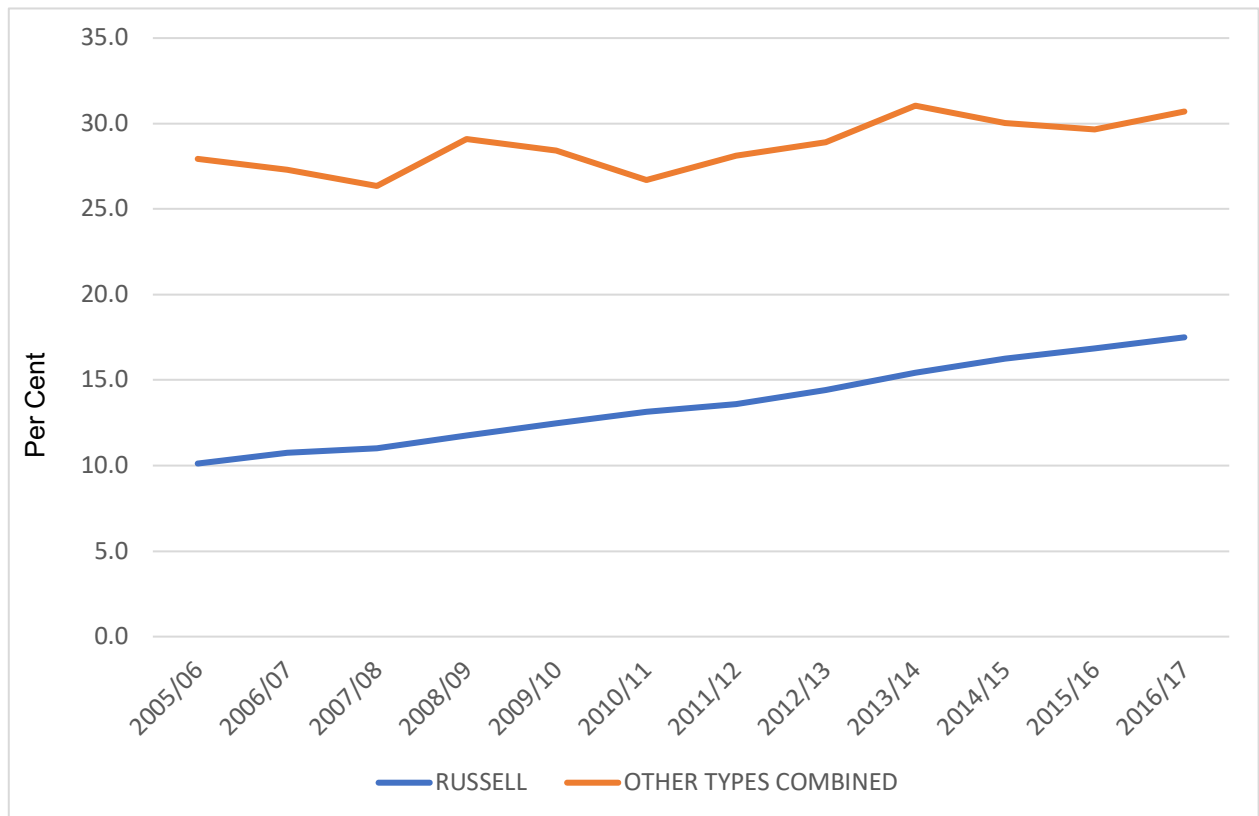
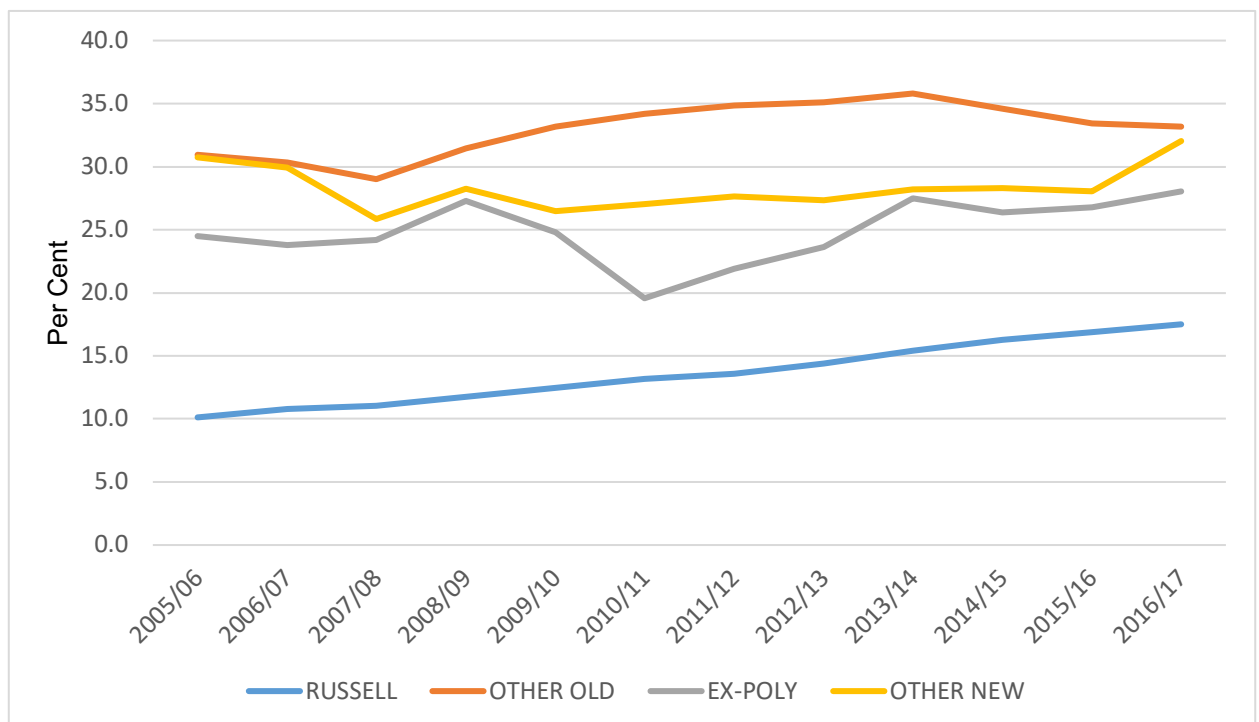


Figure 20: Teaching-only staff as percentage of all academic staff.* Total sample is 116 universities.



- Excludes a small number of academic staff classified as 'neither teaching nor research'.

Regression models

In order to gain further insight into the growth of teaching-only staff in HE in recent years some regression models were fitted.³ These models have the growth in number of teaching-only staff from 2005/06 to 2016/17 as the dependent variable. To explain that growth Table 15 fits some quite simple models where explanatory variables include the level (i.e. amount) of teaching-only staff at the start of the period, the type of university, the change in the number of students and the change in number of teaching and research staff over the period.

Taken together these variables explained just over half of the variation in growth [Table 15, Model 6].

We experimented with some slightly more elaborate models – for example splitting the growth of student numbers between undergraduates and postgraduates, as in Table 16; or adding further explanatory variables to pick up student subject mix and university finances (real income per student), as in Table 17. However, introducing a distinction between undergrads and postgrads did not noticeably improve the fit of the models while measures of student subject mix, and university finance, were not significant. So Model 6 in Table 15 was chosen as the preferred specification. It is reproduced in Table 18 below.

This model has much to recommend it. All variables are significant and the signs on coefficients seem intuitively correct – the change in the number of students is positively associated with increases in teaching-only staff while growth in teaching and research staff is negatively associated with the change in numbers of teaching-only staff – implying that they are substitutes. The Russell Group universities have on average had the largest increases in FTE students and in total teaching-and-research staff: but the model suggests that there is a ‘group effect’ over and above this. That would be consistent with a different staffing strategy in highly research-intensive compared to non-research-intensive institutions – something we discuss further in the context of the case studies, below. The explained variation (R-squared) is 52%.

Comparison of actual values and predicted values showed that there appears to be correspondence between them; inspection of standardised residuals revealed no very large outliers (i.e. cases for which the model fits really badly).

So what is the predicted growth in teaching-only staff for each type of university, given some alternative hypothetical values for the three explanatory variables? Let’s try some typical values of the explanatory variables for each sector. We use the medians for each explanatory variable as the basis for a table of predicted values (Table 19) . Actual values for the increase in teaching-only staff for each type are shown in Table 20.

The predictions are fairly close to the actual values – for the Russell Group the predicted growth in the number of teaching-only staff assuming median change in explanatory

³ These models generally use 115 or 116 of our full sample of 117 universities. The merger of Manchester and UMIST part way through the research period means that Manchester must normally be excluded; as must Buckingham when university ‘group’ is a variable since it belong to none of them.

variables at the Russell Group level was 345, which compares well with an actual median growth in numbers of 338; for other old the prediction was 89 compared to an actual value of 90; for the former polytechnics prediction of 125 and actual value 70; for the other new sector the prediction and the actual values were 35 and 55 respectively.

Table 21 shows actual and predicted values for a selected 10 cases of interest, chosen to provide examples of very different recent trajectories and missions. Institutions such as Glasgow, where very substantial growth in student numbers was combined with a reduction in teaching & research staffing, indeed saw a very large rise in teaching-only staff numbers. The model under-predicts for some cases with growth in teaching-only staffing, notably at KCL, while Plymouth saw a quite sizeable growth of teaching-only staff despite a drop of nearly 4,000 in FTE numbers. But overall it is a good fit to the data, as noted earlier.

Table 15: Growth models, linear regression. Dependent variable is change in number of teach-only staff, 2005/06 to 2016/17

All change variables in table are also from 2005/06 to 2016/17

	(1)	(2)	(3)	(4)	(5)	(6)
TO staff, 2005/06	-0.291* (-2.48)		-0.356** (-3.22)	-0.263* (-2.39)	-0.414*** (-3.75)	-0.299** (-3.17)
<i>University type (reference group is 'other old').</i>						
Russell Group		286.714*** (4.29)	260.310*** (4.02)	315.050*** (4.90)	188.178** (2.73)	196.105** (3.37)
Ex-poly		0.293 (0.00)	-14.641 (-0.25)	-7.727 (-0.14)	27.214 (0.45)	105.358* (2.03)
Other new		-36.411 (-0.57)	-105.639 (-1.62)	-82.577 (-1.31)	-91.035 (-1.43)	-19.595 (-0.36)
Change in number of T&R staff				-0.353** (-3.29)		-0.756*** (-6.76)
Change in number of FTE students					0.021* (2.59)	0.053*** (6.35)
Constant	209.783*** (5.42)	85.161 (1.93)	202.379*** (3.62)	198.287*** (3.70)	175.687** (3.17)	126.531** (2.67)
R-squared	0.05	0.20	0.27	0.34	0.32	0.52
Observations	116	116	116	116	116	116

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note T&R is teaching and research; TO is teach-only.

TO staff 2005/06 is level of teaching-only staff in 2005/06.

Table 16: Growth models, linear regression. Dependent variable is change in number of teach-only staff, 2005/06 to 2016/17

All change variables in table are also from 2005/06 to 2016/17

	(1)	(2)	(3)	(4)
TO staff, 2005/06	-0.256* (-2.60)	-0.352*** (-3.40)	-0.323** (-3.37)	-0.296** (-3.10)
<i>University type (reference group is 'other old').</i>				
Russell Group	289.227*** (5.00)	119.765 (1.62)	149.244* (2.17)	201.065** (3.26)
Ex-poly	76.253 (1.43)	58.727 (1.07)	110.707* (2.13)	105.365* (2.02)
Other new	-31.527 (-0.55)	-54.120 (-0.92)	-19.418 (-0.35)	-20.503 (-0.37)
Change in number of T&R staff	-0.690*** (-5.97)	-0.515*** (-4.87)	-0.750*** (-6.72)	-0.757*** (-6.73)
Change in number of FTE undergrads	0.054*** (5.28)		0.045*** (4.39)	
Change in number of FTE postgrads		0.109*** (4.44)	0.081*** (3.41)	
Change in number of FTE students				0.053*** (6.32)
Change in per cent postgrad				-1.149 (-0.26)
Constant	123.835* (2.47)	198.640*** (4.01)	137.148** (2.86)	124.015* (2.55)
R-squared	0.47	0.44	0.52	0.52
Observations	116	116	116	116

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 17: Growth models, linear regression. Dependent variable is change in number of teach-only staff, 2005/06 to 2016/17

All change variables in table are also from 2005/06 to 2016/17

	(1)	(2)	(3)	(4)
Teaching-only staff, 2005/06	-0.296** (-3.09)	-0.301** (-3.18)	-0.296** (-3.12)	-0.295** (-3.10)
<i>University type (reference group is 'other old').</i>				
Russell Group	190.497** (3.12)	210.760*** (3.46)	188.815** (3.19)	198.258*** (3.40)
Ex-poly	107.517* (2.04)	99.188 (1.89)	105.776* (2.03)	96.656 (1.82)
Other new	-18.231 (-0.33)	-30.273 (-0.54)	-17.131 (-0.31)	-23.733 (-0.43)
Change in number of T&R staff	-0.767*** (-6.53)	-0.761*** (-6.78)	-0.754*** (-6.73)	-0.749*** (-6.66)
Change in number of FTE students	0.054*** (5.98)	0.055*** (6.15)	0.058*** (5.23)	0.051*** (5.89)
Change in real income (all sources) per student	1.713 (0.32)			
Change in number of maths/phys/engin students		-22.228 (-0.82)		
Change in number of business/law students			-17.856 (-0.75)	
Change in number of art/design students				33.373 (0.78)
Constant	121.981* (2.45)	135.546** (2.78)	124.403* (2.62)	127.932** (2.69)
Observations	116	116	116	116

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 18: Preferred Specification:

Dependent variable is change in number of teach-only staff, 2005/06 to 2016/17

Teaching-only staff, 2005/06	-0.299** (-3.17)
<i>University type (reference group is 'other old')</i>	
Russell Group	196.105** (3.37)
Ex-poly	105.358* (2.03)
Other new	-19.595 (-0.36)
Change in number of teaching & research staff, 2005/06 to 2016/17	-0.756*** (-6.76)
Change in number of FTE students, 2005/06 to 2016/17	0.053*** (6.35)
Constant	126.531** (2.67)
R-squared	0.52
Observations	116

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ **Table 19: Predictions under different values of explanatory variables**

Predictions at ->	Russell Group medians	Other old medians	Ex-poly medians	Other new medians
<i>Predicted values for:</i>				
Russell Group	345	285	216	251
Other old	149	89	20	55
Ex-poly	254	195	125	160
Other new	129	69	0	35

Table 20: Summary statistics for the change in teaching-only staff, by type, 2005/06 to 2016/17

	Obs	Mean	Median	Min	Max
Russell	24	372	338	5	1,155
Other old	31	85	90	-400	570
Ex-poly	33	85	70	-665	840
Other new	28	49	55	-255	410

Table 21: Actual and predicted values of growth in Teaching-only staff numbers, 2005/06 to 2016/17, selected cases.

Institution	Type	Actual Change	Predicted	EXPLANATORY VARIABLES		
				TO staff in 2005/06	Change T&R numbers	Change FTE students
Bedfordshire	Other new	55	37	15	240	2,200
Cambridge	Russell Group	170	232	70	155	896
Cardiff	Russell Group	490	450	580	-155	3497
Glasgow	Russell Group	1,155	883	270	-405	6,377
Gloucestershire	Other new	305	285	200	-275	570
Hertfordshire	Ex-poly	40	27	520	55	-136
King's College	Russell Group	855	312	345	490	8,814
Liverpool	Russell Group	605	573	200	95	7,277
Plymouth	Ex-poly	565	308	0	-375	-3,944
UWE	Ex-poly	-185	-96	460	190	-878

2.7. Summarizing the quantitative evidence

The results in this report refer to a sample of 117 universities, covering most of the HE sector in the UK. The number of core ‘teaching and research’ staff (i.e. lecturers, professors etc who both teach students and conduct research) in these universities rose by about 16 per cent between the academic years 2005/06 and 2016/17 to just over 92,000 in total. Meanwhile the number of teaching-only staff increased by more than 50 per cent during the same period to over 45,000.

Our analysis of change over this period has highlighted key differences between the Russell Group and the rest of the sector. Increasing employment of teaching-only staff by the Russell Group universities was responsible for much of the increase in this type of staff over the period. Indeed over half of the growth in teaching-only staff –almost 9,000 from a total increase of about 16,000 – occurred among the Russell Group.

Many members of the Russell Group had relatively few teaching-only staff among their academic workforces in 2005/06 and there was a pattern of institutions with low proportions of teaching-only staff in 2005/06 tending to catch up over the years through to 2016/17. In other words there was a negative relationship between the level in 2005/06 and growth of teaching-only staff between 2005/06 and 2016/17.

A model for the growth in numbers of teaching-only staff was developed which included the level in 2005/06, growth in student numbers up to 2016/17 and the growth in numbers of teaching/research staff. This model was found to fit the data quite well, accounting for just over half of the total variation in the growth of teaching-only staff. Adding further variables to the model, such as the proportion of postgraduates at the institution, the mix of subjects at the university, or measures of its financial position, did not improve the fit of the model.

As for the work patterns of teaching-only staff, the proportion of full-time workers has gradually increased but part-timers still account for more than two-thirds of teaching-only staff. This is in contrast to the rest of the academic workforce - teaching & research staff and research-only staff have been, and remain, overwhelmingly full-time.

2.8. Evidence from the case studies on academic staffing

The analysis of national data, then, has highlighted major emerging differences between the Russell Group of large research universities and the rest of the sector and significant changes in the employment of teaching-only staff. However this change has been much less marked than in the USA. There is also high variability, and while our regression models provide a fairly good fit, it is far from perfect.

There is inevitably only limited indication in the quantitative data of what is driving these changes, let alone why there are such large differences between institutions in the extent to which they occur. The case study evidence can help to gain a better understanding of the underlying dynamics at work, including how new posts get approved, how any cut-backs are achieved, and the extent to which these processes reflect clear staffing strategies across the institution. The six institutions studied included examples which differed markedly with respect to the variables associated with high, or lower, teaching-only staff growth: notably two highly research-intensive Russell Group members, two other pre-92 institutions, an ex-poly and an 'other' post-92.

Context: the academic workforce

Universities are, first and crucially, organisations which recruit students; teach and assess them; and send them on their way endowed with formal qualifications. The more students a university recruits, and the higher the fee paid, the better in business terms.

On an hour-by-hour level, academics have a great deal of autonomy. They spend a great deal of time on research, writing, maintaining their subject expertise through reading, and attending seminars and conferences, and also on administrative work in specific academic roles such as directing a particular degree programme, or running an exam board. They spend a minority of their working hours actually delivering lectures or seminars or tutorials in lecture halls, classrooms and offices. But this overall time allocation obscures the fact that this teaching activity is both the most critical in terms of institutional 'profitability', and is easily monitored, easily counted and easily sub-divided – more so than the vast majority of administrative or professional jobs.

Students enrol for a specific course, with specific timetabled hours: and individual academics will be allocated so many hours teaching on specified courses and degrees. They may teach on just one degree, or on several. They can easily be employed less than full-time, because teaching hours are discrete and can increase or decrease. Individuals with large administrative loads, or large research grants that buy out some of their time can have teaching hours recalculated and reallocated accordingly. British universities traditionally offered their academic sabbaticals, on a regular basis, for scholarship, writing and research. This remains the case in most (perhaps all) pre-92 universities, but is not routine elsewhere in the sector.

The nature of academic teaching, and its position at the core of academic work, mean that individuals who have been allocated to teaching on degrees that do not recruit can - up to a point, but usually quite widely - be reallocated accordingly, or, at worst, made redundant (voluntarily or not) or encouraged to take retirement. This is not something that university managers do lightly, especially if their institution is highly unionised (as some English and almost all Scottish universities are), preferring hiring freezes and natural wastage. But matching staffing to student numbers is a core management concern.

We take information from the Admissions Teams and look at the financial side: are we forecasting a shortfall of £x million, have we got courses and staff where we can over-recruit? We start doing that in October/November for the following August and September. (Deputy Director of Finance, Russell Group)

From a manager's point of view, teaching loads and student recruitment levels therefore have the great advantage of being easily calculated, and quite easily responded to in terms of academic recruitment. They also appear highly amenable to productivity-related interventions (or 'efficiency gains'), notably larger classes, less contact time per student and increased numbers of teaching hours for academic staff.⁴ Specific degrees can be and are closed down. Additional staff can also be hired to carry out specific extra teaching for programmes that are growing. In each case, these changes at the margin can be made without any need to rethink activity, or employment, beyond the specific teaching programme in question.

In the UK's current semi-marketised system, there has been a very noticeable move to a more 'business-like' focus on not just income but surpluses. Income is generated, overwhelmingly, by academic departments, and in all the UK's universities – regardless of whether there are number controls for home students and who pays the fees – 'home' teaching income for 'home' (UK & EU) students is overwhelmingly fee-based, and a direct function of student numbers. Institutions do not receive 'block teaching grants' which are not directly linked to student numbers – something which is quite common in other systems. Overseas students all pay fees individually. In other words, the more students, the higher the teaching income.⁵

Academic departments and/or faculties in all institutions we studied or know have the income that they earn through fees individually calculated (although the money is collected centrally). They then 'pay' a 'contribution' to the centre. In other words, money coming in (as fees, funding for discrete research projects or consultancy) is credited to the department and then a proportion is used in order to pay for central activities, including capital costs, administration and student services. By contrast, the budget for professional services is, as one planning officer put it, 'essentially a deficit budget'. The more surplus there is in a department after it has covered its costs, the more there is to 'contribute'. Measuring

⁴ During the 1990s, year-on-year cuts in funding per student were labelled as 'efficiency gains' by the government.

⁵ In systems with number controls for home students – which include England prior to 2014 - institutions which over-recruit will not get additional income for the extra students and may indeed be financially penalised, although our interviewees indicated that this was very unusual.

productivity in the sense of whether students actually learn more, and develop higher levels of skills and understanding, is very hard and rarely attempted directly. But surplus is easy to measure. And the cheaper the academic staff, the more teaching that they do, and the larger the taught groups, the higher the surplus.

However, there are important countervailing forces to this cost-cutting approach: going for cheap, young, biddable lecturers and large classes is not necessarily a rational strategy. Universities want to attract high quality academics, who will be unenthused by large classes and high numbers of teaching hours. They also want to acquire a reputation for high quality research, which in turn means giving academic staff time to do research and write. That is why the pre-92 universities – but not the post-92's – routinely offer academics regular sabbaticals. This of course adds substantially to their teaching costs, but may more than pay for itself, by increasing an institution's performance on the Research Excellence Framework (and so the amount of quality related funding they receive from government) and the level of fee they can charge in the unregulated overseas and postgraduate market.

Students paying high fees want direct contact with academics: although in the short-term at least, the major driver of overseas fee income is research reputation (Wolf & Jenkins 2018). Moreover in disciplines where there are independent external checks on what student learn (notably the professions, especially medicine, and science-based industries), a cost-cutting approach which seriously threatens teaching quality and attainment will be identified fairly fast.

There are countervailing forces at institution level too. Institutions are highly concerned with student satisfaction, because of both the 'marketised' environment and the National Student Survey: this applies in Scotland, where overseas recruitment is critically important, as well as in England.

But none of this alters the fundamental point. It is easy for senior managers (including academic Deans running faculties) to monitor whether particular degrees and departments are highly, or not very, 'cost-efficient' with respect to teaching delivery and to act accordingly in a fine-tuned way. Equally, the simplest ways to cut costs and increase income (and 'contributions') are to reduce teaching hours per student, and increase teaching group size – ideally alongside increased total student recruitment.

Student recruitment is operationalised via recruitment targets, typically set centrally on a programme by programme basis. At undergraduate level, student admissions decisions have been increasingly centralised across the university sector, and taken over by professional services staff (with Oxbridge, and medicine, the main hold outs): to a lesser extent, but in a good many cases, this is true at Masters level too. This allows central teams both to increase target numbers easily in the middle of a recruitment year (e.g. to offset low recruitment in some parts of the institution) and to make offers which academic staff might resist on grounds of quality or total numbers.

Although this was before the period we studied, during the 1990s, the 'unit of resource' per student was reduced, year on year, alongside rapid expansion of home student numbers. There were also major changes in teaching practice in all the pre-92 universities other than

Oxford and Cambridge. The third term of teaching became in effect an exams term so that there was a significant reduction in total teaching weeks. At the same time lecture and ‘tutorial’ group sizes moved ever upwards – as they have across Europe.

The growth in teaching-only staff numbers

In the previous section, we discussed the growth in teaching-only staff numbers, and demonstrated that increases in teaching-only staff at individual university level can be accounted for, to a very substantial degree, by whether a university’s enrolment has grown fast; by growth in total teaching academic staff; and by university type. The three are interconnected, because the biggest growth in teaching-only staff has taken place in Russell Group universities, which have grown the most, and also started off with many fewer such staff. This in large part explains the regression to the mean which we documented.

In Figure 5 we showed that staff: student ratios had been constant or deteriorated. Tables 22, 23 and 24 look at this development slightly differently, and with reference to our case study universities. Student:staff ratios can fluctuate quite a lot in the short term because of extraneous factors – notably sudden changes in student numbers, in either direction. However, over time, university managers can and do monitor and control the number of appointments to academic positions, and meaningful trends emerge.

Table 22 shows that, compared to 2005, there was some considerable improvement in these ratios over universities as a whole (as indeed one might hope, given the growth in sector income, especially after 2010). Tables 23 and 24 then look at our case study institutions, and distinguish between student:staff ratios for all staff with teaching responsibilities (as in Table 22 and Figure 5) and for those who have both teaching and research responsibilities – the ‘traditional’ academics.

Table 22: Student: staff ratios across the sector 2005-18 (HESA definition)

Academic Year	Avg. SSR result	Number of Records
2005/06	17.65	117
2006/07	17.37	117
2007/08	17.03	117
2008/09	17.33	117
2009/10	17.85	117
2010/11	17.91	117
2011/12	18.25	117
2012/13	17.59	117
2013/14	16.79	117
2014/15	16.01	117
2015/16	15.88	117
2016/17	15.91	117
2017/18	15.87	117

Table 23: Case-study institutions, Student: Staff ratios calculated for all staff with teaching responsibilities 2005-18 (HESA definition)⁶

Academic Year	A	B	C	D	E	F
2005/06	14.2	24.7	17.7	19.1	12.0	17.2
2006/07	13.5	21.2	16.8	19.8	11.9	17.1
2007/08	15.1	15.6	18.0	21.0	11.4	17.0
2008/09	14.9	19.3	19.0	23.1	11.2	19.5
2009/10	15.8	19.1	20.0	20.9	12.0	17.1
2010/11	16.2	19.4	19.3	20.9	11.7	17.0
2011/12	16.4	23.3	18.7	21.4	11.7	16.9
2012/13	15.5	20.9	17.2	20.9	11.4	15.6
2013/14	13.4	18.3	16.1	21.2	11.3	15.0
2014/15	13.5	17.4	16.2	21.1	11.7	14.6
2015/16	14.9	16.9	16.8	19.4	12.0	14.2
2016/17	15.4	17.6	16.5	19.2	12.5	13.8
2017/18	16.1	17.0	15.9	20.2	12.4	13.4

Table 24: Case-study institutions, Student: Staff ratios calculated for staff with teaching and research responsibilities 2005-18

Academic Year	A	B	C	D	E	F
2005/06	16.2	31.3	23.2	20.2	13.3	23.2
2006/07	15.1	29.9	21.7	20.7	13.1	22.1
2007/08	16.5	21.4	21.5	22.2	12.7	22.4
2008/09	16.5	28.5	24.1	24.4	12.2	24.3
2009/10	17.8	23.8	26.5	22.2	13.3	21.4
2010/11	18.8	23.6	26.1	23.2	12.9	21.6
2011/12	19.7	27.6	26.1	23.0	14.0	21.2
2012/13	18.0	23.0	23.7	22.5	13.9	19.9
2013/14	16.4	22.7	21.9	23.2	14.1	20.7
2014/15	16.6	20.8	22.3	23.8	14.2	20.4
2015/16	18.1	21.5	23.0	22.6	14.7	21.1
2016/17	19.3	20.2	22.3	22.2	15.4	20.8
2017/18	20.5	18.9	21.6	23.7	15.6	20.0

The difference between the figures in Tables 23 and 24 follows, obviously, from the fact that teaching-only positions have grown in number faster than traditional teaching-and-research

⁶ Calculating this ratio using HESA data but without weightings produces results which differ very little – typically 1/10 of a percentage point – or not at all

ones. But what it also underlines is that in some institutions, while overall SSRs have improved, those for traditional academics have *worsened*. That is, students have less potential access to academics who teach but are actively engaged in research – the type of academic who is seen as central to university-level instruction.

Figure 21: Student:staff ratios for ‘Teaching + Research’ and ‘All Teaching’ (TR+TO) academic staff

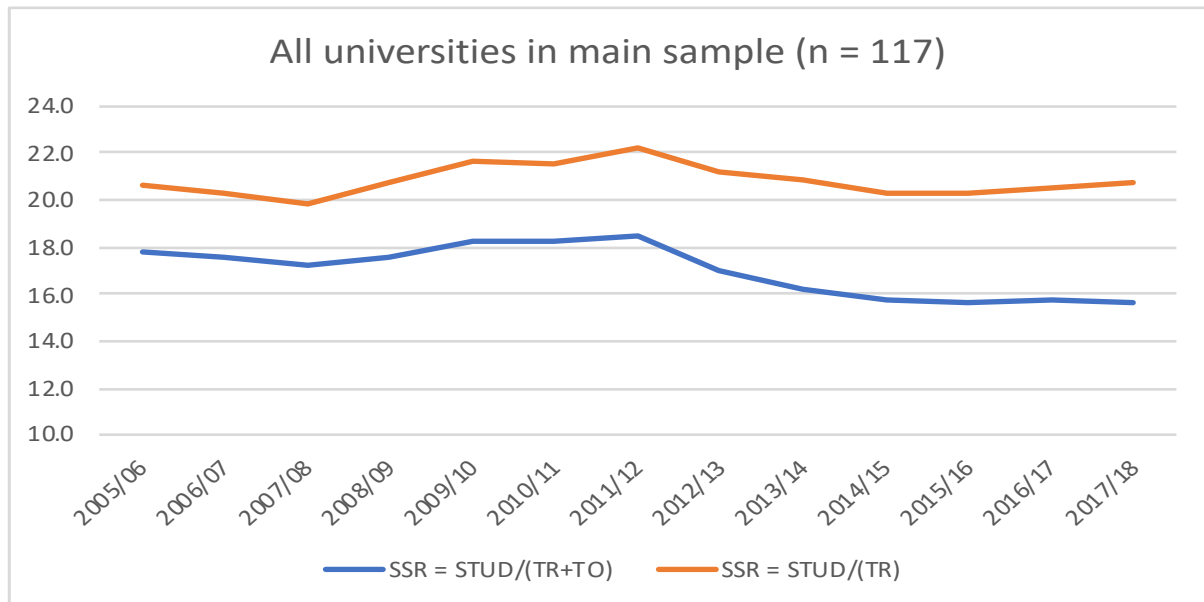


Figure 22 Student:staff ratios for ‘Teaching + Research’ and ‘All Teaching’ academic staff - Russell Group

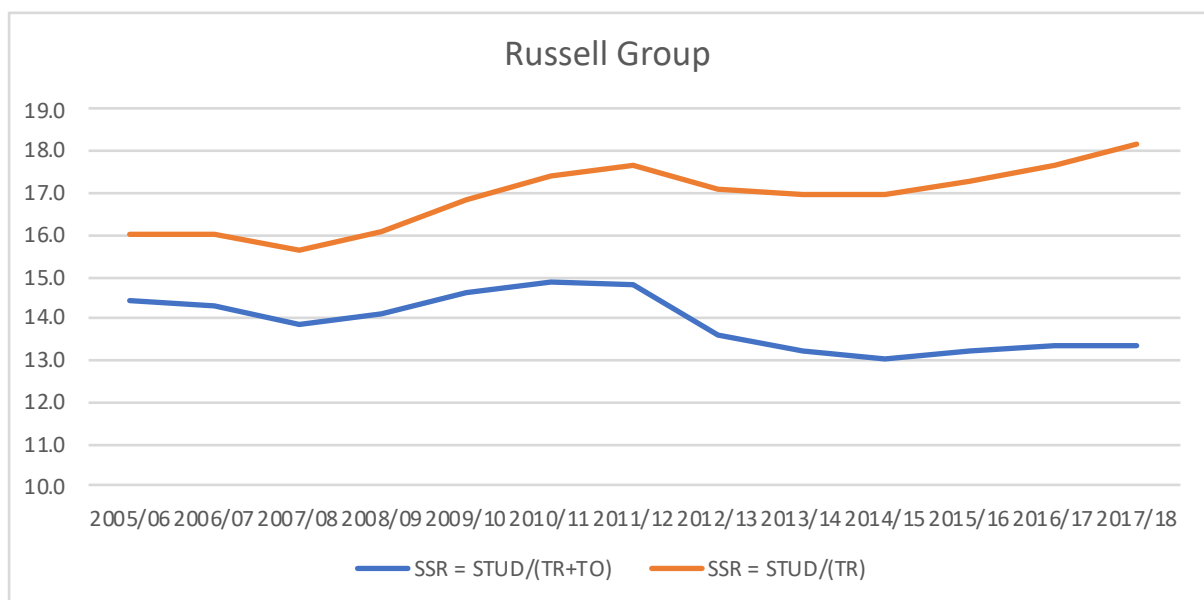
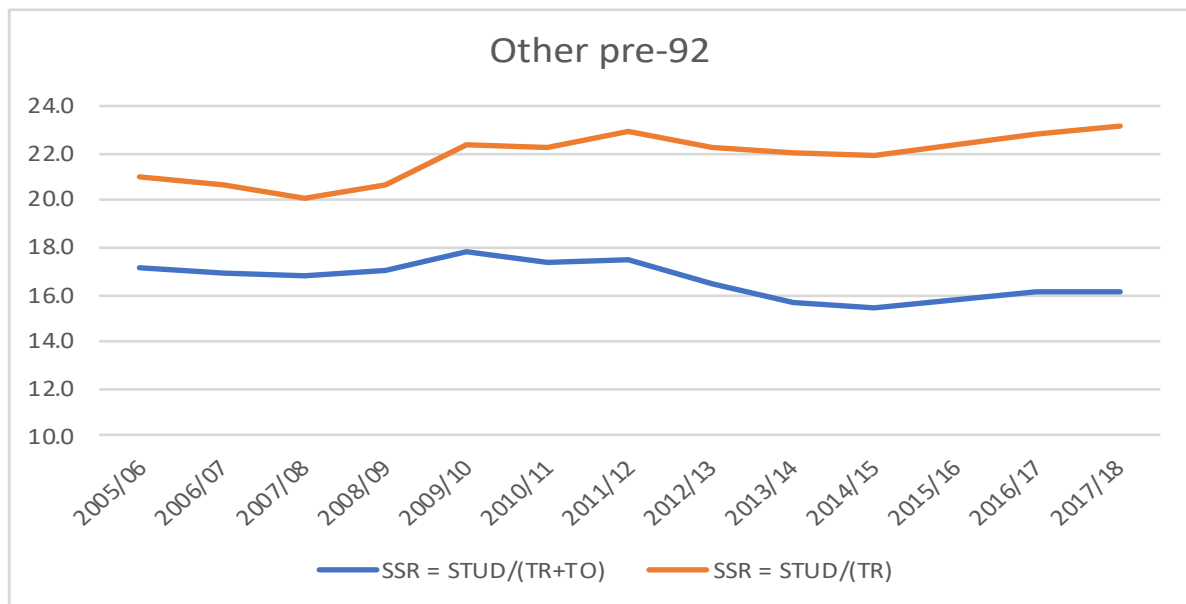


Figure 23 Student:staff ratios for ‘Teaching + Research’ and ‘All Teaching ’ academic staff, pre-92 non-Russell Group universities



Figures 21, 22 and 23 similarly show that, while for the sector as a whole, the number of students per ‘traditional’ academic has remained more or less steady, in both the Russell group and the other pre-92’s the average number of students per ‘teaching & research’ academic has increased, with all the improvement in teaching ratio accounted for by teaching-only academic staff. This is not something of which our interviewees were aware although they all, without exception, checked and benchmarked overall SSRs:

We benchmark on a number of metrics – for example SSRs. Ours got way out of line and we moved to increase academic numbers. (Pre-92 institution: Provost.)

Their overall SSR had duly improved –but their SSR for ‘teaching and research’ posts had shifted very little. This seemed to be something of which the central team was genuinely unaware.

As always, there are factors specific to different institutions – institution A, for example, an ‘old’ university, was grappling with a financial crisis at the time of our interviews. But the case studies also illustrate the trends we highlighted earlier. In all the pre-92 institutions (A, C, E and F) there are large differences, in 2018, between the SSRs for all teaching and for Teaching-and-Research staff. The difference is very marked in the two Russell Group universities (C and E).

And our two examples are by no means extreme: if we take three other Russell Group institutions which have all increased their student enrolments very fast (and faster than the group as a whole) then we find that in one, overall SSR improved from 15 to 13.6 – but for teaching & research staff deteriorated from 16.7 to 19.3. Another had and has very low SSRs – but these actually worsened slightly over the period, from 9.9 to 10.5: and for teaching &

research from 10.5 down to 13.8. At a third, the overall SSR improved from 14.8 to 13.7 – but on teaching & research deteriorated from 14.8 to 19.⁷

The shifts shown in these tables and figures are entirely consistent with an ‘efficiency strategy’ such as we outline above. In our case study interviews, we therefore probed to find out whether these changes reflected a coherent and deliberate strategy. However, to our surprise, our respondents *uniformly* denied any strategic or centrally driven attempt to replace teaching & research academics with teaching-only. Indeed they appeared to be genuinely unaware of their own institutional figures, although they did monitor overall SSRs. As one explained:

We only monitor the stuff we have to report on. And there’s plenty of that. (Pre-92 university, Director of Strategy)

The reporting to the regulator gets more and more detailed every year (Director of Strategy and Planning post-92)

If it’s in the league tables, then we measure it. If not, not. (Director of Planning, Pre-92)

In understanding how these different trends have emerged, and why they differ by institutional type, it is important to note two things. First, research performance matters more to research-intensive universities and second, there is a major cost differential between pre-92 and post-92 institutions, in that teaching & research staff in the former expect and receive lower teaching loads and regular research leave. In the post-92 institutions that we visited, there was no expectation that staff would receive paid sabbaticals/research leave as a matter of course rather than in a few highly specific circumstances.

By contrast, in a major research-intensive university a sabbatical is more or less automatic every 6th semester – i.e. institutions only get 2½ years’ worth of teaching hours for every 3 years’ employment. The expectation is that this enables academics to maintain high quality research output – which, in addition to maintaining levels of research activity and reputation, can more than pay for itself because of the impact of institutional reputation on fee income. (Wolf and Jenkins 2018) But it also means that the up-front cost of a permanent appointment on a teaching & research contract carries additional costs.

A university which does not grant research leave except in extraordinary circumstances will get more teaching weeks for a given salary than one which grants sabbaticals. And this also explains why a number of post-92 institutions in this situation -including the two in our sample - have bucked the general trend and *increased* the proportion of staff who are on traditional teaching and research contracts. In both these institutions, senior managers told us that they had concluded that there was no advantage in having large numbers of staff on teaching-only contracts, and some real disadvantages.

⁷ The pattern is not totally uniform across the Russell Group – taking the three most atypical members, at LSE teaching & research ratio only fell a little, at Cambridge it improved a little and Oxford improved a lot.

Back in the early 2000s we were actually just a teaching-only institution – there was hardly any genuine research. We were still a poly, with no academic ambitions. By putting almost everyone on a full teaching and research contract we became a university. But we will, in the future, move to having Teaching Assistants and maybe some teaching-only contracts. (Vice-Chancellor, post-92)

These two universities are not highly research-active in terms of REF metrics, and do not provide routine sabbaticals: in one of them, only a very few academic groups are targeted and supported to promote REF excellence. So the direct cost of moving to ‘teaching-and-research’ contracts is low. This scenario may explain the other part of the ‘regression to the mean’ in teaching-only proportions which we detailed in the main quantitative analysis.

As noted, our interviewees in the pre-92 universities were generally failing to monitor the balance between teaching only, and teaching + research, contracts. They also, without exception, saw the leadership of the institution as unwilling to increase teaching only posts and gave examples of senior colleagues (typically Pro-Vice Chancellors with a research brief) who consistently pushed for ‘research-active’ appointments, and blocked bids for new teaching-only posts.

Our previous Deputy VC for Research would have stopped us appointing a single teaching-only academic if he could – he certainly tried to avoid there being any. Any senior academic simply must be engaged in research. (DVC, Russell Group)

Given the apparent mis-match between perceptions and bodies on the ground, what might be happening here? Why is the picture so different from that reported in the US?

The answer probably lies with the Vice-Chancellor who commented that

The REF keeps us honest. Without it we’d be all too likely to push more and more of our teaching onto casual employees. (Vice-Chancellor, pre-92 university)

We noted above that the importance of good research, good academics and good students – and of a good reputation – were a countervailing force to the attraction of ‘efficiency gains’ achieved via lower salaries, and higher workloads. While this is generally true, and would be true for any country, the ‘REF’ – or Research Excellence Framework – is a highly formal exercise, in which individual academics are evaluated and large sums of money allocated by the government on the basis of these evaluations.

There is nothing comparable in the US and this may indeed be an important reason why the shift to ‘casual’ labour appears to have been less pronounced in the UK than among US research universities. One Chief Operating Officer did remark that the Deans and Pro-Vice Chancellors (PVCs) were more relaxed about teaching-only posts as they helped cover sabbaticals. The US research does indicate that faculty-level desire for flexibility appears to be very important. However, we did not interview enough Deans or PVCs on this issue to be sure whether our informant is correct.

Additional support for the idea that the REF is critically important for UK hiring practice is that we find a ‘spike’ in the number of teaching only contracts immediately before the last

REF census and then little change until 2018, with recently released data seeming to indicate another pre-REF rise. At that point in the cycle, some staff in research-intensive universities may be shifted to teaching-only contracts, rather than risk a reduction in the quality verdict returned by the assessor panels. Equally, or perhaps more likely – though we cannot quantify this – is an increased reluctance to hire anyone for a standard ‘Teaching and Research’ position whose REF profile is uncertain (but who will have to be entered more or less immediately).

Another difference between UK and American universities is that, in the former, decisions on whether to create new posts with teaching responsibilities, or reappoint to vacated ones, are made by central teams. The American literature indicates that, at least in leading research-intensive universities, faculties have more power to make decisions.

During our case study interviews we were told repeatedly that there is enormous scrutiny of the case for an academic post put forward by a department or faculty. And at that point, there will indeed be a strong tendency not only to demand proof that the post will be justified by student recruitment/teaching requirements but also to insist that any permanent post must also be for ‘research active’ academics who can contribute to the REF. Moreover, on appointment panels, applicants’ expertise will be assessed using current metrics – which means that there is a very strong emphasis on publications (and the number of stars given to journals in which publications appear) and research funding.

We target a 3% vacancy rate in professional services and with others it's more like 7 or 8% - that helps balance the books. (Pre-92 planning officer)

This is the stage of the appointment process that senior managers experience. And so when our interviewees claimed university-wide *resistance* to teaching only appointments, they were almost certainly entirely sincere.

But what happens when a post is not filled? Or not approved – but the students still enrol, targets are achieved or even surpassed, and at the same time staff turnover occurs, and vacancy rates are kept high? Or when additional successful academics buy themselves out of much of their teaching for a year or more? At that point, back-up processes come into play. ‘Chair’s action’ allows the appointment of short-term staff. Departments whose bid for a permanent post was rejected are allowed to appoint a teaching fellow instead.

The VC is keen to reduce the number of teaching-only posts. But in some key schools – medicine, business – we simply can't get active researchers. (Pre-92)

There has never ever been encouragement for one-year posts, and there's a very strong preference for teaching & research. But for example, recently we approved 3 one-year Teaching Fellows in the Business School because we simply couldn't appoint (pre-92)

The faster the growth, and the more rigorous the university is about ‘research-active’ teaching & research appointments, the more likely it is that there will be multiple such occasions: which is what the growth of Teaching Only posts in Russell Group universities indeed suggests. They may also use increased numbers of sessional contracts or call on

individuals who are on the books with 'zero hours' contracts – groups on which very little information is available.⁸ What our case studies suggest, however, is that decisions to make 'teaching only' appointments are essentially 'residual' rather than a central and conscious part of university strategy.

⁸ Universities also use PG teaching assistants, although the number of hours they can work is regulated by the Research Councils. Again, we have little information on this group.

SECTION 3: NON-ACADEMIC STAFFING

As we highlighted in the Introduction, universities employ a huge non-academic workforce, which is generally much less scrutinised than their academic workforce. Here we draw on both our quantitative and case study evidence to provide insights into changes in this non-academic staffing. Section 3.1 discusses the literature on this topic for both the U.S. and Europe. Quantitative data in Sections 3.2 and 3.3 examine general trends before focussing particularly on the most striking (and costly) development of the period: the growth in more senior managerial and non-academic professional staff. The case study evidence in Sections 3.4 to 3.6 provides some possible explanations of why this has occurred.

3.1. Changes in non-academic staffing: theory and evidence review

The first wave of literature on the topic of university administration was largely for the US (Leslie and Rhoades, 1995; Rhoades and Sporn, 2002; Leicht and Fennell, 2008) and focused more on cost and expenditure trends than staffing figures as such. However Ginsberg (2011) produced evidence of the rapid growth in numbers of managers and administrators in American universities, noting that, while in 1975, 'America's colleges actually employed more professors than administrators', between 1975 and 2005, 'as the number of full-time professors increased slightly more than 50 percent – a percentage comparable to the growth in student enrolments during the same time period – the number of administrators and administrative staffers employed by those schools increased by an astonishing 85 percent and 240 percent respectively' (Ginsberg, 2011, p 25).

Research on some European countries has also been undertaken (see Schneijderberg and Merkator, 2013 for a review). Among the earliest studies were Gornitzka and Larsen (2004). Their empirical evidence consisted of studies of four Norwegian universities - Bergen, Oslo, Trondheim, Tromso - over the years 1987 to 1999. This was a period of growth in the Norwegian university sector, with student numbers rising by some 85%. They make a distinction between clerical staff and higher administrative staff. Total administrative staff grew by 66%; but this masked a difference between the clerical staff where numbers actually fell and higher administrative staff where numbers more than doubled. Academic staff numbers grew by 56% over the same period. Growth was strong up to 1995 and then much slower through to 1999.

Underlying these changes, they suggest, were:

the many institutional pressures faced by universities. Universities have repositioned themselves in light of changing environmental demands – external funding, changes in student numbers, internationalisation, delegation of financial and administrative responsibilities, “image-management” and information, the wave of accountability and call for quality control in higher education. The list of affecting factors is long and diverse. Virtually all of these factors can be argued to have played a role in restructuring the administrative work force.

For the Netherlands, Kallenberg (2015) reports that 'the additional spending on education in the last 20 years has been entirely spent on overhead. Average expenditure per student fell

by 30 to 40% over the period but the overhead expenses of university education increased by a third.’ There was both an increase in the percentage of non-academics in overall staff numbers and growth in the number of highly specialised administrative functions within the domain of non-academics.

Krücken, Blümel and Kloke (2013) conducted a careful empirical study of the evolving academic-administrator relationship at German universities. They had data on staffing trends for the period 1992-2007 and management recruitment information for 1997 to 2006, as well as surveys of senior managers in 2008/09. On staffing, academic staffing grew more rapidly than administrative/managerial staffing over the period considered. However, within administration there was a strong trend towards more senior staff and fewer in the lower administrative and clerical positions, partly due to out-sourcing. They found an increased proportion of academic staff in the workforce overall, which was, on the face of it, out of line with trends elsewhere. But it was strongly related to the intensification of third-party research funding at German universities and many of the new positions seem to have been at doctoral and post-doctoral level, rather than full teaching or teaching-and-research positions. The authors report that numbers of permanently employed and state-funded academics decreased relative to overall growth of staff.

Turning to the UK, authors have often pointed to changes in the number and type of non-academic staff in higher education as being driven by the increasing complexity of the university as an organisation, and by changes in the higher education policy environment including:

- Increasing competition for high quality students, including international students.
- Diversity of funding sources.
- Increasing pressure to generate external research funding and therefore to manage relationships with research funders and donors.
- Increased student expectations and demands, requiring more resources to improve and manage the ‘student experience’.

Several authors (Macfarlane, 2011; Whitchurch, 2008) have seen a blurring of the lines between academic and non-academic roles in the modern university and have explored the implications of this for employees in the sector.

According to Macfarlane ‘all-round’ academics who combine research, teaching and service are increasingly being replaced by ‘para-academics’ including student skills advisers, educational developers, learning technologists and research management staff who specialise in just one aspect of the academic role. Unbundling is also readily observable in the growth of non-tenured, fixed-term and teaching-only contracts (as discussed in previous sections). In addition, many professional and administrative staff have seen their roles change over time to take on aspects of student support and involvement in learning activities. For example, librarians have become ‘study skills advisers’ and some IT staff have morphed into ‘learning support technologists’.

The growing complexity and the growing size of the modern university are seen, in the literature, to be creating greater differentiation and specialisation of tasks and functions.

Schneijderberg and Merkator (2013) use the term ‘higher education professionals’, or HEPROs, for a group of higher administrative staff who are not primarily engaged in teaching and research, but support academics and senior managers. These new professional roles in curriculum design, quality assurance, student support etc. develop, they argue, as a result of new pressures on the university from outside. Authors use a lot of different terms for this group of staff: Whitchurch refers to ‘third space professionals’, while others, according to Schneijderberg and Merkator, identify managerial professionals, non-academic professionals, or support professionals as a growing group (Schneijderberg and Merkator, 2013, p 54).

A different perspective on the growth of non-academic staffing is offered in some of the US literature where it is argued that, in times of plenty with money to spend, colleges and universities ‘chose not to spend it on expanding their instructional resources i.e. faculty. They chose, instead, to enhance their administrative and staff resources’. (Ginsberg, 2011, pp 26-7). This suggests that there is a direct link between non-academic and specifically higher level administrator growth and institutions’ wealth and financial success, irrespective of changes in external demands: something that we examine in our data analysis.

The US literature also argues that any reduction of administrative staffing levels is problematic in higher education institutions and tends only to occur in times of crisis. Zemsky and Massy (1990) developed the notion of an ‘administrative lattice’ with the implication that cutting back on administrative and managerial staff would be very difficult. Ginsberg (2011) maintains that administrators show their true colours most clearly in times of economic crisis – such as in US in 2009/10 when cutbacks had to be made. In response to budgetary problems most universities responded by cutting academic programs and faculty recruitment. However, the evidence produced in these studies is (very) anecdotal, and these scholars appear to be strongly ‘anti-administrator’ in their approach.

As well as this specific literature about higher education there are several more general trends which could impact on university staffing patterns. We would highlight three of these as most relevant:

- A growth in outsourcing, to companies but also to self-employed workers. Outsourcing is appropriate for a subset of administrative and other non-academic jobs, and so may lead to a reduction in, notably, cleaning and maintenance jobs, security, printing and copying, food services, and some technical services. This would imply a fall, in absolute and proportional terms, in lower-paid, non-office based, non-academic employment.
- Ongoing changes in IT. During much of the 1990s information technology was associated with the ‘productivity revolution that never happened’: in spite of increasing use of computers and associated technologies, there was little sign of a consequent productivity upturn. However, since then there has been more evidence of productivity gains as many organisations embed technologies in effective ways. If higher education has been a successful adopter of IT – in the sense of using it to deliver genuine efficiency increases – then we would expect to see reductions in the numbers and cost of non-academic staff across a range of functions.

- The 'cost disease'. This phenomenon, first described fully by Baumol (2012), notes the major differences, in modern economies, between activities where there is potential for large productivity gains, so that the same output (i.e. the same amount, of the same quality) can be delivered with far fewer people, and those where this is not the case. Medical care is the quintessential 'cost disease' sector, with little room for productivity increases at the core, because this involves people interacting with people. Indeed, in an economy where real incomes and wages are rising, they are subject to the 'cost disease' of requiring greater expenditure on salaries, for the same output, because of the need to compete for talent with high-productivity sectors. Academic staff are likely to be affected by the 'cost disease', both because research is labour intensive and because there have not been any productivity breakthroughs with respect to effective teaching (in spite of recurrent waves of IT-related optimism). It is unclear, however, how far it applies to non-academic higher education staffing.

Another important change in recent years is that universities have generally increased in size (though to very varying degrees): they typically have more students, and more staff, than in 2000. Successive governments have tended to believe that, in the education sector, larger institutions can realise back-office savings and other economies: so among schools and colleges, there has been active encouragement of mergers. University growth has been overwhelmingly a function of increased enrolments rather than institutional mergers, but similar arguments may apply. The wider organisational literature does not suggest that there is any simple relationship between size and efficiency, but we examine the relationship for growth in managers and non-academic professionals.

UK research on non-academic staffing has up to now been overwhelmingly qualitative and there is almost no previous quantitative research. A rare exception is the paper by Hogan (2014) which provides mainly cross-sectional information based on HESA data for 2012/13. He comments that:

It is also worth considering changes over time. HESA has published more detailed information on staff since 2004/05 (although there was a reclassification in 2012/13 which means the comparisons are not a perfect fit). In the period 2004/05 to 2012/13 managerial, professional and technical staff grew by 21% and clerical decreased by 2%. There have also been different rates of growth with staff and student facilities (sports, welfare, careers and the like) growing at by far the fastest rate (64%). This may well reflect the growing attention to the 'student experience' arising in part from higher fees in much of UK HE (Hogan, 2014, p 83).

3.2. Changing patterns of non-academic staffing

Over the last thirteen years, the proportion of all UK university staff who are non-academic has fallen somewhat (and the proportion of academics duly increased). All results are for our sample of 117 generalist universities unless stated otherwise. Figures 24 and 25 summarise this for the periods on either side of the 2012 reclassification, showing England, Wales and Scotland separately. The extent, and stability, of the downward trend varies, and

the Welsh figures – for just 8 universities - are rather hard to interpret, but for the UK overall, the direction is clear.

Figure 24: Total number of non-academic university staff per 100 academic staff by country: 2005/06 to 2011/12

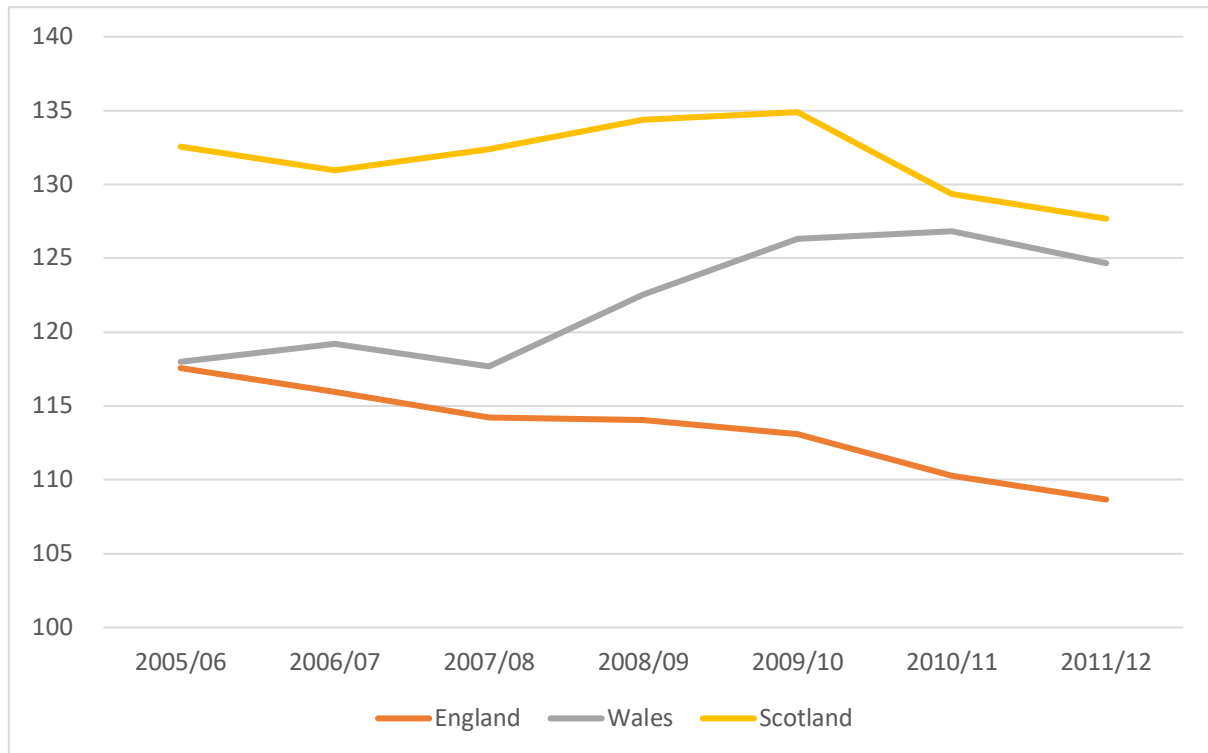
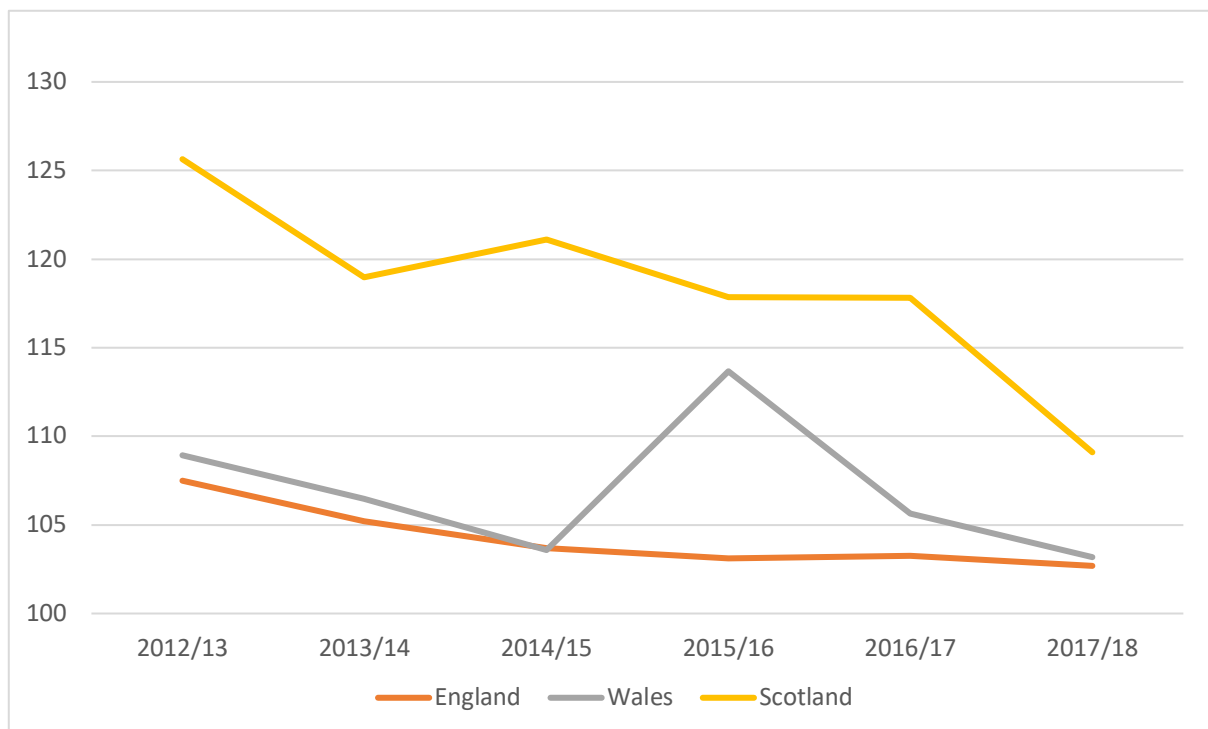


Figure 25: Total number of non-academic university staff per 100 academic staff by country: 2012/13 to 2017/18



This trend appears at odds with the preoccupations of the literature on university staffing, However, as noted above, this was also a period of extensive outsourcing, as well as ongoing technological change in university activities, and when we break out different categories of non-academic staff, a much more complex picture is evident. Of particular interest are trends in secretarial staff; technicians; and, especially, managers and non-academic professionals.

In order to examine changes within the overall body of non-academic staff, we have broken non-academic employee data down into 11 categories. As noted earlier, we have been able to create (at least approximately) consistent categories across the entire period using three-digit codes for mapping. However, it is essential to treat the large, senior group of managers and non-academic professionals – MNAPs - as a single category since many were re-classified from one side of the 'Manager- Non-Academic Professional' boundary to the other by the HESA re-classification exercise that took effect from 2012/13 onwards.

Table 25 shows absolute numbers of non-academic staff employed in each of the 11 categories for our sample of 117 universities: and Table 26 shows what proportion of non-academic staff were employed in each of these categories. Numbers are given for four equally spaced years across the period for which we have full HESA data. Overall, numbers grew by 16% but there were very marked differences between sub-groups.

The largest absolute growth was in the numbers of MNAPs. They rose from just under 32,000 in the academic year 2005/06 to almost 51,000 by 2017/18, an increase of some 60 per cent over 12 years. They also grew the most in terms of representation: they comprised less than a fifth of all non-academic staff in 2005/06 but more than a quarter of them by 2017/18 (Table 26).

Table 25: Numbers within non-academic staffing (pre-2012/13 occupational categories). 117 UK universities.

	2005/06	2009/10	2013/14	2017/18
Managers and non-academic professionals (MNAPs)	31,820	39,285	42,722	50,857
Laboratory, Engineering, Building, IT and Medical Technicians (including Nurses)	24,780	25,325	20,509	20,702
Student Welfare Workers, Careers Advisors, Vocational Training Instructors, Personnel and Planning Officers	7,485	9,735	13,230	15,467
Artistic, Media, Public Relations, Marketing and Sports Occupations	4,250	5,255	8,829	10,231
Library Assistants, Clerks and General Administrative Assistants	45,025	49,675	50,589	56,052
Secretaries, Typists, Receptionists and Telephonists	17,545	14,865	10,078	8,258
Chefs, Gardeners, Electrical and Construction and other skilled trades	5,040	4,950	6,013	6,246
Caretakers, wardens, sports attendants, nursery nurses and care occupations	4,890	5,010	6,654	6,530
Retail and customer service occupations	775	975	1,943	1,892
Drivers, Maintenance Supervisors and Plant Operatives	1,245	1,310	1,616	1,427
Cleaners, Catering Assistants, Security Officers, Porters and Maintenance Workers	29,855	28,470	23,809	23,211
All non-academic	172,710	184,855	185,992	200,873

Table 26: Percentages within non-academic staffing (pre-2012/13 categories). 117 UK universities.

	2005/06	2009/10	2013/14	2017/18
	%	%	%	%
Managers and non-academic professionals (MNAPs)	18.4	21.3	23.0	25.3
Laboratory, Engineering, Building, IT and Medical Technicians (including Nurses)	14.3	13.7	11.0	10.3
Student Welfare Workers, Careers Advisors, Vocational Training Instructors, Personnel and Planning Officers	4.3	5.3	7.1	7.7
Artistic, Media, Public Relations, Marketing and Sports Occupations	2.5	2.8	4.7	5.1
Library Assistants, Clerks and General Administrative Assistants	26.1	26.9	27.2	27.9
Secretaries, Typists, Receptionists and Telephonists	10.2	8.0	5.4	4.1
Chefs, Gardeners, Electrical and Construction and other skilled trades	2.9	2.7	3.2	3.1
Caretakers, wardens, sports attendants, nursery nurses and care occupations	2.8	2.7	3.6	3.3
Retail and customer service occupations	0.4	0.5	1.0	0.9
Drivers, Maintenance Supervisors and Plant Operatives	0.7	0.7	0.9	0.7
Cleaners, Catering Assistants, Security Officers, Porters and Maintenance Workers	17.3	15.4	12.8	11.6
All non-academic	100.0	100.0	100.0	100.0

Table 27. All professional and non-professional services, administrative staff and managers per 100 academics

	N	Mean	SD
2013/14	117	94.8	22.3
2014/15	117	95.0	22.8
2015/16	117	95.7	22.2
2016/17	117	95.5	23.2
2017/18	117	94.2	23.2

By contrast, the number of secretaries, typists and receptionists declined by more than 50% and fell from 10% of non-academic staff to 4%. Another group which fell in absolute numbers was the final group listed in Tables 25 & 26: cleaners, caterers, security, porters and maintenance (down from 17% to 12%, and from 28,855 to 23,211). However, this latter group covers many of the areas in which outsourcing has been most evident. The huge fall in numbers of ‘secretaries, typists, receptionists and telephonists’, in contrast, almost certainly reflects real changes in how work within the university sector is organised, and in who is responsible for different tasks. Our case studies confirm this: most evident is the sharp reduction in direct secretarial and administrative support for academics, with commensurate falls in numbers.

Finally, technician numbers also fell, in absolute as well as relative terms (and so, therefore, did the technician:academic ratio). This is rather surprising, given the growth in research activity, as well as in the sector overall, over the period, and the growing importance of IT. But the group consisting of lab, IT and other technicians shrank by about 16% to just over 20,000 employees by 2017/18, and fell from 14% to 10% of the non-academic workforce.

Another development during this period was a growing preoccupation in the sector with student services and their contribution to ‘student satisfaction’ (especially as measured on the government-mandated National Student Survey). Whereas changes in – and a perception of growth in – administrators is remarked upon by university observers in a range of countries, this development appears to be of particular significance in the UK. OECD data suggest that the UK spends an unusually high proportion of tertiary funds on ‘ancillary’ services as opposed to core education delivery. Certainly, as Tables 25 and 26 show, associate professional level employees dealing with the ‘student experience’, including welfare workers and career advisors, more than doubled their numbers 2005-17, as did marketing/media staff.

How did these changes relate to changes in the student body and in academic staff? During the relevant period, total student numbers in our core sample of 117 universities grew by 26% overall, 23% at undergraduate level and 37% at postgraduate: so faster, sector-wide, than non-academic staff numbers. The fastest growth, at this aggregate level, was in academic staff (teaching and research combined): total numbers grew 31% between 2005 and 2018. However, whereas faster growth in (cheaper) teaching-only staff has characterised the academic workforce, changes in the internal composition of non-academic staff have been in the opposite direction. The large increase in the numbers of MNAPs, in particular, has meant a marked shift towards more expensive staff.

As discussed in the previous sections, the last 15 years have seen very different academic staffing trajectories for different university 'groups' and student growth has also been uneven, as enrolments in the Russell Group in particular grew much faster than the sector average.⁹ Tables 28 to 31 show non-academic employee numbers for each of the four HE sectors separately. It is striking how much of the absolute growth in non-academic staff numbers has been concentrated in the Russell Group. By contrast gross numbers for the former polytechnics actually fell slightly. However, trends across each of the sectors are broadly similar as shown by the ratios and percentages in Tables 32 to 34. Table 32 shows the average student to academic staff ratios in the four institutional groupings in 2005/6 compared to 2017/18. Table 33 does the same for secretaries as a percentage of all non-academic staff; and Table 34 does the same for MNAPs. It is also noteworthy that technician numbers actually fell more sharply, as a percentage of the whole, in the Russell Group than in the other university groupings, although actual numbers fell only slightly.

Table 28: Numbers within non-academic staffing (pre-2012/13 occupational categories). Russell Group (n = 24).

	2005/06	2009/10	2013/14	2017/18
Managers and non-academic professionals Laboratory, Engineering, Building, IT and Medical Technicians (including Nurses)	14,285	18,360	21,058	25,811
Student Welfare Workers, Careers Advisors, Vocational Training Instructors, Personnel and Planning Officers	12,985	13,375	11,247	11,861
Artistic, Media, Public Relations, Marketing and Sports Occupations	2,045	2,895	5,057	6,224
Library Assistants, Clerks and General Administrative Assistants	1,210	1,650	2,842	3,497
Secretaries, Typists, Receptionists and Telephonists	16,225	18,165	19,130	24,872
Chefs, Gardeners, Electrical and Construction Trades, Mechanical Fitters and Printers	9,110	7,320	5,211	4,246
Caretakers, Residential Wardens, Sports and Leisure Attendants, Nursery Nurses and Care Occupations	2,220	2,155	2,583	2,779
Retail and Customer Service Occupations	1,390	1,580	2,606	2,982
Drivers, Maintenance Supervisors and Plant Operatives	180	300	629	713
Cleaners, Catering Assistants, Security Officers, Porters and Maintenance Workers	445	450	825	772
	12,025	11,590	9,778	9,979
All non-academic	72,120	77,840	80,966	93,736

⁹ Much of this difference between the Russell Group and others was accounted for by patterns of postgraduate recruitment.

**Table 29: Numbers within non-academic staffing (pre-2012/13 occupational categories).
Other pre-92 universities (n = 31).**

	2005/06	2009/10	2013/14	2017/18
Managers and non-academic professionals	7,000	8,560	9,227	10,898
Laboratory, Engineering, Building, IT and Medical Technicians (including Nurses)	5,185	5,325	4,357	4,211
Student Welfare Workers, Careers Advisors, Vocational Training Instructors, Personnel and Planning Officers	1,660	2,320	2,666	3,305
Artistic, Media, Public Relations, Marketing and Sports Occupations	985	1,150	2,113	2,386
Library Assistants, Clerks and General Administrative Assistants	9,400	11,665	11,571	12,331
Secretaries, Typists, Receptionists and Telephonists	5,105	4,265	2,803	2,251
Chefs, Gardeners, Electrical and Construction Trades, Mechanical Fitters and Printers	1,545	1,540	1,968	1,927
Caretakers, Residential Wardens, Sports and Leisure Attendants, Nursery Nurses and Care Occupations	1,185	1,305	1,619	1,482
Retail and Customer Service Occupations	275	340	483	386
Drivers, Maintenance Supervisors and Plant Operatives	240	240	258	214
Cleaners, Catering Assistants, Security Officers, Porters and Maintenance Workers	9,100	8,825	6,732	5,883
All non-academic	41,680	45,535	43,797	45,274

**Table 30: Numbers within non-academic staffing (pre-2012/13 occupational categories).
Former polytechnics (n = 33).**

	2005/06	2009/10	2013/14	2017/18
Managers and non-academic professionals	8,170	9,395	9,515	10,456
Laboratory, Engineering, Building, IT and Medical Technicians (including Nurses)	5,005	4,950	3,706	3,531
Student Welfare Workers, Careers Advisors, Vocational Training Instructors, Personnel and Planning Officers	2,765	3,175	3,913	4,119
Artistic, Media, Public Relations, Marketing and Sports Occupations	1,475	1,655	2,786	2,981
Library Assistants, Clerks and General Administrative Assistants	14,175	14,270	14,198	12,996
Secretaries, Typists, Receptionists and Telephonists	2,425	2,420	1,484	1,235
Chefs, Gardeners, Electrical and Construction Trades, Mechanical Fitters and Printers	835	800	893	964
Caretakers, Residential Wardens, Sports and Leisure Attendants, Nursery Nurses and Care Occupations	1,725	1,585	1,659	1,253
Retail and Customer Service Occupations	280	290	678	620
Drivers, Maintenance Supervisors and Plant Operatives	410	460	443	358
Cleaners, Catering Assistants, Security Officers, Porters and Maintenance Workers	6,125	5,555	4,996	4,542
All non-academic	43,390	44,555	44,271	43,055

Table 31: Numbers within non-academic staffing (pre-2012/13 occupational categories). Other post-92 universities (n = 28).

	2005/06	2009/10	2013/14	2017/18
Managers and non-academic professionals	2,355	2,960	2,911	3,674
Laboratory, Engineering, Building, IT and Medical Technicians (including Nurses)	1,595	1,660	1,197	1,085
Student Welfare Workers, Careers Advisors, Vocational Training Instructors, Personnel and Planning Officers	1,015	1,345	1,594	1,819
Artistic, Media, Public Relations, Marketing and Sports Occupations	575	795	1,088	1,365
Library Assistants, Clerks and General Administrative Assistants	5,195	5,535	5,569	5,738
Secretaries, Typists, Receptionists and Telephonists	875	820	541	487
Chefs, Gardeners, Electrical and Construction Trades, Mechanical Fitters and Printers	440	455	542	554
Caretakers, Residential Wardens, Sports and Leisure Attendants, Nursery Nurses and Care Occupations	545	540	721	776
Retail and Customer Service Occupations	40	45	153	173
Drivers, Maintenance Supervisors and Plant Operatives	145	145	88	82
Cleaners, Catering Assistants, Security Officers, Porters and Maintenance Workers	2,605	2,465	2,292	2,799
All non-academic	15,385	16,765	16,696	18,552

Table 32: Ratio of students to non-academic staff (total) by university type 2005/6 and 2017/18

	2005/6	2017/18
Russell Group	6.1	6.3
Other pre-92	7.8	8.9
Former polytechnics	13.2	13.5
Other post-92	12.3	11.8

Table 33 Secretaries and receptionists as a percentage of non-academic staff (total) by university type 2005/6 and 2017/18

	2005/6	2017/18
Russell Group	12.6	4.5
Other pre-92	12.2	5
Former polytechnics	5.5	2.9
Other post-92	5.7	2.6

Table 34 Managers and non-academic professionals (MNAPs) as a percentage of non-academic staff (total) by university type 2005/6 and 2017/18

	2005/6	2017/18
Russell Group	19.8	27.5
Other pre-92	16.8	24.1
Former polytechnics	18.8	24.2
Other post-92	15.3	19.8

Figures 26 to 28 confirm that all types of university have moved in similar directions with respect to MNAP employment, but also highlight major differences between them in 2005/6 – i.e. before the big increases in fee income for home students, or the lifting of the numbers caps. We hypothesise that this reflects differences in research intensity, but it may also reflect differences in culture and staffing practices. For example, the pre-92 institutions had, in 2005/6, much higher proportions of employees listed as secretaries (probably reflecting more support for academics within departments), whereas both post-92 groupings had a much larger share of employees in the ‘Student Welfare Workers’ grouping. However, it is also important to note the very large variations within each grouping, as well as within the sector overall. As discussed in sections 2.2 and 2.3 above standard deviations are uniformly substantial. In the following two sections we therefore look more systematically at what may be driving the most noticeable (and costly) change in non-academic staffing: namely the growth in MNAP staff.

Figure 26: MNAPs per 100 Academic staff in 2005/06 and 2016/17

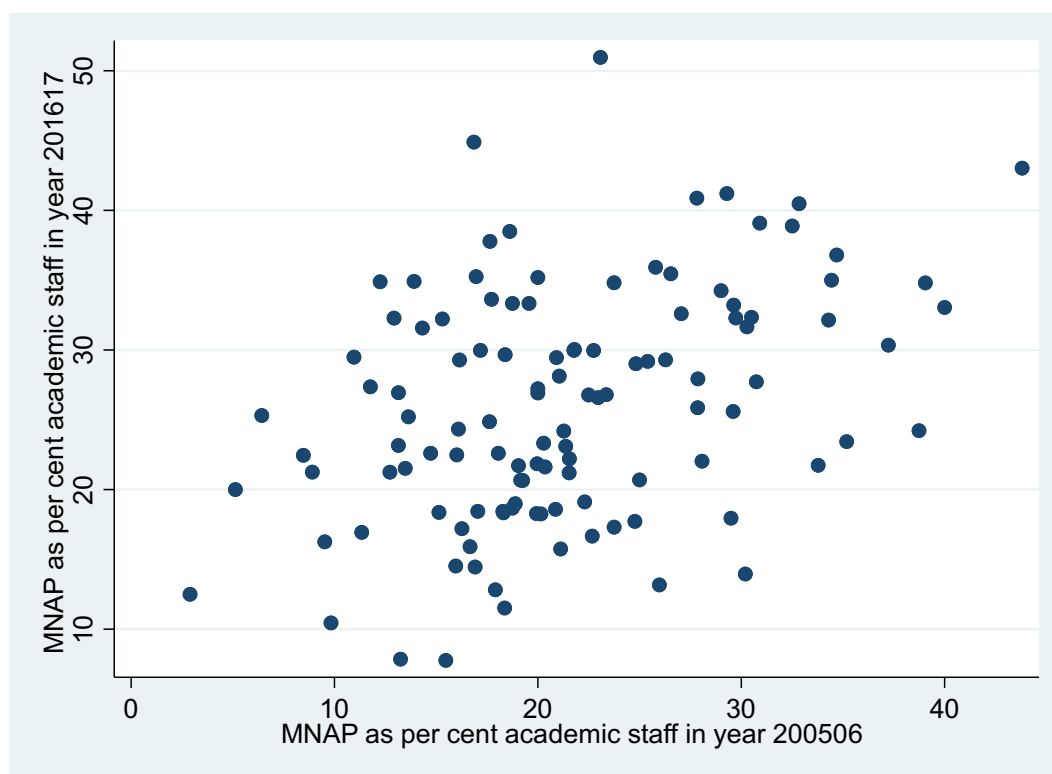


Figure 27: Change in MNAP per 100 Academic staff, 2005/06 to 2016/17 and its level in 2005/06

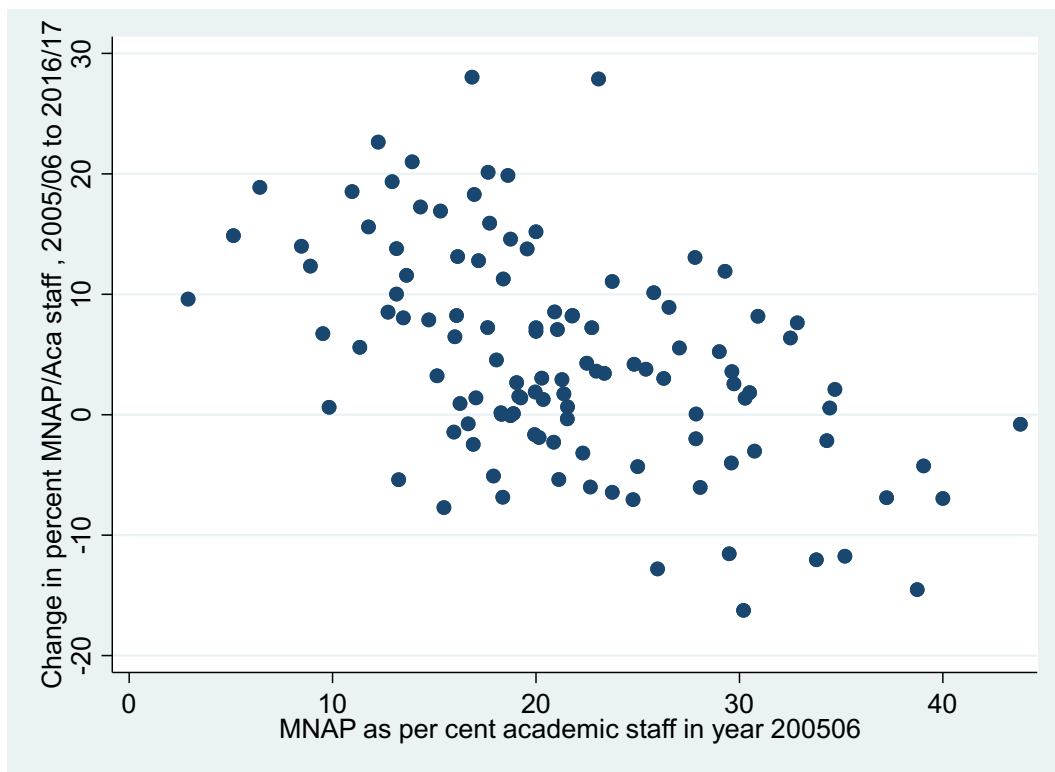
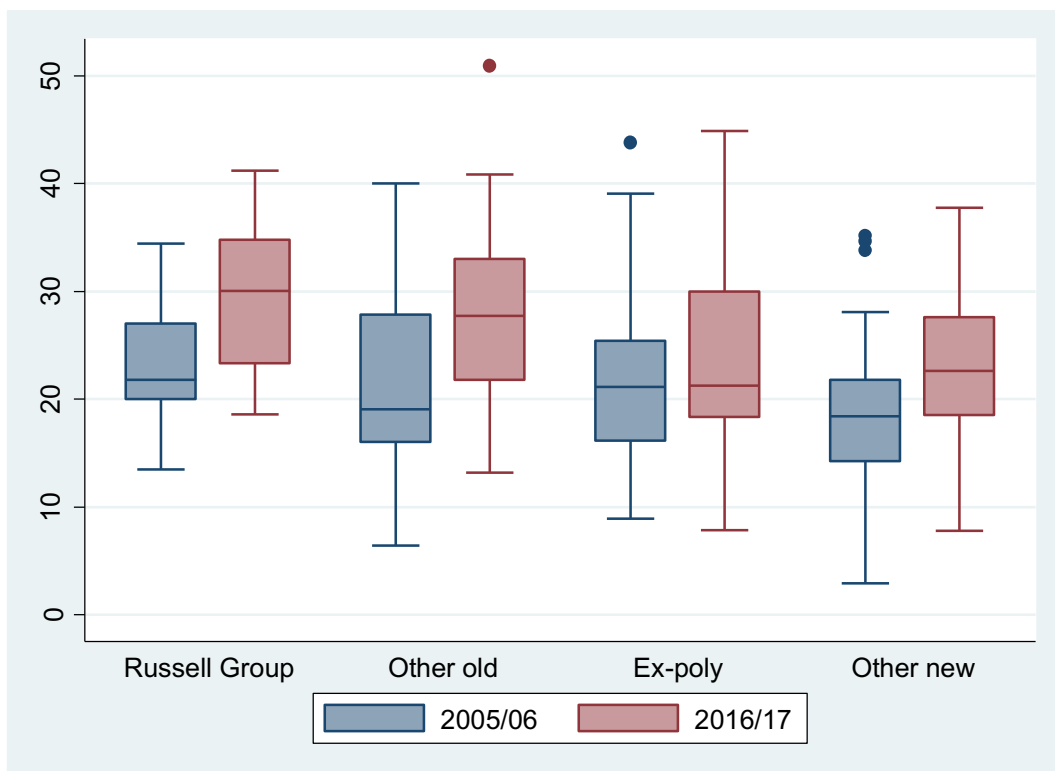


Figure 28: MNAP staff per 100 Academic Staff: 2005/06 and 2016/17, by HE sector



3.3. Managerial and non-academic professional staff

Trends over time

What are the basic trends in the proportion of managerial and non-academic staff? How much growth has occurred? Are universities becoming more similar?

Table 35 provides summary statistics for the universities in our sample and clarifies that there was an upward trend not just in the weighting of non-academic staff towards MNAPs but also in the ratio of MNAP staff to academic staff, rising from 21.4 per 100 academics in 2005/06 to 26 per 100 academics by 2016/17. Figure 26 shows this visually and also makes clear that there is a great deal of variability.

Universities with a high proportion of MNAP staff in 2005/05 tended also to have a high proportion of these staff in 2016/17, as might be expected (Figure 26) albeit with a lot of variation. There was a slight tendency for those with high proportions of MNAP staff in 2005/06 to have lower average growth in this proportion (Figure 27) but this was a weak tendency - there was no marked 'regression to the mean'. There was no reduction overall in the variation across our HE sample between 2005/06 and 2016/17. Figure 28 illustrates this by sector. Former polytechnics showed little change in the mean ratio of MNAPs to academic staff (which increased markedly for the other groups) but showed increased variation. *This variation is an important finding in itself.* While we cannot measure the quality of 'outputs' directly, it is clear that some institutions are operating with a very much lower proportion of (expensive) MNAP staff than others, and this seems to be the result of internal management decisions and operations rather than any external drivers.

Table 35: MNAPs per 100 academics in 2005/06 and 2016/17

Academic year	N	Mean	Std Dev	Min	Max
2005/06	115	21.4	7.8	2.9	43.8
2016/17	115	26.0	8.4	7.8	51.0

Note: Our full sample is n = 117. Here we omit 2 cases (Manchester and Buckingham) for consistency with regression models which follow.

Regression models

Some regression models were fitted to examine drivers of change. Using the same sample of 115 universities described earlier¹⁰ these models have the change in the number of MNAP staff per 100 academic staff from 2005/06 to 2016/17 as the dependent variable (i.e. the thing to be explained). For these analyses, academic staff includes teaching-and-research, teaching-only, and research only.

The first model summarised in Table 36 looks just at the proportion of MNAP staff in 2005/06. The level of the variable in 2005/06 is negatively (and significantly) related to the change between then and 2016/17. In other words, those universities which started with a very high proportion of MNAP staff for each academic employee tended to see less of an increase in that proportion by the end of the period, as noted above. As also noted, however, there was much variation around the mean in the extent to which the proportion

¹⁰ i.e. omitting Manchester and Buckingham from our full sample: see footnote 2.

of MNAP staff increased and the R^2 is quite low. So there does not seem to be any simple tendency for universities to converge on a particular ratio. We also looked at whether changes in the academic staff numbers might explain change, but effects were small and significant only at the 5% level.

Table 37 adds HE sectors to the model. Allowing for the other variables in the model, Russell Group universities tended to experience a larger increase in the proportion of MNAP staff per 100 academics while new universities tended to be lower. Further models (not reported here) suggested that there was no evidence of a significant difference within the new university sector i.e. between former polytechnics and other types of post-92 university.

In Table 38 some further, financial, variables were added to the model. US commentators have argued that, the more university income increases, the more is spent on administrators. Other commentators (see above) have suggested that the administrative costs of modern research have risen because of the demands of funding agencies, and that this has affected the nature of HE administration. More broadly, the management literature suggests that, in some contexts, size provides 'back-office' economies of scale, while in others, it creates dis-economies.

However, in our model, research grant income was, rather surprisingly, not statistically significant: in other words, research intensity and increases in the attached bureaucracy and regulation do not seem to be key. Nor was aggregate real income a significant independent variable – so size does not appear important in itself.

However there was some evidence that *change in real income per student* (measured in '000s) was positively associated with change in the proportion of MNAP staff ($p < 0.05$). Over this period, income per student grew unevenly (in particular because of differential success in the international market). Universities which saw the largest increases in income per student tended also to see increases in the proportion of MNAP staff.

Table 36: Regression model for change in percent MNAP/Academic staff, 2005/06 to 2016/17

	(1)	(2)	(3)
MNAP per 100 academic staff in year 2005/06	-0.575*** (-6.22)		-0.561*** (-6.19)
Percentage change in number of academic staff, 2005/06 to 2016/17		-0.061* (-2.53)	-0.052* (-2.53)
Constant	16.910*** (8.01)	6.040*** (6.06)	17.868*** (8.52)
Observations	115	115	115
R^2	0.255	0.054	0.295

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 37: Regression model for change in percent MNAP/Academic staff, 2005/06 to 2016/17

	(1)	(2)	(3)
MNAP per 100 academic staff in year 2005/06	-0.584*** (-6.60)	-0.592*** (-6.82)	-0.597*** (-6.88)
Percentage change in number of academic staff, 2005/06 to 2016/17	-0.067** (-3.22)	-0.063** (-3.16)	-0.068** (-3.35)
Russell Group	4.924** (2.77)		2.484 (1.23)
New university		-4.761*** (-3.47)	-3.769* (-2.37)
Constant	17.727*** (8.70)	21.333*** (9.54)	20.539*** (8.84)
Observations	115	115	115
R^2	0.341	0.364	0.373

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 38: Regression model for change in percent MNAP/Academic staff, 2005/06 to 2016/17

	(1)	(2)	(3)	(4)
MNAP per 100 academic staff in year 2005/06	-0.592*** (-6.79)	-0.579*** (-6.62)	-0.579*** (-6.74)	-0.585*** (-6.76)
Percent change in number of academic staff, 2005/06-2016/17	-0.071*** (-3.42)	-0.078*** (-3.61)	-0.074*** (-3.65)	-0.071*** (-3.50)
Russell Group	1.524 (0.65)	0.518 (0.21)	1.669 (0.82)	1.736 (0.84)
New university	-3.705* (-2.32)	-3.442* (-2.15)	-3.888* (-2.48)	-3.867* (-2.45)
Change in real research grant money, 2005/06 to 2016/17	0.000 (0.81)			
Change in agg real income, 2005/06 to 2016/17		0.000 (1.34)		
Change in real income per student, 2005/06 to 2016/17			0.387* (2.11)	
Change in real research grants per student, 2005/06 to 2016/17				0.762 (1.57)
Constant	20.402*** (8.75)	19.718*** (8.24)	19.861*** (8.60)	20.446*** (8.86)
Observations	115	115	115	115
R ²	0.376	0.383	0.397	0.387

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

How large was the 'effect' size? The answer appears in col 3 of Table 38. The real income per student variable is measured in thousands of pounds and so a £1,000 increase in real income would lead, the model implies, to an increase in the proportion of MNAP staff (relative to academics) of approximately 0.39. The median increase between 2005/06 and 2016/17 in MNAPs per 100 academics was 3.4 and hence an extra £1,000 per student would explain about 11.5% of such a change. (The mean change was 4.6.) This could be regarded as a modest, but not insubstantial, 'effect' size: and readers should note that some institutions, over this period, registered changes in real income per student well in advance of £1,000.

Staffing changes at university level

As described earlier, some US-based authors have argued both that universities spend ‘disproportionately’ on administrative and managerial as their incomes rise, but also that cutbacks affect academic staffing more than administrative/managerial. Administrative staff are less likely to be fired if income falls.

In this section we use UK data at individual university level to consider whether this is true in the UK. We examine the extent of correspondence between changes in academic staff numbers and changes in the numbers of managers and non-academic professional staff. Do administrative staffing numbers ever decline when academic staffing is increasing, or vice versa? Do universities seem more likely to cut back on academic or non-academic staff?

We look at data over the period 2005/06 to 2017/18 as a whole; also for the sub-periods 2005/06 to 2012/13 and 2012/13 to 2017/18. Each of the four tables (Tables 39 to 42) is for a different university sector – Russell Group, other pre-92 universities, former polytechnics and other post-92 universities. The tables show the *change* in the numbers of academic staff and the change in the numbers of managerial/non-academic professional staff during these times for our usual sample of 117 universities.

The Russell Group (Table 39) has been the most rapidly growing sector during this period and almost all the universities there have seen increases in both academic and non-academic staffing. The only university where there was any substantial decrease in staff was at Manchester which was involved in a merger with UMIST in the early 2000s.

The picture for the other pre-92 universities (Table 40) is more informative as several have trimmed back their staffing numbers during the years for which we have data. At Salford and Ulster the reduction in the number of academics was ten times as large as the reduction in MNAP staff during 2012/13 to 2017/18. Kent cut back on academic staff by 325 but trimmed just 10 of its managerial and non-academic professional staff. Leicester reduced its academic staffing by 280 between 2012/13 and 2017/18 but increased its MNAP staff numbers by 85 during the same period. And a rather similar pattern is evident at Brunel, East Anglia and Hull. Overall, there are 7 ‘other pre-92’ institutions where academic numbers fell while MNAP numbers rose; 3 where the opposite occurred; and 6 where both fell. However, only two delivered substantial (>50) cuts in MNAP staff, while 10 did so for academics.

Among the former polytechnics (Table 41) there have been a sizeable number of cuts. Here, there are a few instances where managerial and non-academic professional staffing has been cut, at least a little, whilst academic staffing numbers of risen. We discern this pattern at Bournemouth, Brighton and Teesside. But academic staff numbers declined while MNAP staffing increased at Anglia Ruskin and Sheffield Hallam. There were substantial reductions in the number of academics but only small decreases in MNAP staffing at Huddersfield, West London and Wolverhampton. London Metropolitan, which was in crisis for some of the period, saw large-scale reductions in both academic and MNAP staff.

The rest of the post-92 university sector (Table 42) mostly experienced growth during this period and very few saw any substantial reduction in either academic or managerial/non-

academic professional staff. Bedfordshire reduced academic staff by 100 between 2012/13 and 2017/18 accompanied by a small decline in MNAP staffing while Glyndŵr cut back academic staff considerably whilst raising the numbers of its managerial and non-academic professional staff.

Overall, these results do seem to indicate that, as suggested by US authors, it is easier (or more attractive) to cut academic numbers than number of MNAP staff. We explore this further in the case study analysis.

Table 39: Change in numbers of academic and MNAP staff: Russell Group

Institution	Academic 2005/06 to 2017/18	Academic 2005/06 to 2012/13	Academic 2012/13 to 2017/18	MNAP 2005/06 to 2017/18	MNAP 2005/06 to 2012/13	MNAP 2012/13 to 2017/18
Birmingham	1365	260	1105	395	400	-5
Bristol	800	285	515	415	10	405
Cambridge	2155	960	1195	1445	800	645
Cardiff	590	15	575	460	130	330
Durham	445	345	100	165	150	15
Edinburgh	4095	625	3470	690	390	300
Exeter	1210	510	700	375	265	110
Glasgow	1355	80	1275	285	120	165
Imperial	1095	650	445	840	635	205
King's College	2070	1180	890	385	170	215
Leeds	810	440	370	320	265	55
Liverpool	975	415	560	305	140	165
LSE	345	210	135	360	60	300
Manchester	1155	595	560	-295	-380	85
Newcastle	620	155	465	335	270	65
Nottingham	640	645	-5	410	105	305
Oxford	2425	1750	675	1705	745	960
Queen Mary	1480	465	1015	275	235	40
Queen's Belfast	225	0	225	235	60	175
Sheffield	685	170	515	405	215	190
Southampton	570	410	160	550	290	260
UCL	2505	675	1830	605	495	110
Warwick	1095	25	1070	600	295	305
York	550	170	380	235	195	40

Table 40: Change in numbers of academic and MNAP staff: Other Pre-92

Institution	Academic 2005/06 to 2017/18	Academic 2005/06 to 2012/13	Academic 2012/13 to 2017/18	MNAP 2005/06 to 2017/18	MNAP 2005/06 to 2012/13	MNAP 2012/13 to 2017/18
Aberdeen	5	175	-170	-20	-10	-10
Aberystwyth	-20	195	-215	140	110	30
Aston	315	305	10	45	85	-40
Bangor	250	275	-25	-40	0	-40
Bath	10	-245	255	235	55	180
Bradford	-295	-280	-15	5	15	-10
Brunel	-105	0	-105	160	135	25
City University	440	-60	500	70	50	20
Dundee	-10	60	-70	-5	-100	95
East Anglia	560	635	-75	60	15	45
Essex	320	145	175	270	85	185
Goldsmiths	725	115	610	85	0	85
Heriot-Watt	205	115	90	25	-10	35
Hull	45	100	-55	160	65	95
Keele	120	55	65	90	35	55
Kent	230	555	-325	225	235	-10
Lancaster	705	45	660	130	55	75
Leicester	410	690	-280	130	45	85
Loughborough	30	105	-75	115	10	105
Reading	565	385	180	165	55	110
Royal Holloway	115	70	45	260	170	90
Salford	-470	-120	-350	-125	-90	-35
SOAS	0	5	-5	0	-15	15
St Andrews	300	215	85	55	-40	95
Stirling	-55	-140	85	55	-15	70
Strathclyde	350	-5	355	355	155	200
Surrey	370	210	160	255	45	210
Sussex	550	85	465	145	160	-15
Swansea	855	450	405	515	135	380
Trinity St David	140	-120	260	160	65	95
Ulster	-20	195	-215	170	190	-20

Table 41: Change in numbers of academic and MNAP staff: Former Polytechnics

Institution	Academic 2005/06 to 2017/18	Academic 2005/06 to 2012/13	Academic 2012/13 to 2017/18	MNAP 2005/06 to 2017/18	MNAP 2005/06 to 2012/13	MNAP 2012/13 to 2017/18
Anglia Ruskin	-300	-120	-180	130	120	10
B'ham City	155	-410	565	175	80	95
Bournemouth	230	50	180	115	210	-95
Brighton	345	270	75	85	110	-25
Central Lancs	265	65	200	55	35	20
Coventry	1425	720	705	215	175	40
De Montfort	50	-235	285	-30	-50	20
East London	205	130	75	45	70	-25
Glasgow Cal	-120	-160	40	-15	-30	15
Greenwich	250	150	100	145	140	5
Hertfordshire	410	210	200	5	20	-15
Huddersfield	-385	-275	-110	-40	-170	130
John Moores	250	-10	260	-45	-75	30
Leeds Beckett	-125	-55	-70	80	-150	230
London Met	-615	-355	-260	-280	-210	-70
Manchester Met	465	195	270	165	5	160
Middlesex	195	-15	210	25	15	10
Napier	75	-70	145	140	150	-10
N'ham Trent	580	80	500	280	75	205
Northumbria	340	240	100	190	130	60
Oxford Brookes	140	-20	160	90	30	60
Plymouth	140	105	35	-95	-95	0
Portsmouth	435	135	300	145	240	-95
Sheffield Hallam	275	350	-75	595	405	190
South Bank	260	100	160	10	-50	60
South Wales	220	450	-230	-85	80	-165
Staffordshire	120	160	-40	-80	-10	-70
Sunderland	-110	-145	35	-75	-100	25
Teesside	55	35	20	45	60	-15
UWE	145	-80	225	205	155	50
West London	-185	-480	295	-65	-55	-10
Westminster	-45	-330	285	80	20	60
Wolverhampton	-130	-225	95	-15	-140	125

Table 42: Change in numbers of academic and MNAP staff: Other Post-92

Institution	Academic	Academic	Academic	MNAP	MNAP	MNAP
	2005/06 to 2017/18	2005/06 to 2012/13	2012/13 to 2017/18	2005/06 to 2017/18	2005/06 to 2012/13	2012/13 to 2017/18
Abertay	-30	-35	5	45	45	0
Bath Spa	320	170	150	125	60	65
Bedfordshire	190	290	-100	20	35	-15
Bolton	45	5	40	-30	-15	-15
Buck's New	-175	-180	5	-35	-15	-20
Canterbury	260	120	140	325	20	305
Cardiff Met	130	35	95	25	-5	30
Chester	125	10	115	65	25	40
Chichester	220	105	115	60	40	20
Cumbria	-65	-125	60	-40	-45	5
Derby	355	125	230	10	15	-5
Edge Hill	295	140	155	115	75	40
Gloucestershire	0	-80	80	70	50	20
Glyndŵr	-45	100	-145	50	35	15
Leeds Trinity	10	-40	50	30	10	20
Lincoln	590	140	450	80	15	65
Liverpool Hope	35	5	30	-15	-10	-5
Marjon	-110	-70	-40	10	10	0
Newman	65	45	20	20	5	15
Northampton	335	275	60	75	65	10
Robert Gordon	10	5	5	-25	-25	0
Roehampton	-15	-140	125	115	50	65
Solent	50	90	-40	45	35	10
St Mary Tw'ham	60	5	55	5	30	-25
West Scotland	-15	-60	45	-45	-40	-5
Winchester	360	155	205	95	60	35
Worcester	570	210	360	50	15	35
York St John	90	35	55	20	20	0
Buckingham	80	70	10	10	0	10

Disaggregated data on managerial and non-academic professional staff

As we have seen, across the sector, there are big differences in levels and change in MNAP numbers, around a general trend. Below we draw on detailed, disaggregated data provided by HESA to provide some further insights.

There was considerable variation between universities in the number of MNAPs per 100 academic staff in 2017/18 as was the case for previous years. The sample of 117 universities were split into three groups according to whether they were low, medium or high on the MNAPs per 100 academics measure, with 39 universities in each group. The *low* group ran from 8.4 to 20.4 MNAPs per 100 academics; the *medium* group from 21.3 to 30.7, and the *high* group from 30.7 to 56.3 MNAPs per 100 academics (Table 43). Table 44 shows how institutions in each university grouping were distributed across the Low/Medium/High

categories, with Russell Group universities markedly less likely to have low numbers of MNAPs by national standards. The lowest of the low was Cumbria (8.4) while West London and St Mary’s Twickenham were also below 10. There was one very noticeable outlier at the high end, Canterbury ChristChurch on 56.3 MNAPs per academic (a figure so extreme that it may reflect data entry errors) – while the next three highest were Bath, Glyndŵr and Sheffield Hallam, all of them around 44.

To gain some insight into why some universities might have more MNAPs per academic staff member we use the data obtained from HESA on detailed occupational categories (SOC 2010 3-digit). Because we are looking at very specific categories of managerial and non-academic professional staff, each of the staff types within the MNAP groups was now expressed per 1,000 academic staff. Patterns for the sample of 117 universities as a whole are shown in Table 45. It can be seen that the largest categories were Business, Research and Administrative Professionals; IT and Telecommunications Professionals; Teaching and Educational Professionals (on non-academic contracts) and Functional Managers and Directors. Standard Deviations are very high for the first three of these.

Next these figures are broken down by whether the universities are in the low, medium or high groups overall (Table 46). Those in the ‘high’ group have more staff per 1,000 academics in most categories but the difference is especially notable for Business, Research and Administrative Professionals; and Teaching and Educational Professionals (non-academic). Absolute differences in the ‘business, research and administrative professionals’ category are very high, from a mean of 26.6 in the ‘low’ group to 93.6 in the ‘High’ one (although note that, in our regression analyses, research income did not seem to be driving MNAP numbers, and absolute numbers of R & D managers are small: see Table 46). We also noted above that the UK governments currently place a very strong emphasis on ‘student satisfaction’, including with teaching and assessment. The low, medium and high groups of universities nonetheless differ very markedly in the number of staff listed as teaching and educational professionals.

Table 43: Summary statistics for the three groups: MNAPs per 100 academics in 2017/18

	Obs	Mean	Std. Dev.	Min	Max
Low	39	16.5	3.3	8.4	20.4
Medium	39	25.2	2.8	21.3	30.7
High	39	37.0	5.0	30.7	56.3

Table 44: Low, Medium or High count of MNAPs per 100 academics, and type of university

	<i>Numbers</i>				
	Russell Group	Other old	Former poly	Other new	Total
Low	3	8	15	12	38
Medium	11	9	10	9	39
High	10	14	8	7	39
Total	24	31	33	28	116

	<i>Percentages</i>				
	Russell Group	Other old	Former poly	Other new	Total
Low	12.5	25.8	45.5	42.9	32.8
Medium	45.8	29.0	30.3	32.1	33.6
High	41.7	45.2	24.2	25.0	33.6
Total	100.0	100.0	100.0	100.0	100.0

Table 45 Breakdown of MNAP categories per 1,000 academics in 2017/18. N = 117 universities

<i>per 1,000 academics</i>	n	mean	SD
Managerial			
Chief Executives and Senior Officials	117	1.6	3.9
Production Managers and Directors	117	1.6	2.7
Functional Managers and Directors	117	37.8	27.9
Financial Institution Managers and Directors	117	0.6	1.2
Managers and Directors in Transport and Logistics	117	0.2	0.6
Senior Officers in Protective Services	117	0.0	0.1
Health and Social Services Managers and Directors	117	0.2	1.2
Managers and Directors in Retail and Wholesale	117	0.2	0.4
Managers and Proprietors in Agriculture Related Services	117	0.3	0.7
Managers and Proprietors in Hospitality and Leisure Services	117	3.2	4.0
Managers and Proprietors in Health and Care Services	117	0.3	0.8
Managers and Proprietors in Other Services	117	13.5	12.1
Non-Academic Professional			
Natural and Social Science Professionals	117	4.1	7.3
Engineering Professionals	117	2.9	5.8
IT and Telecommunications Professionals	117	45.4	23.3
Conservation and Environment Professionals	117	1.3	1.3
Research and Development Managers	117	5.9	7.6
Health Professionals	117	1.8	3.1
Therapy Professionals	117	0.5	1.6
Nursing and Midwifery Professionals	117	1.3	3.1
Teaching and Educational Professionals	117	44.3	52.8
Legal Professionals	117	1.3	1.6
Business, Research and Administrative Professionals	117	57.5	58.7
Architects, Town Planners and Surveyors	117	2.5	3.0
Welfare Professionals	117	4.6	7.0
Librarians and Related Professionals	117	16.3	12.7
Quality and Regulatory Professionals	117	6.7	7.2
Media Professionals	117	6.8	6.6

Table 46 Breakdown of MNAP categories per 1,000 academics in 2017/18, by the 3 groups

	Mean		
	LOW	MED	HIGH
<i>Managerial</i>			
Chief Executives and Senior Officials	1.3	1.3	2.2
Production Managers and Directors	1.0	1.8	1.9
Functional Managers and Directors	31.9	35.4	46.2
Financial Institution Managers and Directors	0.3	0.7	0.7
Managers and Directors in Transport and Logistics	0.1	0.2	0.3
Senior Officers in Protective Services	0.0	0.0	0.0
Health and Social Services Managers and Directors	0.4	0.1	0.1
Managers and Directors in Retail and Wholesale	0.2	0.1	0.3
Managers and Proprietors in Agriculture Related Services	0.2	0.4	0.2
Managers and Proprietors in Hospitality and Leisure Services	2.7	3.0	3.8
Managers and Proprietors in Health and Care Services	0.3	0.3	0.4
Managers and Proprietors in Other Services	11.5	13.2	15.7
<i>Non-Academic Professional</i>			
Natural and Social Science Professionals	1.8	4.4	6.2
Engineering Professionals	1.3	3.9	3.5
IT and Telecommunications Professionals	32.1	42.5	61.6
Conservation and Environment Professionals	1.3	1.2	1.3
Research and Development Managers	4.3	5.9	7.5
Health Professionals	1.1	1.4	2.8
Therapy Professionals	0.3	0.3	1.0
Nursing and Midwifery Professionals	0.9	1.5	1.6
Teaching and Educational Professionals	18.3	44.9	69.6
Legal Professionals	0.7	1.2	2.0
Business, Research and Administrative Professionals	26.6	52.3	93.6
Architects, Town Planners and Surveyors	1.7	2.6	3.1
Welfare Professionals	2.5	5.7	5.7
Librarians and Related Professionals	11.9	15.1	21.7
Quality and Regulatory Professionals	6.0	6.4	7.8
Media Professionals	4.6	6.1	9.7

n = 39 in each of the 3 groups

3.4. Centralisation and the hiring process in HE: evidence from the case studies

Introduction

A number of clear changes and trends emerge, then, in the pattern of higher education staffing. To gain insight into those trends we need to move beyond the statistics and look in-depth at the evidence from the case studies. The trends that we observe do not just ‘happen’: they are the result of multiple individual decisions about what a university will do, and about where and how to spend money. Equally, they are not necessarily the result of a clear strategy carried out over many years. On the contrary, it is just as (or more) likely that multiple individual decisions are made which have their own internal logic, and respond to immediate circumstances. Major changes in staffing patterns emerge over time rather than being a consciously desired destination.

The only other university system where such changes have been studied in depth is the United States: and, as discussed above, we found a very different dynamic in the UK with respect to teaching-only positions. In the US, the research into the growth of short-term teaching posts suggests that decisions made at departmental level, by senior academics and Deans seeking to retain flexibility in a given year, have been very important. In the UK we found an interplay between centralisation, and the key role played by research rankings and the REF. Are the key decisions made in Britain, affecting professional services staffing, also made in the centre? Or should they be understood in terms of departmental and faculty dynamics and budgets?

Centralisation in UK higher education

Our case studies of institutional decision-making suggest strongly that changes in professional services staffing are currently being made largely, if not overwhelmingly, at the centre. Although a strong recent trend towards further centralisation is not universal – in addition to Oxford and Cambridge, our interviewees mentioned one or two universities where this had not happened – it is very common, and characterised all of our case studies. These decisions, which produce sectoral trends as well as a large amount of inter-institution variability, are not being made randomly, any more than was the case with teaching-only academic appointments. But it is at the centre that, increasingly, they occur.

Centralisation has been a trend within higher education for some time, and is most obvious in the pre-92 universities because they have moved from a more decentralised point of origin. (The post-92 universities include the polytechnics who, when they became independent of local authorities, under the 1992 Higher and Further Education Act, were given a centralised governance structure with very limited powers for the academic body.) Selective research funding, which is of enormous financial and reputational importance to the pre-92 institutions, gave centralisation an initial impetus, creating what Burton Clark (1998) described as a ‘central steering core’. However, in the 1990s as universities grew in size, and developed more intermediate management layers, a good many hiring and personnel decisions resided at intermediate level (Shattock and Horvath 2020). Today, while regular reorganisation and re-reorganisation of departments, schools and faculties continues, key spending decisions have increasingly moved to the centre.

I worked here in the 2000s, then moved away, then came back – and it’s a total transformation. Before there was much more faculty autonomy (Faculty operations manager, Russell Group)

All power here now rests with the Central Management Group (Senior manager in central services, ex-faculty-Registrar: pre-92)

It is not that central management sits down and creates a single staffing plan each year. It will often have some priorities and new ideas of its own for academic staffing – at least when finances are healthy – but it responds in large part to bids and proposals from academic units for academic posts. But it is the centre which decides which to accept and it

does so in some institutions for every single vacancy (let alone a new post), and in all of those visited, for new and senior ones.¹¹

In theory the staffing budget is held at faculty level, but at the moment the Provost is holding oversight of all academic posts. (Faculty manager, Russell Group)

Professional services are almost completely centralised. If we want more support, we put in a submission to the planning group, articulating a need. (Russell Group Dean)

In the past, faculties had agreed budgets and could use them on academic posts as they chose if they were within budget. Decisions on professional services posts were totally centralised. Then when financial trouble hit, we got the Star Chamber – everything went to the central committee, which sat on things for months and balanced the budget short-term via gap savings. (Ex-registrar pre-92)

Every single recruitment case in the university goes to the SMT now on a weekly basis (pre-92: senior accountant, Finance Dept)

And finally, the most ‘hands-off’ example among our case studies:

Deans get a ‘new posts’ pot of money when that is possible, and can use it as they please – one Professor or 2 lecturers.Staffing budgets are set centrally, and we almost never accept a bid from a school (faculty) for an increase in the total professional services budget. Most schools now have fewer professional services staff than they did three years ago. But once they have their annual budget they can switch the professional services budget between junior posts (grades 1 to 5) without central permission if, for example, someone leaves. Anything above that needs approval. (Head of Planning pre-92)

To repeat: central management typically controls, in almost every individual case, whether or not a new post can be established and whether an academic one can be (re)filled. Deans and holders of professional services budgets may have some autonomy – within a centrally set Professional Services budget – to rejig posts. Senior PS posts are centrally controlled in all the institutions we visited.

Levels of centralisation had increased markedly in all the case study universities. For example, many posts which were originally ‘departmental’ or ‘faculty’ posts are now located within and managed by central departments, even when their holders spend much of their time physically located in the departments or faculties which they service. This applies, in all our case studies, to many posts which deliver ‘core’ professional services functions such as HR or marketing or careers. IT services have also generally been centralised:

Our IT Director said ‘Give me the money centrally and I can be more efficient’. So we did. (Planning director, Pre-92 university)

In addition, there has been, in some cases, a move to centralise ‘programme officers’: the administrative staff who organise and provide direct support for degree programmes such

¹¹ To repeat a point made previously: none of this applies to research-only posts funded by grants and contracts

as an undergraduate or masters degree. These posts are traditionally based in academic departments, where each degree programme will have one or more dedicated programme officers, who work with the academic team who teach on the programme (and especially with the programme director) and are also a direct point of contact for students on it.

However, seen from an HR and SLT perspective, the functions of these posts are generic, and there is, in many cases, a conviction that they will therefore be carried out more efficiently if they are centralised, with officers responding to requests and needs across a whole range of programmes. Two of the case-study institutions have carried out a large-scale centralisation of programme officers on this basis, in one case relocating them physically, with programme-related tasks carried out by whichever member of a team is free when the relevant activity is required. In two others there has been a partial move in this direction, with programme officers grouped and sharing responsibilities, but still within a faculty or department.

Anything to do with changes in professional services posts comes through me
(Centrally-based Professional Services Manager, People Services: post-92 institution)

Programme Officers report through the Head of Business Support to the University Registrar. There is no formal mechanism by which I can make a case if I think I have too many or too few Programme Officers. I just send an email to someone.
(Academic Dean, same post-92 institution)

Centralisation and reorganisation of programme officers are extremely unpopular with academics in the institutions where the process has progressed most - possibly even more so than the progressive loss of secretarial back-up for academics which is manifest in the rapidly shrinking 'secretarial' workforce (see table 26). Those senior professional managers whom we interviewed who have a specific faculty role were also sceptical about the supposed 'efficiency gains' that this process brings (though we only spoke to a very few).

The faculty managers who work in one of the universities which had carried out campus-wide reorganisation consider that specialised knowledge is lost, and that this reduces efficiency; that it now is often very hard to find out whether something has been done by anyone or who is, or should be, taking responsibility, and that academics' work-loads are increased, while overall quality diminishes. The (again few) academics we interviewed strongly agree. It is very hard to know whether quality has actually declined: there are no data available on any of the few indicators (e.g. number of exam board errors, staff turnover) which might allow one to judge. But the centralising trend is clear, and the rationale is a cost-cutting one.¹²

We aim to 100% centralise all budgetary control and line management for professional services (Director, Business Intelligence and Planning, pre-92)

More generally, 'efficiency gains' in traditional parts of professional services seem, from our interviews, to be a constant preoccupation of central teams. This might seem at odds with

¹² We only came across one example of reversal – in one university, most technical support, including, crucially, audio-visual support for teaching, had been returned to the faculties after a period of full centralisation.

the big growth in MNAP staff described above: but secretarial and receptionist numbers have more than halved in the period under study (Table 25). Moreover, these traditional functions exist alongside new activities which are seen as necessary (because of the regulatory environment) or potentially productive (e.g. enhanced international marketing or e-programmes). In one university, we were told that year-on-year efficiencies were the rule:

All our professional services budget holders have been told that they must take 2½% out of their previous year's budgets, year on year, and adjusting for inflation, when submitting their annual proposals. (Pre-92 university, SMT member)

However, this same institution had added a sizeable number of new functions and new budgets:

We've invested in quite a few – a property office, Compliance and Assurance, a formal Legal Services team.

Long-standing staff tended to a certain cynicism

We've been trying to reduce professional services costs for ever. (Deputy Finance Director, Russell Group)

Somehow or other, a few years later, numbers are back where they were. (Senior Finance manager, pre-92)

Tension between departments/faculties and centre is hardly new, or specific to higher education, and we have no measures of whether it is now higher or lower than in less competitive and market-oriented times. We are also unclear what has tipped the balance so clearly towards central control of appointments, in recent years. In some areas, such as admissions, the move to on-line applications provided a clear vehicle for centralisation of decision-making as well as processes.¹³ Other possible drivers are the enormous growth in size of many institutions, which broke up old interests and power-bases; and the changing recruitment environment. British universities have all moved away from a world in which governmentally controlled 'home' numbers accounted for the vast majority of students and fed through to faculties directly, with central management having relatively little control over student numbers. Instead, active recruitment is central to an institution's financial health. In the Scottish universities, home numbers are still controlled, but these universities are at least as preoccupied with international recruitment as are their English counterparts, since they have experienced a period of cumulative reduction in home funding per-student.

The changing regulatory environment of higher education is characterised by Shattock and Horvath (2020) as involving a shift from a self-governed to a centrally regulated system. The latter makes the interface between senior management and regulatory agencies of huge importance to the institution and strengthens the case for a larger, more powerful centre. In

¹³ In some institutions, there is a clear difference between undergraduate and post-graduate programmes in the degree of academic involvement in admissions. The less generic/more specialized requirements for masters admissions means that, especially where entry is competitive, academics have been able to retain more control, and the smaller size of the programmes also mean that teaching staff on them are more highly motivated to do so. Specialised institutions (e.g. conservatories) and Oxbridge are general exceptions to the trend to centralise admissions decisions.

very large institutions – as many UK universities now are – the processes and the people involved in regulatory activities are, inevitably, well removed from the academic departments: indeed, in many urban universities, most academic staff have no physical access to the relevant offices (because of electronic access systems) and often would not even know where many of them are.

There is also a cultural change which – though we cannot document it precisely – seems to have altered the way in which the centre views the faculties. It may well result from the factors described above, but it pervaded many of our interviews with senior professional services staff. They – the centre – are, in their own view, about efficiency, which is why professional services staff located in departments and schools are now often referred to as ‘Business Partners’. The academic departments, by contrast, are seen as just wanting to spend more and resist guidance.¹⁴

It’s an outdated view that academic units ‘give’ money to professional services and therefore they should have a view on how money should be spent. We’re all trying to do the best we can for the institution. (Deputy Finance Officer, Russell Group)

We used to have two silos – professional services in the faculties versus professional services centrally. Now that’s we centralised everything we just have different silos. (PVC, previously a Dean)

Whatever the origins of this general centralising trend, it does mean that the subject of our enquiry – changes in the structure of university workforces – is to a large extent the result of decisions made at the centre, and in the case of the professional services workforce, almost entirely so. However, the precise nature of the changes is also, we would suggest, a function of the very distinctive and pre-existing nature of workforce organisation in UK higher education institutions. This form of organisation is something that is taken as a given throughout the sector but it ‘emerged’ in a very different context; and no-one we have asked has given a clear explanation or account of how.

3.5. The distinctive nature of university hiring decisions

British universities today (and especially English universities) are in many ways like commercial organisations. They are concerned with growth and profit (or, more accurately, financial surplus). Academic departments earn money, from fees, research and ‘third stream’ activity, and it is these ‘customer’ or client-facing parts of the organisation that determine total income, some of which is used to pay for administrative and support activities, capital projects, debt interest etc. Separate capital funding for English universities has been cut massively since 2010, and so building programmes must be serviced from surplus funds or loans. There are no owners or shareholders, since they are charities, but university councils hold ultimate decision making power, including appointment of the Vice-Chancellor (CEO). These councils have become, under government pressure, increasingly like the boards of listed companies. Their independent members (the equivalent of ‘non-

¹⁴ As noted above, Scotland did not seem to be significantly different in this respect. Universities there are more effectively unionised, which may offset the differences which arise from number controls,

execs’) often have rather limited knowledge of how a contemporary university operates, and this may have reduced challenges to, or interrogation of, the trends discussed here. However, non-execs in the private sector also tend to be either fairly or highly ignorant of institutional developments, as becomes obvious every time something goes seriously wrong.

However, when compared with large private-sector businesses, the way that staffing is organised appears curious. Universities operate on the basis of a division into two parallel workforces of very much the same size, and this is a fundamental, structural feature of a whole large sector. It is also, as far as we know, unique in dividing its main permanent workforce in such a rigid binary way.

At the heart of any university are academic staff with teaching responsibilities, who may have ‘teaching only’ or ‘teaching and research’ contracts. Alongside them are large numbers of ‘professional services’ staff, ranging from chief operating officers downwards. There are also, especially in research-intensive universities, large numbers of academic ‘research-only staff’, who are not analysed in detail in this report. Research-only staff typically work on specific projects paid from grants and contracts, with fixed-term contracts tied to a specific project; and are quite distinctive, because the creation of their roles is the result of someone (normally an academic with a permanent contract) obtaining the contract or grant. These positions are not established by, or controlled by, the main university hierarchy: and academic investigators will normally make hiring decisions for *all* the posts covered by research funding, whether they are academic or administrative. They are not further discussed here.

For the vast majority of university positions – academics with teaching responsibilities and professional services staff - there exist two completely distinct appointment processes and reporting structures: one for academic posts and the other for professional services. The overwhelming majority of non-academic staff, whether or not they are based in academic departments or working to support academic activities, do not report to any academic staff. Rather they are part of a completely separate hierarchy with its own authority structures.

Of course, any large organisation has internal ‘service’ departments such as HR, Finance, and IT, which carry out work for others, and have their own internal structures. But in most sectors, groups which are expected to function as teams will normally all answer to the same team head. To private sector employees, and to heads of schools and further education colleges, it seems extraordinary that someone running a sizeable activity, such as a university faculty, or indeed department, would have no formal authority over large parts of the relevant workforce. The central civil service operates a highly centralised system in which ministers have no formal role in appointments or supervision of civil service ‘officials’: but the civil service structure is unified. Hospitals are the closest to universities, but have a different form of complexity, with constantly changing work groups and substantial autonomy for different professional medical groups.

Universities have quite stable departmental structures. But this distinctive binary organisation means that a large part of the organisation – notably those departments concerned with their core ‘income earning’ activities of teaching and research - contain two

separate workforces, who work alongside each other. Other departments and functions are staffed entirely, or almost entirely, with administrative and managerial staff. Across the institution, these two workforces - 'academic' and 'professional services' - are of roughly the same size,¹⁵ but their hierarchies meet only at chief executive (Vice-Chancellor) level. In most universities there is no single budget, other than at whole-institution level, where overt trade-offs between academic and professional services can be or are routinely examined.

This distinctive form of staffing has existed for as long as anyone currently in university management can remember. It is important because it drives the way in which staffing decisions are made, and changes emerge. Equally important is the fact that, as already noted, in every case study institution, the process of creating, or abolishing, staff positions (other than those falling under research contracts) is currently increasingly and extremely centralised. This is true for both academic and non-academic posts. Interviewees generally described it as having become more so in recent years.

However, although central management exerts strong controls over the creation of new posts, or the filling of existing ones, in both academic and professional services, the actual process is quite different for the two workforces. This is true (to varying degrees, but always substantially) in all our case study institutions and is to a large degree inherent in the nature of the activities involved; and, we would argue, to the developments discussed above.

3.6. Professional services and the growth of MNAP posts

How best to explain the tendency, over time, for an increasing proportion of jobs (and of salary expenditure) to be directed towards senior posts in professional services? Do the case studies suggest self-interested 'rent extraction', as American commentators have argued? Response to the regulatory environment? A response to 'marketisation' and the competition for student numbers?

It is very clear that, over the last twenty years, universities have faced a changing external and internal environment. And there are good reasons to suppose that these external forces are genuinely important in driving senior managers' decisions about staffing patterns. Marketing, for example, has become extremely important – doubly so in England, because of the removal of number controls, but critical everywhere because of the importance of overseas student numbers. In Scotland, while number controls have been retained, funding per home student is now significantly lower than in England – so the contribution of overseas student fees to university income is even more critical.

But, as we have emphasised, the growth in MNAP numbers and proportions is far from uniform, across the sector or within university groupings. It is associated with income growth, which is itself highest on average in the Russell Group, but MNAP growth is far from perfectly predicted by this, or any other factor (including research intensiveness). And the within sector and within group variability is very high. All universities have strong incentives to recruit overseas students. All have experienced a growth in regulatory oversight,

¹⁵ In 2017/18 British universities employed 191,000 academic staff and 201,000 non-academic (HESA).

including but by no means confined to the National Student Survey. These developments underpin sector-wide shifts, but do not, clearly, explain variability. It is possible to have high growth in income and research measures and low growth in MNAP numbers – and vice versa. What can internal processes tell us?

In all the universities visited, administrative staff (both very senior, and at lower but still senior managerial level) described repeated efforts to cut professional services headcounts and described specific examples of this happening.

They're always looking for savings and professional services is the first place they look. In the past, we used to basically say 'well doing this costs this much' and transfer the budgets to the faculties and they then managed their own finances. Now there's no flex for them at all. We're supposed to be saving millions of pounds over the next couple of years by rethinking jobs and systems. (Deputy Finance Officer Russell Group)

Although several of our case studies had set financial targets for efficiencies, this was not universal. In one Russell Group university, the current strategy to close an expected deficit involves a move to worse staff-student ratios and increasing research income, but sets no formal targets at all for professional services (although this institution is also working to reduce numbers of professional services staff located in faculties, and the average grade of professional services staff). Moreover, in every case, over the period examined, the proportion of university level expenditure allocated to central services has in fact increased.

The case study evidence generally suggests that the internal structure of universities, and the way approval processes operate, make it much easier to allow a steady upward movement in highly paid professional services jobs than is the case with academic ones – or perhaps more accurately, much harder to create institution-wide structural barriers to and constraints on such drift. Institutions whose top management do not very explicitly and repeatedly oppose this drift will experience it – and will also (find it harder to cut numbers back. This is especially true when the institution is not, overall, under immediate financial pressure, as has generally been the case. Equally, in the two case-study universities which had experienced major financial problems as a result of internal leadership failures, senior posts had been cut back, but more slowly than academic ones: and afterwards the 'trend to the top' reasserted itself.

Why is this the case? In large part, we would suggest because

- There are no clear quantifiable metrics for professional services performance at either functional or individual level, unlike for academic positions
- Professional service functions are not easily amenable to being enlarged/reduced in size at the margin
- Decisions are taken, commonly, by fewer people and in a more hierarchical 'top-down' way
- The professional services structure is very complex: it is normal for the COO or their equivalent to have between 12 and 17 direct reports.

Taken together, these factors make it very hard to monitor and steer professional services employment in any coherent or strategic way. The contrast with academic appointments is extremely marked.

Justifying new positions

As discussed above, academic positions can be and are tied quite clearly to student recruitment – intended and actual. And individual academic appointments are tied very closely to individuals' CVs and especially to the bits which can be quantified – quality and quantity of publications, with the latter increasingly tied to journals' star ratings, and size and quality of research grants. Academic posts are often advertised at more than one level (e.g. Lecturer/Senior Lecturer or Reader/Professor) and it is quite common for the offer to be at the lower level.

For professional services appointments – especially at more senior levels – this is much less easy. How does one judge whether an applicant for a senior marketing job is excellent? They will have worked within a team; the success of the institution at which they currently work will have had only a small amount to do with active marketing activity. What does it mean to be a great leader of a Legal Services team? How do we know? And how, above all, do we know when we need more of these people, and at what levels of seniority?

The point here is not the difficulty of judging individual performance – on which there is a vast literature – but the very different nature of institutional decisions on creating new professional services posts: of which, as we have seen, many have been created, notably at MNAP level.

In the institutions we visited, the creation of new senior professional services positions was, uniformly, the subject of centralised decisions, as it was for academic posts. But the balance of decision-making seemed to be quite clearly different. The case for an individual new professional services post at a high level would be put forward by, typically, a COO, or University Secretary who was a member of the central executive group. It would not be discussed in terms of trade-offs – 'Should we go for another post in Engineering? Wouldn't it be better to go with the case from Health Sciences?'. There was not, and could not be, the requirement to show individual pay-offs in terms of student numbers, or teaching requirements.

Rather, the case would be made in terms of overall institutional pressures and the wider environment, such as the pressing need to improve overseas recruitment. The argument for such new positions will often include a supposed financial pay-off, often presented in terms of a rate of return on investment. However, as far as we could tell, these formal KPIs were never actually monitored in the relevant future years.

In every institution, our interviewees agreed that making the case for a new post in terms of positive impact on 'the student experience' was always a winner. This is not something that can actually be measured, but senior management teams are all currently highly preoccupied with National Student Survey scores and student satisfaction. If the case for a positive impact on 'the student experience' could be argued plausibly, the post would almost always be approved.

We have put more and more money into student services because the NSS is really important for us. All the pressures are of the sort 'We must care more', 'We must throw money at student satisfaction'. (PVC, Russell Group)

We're all very focused on the NSS (Director of Strategy & Planning, post-92)

"The student experience" is the buzzword here – and has nothing to do with what academics do. Say it's about improving the student experience and they'll go 'Yes, spend the money' (Senior manager in central services, pre-92)

The difficulty of evaluating either candidate quality or the impact of the post also means that professional services hiring is highly susceptible to the argument that 'we must be competitive'. Translated, this means that posts must be advertised at a high point on the salary scale in order to attract good candidates: there is no equivalent to the 'Lecturer/Senior lecturer' or 'Reader/Professor' advertisement common in academic hiring.

Obviously, higher salaries attract more, and hopefully better, candidates. The problem for university officers who want to control costs is that, especially for new posts, it is hard to gauge which salary point will attract people they want to hire: and supporters of the new position will argue strongly that it is demanding, necessary, needs a 'really high quality incumbent', and should carry a 'competitive' (sic) salary.

We've had to hire recently because of GDPR. We need people who are data analysts, who can deal with data futures. We're competing with UKplc for them – it's not like that with academics. (Pre-92 university planning director)

We're taking on a new head of student recruitment. That will cost a lot. We're looking at six-figure salaries for a good number of professional services roles. (Russell Group planning director)

During the period of financial difficulty we artificially suppressed gradings and got big job turnover because we weren't paying enough (Pre-92, PVC)

This also explains why, in a number of our case study universities, interviewees remarked on the number of 'managers' they had accumulated who had only one or two people to manage.

The Deans come in and complain 'I'm making a 50% contribution – and you're spending it all'. They think it's huge and it's not, if you look at all the costs. And here, we're on a burning platform – central activity is rigorously controlled. That said, I'm looking through the figures at the moment and we have huge numbers of high-cost 'Directors' on £80-£100,000 who are doing quite small and simple jobs – more than in many similar universities. We need to tackle that. (Newly-arrived COO, post-92)

This can be done. In the one case-study institution which had significantly reduced the ratio of MNAP posts to academic ones in recent years, re-grading was at the heart of the strategy: and was achieved without senior managers feeling that there had been any decline in the quality of provision

On technical services we took out £500k in staff costs – but post-reorganisation, our headcount was only down by 3. (PVC)

But it requires very active management. The normal scenario operates in the reverse direction.

When someone leaves, if a manager just asks to replace like with like, it's pretty automatic. (Planning Director, post-92)

Overall, what our case studies suggest is that without constant monitoring, it is very easy for an institution to end up with serious and expensive 'grade creep' in professional services - far more so than in academic posts, and the more so, the better the overall financial position. This creep operates at the point of hiring (since re-grading in professional services is rare, whereas academics can be promoted) but at that point there are powerful forces behind it.

Reconfiguring professional services

A key difference between professional services and academic posts has already been highlighted in discussing changes in the academic workforce. Academics have quite discrete expertise and teaching responsibilities in particular can be divided up. This means that it is fairly easy to make marginal changes – up or down – in numbers of academic positions. This is much less easy for professional services.

If a senior management team wants to cut headcount substantially in professional services they will generally have to reconfigure large numbers of jobs, rather than simply lopping off a set of activities. This may seem illogical, given that posts were generally added by accretion – but once in post, senior professional services staff often work as teams and, as noted above, are often defined as 'managers' in order to justify their salaries. This then means they have to have people to manage – even if it is only a couple of them. And you cannot simply close down a function the way you can, *in extremis*, close a department.

The professional services posts which are 'additive' are usually at lower levels. Thus department secretaries can be removed, and have been (and academics do much more of their own administrative work than they used to, helped by IT developments). Centralisation of generic-type posts is, as discussed earlier, a much favoured efficiency strategy. This was the major rationale for the (very unpopular) centralisation of programme officer posts which some universities were implementing. But many posts are not generic, and also involve quite a small number of individuals: the sheer number of Professional Services departments, and the huge number of 'direct reports' to the University Secretary that we found everywhere, were very striking. All this makes rapid reductions of MNAP posts challenging.

The decision-making process

The final factor contributing to the general rise in MNAP posts is, we suggest, the lack of PS expertise in much of the senior team. VCs, PVCs and DVCs are normally academics. They can and do argue about academic strategy, scrutinise faculty bids and performance, and also can compare one faculty or department with another when making decisions on new posts.

Professional Services, by contrast, is essentially a single fiefdom, and not one where most other members of the Senior Management Team have direct experience on which to call. In every university that we visited, it was striking how little in-depth scrutiny of PS positions took place other than by the head of what is a huge and centralised workforce.

When I started my career, professional services appointments were all scrutinised by the University Registrar. Now nobody senior will be involved in interview panels for professional services roles. By contrast, we scrutinise academic positions very carefully: and every Monday there is a senior-level meeting about academic promotions. (Russell Group Business Intelligence director)

Signing off on a new position in Professional Services is easy if you're basically within budget. It just takes a member of the executive board – that's one out of the COO, the University Secretary, the DVCs for strategy and academic and the PVC research. (Post-92)

Until very recently, any new professional services post was just nodded through on the word of the University Secretary. (pre-92)

Thus, taken together, the internal organisation of university workforces, and the changing of the external environment - the growth of competitive student recruitment and regulatory change – have all facilitated the growth of professional services posts at senior levels. So, too, has a period of real income growth, especially for Russell Group universities. Unless these external forces and internal enablers change, it seems unlikely that recent patterns will reverse.

SECTION 4: CONCLUSION

In broad outline, our research results confirm that reported changes in the balance between teaching-only and teaching-and-research staff are genuine and substantive. They also highlight major shifts in the composition of professional services staff. They provide some (though not total) explanations for why these changes are occurring, and highlight a combination of long-standing features of UK university organisation and more recent changes in the university environment. Somewhat to our surprise, the biggest drivers of change seem to be very similar in Scotland and England, in spite of the different funding and student-numbers policies of the two countries. However, we would caution that we have only limited information on what is happening inside those English institutions which have been big losers in recruitment since England abandoned student number controls: and that none of our case study sites turned out to be either very high or very low on the MNAP-to-academic scale.

These findings are, in broad outline, consistent with the American research which has, until now, been the main source of information on changing staff patterns. However, there are some key differences, both in the findings and in the drivers of change. These can be seen quite clearly by revisiting our original research questions (set out in the Introduction), which were directly informed by the current research literature.

RQ1: Are staffing trends uniform across the sector, and are they largely stable over time?

Trends are not uniform: increases in teaching-only staff have been highest in the Russell Group, and overall there has been some 'regression to the mean'. This is partly explained by the fact that growth in teaching-only staff is associated with growth in student numbers, which have also been greatest in the Russell Group, but this only accounts for some of the 'sector' effect.

RQ2: Are proportions of, and increases in, 'contingent' staff higher in universities which have experienced high instability in student application and recruitment numbers?

This does not seem to be the case in the UK. We found no evidence that proportions or increases in teaching only staff were directly related to instability in student numbers, and the sector where increases were greatest had also experienced rather little instability (as opposed to a steady growth in recruitment).

RQ3: Are proportions of, and increases in, 'contingent' staff higher in universities which have (a) high research ratings and/or league table positions or (b) have improved their ratings significantly during the period in question (2005 to 2018)?

The distinctive pattern of Russell Group staffing and staffing changes suggests that whether or not a university is 'research intensive' is indeed important. As noted above, both the regression models (see Tables 15-18) and the case studies suggest that staffing strategies are likely to be different for research-intensive universities compared to those which are not research-intensive and for whom REF income is fairly insignificant. To repeat: overall, the increase in teaching-only staff numbers is largely in Russell Group universities, where

there has been a big increase, from a low base, and they have therefore tended to catch up with other parts of the HE sector in this regard. Numbers have also risen fastest where student number growth has been highest – Russell Group institutions are prominent among the latter.

RQ4: Are proportions of, and increases in, ‘contingent’ staff greater in universities which have high turnover of permanent staff (indicating a tendency to replace permanent with contingent positions as permanent staff leave or retire)?

We were unable to examine this satisfactorily at national level because of data constraints. However, the case studies suggested no such pattern. This appears to be a major difference between the US and the UK, reflecting both the lack of financial and staffing autonomy in UK academic departments compared to research-intensive universities in the US, and the importance of the research funding provided directly to institutions by the UK government. The latter is quite distinctive.

RQ5: How far, within institutions, are there major differences between departments in the number of permanent and ‘contingent’ academic staff, and are these differences related to research quality measures, or to fluctuations in enrolment which depart significantly from the institution’s average?

Again, we were unable to examine this fully at national level because the data did not allow us to analyse departments’ REF ratings. It is clear however, that, across the country, teaching-only appointments are more common in certain departments/faculties, and that these include very rapidly growing Business departments and schools, as well as those departments (notably health-related) where ‘professional’ faculty are important. As already noted, it was also clear that research quality measures played an important role in staffing decisions. Short term teaching-only appointments might be made when a good ‘research-active’ permanent staff member could not be appointed.

RQ6: How far, within institutions, are there major differences between departments in the ratio of academic to professional services/administrative staff, and are these differences related to research quality measures, or to fluctuations in enrolment which depart significantly from the institution’s average?

There is rather little variation within institutions. The trend across the sector has been radically to reduce professional staff appointments to academic departments and to centralise professional services in a uniform way across the institution.

RQ7: How far are changes in non-academic staff numbers found in (a) academic departments and (b) central services?

The rapid centralisation of professional staff was a major finding of the study and one which we did not anticipate. It means that changes in non-academic (professional services) staff numbers have been clearly associated with both falls in academic department numbers and rises in central services.

Implications for university activity

In the case of teaching-only staff, the increase has been significant but not huge, either in numbers or proportion across the sector. This has at least maintained overall Student-Staff ratios, while in the meantime SSRs for research-active staff have deteriorated. Both the case study evidence, and the fact that growth also seems to be associated with REF census dates, suggests that research ambition is a major factor in the UK scene.

There is an apparent contradiction between the growth of teaching-only posts in Russell Group universities and the conviction of senior staff that their institution is deeply opposed to such appointments – a consistent finding in the case studies. But we hypothesise that what is really going on is that these institutions are deeply and consistently preoccupied with research reputation, which in turn powers student recruitment and the level at which they can set overseas fees.

Russell Group universities have pulled away in recent years in terms of income growth, and are very aware that their success is tied directly and indirectly to research reputation (Wolf & Jenkins, 2018). Staff must therefore be funded for sabbaticals in order to maintain output; and permanent teaching and research posts must be reserved for research-productive staff members, especially in key STEM faculties. This preoccupation also drives the need to ‘make’ student number targets in areas where recruitment, and especially overseas recruitment, is relatively easy and where large faculty/departmental ‘contributions’ support both central services (which we examined in depth) and subsidise science and engineering research (which we did not: but see e.g. Hillman, 2020, and Wolf & Jenkins op cit). These high-earning faculties are also the faculties where we were told that it is often hard to hire good research-active staff and where teaching-only positions have grown fastest. The other area where teaching-only positions are seen as vital are largely medical/health, where outside stakeholders are powerful and insist on professional expertise in student teaching.

The growth in Russell Group teaching-only staff numbers explains part of the process of convergence. The decrease – or at least slower increase - in teaching-only numbers in some other institutions, which once had many, is less easy to explain. But case study evidence suggests that, in institutions which are of necessity highly teaching-focused, do not score well in the REF, and which have relatively poor SSRs, and no routine sabbaticals, designating staff as ‘research-active’ and ‘teaching and research’ rather than ‘teaching only’ is something which pleases academic staff, sets some expectations, and costs very little. This does, however, leave unexplained the fact that these institutions had so many teaching-only positions to begin with.

Turning to MNAP growth, it is clear that it has been and continues to be substantial both in terms of the proportion of professional services jobs accounted for, and numbers relative to academic numbers. Alongside it, lower-level professional services jobs have fallen in number, especially those providing direct support to academics; and there has been ongoing centralisation of professional services activity.

These changes have taken place within an environment of changing and increasing governmental regulation. One of the biggest changes in England (creating the Office for

Students, the current regulator) postdates our period of analysis, but the NSS (National Student Survey) and 'outcome agreements' (in Scotland) fall within it. Increasing emphasis on centrally funded research (including EU funded) began before 2005, but research has become ever more important reputationally and financially, especially to Russell Group institutions. Nonetheless, MNAP changes do not seem to be related to research intensity, or changes to it, once 'mission group membership' is accounted for, and there is huge variation in the amount of change. Real income, on the other hand, does seem to be important – albeit with high variability, the higher your income per student, the faster *on average* your MNAP contingent grows relative to academic staff.

We think that the increased dependence of institutions – Scottish and English – on overseas students is probably the single most important factor explaining these changes, followed by the UK governments' emphasis on 'student satisfaction' and increasing regulatory powers. All of these justify increases in central staffing and the power and influence of central departments, and accelerate existing trends to centralise and increase the size of the 'professional services functions' (sic). At the same time, as discussed at length in the previous section, the distinctive and bifurcated organisation of university workforces also means that it is relatively easy to increase central numbers and for salaries to trend upwards – and that senior leadership teams have to work harder and more consciously to control, let alone reduce, MNAP numbers than is the case with academics. That said, some do (especially but not only when income falls): and the huge variability in MNAP hiring levels and trends suggests that it is perfectly possible to operate successfully with much lower levels than are becoming common. We do not have any means of measuring directly the impact of professional services staff, and staffing levels, on university performance, but note that the staffing trends we have described also do not appear to be related in any clear way to, for example, research success or student satisfaction scores.

Overall, our findings confirm some of the impressions common in the sector, call others into question, and provide, for the first time, a comprehensive mapping of some key trends over time. As such they provide university leaders, and employees, with both data and a challenge. The trends outlined here could, if continued, have serious consequences both for young academics' careers, and for the efficient allocation of resources, at a time when recent increases in income are levelling off. We hope that our findings will, correspondingly, contribute to the making of well-informed strategy in and for the future.

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GLOSSARY

Higher education terminology

Academic staff: Any member of the staff of a HE institution who has duties of teaching, research or both in their contract of employment.

Academic year: In the HESA data this runs from 1st August to 31st July.

Adjunct: In the United States, a teacher at a university hired on a contractual basis usually for the duration of a course, and often part-time. They are non-tenure track staff (see tenure).

Atypical staff: This refers to staff whose work is very short-term or of a one-off nature. For example guest lecturers, people answering phones during clearing, staff employed to provide catering for a conference or student ambassadors.

Conservatoire: A specialist higher education institution offering courses in performance-based arts subjects such as music and dance.

Contingent staff: In the US, the contingent teaching staff of a university are those academics who are neither tenured nor on the track towards gaining tenure (see tenure). They are often, but not always, part-time employees. In this report we use the term contingent academic staff to mean staff who have only teaching duties, especially those on part-time and/or fixed term contracts.

Faculty: This has two distinct meanings (1) An administrative grouping of departments within a university e.g. the social science faculty might comprise the departments of economics, sociology, psychology etc., and (2) primarily in the US and Canada, another name for the academic staff of a university e.g. new faculty hires; part-time faculty etc.

Four-year college: In the US education system, a college providing study for a bachelor's degree.

FTE – Full time equivalent: Someone who works part-time may have their working hours expressed as a fraction of an equivalent full-time worker e.g. 0.4FTE or 40% FTE. The FTE of all individuals can be added together to give a total staffing figure for purposes of analysis and comparison.

HEIDI - Higher Education Information Database for Institutions: A database management system for accessing HESA data and for producing data visualisations and analytics. There was a major revamp in 2017 and since then it has been known as HEIDI-plus.

HESA – Higher Education Statistics Agency: HESA is the official agency for the collection, analysis and dissemination of quantitative information about higher education in the United Kingdom.

MNAP: Abbreviation for managers and non-academic professionals, a higher education staffing category used in our research – in reality, of course, two groups of staff combined. In our analyses it was necessary to combine the substantial groups of managers and non-

academic professionals – MNAPs - as a single category since many were re-classified from one side of the 'Manager- Non-Academic Professional' boundary to the other by a HESA re-classification exercise that took effect from 2012/13 onwards.

Non-academic staff: Members of the staff of a HE institution who do not have duties of teaching or research in their contract of employment. This encompasses a wide range of staff including managers, non-academic professional employees, student welfare workers, administrative staff, caretakers and cleaners.

NSS - National Student Survey: A survey of final year undergraduate degree students at HE institutions in the United Kingdom. The survey is designed to assess undergraduate students' opinions of the quality of their degree programmes, with several different scores published including an 'overall satisfaction' score. It has been conducted annually since 2005.

'New' university: This term is currently used to describe institutions that were given university status by the UK government in 1992 or subsequently. The group includes former polytechnics which became universities in 1992, as well as universities which have been created since then. Hence in some of our analysis we distinguish the 'former polytechnics' from 'other new' universities. The group as a whole may also be referred to as the post-1992 universities.

'Old' university: Any UK university created before 1992. It comprises the Russell Group of universities and other universities established before 1992. Hence in some of our analysis we distinguish the 'Russell Group' from 'other old' universities. The group as a whole may also be referred to as the pre-1992 universities.

Polytechnic/former polytechnic: The polytechnics were higher education institutions most of which were formed in the 1960s. They were originally intended to emphasise vocational and professional subjects in contrast to the arts and pure science focus of the universities although this distinction blurred significantly over time. The polytechnics became universities under the Further and Higher Education Act of 1992. Hence the former polytechnics are one group within the status hierarchy of UK higher education and comprise a substantial part of the 'new' university sector.

PVC - Pro Vice Chancellor: A senior leadership position in a university. Sometimes the hierarchy is Vice Chancellor – Deputy Vice Chancellor – Pro Vice Chancellor. In other universities there may not be a Deputy VC.

RAE – Research Assessment Exercise: An exercise to evaluate the research of UK universities, based around extensive peer-review of research outputs, and used to make decisions about the allocation of research funding. It first took place in 1986 and then on five subsequent occasions with the last RAE having been conducted in 2008. It was replaced by the Research Excellence Framework (REF).

REF – Research Excellence Framework: Successor to the RAE, a system for assessing the quality of research conducted by UK higher education institutions as a means to inform the allocation of research grant funding. Although broadly similar to the RAE, the rationale for

the REF was to place greater emphasis on the impact of research and also, supposedly, to reduce the bureaucratic burden of the exercise on universities. The first REF occurred in 2014, the next one was scheduled for 2021, but has been delayed as a consequence of the pandemic. Supporters of the REF see it as a key pillar supporting the quality of UK university-based research. Critics express concerns about what they regard as the perverse incentives generated by the system e.g. towards short-term research to the detriment of longer-term projects which may not fit into the REF timeframe.

Rankings: University rankings are rank orderings of higher education institutions. They have become increasingly prominent in recent years as a measure of quality and a major factor influencing university strategy, and competition among universities. Rankings are produced by combining metrics of university performance across several dimensions. At global level the most well-known and influential ranking systems are those produced (usually annually) by Quacquarelli Symonds (QS), Times Higher Education (THE) and Shanghai Ranking Consultancy (the Academic Ranking of World Universities; ARWU). All of these give considerable weight, both directly and indirectly, to measures of research output and research quality. The UK has typically had a lot of universities at high points in these rankings for a country of its size and this has often been cited as evidence of the quality of the UK university system.

Research-only staff (or sometimes just 'research staff' or 'researchers'): Members of academic staff of a university whose contracts of employment state that they are employed only to undertake research.

Russell Group: A self-selecting group of long-established, research-intensive universities generally enjoying high prestige within the UK higher education system. It was formed in 1994 at the Russell Hotel in London. Initially there were 17 members but this subsequently grew to 24 institutions. We use the full set of 24 in all our analyses. See Appendix 1 for a list of the universities in the Russell Group .

Sabbatical: A period of leave granted to university academics for research and study.

SLT - Senior Leadership Team: The group responsible for developing and implementing a university's strategy, the co-ordination of university activities and the overall direction of the university. Also for ensuring that the business of the university is conducted efficiently, is within legal frameworks and is financially sound. Typically the SLT will comprise a Vice Chancellor, perhaps a Deputy Vice Chancellor, several Pro Vice Chancellors, other senior figures such as the University Registrar, and the heads of particular functions such as the Director of Human Resources and the Chief Finance Officer.

SSR – Student-staff ratio: Essentially, the number of students per member of academic staff. It can be measured at departmental, faculty, or whole-university level. The staff component usually includes all staff with teaching responsibilities (i.e. with teaching included in their employment contract), although versions of it could also be calculated just for those on teaching-and-research contracts. Further complications arise if one wishes to adjust for staff on fractional contracts and for part-time students, and for students on placements or

studying abroad for some part of the year. The definition used by HESA does make adjustments for these matters.

Student Loans Company: A non-profit making organisation that administers loans and grants to students in colleges and universities in the UK.

Teaching and research staff: Academics who are employed to undertake both teaching and research. Sometimes referred to as 'traditional' academic staff in contrast to the relatively recent categories of teaching-only or research-only staff.

Teaching-only staff: Members of academic staff of a university whose contracts of employment stipulate that they are employed only to undertake teaching.

TEF - Teaching Excellence Framework (sometimes also known as the Teaching Excellence and Student Outcomes Framework): This is a grading system that seeks to assess the quality of undergraduate teaching in universities in England. Universities from Scotland and Wales are also able to opt into the system if they wish. The TEF was first introduced by the UK government in 2017. Its purpose is to provide a resource to aid prospective students to make judgements about teaching quality in universities. The ranking is a simple three-fold classification in which undergraduate teaching at each participating university is ranked as gold ("highest quality..consistently outstanding"), silver ("high quality..regularly exceeds baseline") or bronze ("satisfactory"). Underpinning these ratings are seven core metrics based on correlates of teaching, academic support and employment outcomes including earnings. Assessments are carried out by an independent group of academics, students and employers. The TEF has been controversial mainly because it is based on certain outcomes which may be associated with teaching rather than directly observing, assessing or measuring teaching quality.

Tenure is a category of employment status for academics in some countries, notably the United States. Someone with tenure can only lose their post in very unusual circumstances. Earning tenure is a major milestone in the career of an academic, and people working towards this status are said to be on the tenure track. Nowadays the majority of staff teaching in American universities are non-tenure track staff, also known as adjuncts. In the UK tenure was removed under the Education Reform Act of 1988. Here staff may be on fixed term or permanent contracts - see terms of employment.

Terms of employment: This means the type of employment contract which a member of academic staff has with the university. Those who have contracts with no fixed end date are known as open-ended/permanent staff. Fixed-term contract staff are those employed for a fixed period of time or with a definite end date stated in their contract of employment. See also *atypical staff*.

Two-year college: In the United States, a community college providing lower-level tertiary education. After graduation students often proceed to a four-year college or university for a further two to three years to complete a full bachelor's degree.

VC - Vice Chancellor: Chief executive of a university.

Zero-hours contract: A form of employment contract in which the individual worker has no guaranteed hours, and hence no stability or continuity of employment. The employer offers the individual work (usually teaching in an academic context) only when it arises, and the individual can either accept the work offered, or decide not to take up the offer of work on that occasion.

Research terminology

Case study: A research design based on the detailed analysis of a single case. It is often extended to the analysis of a handful of cases, thereby enabling comparisons to be made, and may then be known as a multiple case study.

Convenience sample (or opportunity sample): A sample that is selected because of its availability to the researcher.

Longitudinal data analysis: Longitudinal data is collected at several time points for each member of whatever the sample consists – usually individuals, less commonly organisations such as HE institutions, as in our study. The analysis often needs to take into account that there are several observations on the same unit, rather than each unit appearing only once in the data.

Mixed methods research: This describes research that combines both quantitative (numerical, involving the statistical analysis of data) research and qualitative (textual, based on words, often derived from interviews) research within a single project.

Regression model: A statistical model which relates some outcome of interest (known as the dependent variable) to a set of one or more explanatory variables. There are a wide range of different types of regression model according to the type of outcome that is under investigation.

APPENDIX

The sample of universities

This study focuses on (a) generalist universities which (b) faced the same strategic opportunities and limitations as the large majority of the UK HE sector during the period from 2005 onwards. To create a sample made up of generalist and structurally comparable universities, we excluded small and specialist institutions. Those excluded had less than 1,000 FTE students in 2015/16; specialist institutions were defined as those where more than 50% of students were studying a single subject.

Some other unusual institutions were also left out – those catering mainly for part-time students (the Open University and Birkbeck) and those which were wholly postgraduate (such as Cranfield and London Business School). A handful of institutions were omitted because they had acquired university status very recently (the University of Suffolk and SRUC were omitted on these grounds. Two universities (Highlands & Islands and Kingston) were omitted because of extensive missing or unreliable data.

Of the 163 HE providers in the HEIDI-plus database for 2015/16 – our sampling frame – our final sample for analysis therefore comprises 117 institutions.

There are 117 UK universities which meet the criteria for inclusion and these are listed in the table below, along with their university ‘type’ or mission group. The 117 universities include the 24 Russell Group universities, 31 other pre-92 institutions, 33 former polytechnics and 28 other new universities, as well as one private-sector university, Buckingham.

Table A1: Sample of UK universities

Full name	Short name	Type	Location
Anglia Ruskin University	Anglia Ruskin	Ex-poly	England
Birmingham City University	B'ham City	Ex-poly	England
Bournemouth University	Bournemouth	Ex-poly	England
The University of Brighton	Brighton	Ex-poly	England
University of Central Lancashire	Central Lancs	Ex-poly	England
Coventry University	Coventry	Ex-poly	England
De Montfort University	De Montfort	Ex-poly	England
The University of East London	East London	Ex-poly	England
Glasgow Caledonian University	Glasgow Cal	Ex-poly	Scotland
The University of Greenwich	Greenwich	Ex-poly	England
University of Hertfordshire	Hertfordshire	Ex-poly	England
The University of Huddersfield	Huddersfield	Ex-poly	England
Liverpool John Moores University	John Moores	Ex-poly	England
Leeds Beckett University	Leeds Beckett	Ex-poly	England
London Metropolitan University	London Met	Ex-poly	England
Manchester Metropolitan	Manchester Met	Ex-poly	England
Middlesex University	Middlesex	Ex-poly	England
Edinburgh Napier University	Napier	Ex-poly	Scotland

Full name	Short name	Type	Location
Nottingham Trent University	N'ham Trent	Ex-poly	England
University of Northumbria	Northumbria	Ex-poly	England
Oxford Brookes University	Oxford Brookes	Ex-poly	England
University of Plymouth	Plymouth	Ex-poly	England
The University of Portsmouth	Portsmouth	Ex-poly	England
Sheffield Hallam University	Sheffield Hallam	Ex-poly	England
London South Bank University	South Bank	Ex-poly	England
University of South Wales	South Wales	Ex-poly	Wales
Staffordshire University	Staffordshire	Ex-poly	England
The University of Sunderland	Sunderland	Ex-poly	England
Teesside University	Teesside	Ex-poly	England
University of the West of England	UWE	Ex-poly	England
The University of West London	West London	Ex-poly	England
The University of Westminster	Westminster	Ex-poly	England
The University of Wolverhampton	Wolverhampton	Ex-poly	England
University of Abertay Dundee	Abertay	Other new	Scotland
Bath Spa University	Bath Spa	Other new	England
University of Bedfordshire	Bedfordshire	Other new	England
The University of Bolton	Bolton	Other new	England
Buckinghamshire New University	Buck's New	Other new	England
Canterbury Christ Church	Canterbury	Other new	England
Cardiff Metropolitan University	Cardiff Met	Other new	Wales
University of Chester	Chester	Other new	England
The University of Chichester	Chichester	Other new	England
University of Cumbria	Cumbria	Other new	England
University of Derby	Derby	Other new	England
Edge Hill University	Edge Hill	Other new	England
University of Gloucestershire	Gloucestershire	Other new	England
Glyndŵr University	Glyndŵr	Other new	Wales
Leeds Trinity University	Leeds Trinity	Other new	England
The University of Lincoln	Lincoln	Other new	England
Liverpool Hope University	Liverpool Hope	Other new	England
University of St Mark and St John	Marjon	Other new	England
Newman University	Newman	Other new	England
The University of Northampton	Northampton	Other new	England
The Robert Gordon University	Robert Gordon	Other new	Scotland
Roehampton University	Roehampton	Other new	England
Southampton Solent University	Solent	Other new	England
St Mary's University, Twickenham	St Mary Tw'ham	Other new	England
West of Scotland	West Scotland	Other new	Scotland
The University of Winchester	Winchester	Other new	England
University of Worcester	Worcester	Other new	England
York St John University	York St John	Other new	England
The University of Aberdeen	Aberdeen	Other old	Scotland
Aberystwyth University	Aberystwyth	Other old	Wales
Aston University	Aston	Other old	England

Full name	Short name	Type	Location
Bangor University	Bangor	Other old	Wales
The University of Bath	Bath	Other old	England
The University of Bradford	Bradford	Other old	England
Brunel University London	Brunel	Other old	England
City, University of London	City University	Other old	England
The University of Dundee	Dundee	Other old	Scotland
The University of East Anglia	East Anglia	Other old	England
The University of Essex	Essex	Other old	England
Goldsmiths College	Goldsmiths	Other old	England
Heriot-Watt University	Heriot-Watt	Other old	Scotland
The University of Hull	Hull	Other old	England
Keele University	Keele	Other old	England
The University of Kent	Kent	Other old	England
The University of Lancaster	Lancaster	Other old	England
The University of Leicester	Leicester	Other old	England
Loughborough University	Loughborough	Other old	England
The University of Reading	Reading	Other old	England
Royal Holloway	Royal Holloway	Other old	England
The University of Salford	Salford	Other old	England
School of Oriental and African Studies	SOAS	Other old	England
The University of St Andrews	St Andrews	Other old	Scotland
The University of Stirling	Stirling	Other old	Scotland
The University of Strathclyde	Strathclyde	Other old	Scotland
The University of Surrey	Surrey	Other old	England
The University of Sussex	Sussex	Other old	England
Swansea University	Swansea	Other old	Wales
University of Wales Trinity Saint David	Trinity St David	Other old	Wales
University of Ulster	Ulster	Other old	N. Ireland
The University of Buckingham	Buckingham	Private	England
The University of Birmingham	Birmingham	Russell Group	England
The University of Bristol	Bristol	Russell Group	England
The University of Cambridge	Cambridge	Russell Group	England
Cardiff University	Cardiff	Russell Group	Wales
University of Durham	Durham	Russell Group	England
The University of Edinburgh	Edinburgh	Russell Group	Scotland
The University of Exeter	Exeter	Russell Group	England
The University of Glasgow	Glasgow	Russell Group	Scotland
Imperial College of Science, Technology and Medicine	Imperial	Russell Group	England
King's College London	King's College	Russell Group	England
The University of Leeds	Leeds	Russell Group	England
The University of Liverpool	Liverpool	Russell Group	England
London School of Economics and Political Science	LSE	Russell Group	England

Full name	Short name	Type	Location
The University of Manchester	Manchester	Russell Group	England
Newcastle University	Newcastle	Russell Group	England
University of Nottingham	Nottingham	Russell Group	England
The University of Oxford	Oxford	Russell Group	England
Queen Mary University of London	Queen Mary	Russell Group	England
The Queen's University of Belfast	Queen's Belfast	Russell Group	N. Ireland
The University of Sheffield	Sheffield	Russell Group	England
The University of Southampton	Southampton	Russell Group	England
University College London	UCL	Russell Group	England
The University of Warwick	Warwick	Russell Group	England
The University of York	York	Russell Group	England

