

The effects of funding policies on academic research

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Submitted for the degree of Doctor of Philosophy

I, Lynda Grove, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

A handwritten signature in blue ink, appearing to be 'Lynda Grove', written in a cursive style.

22 November 2017

Abstract

Academics today are under increasing institutional pressure to win external research funding, at a time when such funding is becoming ever more targeted and policy-driven. This thesis explores the effects of this and other funding policy constraints on academics' freedom to carry out the research that they believe is intrinsically important – their choices over what research they conduct, and their ability to do so. In particular, it considers the effects of increasing pressure from funders that the research they fund should demonstrate both societal relevance and impact, and fit with either the funders' or government priorities.

The study took an inductive approach, and is based on interviews conducted with a number of academics across a range of disciplines and institutions (both research intensive and newer institutions). The study finds that academic research today - and thus knowledge production itself - is being pulled in competing directions due to pressures to satisfy the requirements of both the Research Excellence Framework and today's 'impact agenda', elements which require different types of research activity and skills. Furthermore, using a *Bourdieuian* framework, we see that the impact agenda has changed the stakes in the field, as 'demonstrable impact' becomes a sought-after form of capital, causing a potential crisis for hitherto dominant agents (Bourdieu's '*hysteresis*' effect). The findings also indicate the extent to which funding policies have resulted in an emphasis on impact and income as what is seemingly most valued by institutions and other stakeholders, rather than the intrinsic academic merit of the research itself.

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I would, however, like to dedicate this thesis to my parents, who brought us up in the ethos of 'a little knowledge is a dangerous thing'; and particularly to my mum, who very sadly couldn't be here to see this thesis completed.

A note on terminology

A number of terms in this thesis are used interchangeably, and so a brief explanation of these is given here.

Academic freedom, academic autonomy, intellectual freedom, scientific freedom

These terms largely denote the same concept. Mark Davies, citing a number of other authors, notes that “Academic freedom is variously described...in terms of: ‘freedom to pursue teaching and research without fear of intervention or punishment’...or, the ‘personal liberty to pursue the investigation, research, teaching and publication of any subject as a matter of professional interest without vocational jeopardy or threat of other sanction’” (Davies, 2015: 988).

Academics, researchers, scientists

In most instances the terms academics, scientists and researchers are used interchangeably. Where the term ‘contract research staff’ is used this refers to staff employed on short-term research grants, rather than academic contracts.

Basic research, curiosity-driven research, ‘blue skies’ research

Kyvik describes basic research as “research initiated by the evolution of problems internal to the scientific discipline itself” (2007: 400). Other terms also used in the literature include pure research or non-directed research.

Science vs research

On the whole this thesis has attempted to use the term ‘research’ where all academic subject areas and/or endeavour is implied, and ‘science’ for contexts where social sciences, arts and humanities are not included. However, in some cases the terms are used interchangeably, since much government policy and other literature use ‘science’ as a general term for academic (and even non-academic) research.

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Chapter 1

Introduction

“Academic freedom, in the sense of following difficult ideas wherever they may lead, is possibly the fundamental ‘academic’ value”

David Watson, December 2012¹

1.1 A note on the motivation for this study

After beginning work as the manager of a small research centre at the London School of Economics and Political Science some years ago, I became aware of the seemingly increasing difficulties faced by academics in trying to obtain funding for their research. In particular, I was intrigued as to why, in the face of institutional pressures to bring in research funding – and since funding was a necessity in order to maintain a research centre – what appeared to be relevant funding opportunities were sometimes not seized upon (and, in at least one instance I knew of, an offer of funding was even turned down). However, as time progressed, I became aware of the complex issues at stake, and that academics often needed to employ a range of strategies in order to strike a balance between a number of competing pressures - including, on the one hand, institutional pressures to bring in external research funding, the requirements and priorities of government and funders, and in particular the requirements of the periodic research assessment exercises, and on the other hand, their own personal research goals and sense of integrity – i.e. their autonomy over their personal research agenda.

My role as a research centre manager meant that I would be undertaking this study as a “partial insider”. Such a position brings both advantages and potential biases

¹ Presidential address to SRHE conference, as reported in THE, 13 December 2012

which the researcher must carefully reflect on. This issue will be discussed in greater depth in Chapter 5 (§5.5).

1.2 Background to the research

An initial look at the literature highlighted the considerable changes that had been taking place within the higher education landscape and that were affecting the funding of university research. Government steerage of research priorities became particularly marked from the early 1970s, subsequently taking perhaps its most explicit form in the introduction in 1994 of the Technology Foresight programme which aimed to identify priorities on which to focus funding (Henkel, 2000b: 67). An important OECD report in 1999 summarised the key changes at the end of the 20th Century as including:

- Declining government funding for research...with the result that universities are seeking new sources of support and a new basis for that support.
- Changing nature of government finance... increasingly mission-oriented and contract-based and more dependent on output and performance criteria. This can lead universities to perform more short-term and market-oriented research.
- Increasing industry finance for research. This support...is also leading universities to perform research more directed to potential commercial applications.
- Growing demand for economic relevance.

(OECD, 1999, 7)

According to Bushaway, the changes highlighted by this OECD report demonstrated that university research “was in danger of falling into the hands of those who controlled the funds” (Bushaway, 2003, 16). He emphasised the need for both institutions and individual researchers to build research strategies, because the funding (both public and private) of university research was now “highly complex, policy driven, a balance between responsive mode and directed mode, linked to national scrutiny exercises and resource allocation” (Bushaway, 2003, 36).

In the 1980s, in the face of financial constraints, the government introduced the first Research Assessment Exercise (RAE), with a view to making research funding more selective and concentrated in fewer places. However, whilst this and the subsequent periodic assessment exercises (now the Research Excellence Framework, REF), have resulted in a concentration of funding in the most research-intensive institutions, they have not in any way stemmed the demand for funding.

Results of the RAEs/REF, and of university league tables linked to their outcomes, have become increasingly important to universities, particularly as the sector has become ever more competitive and marketised. As Scott has noted: “research performance – or, at any rate, research prestige...has become the dominant criterion of institutional, and individual, success” (Scott, 2009: xiii).

As a result of the research assessment exercises and the growing competition between institutions, academics in many universities are under considerable institutional pressure to bring in external research funding. As the study progressed, I discovered that this was often the case even for academics for whom funding is not necessary to carry out their research. Added to which, a ‘track record’ of successful grant applications - and the academic ‘prestige’ such funding can bring - now play an important part in an academic’s career progression. However, this has contributed to an increase in the number of academics applying to Research Councils and other mainstream funders, putting a squeeze on the resources available. This has been exacerbated by the fact that some post-1992 institutions that previously were not particularly research-oriented, have begun to strive to increase their research profile, adding to the pressure on funders.

In an effort to address this increasing volume of research grant applications (and thus declining success rates), nearly all the Research Councils began to introduce some form of ‘demand management’ measures (which we will look at in more detail in Chapter 2). Many also now explicitly state that their aim is to fund fewer but longer and larger grants, encouraging submissions from larger consortia of academics rather than individual applicants (or ‘lone investigators’). Thus early career academics in particular seem to be facing ever more difficulties to surmount in order to win research grants: they can find themselves in a ‘Catch 22’ position in that, without a track record of successful funding, and the academic prestige that this brings, it is harder to win funding. Reading the higher education press seemed to reinforce this picture. I was struck, for instance, by the comments made by an academic in an article in the *Times Higher Education* that “the AHRC commits itself to providing ‘support for large-scale, collaborative research in the arts and humanities’², without explaining why big is always beautiful and collaboration always best” (Barry, 2009: 26).

² AHRC consultation document ‘Future Directions for Arts and Humanities Research’, 01 April 2009. <http://www.ahrc.ac.uk/What-We-Do/Strengthen-research-impact/Inform-public-policy/Documents/Future-Directions.pdf>

Other commentators were similarly critical of the priorities set by Research Councils and other funders, and at funding being increasingly ‘targeted’ at addressing pre-defined societal or economic goals - in other words, ‘directed’ funding in which the scientific objectives are set by the funder (or other stakeholder), rather than the researcher. Bringing leading researchers together to work on ‘grand challenges’ may be an admirable goal; indeed, many of today’s societal challenges – such as those relating to issues of climate change, health, security (not just state security, but increasingly food and water security), etc. - are widely regarded to require national or international coordination, and prioritisation, in order to be addressed. Yet even researchers from within the same discipline will have different opinions of where funding priorities should be, and where the next big breakthroughs might come from. Lord Sainsbury, for example, “cited the example of neuroscience funding being cut while investment in ageing research was increased. In his opinion, [basic research in] the former was more likely to pioneer breakthroughs in tackling illnesses such as Alzheimer’s disease” (Baker, 2011). So it is hardly surprising, then, that many may disagree with the priorities being set by funders.

Furthermore, much higher education literature implies that most academics would claim that it is ‘blue skies’, curiosity-driven, research that will throw up the truly innovative breakthroughs likely to provide solutions to today’s global problems. Mary Henkel, for example, has shown that almost all academics believe in the serendipity of scientific discovery, and that “nurturing basic science [is] a more certain guarantee...of achieving exploitable research outcomes than any form of external steerage” (Henkel, 2000a: 201). Notable science leaders too, such as former Royal Society President and Nobel Laureate Paul Nurse, concur, and argue against restraint of scientific creativity: “Like other creative workers scientists thrive on freedom...Freedom of thought, to pursue a line of investigation wherever it may lead and to uncover uncomfortable truths, are all crucial to an effective scientific endeavour” (Nurse, 2011).

Within the last decade there has also arisen the requirement for academics, when submitting grant applications to Research Councils, to set out clearly what (non-academic) impact their proposed research would have, clearly making it harder to justify ‘blue skies’, curiosity-driven research. Soon, what became known as the ‘impact agenda’ rose to the fore even more as the 2014 Research Excellence Framework included evidence of ‘impact’ as a significant criterion of its assessment.

The question of 'impact', or 'impactful' research, appeared to raise a whole host of questions as to the purpose and nature of academic research.

In what is now an intensely competitive funding environment, these various requirements and the increasingly directed funding, can present a dilemma to academics: do they divert their research efforts in different directions in order to 'fit' the priority areas (i.e. steer their research to where the money is)? Do they "twist their activity to seem to fit [the funder's] criteria, while actually carrying out their preferred research" (Docherty, 2011)? Are they able to remain steadfast in their pursuit of their own research priorities, ignoring institutional or other external pressures to do otherwise?

This thesis was inspired by these observations and questions, and the desire to explore what effect these constraints have on the autonomy academic researchers have to conduct the research of their choice – research which they feel is important and intrinsically worthwhile - and on how they conduct their research.

1.3 Research objective and methodology

The aim of this study is not to take a position on the rights and wrongs of current research funding policies, or how universities and their research are organised (in any case, the literature on the latter is now quite considerable), but rather to examine the effects of these policies and resulting constraints on the autonomy academics have over their research, in particular on *what* research they conduct and *how* they conduct it.

The study took a largely inductive approach. Whilst the motivation for the study sprung from my work and observations within a research centre, there was no preconceived theory or particular hypothesis to test, rather I endeavoured to explore the issues with as open a mind as possible and see what emerged from the data and where this might lead. The research objective, simply put, was:

To explore how current funding policies affect academics' research activities, and in particular the autonomy academics have over their personal research agenda

I hoped to uncover what factors appear to have most bearing on academics' ability to set their own research agenda: for instance their career stage and/or status ('academic prestige'); the status of their institution (e.g. elite, research intensive vs newer teaching or vocationally-oriented institutions); their discipline or type of research (e.g. theoretical versus experimental or applied). The study also looked at the strategies academics employ in order to navigate their way through what appeared to be an increasingly complex and policy-driven environment.

A qualitative methodology was employed, involving in-depth interviews with academics across a number of disciplines and institutions, and at different career stages, ranging from junior academics to senior, well-established professorial staff. An inductive approach allowed for flexibility in the research design: interview questions were reviewed and re-appraised throughout the study as the data collection and thematic analysis proceeded.

A small qualitative study such as this may have drawbacks vis-à-vis generalisability, but this is more than compensated for, I believe, by the depth and richness of the data. To me, what was most important was to hear the voice of the individual academics. Whilst many issues and concerns were common to all, there were also a great many differences in the perspective and approach between those in different disciplines, institutions, and with different degrees of academic capital.

1.4 Conceptual framework

I began this study with no particular theoretical or conceptual framework in mind. However, inevitably, as the data collection and initial analysis proceeded, it was clear that some framework was necessary within which to situate and make sense of the data. There are a number of theoretical perspectives that would have been appropriate to use for a study such as this. For some time I considered both Principal Agent theory or the concept of 'Mode 2' research (as espoused by Gibbons *et al* (1994)), either of which would have provided an interesting perspective for this study (see Chapter 3 for more on these). However, a number of authors of work in the field of educational research have employed a *Bourdieuian* 'lens', to a greater or lesser extent, and I was particularly struck by the relevance of Bourdieu's concepts to this study on reading Lisa Lucas' *The Research Game in Academic Life* (2006). Bourdieu's well-known concepts of *habitus*, *capital*, and *field*, as well as

his lesser-known concepts of *illusio* and *hysteresis*, not only form a fitting conceptual framework against which to situate this study, but in particular help us understand the effects of the changing stakes at play in what is now an increasingly complex field. This conceptual framework will be discussed in greater detail in Chapter 4.

1.5 Contribution to knowledge

As Chapter 3 will show, other studies to date that have looked at the effects of funding policies on academic research have focused largely on resource-intensive subjects, such as biological sciences (e.g. the studies by Morris (2000; 2002; 2003; 2006), or experimental physics (such as the study by Laudel (2006)). Indeed, many would argue that government funding policies in general are geared to “big science”. A number of studies have looked primarily at older and more research-intensive institutions. This too underlines another criticism of government policies, at least by those at newer institutions, that policies are “all pro-Russell Group”. There have, of course, been some studies that have looked at a range of disciplines, but at least one of these that we shall look at is focused primarily on the Research Assessment Exercises, with little or no discussion of the effects of external funders’ policies.

This thesis has compared the perspective of academics across a broad range of sciences, social sciences and humanities; it has compared those at newer universities as well as those at research intensive institutions; and furthermore it has looked at the differing perspectives of early career academics as well as more experienced academics. It found that, regardless of these differences, all academics in the study felt under pressure to apply for funding. However, it does seem clear that the factor that has most bearing on the ability of academics to exercise autonomy over their research is academic capital and prestige – whether of the individual or of the institution, albeit with some interesting exceptions.

However, the thesis shows how the impact agenda has created a new kind of sought-after capital - the requirement to demonstrate impact – which often entails more multi-disciplinary and collaborative research. This can run counter to, and require quite different skillsets to, the more traditional academic requirements of publishing in the most prestigious journals, which are largely very discipline specific. More importantly, it can influence the choice of which research problems to pursue. We will see how impact has thus changed the stakes in the field, leading to a crisis

on the part of some of the hitherto dominant agents who have spent their careers building up the more traditional forms of academic or research capital.

Whilst not entirely new, this thesis highlights that, in the face of increased competition for funding and the marketisation of higher education, there is a growing fear amongst academics today that government, funders, and institutions may now value impact and income more than the quality of the research itself.

In all, this thesis paints a stark picture of just how complex the field of academic research has become. Not only is it increasingly difficult for academics to navigate their way through the complex maze of requirements, but the 'rules of the game' themselves now often pull academics and their research in conflicting directions.

1.6 Thesis outline

This chapter has described the motivation and principal aim of this study, and presented a brief background of the context and conceptual framework within which it will be situated.

Chapter 2 will present the context for this study in more detail. It will describe the many changes that have taken place in the university research funding environment over recent decades. It will look at policy changes by both government and funders, as well as the underlying societal shifts that have taken place since the 1970s that have affected academic research. We will see the degree to which university research has become an increasingly complex and managed activity.

Chapter 3 will present a review of other studies that have also looked at the effects of funding policy changes on academic research. I have chosen to include only studies published since the year 2000 so as to maintain a focus on more recent changes. I have also focused on studies based on empirical work so as to make a more direct comparison with this study.

Chapter 4 will describe the conceptual framework - Bourdieu's theory of practice and his key conceptual 'thinking tools'. We will see why this forms so fitting a framework for this thesis.

Chapter 5 provides details of the methodology and methods employed. The data collected derives from semi-structured interviews with academic researchers across

a number of disciplines, institution types (according to research income), and of varying career stages. In all, 22 academics spanning ten different disciplines (broadly defined) and four different institution types (dependent on their research income) were interviewed. Thematic analysis was used to draw out the salient and recurring themes, as well as to note the differences between variables.

Chapters 6, 7 and 8 present the findings from the study. Chapters 6 and 7 both present accounts of the pressures and constraints that academics felt affected their research. Chapter 6 focuses on wider, more fundamental issues, and Chapter 7 focuses on more operational constraints. Chapter 8 presents the range of strategies that academics appeared to employ in order to strike a balance between the research that was important to them and meeting the various requirements imposed on them by either their institutions or funders. In all three chapters, a fair degree of quotation is given, as the accounts given by the academics in the study are both fascinating and rich in detail.

Chapter 9 presents a discussion of the findings - and in particular whether any clear differences between variables emerged – and relates these back to the conceptual framework. It also looks at who and what emerge as the apparent winners and losers of today's complex, and often conflicting, funding and institutional requirements.

Chapter 10, concluding remarks, summarises the findings and how they contribute to the existing literature. It considers the implications of the findings – for individual academics, for government and other policy-makers, for institutions and for science itself.

Chapter 2

Funding of university research in the UK

“More money for science isn’t the same as money for more science.”

John O’Reilly, 2004³

2.1 Introduction

This chapter will look at the context within which this thesis is situated. It will focus on how university research is funded (the two arms of the dual support system), and how it is assessed, exploring some of the key policy changes of the last few decades.

Funding for science has inevitably been subject to the vagaries of the prevailing economic climate. Shattock has described “three great crises in public expenditure” which have inevitably had implications for higher education development: “the oil crisis of 1973-4, the Thatcher/Howe budgets of 1979-80, and the 2010 Comprehensive Spending Review” (Shattock, 2016: 64). Economic constraints have led to the higher education sector becoming increasingly marketised, with consequent effects on university structure and management. In addition, a climate of accountability – together with an increasingly competitive environment - has resulted in the research assessment exercises coming to dominate university research activities. As Henkel noted, by the early 1990s the Research Assessment Exercise “had become probably the single most important influence on universities’ research policies” (Henkel, 2000b: 73).

³ (Masood, 2012)

Finally, we will look at the more fundamental shifts underlying the policy changes of recent decades, by considering two related concepts: 'Mode 2' knowledge production and 'academic capitalism'.

The subsequent chapter will then present a review of recent studies which have examined, at the micro level, the effects of the recent policy changes on academic research and researchers that are considered here.

2.2 The dual support system

University research in the UK is funded by what is termed the 'dual support' system, whereby funds are provided to higher education institutions in two streams: one in the form of a core grant to universities from the higher education Funding Councils, and the other by way of project funding won by individual academics from external sources - mostly from the Research Councils, but also from other funders such as the academies (the British Academy, the Royal Society, the Academy of Medical Sciences and the Royal Academy of Engineering), charities, and industry. The aim of the core grant is both to enable institutions to maintain their research infrastructure, but also to allow them to undertake a modest amount of research of their own choosing. This core grant for research – which traditionally has been paid to universities as part of a larger block grant to cover the costs of teaching as well - has long been considered to be a crucial element in supporting institutional flexibility, autonomy and effectiveness. Since the late 1980s, this core grant has been awarded on the basis of a *retrospective* assessment of universities' research (which will be discussed in more detail in §2.4 below). The Research Councils and other funders, on the other hand, provide grants for *prospective* research projects and programmes, awarded on a competitive basis to individual academics or project teams. The advantage of this dual stream system is that the Funding Council core grant provides institutions with a source of funding to provide a basic level of research activity for all university staff (but which the university can spend entirely at its own discretion), whilst having a second, separate stream, of funding from the Research Councils and other funders, means that academics who wish to conduct additional research projects, or who require additional resources, which cannot be covered by the core grant, are able to apply for funding to do so. Moreover, the dual funding stream means that there is – in theory at least – “multiple sources of funding for research, with multiple points of decision about what research should be

supported and where resources should be concentrated” (Adams & Bekhradnia, 2004: 3). Some argue, however, that the two sources of funding are, in effect, mutually reinforcing. Nevertheless, the dual support system is often cited as one of the reasons for the success of UK science (relative to the percentage of GDP invested in it).

Following the Second World War, the higher education sector in the UK expanded rapidly. Since the government was keen to support this expansion it continued, until the end of the 1960s, to increase its expenditure on universities via the block grants, which at that time were made on a quinquennial basis (and on the basis of a fixed “unit of resource” cost). However, much was to change between the boom years of the 1960s (the two quinquennia between 1962 and 1972 would later be described as ‘the Golden Age’ of university funding and development (Shattock, 2012, 122)) and the global recession of the 1970s. There continued to be a very modest expansion of the higher education sector during the 1970s, but economic constraints now began to take a toll, and for the first time universities needed to plan for expected deficits (*ibid.*: 123).

When the Conservatives, led by Margaret Thatcher, came to power in 1979 they set out on a course of cutting public expenditure, which inevitably included higher education. As Halsey has shown, “Between 1980 and 1983 universities had to reduce their budgets by approximately 15%, and there were further resource cuts in subsequent years” (Halsey, 1992: 5). Not surprisingly, this began to put a strain on the dual support system. The Merrison Report of 1982 noted that the system had been “under strain for several years...because the economies that universities were required to make during the seventies have tended to have a disproportionate effect on the support of research” (ABRC/UGC, 1982: 3); this was because research infrastructure costs were easier to cut than, say, staff salaries (and at this time the block grant was for both teaching and research, with no designation of minimum amounts for each). The report highlighted that research time funded through the block grant was being stretched too thinly, and it called on universities to concentrate research funds on selected areas (*ibid.*: 27-28). Since then, the imbalance between the two arms of the dual support system has continued to worsen; as Adams and Bekhradnia noted, “Growth of most sources of [external] funding has been at a faster rate than core Funding Council grant for research”, and that as a result “it is increasingly difficult to conduct blue skies research with core funding and to maintain the research estate” (Adams & Bekhradnia, 2004: 9).

However, as we shall see, a more fundamental change had begun to take place during the 1970s.

2.3 From Haldane to utilitarian goals

Since the early 20th century, government funding of university research has always been based on the so-called *Haldane principle*: that decisions on how to spend science funds should be made by scientists themselves rather than by politicians. This has applied to both streams of the dual support system – funds provided to institutions via the block grant, and government funds to the Research Councils and National Academies (but it has not applied to the research budgets of government departments). The overall amount of funding, though, and its distribution between the two streams, is decided on by ministers, albeit informed by external advice, (BIS, 2010, 57-58). However, as many authors have shown (e.g. Kogan, Henkel & Hanney (2006); Braben (2008); Collini (2012)), the 1970s were to prove a turning point - not just in the UK, but in the US and elsewhere – with regards to the government's role in science policy.

In 1971, a government Green Paper, best known as the Rothschild report, questioned the value of allowing scientists to “express an overall view on the nation's R. and D. to those ultimately in charge” (Rothschild, 1971, 2), and recommended the application of a customer-contractor principle to all applied research and development (*ibid.*: 23). Whilst the Rothschild report was a review of government research and development rather than research conducted in universities, it nevertheless was to have an effect on how the latter was also viewed. At the same time, as noted by Henkel, the Brooks Report for the OECD (1971) “laid down the principles that governments rather than scientists must set overriding research priorities and that the key driver of science policies must be the achievement of social and economic goals” (Henkel, 2004: 170). An increased percentage of funds was subsequently transferred from the research councils to government departments, who were now seen as customers commissioning applied research to meet their needs. As Kogan *et al.* (2006) later pointed out, this marked the start of a major international shift in science policy, which has not been reversed; citing both the Rothschild and Brooks reports, they claim that “The idea that science, if left to itself, would serendipitously yield new discoveries that could be harnessed to societies' needs partly gave way to the view that governments, rather than

scientists, should set research priorities and that social and economic goals should be the driver of science policies” (Kogan, et al., 2006: 2).

As a result of the combination of economic constraints and the influence of these reports, during the 1980s the government would change how it viewed its role vis-à-vis the funding of universities (and other public services): rather than providing a block grant, on a quinquennial basis, to universities to allow them to carry out their functions, the government would now see its role as that of purchasing services from the universities (Temple, 2016a: 44). As we will see in §2.4 below, soon the allocation of research funds via the block grant would be linked to the assessment of research performance and outputs (Temple, 2016a: 44).

The trend towards utilitarian goals continued to gather momentum throughout the 1980s and 1990s, with “industry becoming an increasingly important player” (Kogan, et al., 2006: 2), something the Thatcher government was keen to foster. Kogan *et al.* show how the relationship between the state, industry and universities became increasingly complex and the boundaries between them “more permeable” – what had been termed by Etzkowitz and Leydesdorff (1995, 2000) as the ‘triple helix’ (Kogan, et al., 2006: 2). At the same time, as Henkel notes, “in the drive to maximise economic competitiveness and enhance the quality of life...[the government] encouraged a shift of emphasis from basic research...towards strategic research” (Henkel, 2000a: 187-8).

Shattock describes how, from the mid-1980s, “the contribution of research to the Innovation agenda, [was] now an important element in national economic policy” (Shattock, 2016: 59-60). This trend was subsequently taken forward in the early 1990s with the publication of the 1993 White Paper ‘*Realising our Potential*’ (DTI, 1993), which for the first time explicitly set UK science policy within a broader framework of innovation policy, emphasising the need for the ‘triple helix’ partnerships between industry, government and the science base. As Morris explained, “The 1993 Paper established more firmly than before that the rationale for government support for science rested squarely on its potential to contribute to wealth creation and the quality of life” (Morris, 2002: 823). It led to the creation, in 1994, of the Technology Foresight programme, as mentioned in Chapter 1, which aimed to identify emerging technologies and markets, and through which priorities for science funding could be determined. At the same time, the Research Councils were re-structured, and they were now tasked with taking into account nationally identified priorities (Henkel, 2000a: 188). Successive white papers over the next

few years continued this trend of emphasising the importance of science to the economy - to wealth creation and other societal goals. The titles of the papers speak for themselves in this regard: '*Competitiveness: Forging Ahead*' (1995), '*Our Competitive Future: Building the Knowledge Economy*' (1998), and '*Excellence and Opportunity – a science and innovation policy for the 21st century*' (2000).

Along with the term 'triple helix', other phrases appearing in the literature at this time, such as 'the knowledge economy', 'the knowledge society' and 'academic capitalism' were indicative of radical changes in the way research was now being viewed and conducted. In §2.9 below we will look at these underlying phenomena in a little more detail. First, however, we will look at what was to be a radical change, in the 1980s, in the way that the block grant funding would be allocated to universities.

2.4 The research assessment exercises

The public expenditure cuts of the late 1970s and early 1980s were accompanied by demands for university accountability and increased efficiency. In response to this the funding of university research was to become more selective. In the early 1980s the government proposed that the University Grants Committee (the precursor of the Higher Education Funding Council) should allocate research funding "according to their assessment of a department's degree of 'excellence' rather than according to the 'unity' principle, whereby funding for research was built into the unit of resource on the assumption that all academics carried out research as an integral part of their role" (Harley, 2002: 188). In 1986 the first Research Assessment Exercise (RAE) took place, the purpose of which was to assess and rank the quality of research in universities by subject area (Cribb & Gewirtz, 2012: 11). Universities had to submit quite detailed plans and information on their research activity, as well as student numbers, financial forecasts, etc. (Lucas, 2006: 31). Further RAEs followed in 1989, 1992, 1996, 2001 and 2008. Subject areas were grouped in 'units of assessment' (UoA), and each UoA at each university was graded and given a rating.⁴ In this way each exercise provided the evidence of research quality and volume that would

⁴ The rating system used has altered over the years: initially a 5-point scale was used; the 1992 and 2001 RAEs used a 7-point scale: 1, 2, 3b, 3a, 4, 5 and 5* (Lucas, 2006: 33-34); In 2008 the results were published as a graded "quality profile" depending on what proportion of a UoA's research met each of four quality levels, 1* to 4* (www.rae.ac.uk).

determine the level of government funding for research that institutions would then receive as part of their block grant from the Funding Councils.

A significant change came with the 1992 exercise in that, following the end of the binary divide (former polytechnics being given university status), all the new universities were now included in the exercise, greatly increasing the number of units of assessment. Another change was that the block grant was now split into specific allocations for teaching and research, the latter termed the 'Quality Research' (QR) element.

The research assessment exercises introduced 'selectivity' into the funding of university research, with the aim of "concentrating activity at the apparently most productive university locations" (Temple, 2016a: 46). Temple adds that assessment exercises "came to be used to create, or at least reinforce, an institutional hierarchy", and that "successive RAEs then fed into commercially-produced rankings tables...solidifying the hierarchy" (*ibid*, 46). Like league tables, the RAE results in "a pecking order" of institutions, departments and even individuals – with staff being referred to (albeit informally) "as a '3b', a '4', etc. rated academic performer" (Shore & Wright, 2000: 77).

The RAEs have also resulted in a widening divide among universities in terms of the amount of QR funding they receive (Lucas, 2006: 30). Lucas shows that in 2005-6, for instance, just 5 institutions (less than 1%) received 50% or more of their funding from QR, whereas 42% of institutions received just 5% or less of their funding from QR (*ibid.*: 30). The differences in the amount of QR funds that institutions receive as a result of the assessment exercise varies significantly: from zero funding for a handful of institutions (in fact, around half of all universities receive hardly any QR funding at all), to several hundred million pounds for some of the elite research-intensive institutions (Universities UK, 2011).

Some would argue that such concentration is not only necessary when resources are limited, but that it makes sense to do so for other reasons too. In 2001 the then chief executive of the Higher Education Funding Council for England (HEFCE), Howard Newby, had warned that universities without world-class research teams should be discouraged from applying for funding. "I hope to convince most that this is a race that few will win and that, for most, the effort spent pursuing research funds is misspent" (Research Fortnight, 2011). The expectation had been that many institutions would not enter the RAE (and instead just receive a flat sum based on

numbers of full-time member of staff), but this did not happen. Whilst most of the former polytechnics had a greater focus on teaching, inevitably, over time, some of these new universities sought to enhance their reputations for research (and thus attract QR funding, even if this was only likely to be a very small amount), adding considerably to the strain on the resources available.

A number of authors have produced detailed critiques of the research assessment exercises – for example Gillies’ insightful *‘How Should Research be Organised?’* (2008). In *‘The Research Game in Academic Life’*, which we will discuss further in Chapter 3, Lucas shows in detail how the RAE and selective funding have encouraged greater use of strategies and game-playing on the part of both institutions and individual academics (2006). Harley describes the RAE as “a centrally organised, bureaucratically imposed system of peer review linked to funding” (Harley, 2002: 188). However, she argues that “academics are co-implicated in the implementation of the RAE even though it’s perceived as fundamentally flawed, because of its high identity value” (*ibid.*: 187). In fact, Harley goes so far as to claim that “the higher echelons of management in UK universities embrace the principle of research selectivity as a means of securing institutional status and funding in the face of increasing resource constraints” (*ibid.*:188).

Moreover, Nowotny *et al.* have shown that although, in theory, the RAE should not influence the kind of research that is done, “in practice...the notions of international and national ‘significance’ upon which the RAE relies as a measurement criterion, are not value-free; in all subjects, there are prestigious themes, preferred concepts, and preferred methodologies” (Nowotny, Scott, & Gibbons, 2003: 183) And, they go on, “The influence of the RAE on the behaviour of individual researchers, research groups, departments, subjects, and institutions has been manifold. Some resumes [sic] have amounted to cynical game-playing.” (*ibid.*: 183).

More recently, John Gill described the research assessment exercises (now the Research Excellence Framework, see §2.5 below) as: “quite simply, the single biggest influence on the way that universities operate. It dictates the behaviour of both academics and managers. It is blamed for shameless game-playing, crazy transfer markets, for sowing division, encouraging exclusion and spawning layer upon layer of bureaucracy. It is expensive and unloved.” Nevertheless, he acknowledges that “It is also widely believed to have improved the quality of UK research” (Gill, 2016).

In Chapter 3, and through the findings of this study, we will examine in more detail exactly how the research assessment exercises have impacted on academics and their research.

2.5 REF2014 and the ‘Impact Agenda’

The next research assessment exercise, in 2014, was renamed the Research Excellence Framework (REF). It added a new and somewhat controversial issue to the assessment criteria: impact. Every department (Unit of Assessment) now needed to describe its “approach...to enabling impact from its research” and also provide “case studies describing specific examples of impact achieved during the assessment period, underpinned by excellent research” (HEFCE, 2011: 1). The number of ‘Impact Case Studies’ to be provided depended on the number (FTE) of staff submitted (*ibid.*: 28). As mentioned in Chapter 1, Research Councils had already, a few years previously, introduced impact into their grant application process – in this case, academics having to describe the expected (i.e. prospective) impact of their planned research projects. Now the REF was asking them to detail the retrospective impact their work has had.

Of course, some would argue that this is a reasonable requirement in view of the pressures on public funding, and in any case many academics would agree that they aspired to their work achieving an impact of some kind. However, the new REF impact requirement proved to be very problematic for many academics, partly because the HEFCE definition of impact for the REF was felt to be too narrow and difficult to evidence: the guidance described it as “an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia” (HEFCE, 2011: 48). Many academics were not used to having to specify the expected non-academic impact of their work. Furthermore, for some disciplines it is extremely difficult to demonstrate impact; and even for those for whom it is easier to do so, since they had not previously been expected to gather such evidence, it was very difficult to do so retrospectively.

However, the ‘impact agenda’ unleashed more fundamental concerns. Some argue that it is yet another constraint on curiosity-driven research, which, if left unfettered, would more likely result in real scientific breakthroughs; and others are concerned that it fosters “a short-term vision of impact [which] is not in society’s best interest”

(Matthews, 2016a). As one academic commented, “Now the argument is that there should be no public funding unless there is a direct beneficiary. ...It has given university research the same short-term imperatives as commercial research, to the particular detriment of fundamental research” (Holmwood, 2016: 21).

The consequences of the impact agenda will be discussed further in Chapter 3, and also in the findings and discussion of this thesis. As we will see, one of the overriding concerns is the fear that it will lead to a situation where only ‘impactful’ research is valued.

2.6 Financing of HE research in the 21st century

As we have seen, in the early 1970s government funding for universities - and thus university research - began to decline quite significantly (in terms of funding per student), and continued to do so for many years.⁵ The Dearing Report of 1997 “identified chronic under-investment in university research infrastructure as one of the more pressing problems facing the sector” (OST, 2001: 4), an under-investment that had prevailed over the preceding three decades. The Labour government recognised science as a priority, and over the next few years it announced a number of specific government funding schemes aimed at addressing this under-investment. The most notable of these was in 2004, when the government presented its *Science and Innovation Investment Framework 2004-2014* (HMTreasury/DTI/DfES, 2004) which promised an extra £1 billion for science over the next three years. The Framework aimed to address the problems that had become apparent within the dual support system (as seen in §2.2 above), and to put the funding of university-based research onto a more sustainable footing. The government subsequently provided additional public funding to enable the support of Research Council grants on the basis of ‘full economic costs’ (fEC) from April 2006. The purpose of fEC was specifically to better cover the institutional overheads involved in conducting research at universities, in order to make research as a core university activity more sustainable, but not to increase the volume of research conducted. Research Councils received an additional £500 million which, together with other increases to the Funding Councils and for capital infrastructure, meant that the total annual

⁵ Tracking total spending on university research over this period is difficult, partly because funding methods changed substantially, and also due to the fact, as we saw in §2.4 above, that it was not until 1992 that the block grant was split into separate components for teaching versus research.

funding for research and postgraduate training from the Science Budget and Funding Councils did increase by over £1 billion over the next few years (Wakeham & RCUK/UUK Task Group, 2010).

The additional funding to cover the overheads involved in conducting research can clearly be viewed as a good thing – in many institutions research infrastructure, such as laboratories and other facilities, had been suffering from decades of under-investment. However, as mentioned in Chapter 1, whilst fEC-based costing went some way to improving the institutional costs of research infrastructure, it did not provide additional funding for individual research projects; and, in fact, to many academics it even appeared to be harder now to cost in the resources they needed for their research – in particular research staff costs - whilst still staying within the overall budget of a particular funding call or scheme. It is for this reason, perhaps, that John O'Reilly, then chief executive of the EPSRC, famously said (as noted at the start of this chapter), in 2004 when the government announced the extra £1 billion, that “More money for science isn't the same as money for more science” (Masood, 2012).

Originally the *Framework* claimed it would increase UK R&D investment as a proportion of national income from its then level of 1.9 per cent to 2.5 per cent of GDP by 2014 (HMTreasury/DTI/DfES, 2004: 1), (although this was never achieved). However, despite the additional funding and the introduction of fEC, the Wakeham report of 2010 showed that the income institutions received to carry out research was still not fully covering the costs of undertaking it, and it talked of a deficit in the region of £2 billion (Wakeham & RCUK/UUK Task Group, 2010). A more recent Universities UK report has shown that the deficit for 2014-15 was £2.9 billion (UUK, 2016: 7).

Of course, the vision of the *Framework* was somewhat derailed by the financial crisis that began in 2008. A HEFCE report of 2010 states: “The economic landscape in 2009 was very different to what we had experienced over the previous 10 years...The period of growth in public funding enjoyed by HE over the past decade is over and unlikely to return for some time” (HEFCE, 2010: 11). In the Spending Review of 2010 the government did promise to protect and ring-fence the Science Budget by freezing it at £4.6bn a year over the next four years. However, this flat cash settlement meant the Science budget has not kept pace with inflation, and this would result in a real-terms cut in spending of 14 per cent by 2015 (Jump, 2013). More importantly, however, although the government froze the Science Budget, it

changed which areas it defined as being within the Science Budget ring fence quite substantially from that in the previous Comprehensive Spending Review of 2007 (Khan, 2011: 2). Most significantly, the 2010 Spending Review now included the Funding Council QR funds within the Science Budget.⁶

The campaign group Science is Vital carried out a survey in 2013 of nearly 900 UK scientists as to how the cash freeze had affected their ability to conduct their research. It showed that researchers reported both a decrease in the number of grants funded and a decrease in money awarded even when grants were funded (Science is Vital, 2013: 3). However, the group's main concern was that "The problem is that this is all done 'on the hoof' in response to impending budget statements, party conferences etc. so the best long-term decisions are not being made" (Science is Vital, 2013: 14).

Government departments, whose budgets for R&D sit outside the ring-fence, suffered particularly significant cuts. For example, between 2009-10 to 2010-11 "the Department for Transport cut spending on science research and development by one-third, from £82m to £54m; the Department for Environment, Food and Rural Affairs...cut 17.4% or £33m; and the Ministry of Defence, by far the biggest-spending department for R&D, cut its budget by more than 13%, or £239m" (Jowit & Sample, 2012: 8).

Hale noted that "the underpinning principle behind the introduction of fEC-based funding was that although more should be paid for research in order to ensure it was funded sustainably, there should be no growth in research volume unless this was funded sustainably", (Hale, 2010: 9). Nevertheless, a number of factors have led to a continuous increase in the volume of research and application numbers to Research Councils. The research assessment exercises have increasingly underpinned promotion criteria in universities that emphasise research performance, and thus "many of the extra staff in the system [resulting from HE expansion] will have been encouraged to undertake research" (*ibid.*: 7). Another factor is institutional pressure on academics to bring in external research funds (itself partly due to the RAE/REF). The following comment from a policy discussion paper at one Russell Group university is telling: "Academics...who do not bring in external funds, and who are not producing work of 3* quality or better, are generally funding their research from surpluses elsewhere in the [institution]" (LSE, 2011: 6). Finally, as

⁶ For a full comparison of the CSR07 and SR10 Science Budget figures, see Table A1 in (Khan, 2011).

mentioned above, a number of newer institutions, who previously focused only or largely on teaching, have recently begun to try to raise their research profiles; thus they, too, encourage their academic staff to apply for external research funds and to produce outputs for the RAE/REF.

An unforeseen consequence of the introduction of fEC was that some institutions then became less keen on accepting grants from funders who do not provide funds for overhead costs, such as many of the charities. Yet funding from charities has traditionally represented quite a significant share of the total funding for some disciplines. A 2015 *Times Higher Education* report stated that “in 2013-14, charities funded more medical research than either the Medical Research Council or the NHS”; quoting Aisling Burnand, chief executive of the Association of Medical Research Charities, the report stated that if universities reject charity funding – as some were already doing – this “could really impact on the range of diseases that are researched” (Matthews, 2015a).

A wider criticism of research funding policies is that, in general, they are too geared to ‘big science’⁷. Stefan Collini captured the issue when he stated: “the huge growth in the cost of ‘big science’ and the extraordinary expansion of the scope of the biological sciences mean that the science budget has soared into the billions, dwarfing the amounts spent on the humanities and social sciences”, adding that “inevitably, funding systems will be designed to fit the activities involving the most money” (Collini, 2003: 5).

2.7 Funders’ policies and prioritisation

The move towards utilitarian goals, which, as we saw above, began in the 1970s, would become even more marked in the 2000s. A 2008 report from the European Commission showed that all European universities were becoming increasingly dependent on competing for external project-based funding, and thus increasingly influenced by research priorities set by funders (European Commission, 2008, 18-19). Furthermore, government support for the Haldane principle appeared to be in question. A report by the former Innovation, Universities, Science and Skills (IUSS) Select Committee stated “The Government provides the money; it seems only

⁷ The term ‘Big Science’ dates back to at least the early 1960s. Perhaps most famously used by Derek de Solla Price in his ‘Little Science, Big Science...and beyond’ (1963), although de Solla Price himself attributes it to an article in *Science* by Alvin M. Weinberg of 1961.

reasonable that it should be able to set broad themes for areas of research” (IUSS, 2009: 43).

In 2009 Alan Langlands (then chief executive of HEFCE) stated that in the government’s funding of university research “there would be a re-balancing in favour of ‘national priorities’ of climate change, energy supply, food and water security, and national and global health” (Hurst, 2009). Nevertheless the Conservative-Liberal Democrat coalition government that came to power in 2010, claimed to support the Haldane principle as vital, and stated that “Prioritisation of an individual Research Council’s spending within its allocation is not a decision for Ministers” (BIS, 2010: 57). Yet, in the same document they go on to state that it is “appropriate for Ministers to ask Research Councils to consider how best they can contribute to [national strategic] priorities” (BIS, 2010: 58). This would imply that the government’s commitment to the Haldane principle was little more than lip service. In his anniversary address to the Royal Society in November 2011, Paul Nurse talked of what has now become a perennial question: how prescriptive should research funding bodies be in determining what research areas should be supported? He noted that “this recurring issue arises because of the tensions between scientists wanting the freedom to decide what projects they should pursue and society which supports science not simply as a cultural activity increasing knowledge, but also as an activity aimed at improving the lot of humankind through achieving specific useful objectives” (Nurse, 2011).

Over the last few years funding calls issued by the Research Councils have, indeed, appeared to be increasingly ‘directed’ (i.e. aimed at specific topics and/or setting out specific objectives to be addressed), with seemingly less funding available for ‘responsive mode’ proposals (where the academic – or Principal Investigator (PI) – can submit a proposal at any time, on any topic within the relevant Research Council’s remit). And there has certainly been evidence of a shift in the balance of Research Council investment between basic (or fundamental) research and applied research, in favour of the latter (House of Commons Science and Technology Committee, 2015: 25).

It could, of course, be argued that in a period of economic constraints, within an even longer era of accountability, it would be hard for funders of research to ignore the strategic needs of both government and society. The seven UK Research

Councils⁸ have all responded to this, with each of them incorporating economic and societal priorities into their policies or decision-making in some way. The BBSRC, for example, introduced “responsive mode priorities” (a slight contradiction in terms) which “aim to increase the impact of science funded by BBSRC” (BBSRC, 2016). And even the Arts and Humanities Research Council (AHRC), which one might expect to be relatively immune from external strategic requirements, was accused of bowing to government pressure when it agreed in 2011 to set the theme of ‘Big Society’ as one of its funding priority areas (Boffey, 2011) – ‘Big Society’ being a concept introduced by Prime Minister David Cameron in 2010 (Woodhouse, 2015: 3).

However, what has become a particular problem for Research Councils and other mainstream funders over the last 10 years or more has been the significant increase in the number of academics applying for funding, which has inevitably resulted in intense competition and success rates becoming extremely low. As well as stretching funders’ administrative capacity, the volume of applications has also placed a great strain on the peer review system. To take the ESRC as an example: the Council saw a 33% increase in grant applications over the five years to 2011, with a resulting success rate of just 16% in 2010-11 (Frankel, 2011); in 2014-15 their success rate had fallen even lower to just 13% (Brooks, 2015); and in 2015, for its July open call, the success rate was only 10%, leaving “over half the ‘excellent’ proposals unfunded” (Golberg, 2015). The sheer number of applications means that the allocation of grant funding becomes something of a lottery (and the low success rates imply a huge amount of academic time spent preparing proposals is wasted). One reviewer/evaluation panel member noted that: “the way grants are evaluated is ‘pretty well random....There are so many excellent applications you just don’t have the knowledge or time to evaluate everybody properly” (Havergal, 2015). Other funders also experienced large increases in application numbers. For example, the European Research Council’s Starting Grant scheme (aimed at early career researchers) saw a 40% increase in application numbers between 2010 and 2012, (although application numbers dropped back a little in 2013), and success rates in 2016 remained at less than 12% (ERC, 2017).

⁸ The current seven UK Research Councils are: the Arts and Humanities Research Council (AHRC); the Economic and Social Research Council (ESRC); the Engineering and Physical Sciences Research Council (EPSRC); the Natural Environment Research Council (NERC); the Biotechnology and Biological Sciences Research Council (BBSRC); the Medical Research Council (MRC), and the Science and Technology Facilities Council (STFC).

As mentioned in Chapter 1, in order to address the issue of increasing application numbers, most of the Research Councils introduced some form of 'demand management' measures so as to encourage fewer, but high quality, applications. In 2012, the new chairman of the EPSRC, Paul Golby, said that "a real-term budget cut of 12-14 per cent has meant [the Council] has had to make difficult choices to ensure that the UK's research base remains internationally competitive" (Golby, 2012). One measure that the EPSRC introduced was a controversial 'three strikes and you're out' policy (whereby repeatedly unsuccessful applicants would be barred from submission for a period), which has acted as a deterrent, and thus reduced application rates; the Council also banned resubmission of grant proposals. And the ESRC has put more onus on institutions to instigate their own internal review measures so as to reduce applications submitted to the Council. Another unpopular move by EPSRC was its announcement in 2011 of which subjects within its portfolio it would either grow, maintain or reduce funding levels for – a policy it would later term as "Shaping capability". Inevitably there was outcry from academics whose subjects were designated for reduction in funding, but the Council maintained its stance. (This despite the fact that a *Times Higher Education* article of March 2015, based on an EPSRC analysis, showed that in fact, of 54 subjects whose funding had shrunk, only 13 had been scheduled to do so (Jump, 2015b, 11)). However, in 2012 the EPSRC had to acknowledge that one of its new policies had been ill-thought out. In March 2012 the Council had added 'national importance' as an assessment criteria to its grant applications: applicants were expected to clearly identify the 'national importance' of their proposed project in the next 10 to 50 years (Research Fortnight News, 2011). However, the subsequent outcry from researchers over this led the EPSRC to withdraw this requirement in December 2012, accepting that the 'to 50 years' requirement was unreasonable.

Another noticeable trend among Research Councils and other mainstream funders has been a move to more targeted, or directed, funding (as noted above), and also a shift away from smaller, PI-focused, awards to larger collaborative project funding. For example, in its 2010 Strategic Plan and 2011-2015 Delivery Plan, the EPSRC made clear that it planned to implement "ambitious, longer and larger programmes" and place "a greater emphasis on collaboration" (EPSRC, 2011a: 7), whilst "reducing the breadth and volume of research supported" (EPSRC, 2011b: 2). The rationale for this move is supposedly to give top researchers the freedom to be more ambitious (Jump, 2015a). However, many in the sector feel that, in reality, this move has been a response by the Councils to the cuts in their administrative budgets,

which have meant that they have had to consolidate some of their smaller programmes so as to reduce the administrative load.⁹

Similarly, in 2015 the ESRC caused consternation when it raised the minimum threshold of its Standard Grants scheme from £200k to £350k, at the same time as reducing the maximum limit from £2m to £1m. Their argument was that “larger grants delivered more” (Golberg, 2015). Whilst large, collaborative projects may have the advantage of bringing experts together, in fact, as Lord May argued some years earlier, “some projects will necessitate large groups, [but] recent studies show that small groups are often more cost effective and creative” (May, 2003: 4). And, as this thesis will show, larger grants inevitably entail less freedom for the individual academics involved, and considerably more project management and reporting responsibilities for them if they are the principal investigator. In addition, larger grants also make it harder for early career researchers to attain their own first grants as a principal investigator, something which is often important for their career progression.

The Wellcome Trust, the largest funder of medical research in the UK, made a significant policy change in 2009, taking a different approach to that of the Research Councils, though for apparently similar reasons. In November 2009, the Trust announced a move to investigator-led funding through new ‘Investigator Awards’, where award decisions would be based more on assessments of the applicant than by peer review of their written proposal. The Awards would “provide researchers and their teams with the support to pursue individual, bold visions without constraints....[and] give researchers the maximum amount of freedom to be creative and innovative in their approach” (Wellcome Trust, 2009). The Trust claimed to be responding to demands from the scientific community, and that the awards would mean “freeing researchers from the treadmill of applying for short-term grants” (Corbyn, 2009: 20), allowing them to focus instead on tackling major research problems. The move was welcomed by Paul Nurse, who praised the Trust’s “bold step in moving....towards longer and more ambitious...awards” (Wellcome Trust, 2009). In his 2009 article, ‘*Real Lives and White Lies in the Funding of Scientific Research*’, Peter Lawrence highlights the “nightmare” of the grant application treadmill – and the problem of losing trained postdoctoral researchers and technicians in between short-term grants (Lawrence, 2009); so in this sense the Trust’s new longer (up to 7 years or more) and more flexible Investigator Awards

⁹ This was, in fact, confirmed as being the case by a former NERC employee in conversation with the author.

can be seen to address this problem. However, as part of this move, the Trust phased out two of its four existing grant schemes – its Programme and Project awards, which accounted for around 20% of its budget, thereby significantly reducing the available funding for many other applicants. Many saw it as a concentration of funds into a handful of elite researchers; and, as we will see in the findings of this thesis, some academics were especially critical of the direct effect of this on early career researchers.

Unlike most other mainstream funders, the Leverhulme Trust, which funds around £60 million of research annually, has, for the most part, resisted the trend towards increased prioritisation and fewer, larger grants (Sarchet, 2013). Although it has recently started to select themes for its large Research Programme Grants, its director, Gordon Marshall, points out that “The Programme Grants are the only part of our portfolio which is directed. What is distinctive about the Leverhulme is more than 90% of this money is just responsive mode” (*ibid*).

As we saw in Chapter 1 and in §2.5 above, another notable Research Council policy change during this period was the introduction of the requirement for applicants to set out the expected impact of their research proposals when applying for a grant (a part of the application known as ‘Pathways to Impact’). As noted in §2.5, academics for the most part do not disagree that their research should have impact, but what is often problematic is having to specify in advance exactly what this will be. Furthermore, some academics question the ability of grant reviewers to be able to evaluate this element of a grant application. To quote Martin Rees: “Society funds science partly in the expectation of practical benefits, and...researchers are delighted if their work has practical impact. But it’s not always recognised how unpredictable, diffuse and long-term this can be...we can’t predict who will make the great advances and when” (Rees, 2015).

A criticism of an observed consequence of Research Council policies of recent times, and the intense competition for funds, is that they have resulted in the funding of only ‘safe science’. For instance, Wang *et al.* report a growing concern that “funding agencies are too risk-averse” and that “intense competition for resources encourage the choice of safe projects that exploit previous findings, at the expense of novel projects that explore untested approaches” (Wang, Veugelers, & Stephan, 2016: 23). Some have argued that this has a very negative effect on what science is conducted: “policies to ‘ensure’ greater success lead to perverse outcomes, where the fear of failure drives researchers to write grant proposals that are less and less

exploratory and more and more predictable” (Firestein, 2016: 22). (The Leverhulme Trust is again an exception here in that it claims to be happy to fund high-risk research, because unlike the research councils “this is not public money, so we do not need to be constrained by caution” (Sarchet, 2013)).

Research Council policies have also been perceived as resulting in an increased concentration of funding (which, as we have seen in §2.4 above, is also a criticism of the research assessment exercises). It is felt that many funders’ policies both encourage and reproduce the ‘Matthew Effect’ of ‘giving to those who have’. In fact the Council for the Defence of British Universities (CDBU) has gone so far as to accuse the Research Councils of “embedding a culture in which the so-called ‘Matthew Effect’ in research funding is dominant” (Smith, 2013). It is difficult to say conclusively whether or not this Matthew Effect occurs in the allocation of funding as it is not an easy phenomenon to measure; however, as early as 1968 Merton discussed the role of the Matthew Effect in the allocation of resources, and noted that “centres of demonstrated scientific excellence are allocated far larger resources...than centres which have yet to make their mark” (Merton, 1968: 62). It is a question that inevitably divides the sector. Not surprisingly, the Russell Group of large research-intensive universities often calls on the government to “concentrate an even greater proportion of funding on the UK’s world class universities” (Research Fortnight, 2012) . The (former) 1994 Group of smaller research intensive universities, on the other hand, complains that funders exhibit “a funding bias towards size rather than excellence...[which] unjustifiably disadvantages high-quality smaller teams” (Bols, 2013). It could be argued that an example of this Matthew Effect is that when the Wellcome Trust, as we saw above, introduced its Investigator Awards in 2009, at the same time it also announced that ‘Enhancement Awards’ of additional support would be available to holders of its Investigator Awards (and also Research Fellowships and Strategic Awards).

2.8 Performativity, metrics and league tables

Academic research today is an increasingly managed activity, part of a wider audit culture that pervades society today. Indeed, universities are felt to have adopted a culture of ‘new managerialism’ – i.e. employing business-like practices in a drive towards “efficiency, effectiveness and excellence” (Deem, 2001: 10). The larger research-intensive institutions today employ large numbers of managerial and

administrative staff to deal with the increasingly specialised aspects of research administration. Dedicated teams oversee activities such as proposal development, knowledge exchange and impact, grant management, and research assessment. Departments, and even individual academic staff, are subject to targets and the often “intrusive monitoring of efficiency and effectiveness” (*ibid.*: 11). This research management is largely aimed at increasing the institution’s grant income as well as the profile of the research it conducts and ensuring the institution performs well in research assessment exercises. However, such managerialism is widely seen as posing a threat to academic autonomy, adding to the external control of academic work (Blackmore, 2016a: 22).

Temple describes how the research assessment exercises can be considered as having introduced market methods into the sector, and that, as we noted in §2.4 above, “The results of successive RAEs then fed into commercially produced rankings tables” (Temple, 2016a: 46). He adds that, as a result, “academic research outputs...had become commodities (with ‘star’ research performance becoming tradeable) in the higher education marketplace” (*ibid.*: 46).

The huge costs involved in the research assessment exercises have led to much discussion as to whether they could be replaced by evaluations based much more on quantitative research metrics, but this has proved to be a particularly thorny issue. Many academics are concerned that policy-makers (and thus institutions) are beginning to increasingly measure research performance by metrics such as citation rates, journal impact factors, and grant income, and that this in turn leads to the valuing only of things that can be easily measured. For example, at the start of the 2000s Brew noted that “the most powerful and pernicious influences on academic research currently...are output views of research with their emphasis on performativity, enshrined in...government policies and funding formulas” (Brew, 2001: 12). Academic concerns are further illustrated by this quote from a professor at the University of Oxford: “We now have the weird situation whereby a researcher who achieves important results with little or no funding is valued less than someone who receives a huge grant but fails to do anything sensible with it” (Moriarty, 2015). And Moriarty cautions that “The focus on ever-increasing numbers of ever-larger grants can be counterproductive: the supervision, training and management of a research team – and the quality of its work – can all suffer as a principal investigator struggles to juggle too many commitments” (*ibid.*). This is not, in fact, a new concern: as far back as the 1960s, Cole and Cole noted that “Most of us have

typically paid homage to the idea that quantity of output is not the equivalent of quality and have then gone ahead to use publication counts anyway” (Cole & Cole, 1967: 379). However, this tendency to focus on outputs and performativity that is “calculable” (Thornton, 2009: 26), appears to have gathered increasing momentum during the last decade. So much so, that in 2015 the government instigated an ‘*Independent Review of the Role of Metrics in Research Assessment and Management*’, which was published as ‘*The Metric Tide*’ (Wilsdon et al., 2015). Lead author James Wilsdon noted that “Some fear a growing tyranny of numbers, as metrics such as journal impact factors, h-indices and grant income targets...create increasingly perverse incentives in a sector where much of what we most value resists simple quantification. Too often, poorly designed evaluation criteria are ‘dominating minds, distorting behaviour and determining careers’” (Wilsdon, 2015). *The Metric Tide* report proposed “a framework for responsible metrics” to complement rather than supplant expert judgement, noting that “carefully selected and applied quantitative indicators can be a useful complement to other forms of evaluation and decision-making”, but that “poorly-designed indicators, such as journal impact factors, can have negative consequences” (*ibid.*).

A related phenomenon is the degree to which institutions are increasingly preoccupied with improving their performance in global league tables. As Blackmore states, “Despite a widespread distaste for them in universities, rankings have quickly become highly significant influencers of individual and collective behaviour” (Blackmore, 2016a: 84). However, yet again, as with the concentration of funding, it is the larger and more research intensive institutions which benefit from the predominance of league tables in what has become the higher education ‘market’. A number of authors have noted how league tables are primarily based on research-related information, such as publications in prestigious journals, citations indices and Nobel prize winners (Lucas, 2006: 7-8), and Johnes notes that not only are the underlying components of rankings “often biased towards research activity”, but that they are “particularly [biased] to research in the sciences (Johnes, 2016: 94, citing Dill, 2009); she adds that “the highly ranked elite universities become the benchmarks for the lower-ranked HEIs to mimic” (*ibid.*, 94). As noted in Chapter 1, the result has been that “research performance...has become the dominant criterion of institutional, and individual, success” (Scott, 2009: xiii). However, league tables also demonstrate the degree to which some newer institutions are now trying to build a reputation for research. A good illustration of this is provided by one of the newer institutions included in this study: based on ‘research power’ it had jumped

significantly in league tables between the 2008 RAE and the 2014 REF – from 80th in 2008 to 50th in the REF (Morgan, 2015).

2.9 ‘Mode 2’ research and academic capitalism

This chapter has focused on the facts, figures and policy changes in the funding of higher education research over recent decades. Before we move on to the next chapter, we will briefly discuss two concepts that have attempted to explain the more fundamental shifts that have taken place in how university research is viewed and how it is conducted.

Mode 2 research

As we saw in §2.3 above, in the 1990s literature on the nature of science and university research began to predominantly use terms such as ‘the knowledge society’ and ‘knowledge production’. These terms were symptomatic of changes in the way that science was both viewed and being conducted, and reflected the increasing influence of societal and economic drivers in the public funding of research. These changes were driven by a combination of factors: the massification of higher education and the resulting growth in the number of academic researchers; technological changes in the way research could be conducted (not just in terms of equipment used but particularly in terms of how academics could share and collaborate with other researchers globally); and government policy drivers, particularly the push for greater links between university research and industry. Furthermore, as we saw in §2.3 above, the move towards utilitarian goals resulted in a shift towards problem-oriented research.

One of the most famous accounts of this transformation is Gibbons *et al.*’s highly cited work, ‘*The New Production of Knowledge*’ (1994), which explored in depth the fundamental changes that were taking place in the way scientific knowledge was being produced. The authors identified a number of shifts that had been taking place in higher education, including “the growing prominence of research” and the “growth of problem-oriented research”, more and more of which was now funded by external agencies for specific, pre-defined purposes (Gibbons, et al., 1994, 78). They coined the term ‘Mode 2’ research, to describe a new form of knowledge production that was emerging alongside the more traditional form, which they termed ‘Mode 1’. They contrast Mode 1 research as being “generated within a disciplinary, primarily,

cognitive context, [whereas] Mode 2 knowledge is created in broader, transdisciplinary social and economic contexts” (*ibid.*: 1). The key attributes of each Mode are summarised in Table 2.1 below.

Table 2.1: Key attributes of Mode 1 versus Mode 2 research*

Mode 1	Mode 2
Problems are set and solved in a context governed by the, largely academic, interests of a specific community	Carried out in a context of application
Disciplinary	Transdisciplinary
Characterised by homogeneity	Characterised by heterogeneity
Organised hierarchically and tends to preserve its form	Organised more heterarchically and tends to be transient
Quality control by peer review	Quality control is more socially accountable and reflexive

*Adapted from Gibbons *et al.*, 1994, p.3

A further point, made by some of the same authors in a later work, *Mode 2 Revisited: The New Production of Knowledge* (2003), is that “‘Knowledge’ is now regarded not as a public good, but rather as ‘intellectual property’, which is produced, accumulated, and traded like other goods and services in the Knowledge Society” (Nowotny, et al., 2003: 185).

The Mode 2 theory has been contested by a number of authors. One of the main criticisms of the thesis put forward in *The New Production of Knowledge* (NPK) has been its lack of empirical basis. For instance, Kyvik (2007) argues that “It builds on the assumption that universities have been previously engaged mostly in basic research...[yet] there is ample historical evidence that [university research] has always been shifting between the fundamental and the applied spheres” (Kyvik, 2007: 389, citing Godin, 1998). However, there certainly seems to be growing evidence that Mode 2 style research is on the ascendant, especially with funders’ and universities’ emphasis on ‘knowledge exchange’ or ‘knowledge transfer’ activities as a means to generate non-academic impact. Nevertheless, in reality discipline-centred research and research units have so far continued to be the dominant norm. And in fact, even in 2007, Kyvik concluded that recent changes may mean that “the conclusions drawn by Nowotny et al (2003) might...be verified through empirical research” (Kyvik, 2007: 78). As one of the original authors of NPK

more recently summed up: “In research, curiosity-driven enquiry has struggled to maintain its position within more open knowledge systems, which...have placed a greater emphasis on narrowly conceived ‘impact’, as defined by market-dominated norms of performativity” (Scott, 2016: 210).

As we will see from the findings of this thesis, research assessment, now in the shape of the Research Excellence Framework, requires outputs from both the traditional Mode 1 type research, in the form of publications in high impact journals, and of Mode 2 research in the form of more heterogeneous ‘impactful’ (usually applied) research, and these two requirements can place often quite conflicting demands on academic researchers.

There have, of course, been a number of alternative theories to explain the changing nature of research. Hessels and van Lente conducted a systematic review of the Gibbons-Nowotny theory of Mode 2 knowledge production and compared it with a number of “alternative diagnoses of changing science systems” (Hessels & van Lente, 2008: 740). One of these alternative theories is that of ‘strategic research’, defined as “basic research carried out with the expectation that it will produce a broad base of knowledge likely to form the background to the solution of recognised current or future practical problems” (Hessels & van Lente, 2008, citing Irvine and Martin, 1984). Hessels and van Lente note the interesting contrast of this “emphasis on basic rather than applied research”, compared to the Mode 2 theory in which “the distinction between basic and applied science has disappeared” (*ibid.*: 743). Another alternative theory they discuss is that of ‘academic capitalism’ which we will look at in a little more detail.

Academic capitalism

Academic capitalism is a term coined by Slaughter and Leslie (1997). It is described by Hoffman as: “an umbrella term for capturing the wide array of market and market-like activities universities engage in to generate external revenues from education, research, and service”, adding that it “can refer to direct [for-profit] market activity like patenting, licensing, and industry consulting as well as market-like behavior such as fierce competition for public [and] private [funding]” (Hoffman, 2012: 12). In fact Deem notes that “publicly funded institutions are themselves expected to enter or create a marketplace, adopting the practices and values of the private sector in so doing” (Deem, 2001: 9). It has resulted in universities having to redefine their purposes and missions, and thereby adapt both their organisational

structures and management cultures (Scott, 2016: 10). Academic capitalism is often closely associated with the idea of the 'entrepreneurial university', a concept first used by Clark (1998). It is widely agreed to be a response to external factors, such as the intense competition for funds and processes of globalisation (Hessels & van Lente, 2008: 746). Hessels and van Lente also show that the market-like activities that the concept of academic capitalism describes share many of the attributes of Mode 2 research, and that, in fact, academic capitalism "partly confirms the claim of rising importance of Mode 2 knowledge production" (*ibid.*: 746).

Blackmore notes that academic capitalism is viewed by some as a counter-response to the loss of academic autonomy resulting from increased managerialism, and (citing Slaughter and Leslie, 1997) that new structures, incentives and rewards can in fact present academics with "new and greater opportunities...to manage their academic career" (Blackmore, 2016a: 23). However, a number of authors, for instance Deem (2001), note that academic capitalism implies a move away from curiosity-driven research towards more market-driven applied research, often for industry (Deem, 2001: 14), which would suggest that it may present new opportunities for some (for example, those whose work lends itself to applications), but not for others.

As indicated earlier in this chapter, research is now often viewed – by government and institutions - less for its intrinsic value than for its potential to generate financial returns (Naidoo, 2005: 29). As this thesis will show, this can result in institutional pressure on academics to apply for external grant funding even in cases where they do not need such funding to conduct their research. As one commentator noted, "They (now) need grants to pay for their time because market-oriented university funding models require us to show that we're spending our time on (funded) teaching or (funded) consultancy or (funded) research" (Temple, 2016b).

2.10 Summary

This chapter has attempted to give an overview of the university research funding landscape in the UK and how it has evolved over recent decades. We have seen how government policies stretching back to the 1970s have resulted in an increasing expectation that publicly-funded research will contribute to economic growth and societal wellbeing. This has been accompanied by moves towards creating an

increasingly marketised and competitive higher education sector. Institutional reputations have become ever more dependent on league table performance, based primarily on measures of research success.

We have also seen a number of factors impinging on academics' research today, including: the increasing prioritisation and steering of research by funders; the requirements of research assessment exercises; the increasing emphasis on demonstrating what impact has resulted, or will result, from their research; and increasing pressure to apply for and secure external project funding in the face of intense competition.

All this has resulted in university research becoming an ever more managed and complex activity. In the next chapter we will review some of the literature which has looked at how these policy and research environment changes have affected academic research, particularly at the individual, micro, level.

Chapter 3

The effect of funding policies on academic research: a review of recent studies

3.1 Introduction

As we have seen in Chapter 2, the context within which university research is conducted has changed immensely over the last 40 to 50 years, largely due to the relentless expansion of the higher education sector and the resource implications of this, and also due to the drive towards increased marketisation. Added to this, successive governments have increasingly come to expect that university research should address the economic and societal needs of the country, adding to both wealth creation and societal wellbeing. The policy changes that have accompanied these shifts have inevitably had a considerable impact on universities and academic research. The research assessment exercises, in particular, have not only become a means of evaluating research and allocating funding, but also a tool in the management of research activities.

There is now a considerable amount of literature, stretching back two or three decades at least, examining the effects that these policy changes have had. Whilst some of the literature focuses on changes at institutional, departmental or discipline level, this chapter will focus primarily (although not exclusively) on those which examine changes and effects at the individual (or micro) level, since this is the main concern of this thesis. This literature, of course, looks at these changes from a great variety of perspectives and focus on different aspects of higher education research: for example, some works look at the effects on academic *identities* and *autonomy*; some take a particular theoretical viewpoint, such as *Principal Agent Theory*; some on *research practices* in general or the *management* of research; some on academics' *conceptions* of research or academic *development*; and, more recently, studies looking at the effects of the '*impact agenda*'.

As stated above, this chapter will focus on literature that particularly examines the effects of changes on individual academics and their research. It takes as its starting point studies published since the year 2000 which, like this thesis, have examined how more recent higher education policies, and particularly research funding and assessment policies, have affected academics' research. It will also focus on works based on empirical studies, rather than theoretical studies, again because the concern of this thesis is to look at how the effects of policy changes are experienced from the viewpoint of individual academics, and so as to compare this with existing literature which has done the same.

Some of the works reviewed are based on empirical data from particular disciplines, others from a mix of disciplines. And although some of the works are based on studies in different countries, or a comparison of the changes in two or more different countries, they are included here since the general trends in research policy changes have been largely similar.

3.2 Principal-Agent theory

Morris 2000, 2002, 2003

Three papers by Norma Morris (2000, 2002 and 2003) and a fourth with Arie Rip (2006) have all been concerned, in one form or another, with the effects of policy change on academic research, from the perspective of Principal-Agent theory. Principal-Agent theory originated in economics, but has since been applied in science policy studies, "to explain 1) the relationship between the government and the universities or other research organisations, or 2) the relationship between other public agencies (such as research councils) and researchers" (Auranen, 2014: 64). Morris' papers are based on a case study in biological sciences only, in four departments at different institutions (research intensive as well as new) in England. Her interviewees included not only a mix of senior and more junior academics, postgraduate students and technical staff, but also administrators and managers at departmental as well as university level (2000: 430).

In her 2000 paper, '**Science policy in action: Policy and the researcher**', Morris looks at how government science policies – with their economic and social aims – "are increasingly influencing the content as well as the management of university research" (2000: 425). Like other authors, Morris traces these changes back to the

1970s and 1980s when governments began to increase their expectations regarding the accountability and strategic relevance of publicly-funded research. In a context where external bodies are increasingly “seeking to set objectives for academic researchers”, Morris asked researchers who they identified as the ‘stakeholders’ in their research (2000: 425), and what impact these stakeholders’ policies have on their research. The stakeholders identified were primarily research funders, such as the Research Councils, industry, and the EU, and also HEFCE because of its role as both a funder and also a regulator in terms of research assessment. She compared the responses of her interviewees with stakeholders’ own claims about their policies (as presented in their corporate documents and official communications).

Morris analyses the changes in research funding policies and the relationship between researchers and stakeholders from the perspective of the Principal-Agent model, noting that in this context the Research Councils are both agents of government but also the principals of university researchers. Interestingly, Morris claims that researchers were aware of the broader social and political issues that were driving policy changes, and that this “helps mitigate the ‘them-and-us’ attitude which can otherwise characterise the relationship” between policy-makers and funders on the one hand and university researchers on the other (2000: 429).

So what of the effects of stakeholder policies? Morris notes that interviewees perceived stakeholder policies as having four objectives: agenda setting; accountability; concentration of resources; and research manpower (2000: 432). It was the first of these, agenda setting, or steering, that most concerned researchers. Since attaining funding for their research was a major preoccupation, researchers – at least in the short term – had to tailor their grant proposals to fit with funders’ priorities (2000: 433). This might just entail couching their proposals in the right terms, or emphasising certain elements. However, some researchers reported that their choice of research topic was “influenced...by its perceived ‘fundability’” (2000: 433), and other comments included that it would be easier to attain funding if they changed direction. At the same time, some observed that the best researchers “can work on what they want” (2000: 434).

With respect to accountability, Morris’ interviewees highlighted the increased administrative work involved, which put a squeeze on their research time: “Time is the commodity in shortest supply” (2000: 436). Some were concerned that, whereas previously, if something interesting but unexpected emerged in the course of their

research, researchers could follow that; but now, they had to show that they were meeting the original objectives they set out to investigate (particularly in the case of industry funding). However, others believed that Research Councils would be accepting of different outcomes provided “good work was done” (2000: 437), something her later papers emphasise too.

The main instruments of concentration of resources perceived by researchers were the RAE and “in-built biases in the award system (mainly in the peer review system)” (2000: 438). Some believed this concentration would lead (possibly was even designed to lead) to a two-tier system of research elites versus newer institutions, with the latter having to focus on teaching only (2000: 439). Others believed that by concentrating resources funders reinforced the ‘Matthew effect’, and it was resulting in ever-larger teams which were less productive (2000: 439).

Academics accepted that they needed to have as many “complementary sources of funding” as possible, but saw interaction with industry and/or government departments as “an adjunct to, rather than a driver of, a group’s research programme” (2000: 442).

Communication with the general public, usually referred to in those days under the heading of ‘public understanding of science’, was seen as important, a normal part of their work even, but there was no real external pressure to do so (2000: 443); however, there was concern that this might “develop into yet another outside pressure” when they were already struggling to juggle the requirements of research, teaching and administration (2000: 444), and also that forcing people to do it could well backfire, since not everyone is adept at engagement with the public.

Another concern was the lack of funding for the exploratory work needed, for example, to test the feasibility of ideas before applying for a project grant - work which in the past could be covered by the HEFCE block grant (2000: 445-6). Related to this was the issue of obsolescence: the time taken to prepare, get approvals for, and submit a grant application means there is a danger that the “proposed work has already been done elsewhere by the time the grant is awarded” (2000: 446). (As we will see in Chapter 8, the findings of this thesis will show that this combination of lack of funds for feasibility work and the fear of obsolescence, leads to a strategy on the part of academics that we will call ‘funding in arrears’.)

Other concerns about the effects of external policies on research included that these were resulting in “an increasing polarization between research and teaching” (2000:

447). There was also the feeling of an implicit bias towards the research elite institutions - “the Russell Group ‘*who are aiming at self-perpetuation*’” (2000: 448). But more importantly, perhaps, was a recurring concern about the longer-term impacts (“next generation effects”) of current policies, and that the “focus on payoffs in terms of wealth creation and quality of life leads to short-termism” (2000: 448), something exacerbated by the RAE cycle. Some also felt that pure research would be driven out by applied, but others that “personal commitment would prevail” - that the external influences were not “irresistible” (2000: 448). Morris states that researchers assert this control “by developing long-term strategies through a series of short-term steps” (2000: 448-9), although strangely she does not give much in the way of detail, in this paper at least, as to what these strategies are. In a later paper, which focuses on the role of departments, she reiterates only that “at the individual level most find it perfectly possible to develop strategies to maintain their own research interests while simultaneously bending to the preferences of the funding bodies” (Morris, 2002: 826).

Morris concludes her 2000 paper by noting that it is the (politically-driven) policies of agenda-setting and accountability that “have had the most immediate effect on the content and conduct of research programmes”, but that, on the whole, researchers are “confident of their ability to...preserve...their own values” (2000: 449). She notes that the support of their departments is important in this regard – something she explores in greater detail in her 2002 paper.

In her conclusions (to her 2000 paper), Morris notes that “Policy to increase the public understanding of science has had perhaps the lowest impact” and that it was seen as a “voluntary activity” (2000: 449). This is interesting, because as we will see, to some degree at least, later in this chapter and particularly in the findings from this study, public understanding of science, later refashioned as the ‘impact agenda’, would become one of the policies that would most affect the content and conduct of academic research. Thus, the fear on the part of Morris’ interviewees that this might “develop into yet another outside pressure” would prove to be very prophetic indeed.

In her 2002 paper, ‘***The developing role of departments***’, Morris examines how departments act as intermediaries, defusing the “tensions between researchers’ needs and pressures from external funders” (2002: 817). Departmental strategies and organisation were seen as particularly important for success in the RAE, and departmental administrative support for academics’ research activities more

generally was considered essential (2002: 830-1). An interesting point that Morris makes in this paper is that in some cases departments reinforce “the natural gravitation of scientists towards well-funded fields”, but in others they help counter-act some of the short-termism of external policy trends by “taking a longer view than the funding bodies and protecting vulnerable individuals and unfashionable areas” (2002: 831).

Morris’ 2003 paper, *‘Academic researchers as ‘agents’ of science policy’*, examines the relationship between scientists, funders (specifically the Research Councils), and government policy-makers in more detail, again within the framework of the Principal-Agent (PA) model (Morris, 2003). In particular, it looks at what features “mitigate principal-agent tensions and allow academic ‘agents’ considerable freedom of action” (2003: 359). She shows that applying the PA model in this context is actually quite problematic, as the relationship between the actors is a complex one, with a number of common interests and goals. (In her 2006 paper with Arie Rip they describe the complexity of a research system as “a multi-level social system held together by mutual interdependencies” (Morris & Rip, 2006: 254)). For instance, she notes the role of scientists may be that of advisers to government in their formulation of policy, or to the Research Councils (the intermediaries) as peer reviewers in the allocation of funding; such roles help “increase the agent’s freedom to manoeuvre” (2003: 361). She quotes one research group leader as commenting that whilst the Research Councils’ mission statements may be about “improving the economy of the nation”, nevertheless “because it’s academics reviewing those grants at the moment – then that’s fine” (2003: 363). However, at the same time she notes that assessment panels now include members of industry and other stakeholders, as well as more explicit policy criteria, so academics’ role in this regard is more constrained than it was previously (2003: 363). She gives a little more detail of the strategies that scientists employ in order to counter these constraints; these largely revolve around ensuring that their research programmes or proposals fit (or at least appear to fit) with the aims of the principal, and she notes that only “the research elite...will be exempt from any reorientation of their personal programme” (2003: 367).

Overall then, as in her earlier papers, Morris concludes that scientists can still rely on a relative degree of freedom. For instance, for experienced scientists at least, they “take as the norm a very loose coupling of approved project proposals and work actually carried out”, and employ strategies such as “pooling funds from

several grants...or 'piggy-backing'" (2003: 364-5). Interestingly, one of her interviewees states that "I've always thought that if I keep doing good science ...I will get funding" (2003: 364). Later papers and this thesis will show that this belief would not hold true for many more years – with many interviewees of this study talking instead about the '**lottery**' of funding awards today.

Morris and Rip 2006

Together with co-author Arie Rip, Morris produced a fourth paper on this topic: '**Scientists' coping strategies in an evolving research system: the case of life scientists in the UK**' (Morris & Rip, 2006). It is also based on the same data as the above papers, though they also draw on ethnographic studies of science (for example, the 'Laboratory studies' of Knorr-Cetina, 1995, 1999). As the title suggests, the focus here is on the strategies that scientists employ in order to maintain their core values in the face of external pressures and policy change. The authors claim these strategies are now more proactive, rather than responsive, compared to those observed in studies published in the 1990s. However, they do not present much more detail of strategies at the individual level than that presented in Morris' earlier papers. The 'clusters' of strategies that Morris and Rip present here are those acting more at the collective level. For example, the first of these clusters they discuss is scientists' "strategic use of 'science'" (2006: 257): that scientists present 'Science' "as a power separate from and independent of the institutions of state, of policy-making and of research" (2006: 257), and that they use this "to justify preferred ways of working, to blot out other pressures, or privilege decisions [they make]" (2006: 258). Another cluster of strategies they discuss is the upholding of the peer review system, which reinforces "scientists' confidence in their collective independence and intellectual freedom" (2006: 258). A third cluster of strategies Morris and Rip identify is that of "Plurality of funding" (2006: 259), i.e. that scientists are now careful to diversify their funding sources, and actively look to build relations with a number of different potential sponsors. (They note the increasing role of departments and institutions in this regard in disseminating information about potential funding opportunities.) The authors note that for early career researchers "the multiplicity of principals provides a choice of entry points", allowing academics a means of "buffering the effects of more prescriptive policies and maintaining independence" (2006: 259). We shall see later in this thesis, that today diversifying funding sources has become less a strategic choice on the part of academics and more of a pressure/requirement on them from their institutions, who are fearful of the risk of reduced grant income in the face of intense competition for funds.

The fourth and last cluster of strategies that Morris and Rip discuss is “The re-framing of working with industry” (2006: 260). However, what Morris and Rip seem to present is the fact that scientists have, on the whole, managed to interpret this policy requirement in a largely discretionary way; they suggest that academics have not had to alter to any great degree their existing links or mode of working with industry, adding that “academic entrepreneurship and technology transfer...are still a passion of the few” (2006: 260).

Morris and Rip conclude that researchers (in the life sciences at least) are managing to adapt but without having to transform – that “They have shifted their ideas and practices sufficiently to cooperate with a more intrusive policy regime, but without stepping out of their traditional academic framework” (2006: 260). They appear to draw a positive conclusion regarding the ability of the scientists in their study to maintain their autonomy over their research.

3.3 Academic identity

Henkel 2000

A number of authors in the early 2000s looked at the effects of policy change on academics and their research from the perspective of *identity*. One of the best-known of these is Mary Henkel’s ‘**Academic Identities and Policy Change in Higher Education**’ (2000a), in which she analyses how both policy and structural changes since the 1980s and 1990s have affected the values and identities of academics in UK universities, and eroded the dominance of the discipline in academic identity formation (2000a: 23).

The work was based on a large study, involving 153 interviews carried out between 1994 and 1997, with academics across seven different disciplines at both pre- and post-1992 institutions. Unlike Morris, therefore, Henkel was able to examine differences in the effects of policy on researchers in different fields. For instance, she showed that the effects of external influences on academic research agendas was “more evident in the case of natural scientists...[since] their capacity to control their agendas was more dependent on funding possibilities” (2000a: 188). However, she also noted that in some sub-fields of the natural sciences, for example high energy physics and astrophysics, where researchers work in large international

teams and share high-cost facilities, “establishing...individual control over research agendas was bound to be a secondary consideration” (2000a: 199).

With respect to the social sciences, Henkel noted that they had also been affected by the move, since the 1990s, to more directed funding, and funding aimed at more “team research” (2000a: 192). At the same time, however, she found that most of the social science and humanities researchers in her study were “not dependent upon funding from research councils or other bodies for their research” (2000a: 195). (As this thesis will show, this is something that would soon change due to institutional pressures to bring in external funding.)

With respect to the Research Assessment Exercise, Henkel found that for those working at either the margins or the frontiers of a discipline this presented a difficulty, because “those who did not have strong social capital in the discipline, could perceive themselves as...having to locate their work in the mainstream of the discipline as well as the new field” (2000a: 198). However, in a later paper (see below) she noted that, for some, the RAE was helpful in that it “reinforced the importance of the discipline in academic lives, [albeit] selectively” (2005: 163).

Like Morris, Henkel noted that academics were increasingly preoccupied with funding problems. However, Henkel reported that universities were increasingly expecting academics to enlarge their research grant income and to diversify the sources of that income (2000a: 208), whereas Morris had seen the latter as a proactive strategy on the part of academics. One strategy that Henkel, like Morris, found that academics employed in order to maintain their personal research agendas in the face of increasing external constraints, was that of incorporating the relevant language in their research grant applications “without materially shifting their own agendas”, and that now “Scientists interested in basic research also identified the potential for application in their area of work” (2000a: 204).

In summary, Henkel found that the evidence from her interviews was somewhat ambiguous. Academics felt that they were being forced down certain roads (to increase their grant income, to be successful in the RAE), and could no longer assume control over their own agendas and identity. But, at the same time, they felt that academic values had remained robust, with academics increasingly having to adopt strategies to counter these moves and maintain their autonomy.

Henkel’s later paper, ‘**Academic identity and autonomy in a changing policy environment**’ (2005) - based on a different study, with biological scientists only -

has similar findings. However, in this work she notes that “the degrees of choice and control available to researchers differs widely” and that “the right to research at all is conditional upon funding and upon institutional legitimation as an active researcher” (2005: 171). Furthermore, scientists at a new institution in this study felt that they were forced to shift their research focus (2005: 172). So whilst, as with her 2000 study, she concludes that academic autonomy remains strong, nevertheless “the right of academics to determine their own agendas now must be set against competing rights” (2005: 173).

Clegg 2008

Whilst a number of different authors have added to the literature on academic identity (for example, Harris (2005); Barnett and Di Napoli (2008); and a number of works by Whitchurch, such as (2012), (2013)), we will only very briefly discuss one further work here. Sue Clegg’s paper ‘*Academic identities under threat?*’ (2008) is very different from the studies of Morris and Henkel in that it is based on a small case study in one post-1992 institution. In fact, only one of her interviewees emphasised the priority of his research as opposed to teaching or other roles. However, what is interesting is the division of opinion that she found as to whether the academics felt they had more or less freedom over their activities than those at older universities. One interviewee, for example, felt that there was more freedom at newer universities such as his, where there is less pressure to produce particular types of outputs for the RAE. He felt such pressure “would be absolutely miserable” (2008: 337). However, whilst Clegg notes that “research selectivity is a less significant driver” in some institutions such as this (2008: 341), nevertheless she found that the university “sends out ambiguous messages about what is valued at any particular time”, making it hard for younger academics in particular to know “what is important to achieve recognition and success” (2008: 336).

3.4 Research practices and ‘the research game’

We will now look at a handful of works that examine the effects of policy changes on academic work from the perspective of research practices more generally. Although most of these are based on studies conducted in other countries (Scandinavia, Germany and Australia), nevertheless, as stated above, the research systems in these countries are broadly similar to that of the UK.

Ylijoki 2003

Oili-Helena Ylijoki's paper '*Entangled in academic capitalism? A case-study on changing ideals and practices of university research*' (2003) is based on interviews conducted with senior researchers at three very different university units in Finland: a history department, a Work Research Centre, and a physics lab (surface science and semiconductor technology). She focuses on the effects that increasing market orientation (academic capitalism) has had on these three units. She presents a fascinating portrayal of the tensions between, and difficulties in, balancing academic and market demands, and how these have changed over the lifetime of these three units. In the history department, for instance, interviewees recounted how the increase in externally-funded work meant that the balance between teaching and research staff had altered dramatically, with research staff now outnumbering the teaching staff. Moreover, the way in which they conducted their research had altered substantially too: since funding bodies favoured big projects, the academics now engaged much more in collective, project-oriented research (2003: 314). However, they had managed to find ways to establish such projects, but then continue to work on their own individual research interests – something Ylijoki describes as a “double life of research practice” (2003: 314). And in fact, one of her interviewees stated, “First you have to get money by some kind of trickery and then you can do what you want to...” (2003: 314).

The Work Research Centre was dependent on external funding and so researchers tended to be more accepting of market-orientation. However they were concerned that funding practices were leading to a reduction in their own autonomy over their research – that “market demands are turning out to be increasingly hard and the space for academic orientation is threatening to diminish” (2003: 326).

In the physics ‘SemiLab’ the ethos of market orientation was yet more ingrained - researchers saw this market orientation in a positive light. Their work was mostly externally funded and there was a close collaboration with industry and a focus on product development (2003: 316). However, they appeared to be victims of their own success, with a number of the researchers concerned that the lab now “faces the danger of changing from an academic unit into a commercial product development unit” (2003: 318). For many, this was not an attractive prospect as they feared losing the more academic aspects of their work - the ability to conduct curiosity-driven research, to publish in prestigious journals. So, whilst they appreciated the commercial success of the lab, nevertheless, “achieving recognition

and prestige within the scientific community [was] an important motivational force to continue in their academic careers” (2003: 320). Thus there was a constant tension between the two different value sets of market orientation versus academic science (2003: 321).

Ylijoki shows, therefore, that in each of the three different units funding patterns were having an effect on research practices, albeit to different extents. But common to all three units was the importance of traditional academic norms and values to the researchers (2003: 331), and a fear that short-term project work would have a detrimental effect on the quality and continuity of research (2003: 329). Furthermore, there was a concern about the effects of market criteria on the evaluation of research – that “research is good if it gets funding” (2003: 331).

Kyvik 2007

Svein Kyvik’s chapter *‘Changes in funding university research: Consequences for problem choice and research output of academic staff’* (2007) is based on a mix of R&D statistics and three postal surveys with Norwegian academics conducted in 1982, 1992 and 2001. He identifies four different financial markets at work in higher education systems: an academic financial market (funds distributed by, for example, research councils); a public sector financial market (e.g. funds from government agencies); an industrial financial market; and an EU financial market (2007: 390). He points to the fact that most of the literature on the subject tends “to equate increased external funding and market orientation with non-scientific influence on problem choice and research practice” (2007: 390). However, whilst external funding of university research has undoubtedly increased, Kyvik claims that it is the “academic financial market that has expanded the most” and that in this market “research priorities are made by the academic community itself to a very large extent” (2007: 400).

In addition, Kyvik finds that there is little evidence to support the claims made by a number of other authors that increased external funding and priorities have led to an increase in applied research: his surveys found “only a relatively small decline in the percentage of academic staff who reported that their research was mostly basic” (2007: 406; 408). He notes that, since recognition and prestige are still linked to the quality of research, academics have a strong motivation to combine both applied and basic research (2007: 409). Thus, like Henkel and Ylijoki (to whose studies he

refers), he concludes that academics are managing to maintain their values and uphold scientific norms in the face of external influences.

Laudel 2006

Grit Laudel's paper, '*The art of getting funded: how scientists adapt to their funding conditions*' (2006) is based on a comparative study conducted in Germany and Australia. She focuses on one discipline only, experimental physics, which she chose because of the fact that it is a resource-intensive subject. Her interviews were conducted in 2000 (Germany) and 2002 (Australia). Her study examines the connections between the scientists' funding conditions and the adaptation strategies that they adopt (2006: 489). Unlike the works considered so far in this chapter, Laudel gives much more specific detail on the various strategies that scientists employed, since her aim was "to identify the micro-mechanisms by which scientists adapt to their funding conditions" (2006: 490).

There were considerable differences in the funding situation of the two countries, with senior German professors receiving a much more generous 'start-up' and annual recurrent funding from, or via, their university (for laboratory space, technical staff, research assistants, etc.); they also had a greater number of mainstream funders they could apply to for funding for specific projects than their Australian counterparts. However, in both countries recurrent funding had reduced significantly (2006: 492-3), and so scientists had to apply for external funding in order to maintain their laboratories and equipment and to conduct their research. So, whereas in the past external funding was an option in order to undertake additional projects, now it was an absolute necessity to conduct any research at all (2006: 494).

Laudel found that the strategies scientists applied to their funding predicament fell into two categories: strategies targeting the resource base (funding source) and strategies targeting the content of research (2006: 495). A number of strategies emerged in terms of targeting their funding source:

Targeting 'easy' sources: i.e. weighing up the effort required to submit an application to a particular funder, and also the success rate and the size of grants awarded. So, for example, EU funding was often avoided because of its bureaucratic rules and low success rates.

Targeting all sources: submitting a number of different applications to as many different funding agencies as possible or to different schemes within a funding agency.

Targeting 'appropriate' sources: 'top' German scientists were able to design their research projects first and then look for an appropriate funding agency, as they had a choice of mainstream funders.

Collaborating with overseas partners: Australian scientists could not use any of the above strategies because they were dependent on just the one funding source – the Australian Research Council (ARC). Instead, they had to look for other funding sources such as those abroad, and one strategy was to work with overseas collaborators, making use of their laboratories.

Commercialising research results: this was seen as a possible way of reducing scientists' dependency on funding agencies; although this strategy appeared to have limited success.

'Selling services': A more workable alternative to commercialising results was to do consulting work for industry. This was seen as particularly valuable, since money earned in this way had few, if any, restrictions on how the money could be spent. Laudel reports that this was widespread amongst both the German and Australian scientists (2006: 496).

'Bootlegging': if scientists thought it would be difficult to get funding for a project, for instance to try out new ideas, then they could 'rearrange' money from their other funded projects for this (provided, of course, there was 'slack money' with which to do this) (2006: 496). This is similar to what Morris referred to as 'piggy-backing' (Morris, 2003: 365), and to what participants in this thesis termed as either 'piggy-backing' or 'moonlighting'.

Strategies targeting the research content included:

Selecting externally pre-determined topics: in other words, tailoring their projects to funders' priority areas or directed calls. However, Laudel notes that "topics pre-determined by science policy usually have an applied character" (2006: 496);

Diversifying research: some perceived the need to include additional topics and objectives into their research in order to increase their chances of getting funded (2006: 497).

Avoiding risky research: scientists felt that risky or innovative research proposals were unlikely to be funded, since the funders' expectations included demonstrating the "credibility of a programme by describing previous work conducted on the topic" (2006: 497).

Avoiding 'hot' topics: Laudel reports that some Australian scientists avoided trying to compete in a field in which many international scientists were working. (This is interesting, since participants in this thesis often looked for the 'hot' topics as they felt these were more likely to get funding.) This was partly due to the very slow processing of applications by the ARC, which was their only mainstream source of project funding.

Downsizing projects: both groups of scientists often downsized projects due to the limited funding available (and 'top' scientists preferred to do this rather than alter the content of the research); Australian scientists might also change methods from expensive ones to cheaper ones where this was possible, even if not ideal.

With all the strategies identified, Laudel notes that there were, of course, variations within these. For instance, in adapting to external priorities or defined topics, she found there was a whole spectrum from 'no adaptation', to minor 'window-dressing', to 'strong adaptation' (2006: 497). She notes, however, that none of the 'top' scientists reported having to undertake any 'strong' adaptation (2006: 498).

The difficulties in attaining funding for research, and the adaptation strategies that scientists employed as a result, all had a number of adverse consequences on knowledge production. These included:

Decreasing quality: funding cuts, the downsizing of projects, a reduced variety of methods, the failure to secure funding, and the length of time the grant application process takes, were all felt to have a knock-on effect on the quality of research undertaken (2006: 498); and if scientists adapted to pre-determined topics or shifted from their core research interests, that too had an adverse effect on quality since it might entail a move away from their area of expertise.

Lack of innovative or risky research: the perception that risky research was harder to fund inevitably led to scientists opting for low risk and less innovative research, avoiding things that were "too new" (2006: 499), but this, of course, carries longer-term implications for the progress of science.

Short-termism: Laudel reports that whilst scientists felt that, *in principle*, they could still conduct long-term research – some achieving this by "constructing a patchwork of projects" (2006: 502) – nevertheless, the heavy reliance on external grants undoubtedly hindered long-term research. Furthermore, knowledge transfer was clearly endangered where there was no recurrent funding to bridge the gaps

between two grants (2006: 500), with the inevitable loss of research and technical staff that this resulted in.

Shift to applied research: unlike Kyvik, Laudel found that many of her German interviewees reported that their research had moved from basic to applied. Since the funding policies and conditions that lead to this change are common to the university systems of many countries, this again presents a danger to the longer-term progress and content of science globally.

Thus Laudel not only identifies a whole range of different micro-level strategies that scientists (in the field of experimental physics) employ in order to attain funding in what is now a very difficult resource environment, but she shows a clear causal relationship between these and the different funding conditions that give rise to them. Furthermore, she shows that whilst ‘top’ scientists do perhaps have more choice and can avoid the “worst effects”, nevertheless *all* the scientists are affected by the changes in funding environment – countering the assumption by some that ‘bad’ scientists have to adapt to external funding while the ‘good scientists’ get money without needing to adapt (2006: 491; 503).

Whilst Laudel’s study focused almost entirely on the effects of what, in the UK, is the project funding arm of the dual support system, the next work we will consider focuses almost entirely on the RAE, i.e. the block funding arm of the dual support system.

Lucas 2006

Lisa Lucas’ book, *‘The Research Game in Academic Life’* (2006) is based primarily on a qualitative study conducted in two UK universities (one pre-1992 and one post-1992), and three different departments in each: biology, sociology and English. (She also includes a brief comparison with research systems in Hong Kong, Australia and The Netherlands, but we will focus on her UK findings here.) She conducted her interviews, with both academics and senior managers, between 1997-1999, i.e. just after the 1996 RAE and prior to the 2001 RAE (2006: 4). And, indeed her focus is very much on how the institutions, departments and individual academics fared in the 1996 RAE and the subsequent measures undertaken to improve their performance in the 2001 exercise.

Like Ylijoki, Lucas presents mini profiles of the departments, but also of the individual academics. Using a *Bourdieuian* framework, and particularly his idea of the ‘game’ in social life (see more on this in Chapter 4), she looks at departmental

strategies and 'game-playing' in the run up to the RAE. Indeed, she uses this framework and Bourdieu's tools of '*habitus*', '*capital*' and '*field*' to examine "the competing strategies and struggles [of individual academics] for the accumulation of academic and research capital" (2006: 134).

In each of the departments there was a move, after the 1996 RAE, towards greater and more strategic management of research activity – a marked increase in the monitoring of research, and more pressure both to produce publications in the more prestigious journals and to attain external research grants. And in some cases – particularly the biology departments – attempts by departments to steer or develop research in areas that are both likely to be more highly valued according to the RAE criteria and also more capable of attracting funds (2006: 104). At the individual level most staff resisted such changes, but there were at least some examples of staff changing their research areas due to these pressures and in order to get their research published in the more prestigious journals (2006: 105; 107).

Lucas' study highlights the often conflicting priorities of the RAE versus that of disciplinary norms and what the academics felt was most important in terms of their research. What emerged as a dominant theme was that applied, problem-based research was becoming more valued because of its ability to attract research funding even though a discipline itself might place a greater value on 'pure' or more traditional theoretical work (2006: 115; 117; 152). Lucas also found that there was a growing "expectation that all academics should be applying for and receiving (large) research grants, whether their actual research required it or not" (2006: 132), (whereas, as we saw above, Henkel commented that social sciences and humanities researchers in her study did not feel dependent on funding for their research (Henkel, 2000a: 195)). For those who did require funding, such as the more senior biologists who had research teams and laboratories to maintain, applying for research grants had become a constant activity, and the lack of certainty in securing funding meant they felt an "unrelenting pressure" (2006: 137).

Another major criticism of the RAE criteria was the weight it places on international significance - even though the concept itself was not well defined (2006: 117). For some disciplines or research areas this could be harder to demonstrate or achieve than for others. For example, Lucas notes that in sociology (unlike some sciences, in this case biology), work often has a more national focus, and the most prestigious journals in this field are UK-based, making it harder for these academics to claim that their work is of international significance or quality (2006: 116). But even in

biology this criterion could be problematic, with some of the interviewees lamenting the pressure they felt to attend overseas conferences simply to boost their 'external renown', when actually they felt they would be "more successfully engaged productively in the laboratory" (2006: 105).

The issue that most affected individual academics on a more personal level was their being labelled by their departments as either 'research active' or 'research inactive' (and thus their submission, or not, in the RAE), and the consequences this had on how their work and they themselves were valued, and hence on their career prospects too. It appeared to be much harder for academics in the pre-1992 institution to survive in the department if they were designated as research inactive and not submitted in the RAE (all but one of the academics not included in either the 1996 or 2001 RAE had left the department by 2005) (2006: 148).

Whilst the amount of funding that the pre- and post-1992 institutions received as a result of the RAE evaluation differed considerably, nevertheless their goals and their strategies to improve their evaluations – and thus their position in university league tables – were remarkably similar. However, the post-1992 institution appeared to take a longer-term view – aiming not for significant improvement by the 2001 RAE, but focusing on more incremental improvements and better performance in subsequent assessment exercises. (This longer-term view would explain why, unlike at the pre-1992 institution, staff here were still in the department in 2005, even if they had not been included in the 1996 or 2001 RAEs). Another notable difference was in the degree of collegiality that academics felt in the two different institutions, with – perhaps surprisingly – those at the newer, post-1992 institution feeling more a part of departmental decision-making than their counterparts at the pre-1992 institution. At the latter, departmental research strategies tended to be developed and decided on by a small elite group of senior academics (the 'research stars'). But more interesting, perhaps, is that one of the post-1992 academics commented on the degree of autonomy he felt over his work: "I am driving myself and not being driven" (2006: 139), which is very similar to the findings of Clegg at the post-1992 institution in her study.

Unlike Morris and Kyvik, Lucas does not seem to make any reference to the role of senior academics in the peer review process of the allocation of funding, or on the advisory committees involved with the setting of Research Council priorities. This may be, as noted above, because Lucas' focus is almost entirely on the RAE – i.e.

on the block-funding arm of the dual support system rather than on external, project funding.

Many of Lucas' findings do not appear to be new: she herself notes that earlier works – for instance McNay's 1997 study on the impacts of the 1992 RAE - had already identified many of these emerging trends. However, her study does illustrate the extent to which the criteria of the RAE have come to totally dominate academics' working lives, and in particular the conduct and content of their research.

Spurling 2012

Moving forward a few years now, Nicola Spurling also looks at researchers' strategies to navigate the complex funding and policy environment in her chapter, **'Research Strategies: 'Capital' and the Goods of Social Science Research'** (2012). She too uses (initially at least) a *Bourdieuian* framework of academic capital; however, she adds a fresh perspective to the examination of academics' research strategies (which we'll see below). It is based on only a small study in which she interviewed sociology academics in one pre- and one post-1992 institution. However, like Ylijoki, Lucas and others, by focusing on fewer variables she is able to present a detailed profile of the two different departments.

What is most interesting about Spurling's analysis, though, is that, whereas many of the works reviewed here so far look at academics' adaptations to changing research policies, Spurling attempts to dig deeper than this and uncover "what it is that individuals and institutions are struggling for" (2012: 87). She shows that sociology, in practice, is not a coherent or unified disciplinary culture as some authors (in particular, for example, Becher and Trowler (2001)) have maintained most disciplines are (2012: 79; 89). Instead, she illustrates how the everyday activities of the sociologists in her study were "highly situated" (2012: 89) depending on the 'role array' (a concept she attributes to Archer (2000)) available in different departments (2012: 82).

Thus individuals might have different niche roles according to the place of research within their departments, and in turn some departments might have a greater variety of these niche roles than others. In her study, the larger, pre-1992 institution had a greater variety of roles available to researchers, whereas there was less such differentiation at the post-1992 institution. So, for example, in the pre-1992 institution she describes three different niche roles: the first is exemplified by a professor who was very successful at securing research funding for her (university-created)

research centre, but as a result it had become expected of her that she would bring in a continuous flow of funding, which in turn meant she had to spend a large amount of her time writing grant applications with very little time to continue her own research. A second professor in the same department also had a research centre but this was funded by the ESRC, and he was able to focus on “making new contributions to social science knowledge” (2012: 83-84). Thus, whereas the first professor experienced conflicts between her own aspirations and those of the department, the second professor felt little such tension. A third member of the department, a senior lecturer, spent the majority of his time not on applying for grants but on writing books. However, he felt under pressure to finish his latest book in a rush to meet departmental deadlines. Spurling shows that this academic’s departmental ‘niche’ is not one of bringing in funding but instead one of contributing to the RAE outputs (and thus the ‘retrospective’ research funding that this in turn brings) (2012: 84). Spurling surmises that this variety of different niche roles is possible because it is a large department whose economic and research capital are both high and which has a research strategy that has “multiple objectives...[and] is concerned with both retrospective and prospective funding” (2012: 84-85).

At the post-1992 institution, on the other hand, this role array of research niches was barely discernible since the academics had very little, if any, time or resources for research - research was “peripheral to teaching and administrative duties” (2012: 85), similar to the findings of Clegg (2008). One reader in the department had switched his research area to one that was both cheaper and easier to access, due to these financial and time constraints. At the same time, however, Spurling found – as did Clegg and Lucas – that at the post-1992 institution academics appear to have freedom with regards to their research interests, “as long as it does not interfere with their everyday work” (2012: 86).

Whilst Spurling makes considerable reference to the accumulation of economic and symbolic capital (citing Bourdieu (1986)), she finds that many of the dilemmas that academics faced in their everyday practices could not actually be understood in terms of the accumulation of capital (2012: 79). Instead, she draws on “McIntyre’s (1981) distinction between internal and external goods” in order to understand “what it is that individuals are seeking when it comes to research work, and why this can be in tension with departmental and institutional aims” (2012: 87). Activities can produce both internal goods (ones that are unique to the practice and allow the learning and development of complex skills), and external goods, such as fame,

prestige and money (2012: 87). Thus, in the case of the first professor at the large pre-1992 institution who was successful at bringing in research funding, whilst “she had achieved many of the ‘external goods’ of academic work”, she was nevertheless frustrated at the lack of time to develop internal goods (2012: 88). Spurling notes that dilemmas such as these pervaded both her case study sites. She concludes that academics are not just concerned with accumulating research capital (funding, journal articles, etc.), but “are committed to ‘goods’ that are internal to the practice of social science research, such as developing knowledge and new ideas” (2012: 88). One could, however, argue that this is simply another form of research capital.

In summary, Spurling found there was a great variety in the everyday research practices of the sociologists she interviewed, and concludes that it is the particular departmental or institutional culture and strategies, rather than the discipline, that shapes the research that the academics can do (Spurling, 2012: 89). Although the theoretical viewpoint is very different, in many ways this echoes the findings of Morris’s 2002 paper ‘*The developing role of departments*’, briefly discussed above, in which she shows how departments act as intermediaries between the external pressures and the individual researcher. In Spurling’s work, however, she also highlights how the departmental strategies (in the pre-1992 university at least) can themselves put pressure on staff to fulfil certain roles.

Leathwood and Read, 2012

Carole Leathwood and Barbara Read’s report ‘*Assessing the impact of developments in research policy for research on higher education: An exploratory study*’ (2012) is based on interviews with a large number of academics, across a broad range of both pre- and post-1992 universities, but in the field of higher education research only. The views and concerns expressed by interviewees are largely similar to those already identified in the studies reviewed so far in this chapter. In fact, the authors themselves note that many of their findings reflect earlier work, such as Lucas (2006), on the RAE. However, their study helps emphasise some key points, and also we now begin to see discussion of the impact agenda as part of the research assessment criteria.

Not surprisingly, Leathwood and Read found that in most universities internal strategies and developments were clearly influenced by a combination of factors: the upcoming REF, increased selectivity and further concentration of research funding, and the importance of gaining external research grants (2012: 9). Whilst

there were one or two perceived positive effects of these things (such as increased departmental or institutional support for research), the vast majority of interviewees felt that policy changes and the “pressures placed on academics ‘to perform’” (2012: 14) were having a negative impact on their research and on research in general (2012: 9).

Whilst many academics did not disagree with the government’s focus on “high quality, ‘excellent’ research” (2012: 9), the definition of the latter was problematic and there were concerns, too, over who decides what that is. In particular, many questioned whether such policies were leading to the exclusion of certain kinds of research. For instance, one interviewee noted that “qualitative research journals are rarely ranked above a 2”; and similarly, as Lucas (2006) found, many were concerned about the emphasis on ‘internationally excellent’ research and the lack of perceived value, as a consequence, of research that in fact “has genuine impact on research participants and services users” (2012: 10).

Concerns were also expressed about the move by some funders to funding larger grants, since this too could disadvantage education research, and social sciences more generally, where research projects tended to be smaller (2012: 10). (This is an interesting contrast with the feeling of the experimental physicists in Laudel’s studies that research grants are tending to get smaller.) Others took issue with the distorting effect of the REF due to its focus on particular journals or research themes (2012: 11). And again, as with earlier studies, there was a concern about the longer-term effects of policies resulting from the difficulty of obtaining funding for riskier, innovative or inter-disciplinary research.

As noted above, some felt that there were support mechanisms in place to help academics meet the relevant criteria; however, others noted that this support could easily “tip over into pressure, surveillance and/or threats (e.g. to be put onto a teaching-only contract)” (2012: 14). Many felt that support was only directed at those already doing well, leading to divisions between the research ‘stars’ and the ‘rank and file’ (2012: 17). And, like Lucas, Leathwood and Read also found that it was in the pre-1992 universities where pressures related to research assessment were most strongly felt (2012: 15).

An increase in workloads and the consequent squeezing out of research time was another theme – common to earlier studies - that emerged, with a number of the academics reporting that research time had been greatly reduced over the previous

few years. Overall the workloads, pressures and the perceived distortion in what is valued were leading some to question whether or not they would remain in academia (2012: 18). As one interviewee lamented: “research is purely an income stream to the university...I don’t feel that there is much interest in the actual research anymore” (2012: 12).

Unlike studies from the early 2000s, Leathwood and Read were able to ask interviewees their views on the impact agenda. Surprisingly, however, they present very little discussion of this in their paper. Most participants agreed that research should have an impact – in fact the authors note that this received more support from their interviewees than any of the other main policy developments. However, as with other research assessment criteria, there were deep concerns as to how this was defined or conceptualised and the adverse effects that it has in terms of what is valued (2012: 11; 18).

In the next section we will look at a number of papers that specifically focus on the effects of the impact agenda on academic research.

3.5 Impact: a new kind of capital

There is an as yet small but slowly growing body of literature looking at the effects of the impact agenda on academic researchers - the difficulties in capturing and evidencing impact, as well as the bigger, ideological questions it raises. Here we will look at a couple of papers that serve to illustrate the issues as they affect individual academics’ research.

Colley 2014

Much of Helen Colley’s paper *‘What (a) to do about ‘impact’: a Bourdieusian critique’* (2014) concerns what was an ongoing debate within the field of educational research as to whether or not researchers in this field are “too inward looking” and too resistant to the demand for impact; the president of the British Educational Research Association¹⁰ had warned that their work was often “not accessible enough to generate influence with policy-makers, the media and the general public” and that researchers should do more “to ensure that [their] research

¹⁰ John Gardner 2010 presidential address to BERA (published 2011)

'chimes' with the reasonable expectations and aspirations of the audience" (2014: 661).

Colley believes that thinking about impact can be a means to prevent academics' research becoming too inward looking, and that many social science researchers would, in any case, aspire to "ideals of bridging the theory-practice, academic-applied divide" (2014: 664). Yet, based on a case study of a project she led, she shows that impact can, in fact, be particularly problematic when it comes to "research that is critical of government and other powerful stakeholders" (2014: 663). In cases such as this, where research findings are rejected by policy-makers, it is then very difficult to demonstrate impact, since "the REF 'impact' assessment criteria still largely assume that such 'impact' will result in *changes* to policy" (2014: 666).

Citing Francis (2010, 2011), Colley also notes the additional, pragmatic, difficulties of trying to engage with policy-makers or other stakeholders: that there is limited time available for such activities, especially in the face of other (REF) criteria, namely the need "to prioritise the publication of erudite, and therefore less accessible, papers in high-ranking peer-reviewed journals" (Colley, 2014: 665). Colley also cites Parker and Teijlingen (2012) who, whilst agreeing that applied social work should lead to societal benefits, nevertheless agree that there are considerable difficulties: that demonstrating impact is "time-consuming, costly and possibly impractical" (Colley, 2014: 666). However, their main concern was that "theoretical and philosophical research...are placed under threat by the 'impact' agenda" (*ibid.*: 666).

Like Lucas and Spurling, Colley uses Bourdieu's concepts and theory of practice, and in particular his concept of '*illusio*' (something we will discuss further in chapter 4), as a means to understand the effects of the impact agenda on the field of research. Whilst actors within a field "use their capital and strategies to make moves" (2014: 669), *illusio* is their "investment in the game" (Bourdieu & Adamson, 1990: 195). Colley refers to the different capitals (the objects of value) that may be at stake in the game – social, cultural and economic - but adds that in addition to these, there may also be "an investment in 'hidden, non-material profits', such as values and broader social purposes" (2014: 670, citing Wacquant, 1992). These 'hidden profits', in the form of values, would appear to be very similar to McIntyre's "internal goods" that Spurling refers to.

Colley discusses how changes in a field can lead to a change in what is valued, and this in turn can result in what Bourdieu referred to as *hysteresis*, a lack of fit between habitus and the stakes in the field (2014: 670). Colley uses the concepts of *illusio* and *hysteresis* to understand the dilemma faced by academics in this situation: they can “embrace the change” in stakes and what is valued, i.e. “play the game”; but to many this will not be acceptable: “*Habitus*, and by association *illusio*, are durable, not least because they are deeply embodied” (2014: 675).

Colley cites Golsorki *et al.* that *illusio* can help explain “how dominant actors can regulate and control a field” (Golsorkhi *et al.* 2009, cited in Colley, 2014: 668). In this context, that of the impact agenda (within the field of research assessment), Colley presumably sees the ‘dominant actors’ as being the policy-makers or other external stakeholders, who play a role in both how (or not) research may be taken up into policy and also in how impact is assessed by REF panels.

Whilst Colley’s paper is based on only one project, it illustrates the difficulties she claims is faced by educational researchers (and no doubt other applied social science researchers, too), whose research may not ‘chime’ with the audience it is aimed at, when assessment criteria use ‘impact’ as an indicator of quality (2014: 673). Academics face a loss of autonomy when REF panels assessing impact may include stakeholders for whom research findings may be unpalatable. Colley warns that “this knowledge...is likely to influence universities’ future decisions about what research will be supported and presented as ‘impactful’” (2014: 674). She ends by calling for researchers to “resist being co-opted by narrow research agendas driven by a narrow definition of ‘impact’” (2014: 677) if they wish to maintain their academic freedom and uphold their internal values.

Smith 2010

We will make a very brief mention of a paper by Katherine Smith: ‘**Research, policy and funding - academic treadmills and the squeeze on intellectual spaces**’ (2010). This was based on a study of researchers in the field of Health Inequalities research (which covers a number of disciplines) in which she focuses on the relationship between research and policy. Her findings suggest “that the growing pressure to produce ‘policy relevant’ research is diminishing the capacity of academia to provide a space in which innovative and transformative ideas can be developed” (2010: 176). In the face of increased pressure to secure research funding, researchers in her study were conscious of a need to “[maintain] credibility

amongst potential funders”, with the result that some reported “framing their findings in ways which presented less of a policy challenge than they believed was warranted” (2010: 184). This echoes the debate instituted by Gardner, discussed by Colley above, as to whether or not academics’ research should ‘chime’ with its audience.

Watermeyer 2014

Richard Watermeyer’s *Issues in the articulation of ‘impact’: the responses of UK academics to ‘impact’ as a new measure of research assessment* (2014) is based on interviews conducted with researchers in a number of social science research centres attached to a multi-disciplinary social science department at one research-intensive institution. The paper focuses on the considerable difficulties faced by academics in trying to capture impact, as a result of the “disjuncture between an impact discourse mobilised by research funders/regulators and the daily practice of academics” (2014: 359). These difficulties include: the significant time commitment required; administrative/infrastructure support (for instance the need for media and communications specialists); the particular skillsets required (a “hybrid identity” even), for example, for negotiating with policy-makers or other stakeholders, or for being “sensitive to the needs and workings of government”; an established reputation; and a “propensity to dovetail research with government priorities” (2014: 369-373).

Of course, not everyone possesses these particular skills or has the necessary support, and - as Morris (2000) also noted - it would be futile to force those without the relevant skills to do this. And for many it remains very difficult for them to shift away from their traditional focus on publication in high impact journals as the key indicator of the excellence of their work; furthermore, work entailed in engaging with policy-makers was not felt to have the “prestige or esteem-factor attributed to research council funding” (2014: 365). Watermeyer highlights the particular difficulty for early career researchers who do not yet have the reputation or status to gain traction with policy-makers, and in any case whose career prospects are still more safely served by accruing publications in peer reviewed journals (2014: 370-1).

As with other studies discussed above (Leathwood and Read, 2012; Colley, 2014), Watermeyer notes the positive aspects of the impact agenda - that it encourages academics to be more reflexive and outward looking; that impact need only be viewed as “a new type of academic capital” (2014: 361). However, the difficulties

stem from the somewhat vague or obtuse definition/evaluation criteria used by the REF. And another problem with funders' framing of impact was in their conception of it as a linear "pathway" from research producer to end user, when in fact it is much more like a complex network with a "myriad trajectories and tributaries of impact" (2014: 371). This complexity makes it very hard to capture, evidence and articulate. Worryingly – perhaps in order to optimise impact as capital – some academics were open about the fact that they deliberately chose not to engage in work that would have only national, regional or local significance (regardless of how important that work might be), due to the REF's focus on international reach/impact as a signifier of excellence.

There are no examples in Watermeyer's study of the difficulties encountered by Colley when research findings are rejected by the relevant stakeholders; however, a number of respondents warned of the danger that "too integrated a relationship between academe and government could undermine the critical and objective propensity of researchers" (2014: 365), similar to the concerns of both Smith (2010) and Colley (2014) above. Some felt there was a need for "a hybrid model of research/consultancy where the needs and focus of both academic and government sectors are met" (2014: 366), (something which fits the description of Mode 2 research, in fact).

Although his study only focused on social science research, Watermeyer notes that it is clearly easier for those in *applied* social sciences to generate and demonstrate impact, compared to those "whose work is less applied, more theoretical or blue skies in nature" (2014: 364). And as his study was only conducted in a research-intensive institution there is, of course, no comparison either with those at newer or smaller institutions. Some of those who were successful at demonstrating the impact of their work were critical of others who they felt undertook impact "as an afterthought", tweaking their work to "play the impact card", making impact merely "something engineered to satisfy the demands of regulators/funders" (2014: 367).

3.6 Summary

This chapter has reviewed a number of works which look at the effects of recent funding policy trends on academic research. There are undoubtedly many other works worthy of mention on this subject, but limitations of space inevitably mean

making choices, and without doubt there is a degree of subjectivity in the choices made. However, the works reviewed cover a variety of theoretical and conceptual perspectives: Principal-Agent theory, academic identity, some that use a *Bourdieuian* framework, and others where the theoretical framework is perhaps less explicit.

Some of the studies reviewed have focused on particular disciplines – for instance Morris (2000, 2002, 2003) and Laudel (2006) have both focused on disciplines which are very resource intensive (biological sciences and experimental physics, respectively); some have focused on a mix of disciplines, such as the large studies by Henkel (2000) and Lucas (2006); whilst others, have focused more on the social sciences (Spurling, 2012; Leathwood and Read, 2012), particularly those looking at the effects of the impact agenda (Colley, 2014; Watermeyer, 2014). Some are specific to the UK, whereas others were based on work conducted in other European countries or Australia, but nonetheless countries with not too dissimilar research systems. Whilst most of the studies looked at the effects of funding policies in general, one or two of them focused primarily either on the effects of research assessment (and thus the block grant arm of the dual support system) – notably Lucas, 2006) - or on the project funding arm of the dual support system, such as Laudel, 2006. Taken together these studies provide a detailed picture of the effects of recent policy change on academic research, highlighting the largely unintended consequences of research funding and assessment.

The chapter has followed a largely chronological order. As such, we can see that the majority of the works published in the early 2000s all concur that, whilst research policies are constraining the degree of autonomy that academics have over their research agendas, academics have on the whole managed to find ways to negotiate a way through these and uphold their values and control of their personal research agendas. But there is a clear sense, as we move forward to the middle of the 2000s and beyond, that there is increasing evidence that funding policies are starting to effect what research is conducted and how. For instance, even though the empirical work for Laudel's study was conducted only a couple of years later than that of the earlier studies, nevertheless her findings appear to demonstrate a quite discernible reduction in the autonomy and control that researchers have over their research, and thus their strategies to offset this appear more explicit and detailed. This could partly be due to the different national higher education systems in her study (Australia and Germany rather than UK), or to the field of experimental physics; but

the chapter as a whole indicates that it is part of a general trend resulting from both greater control and steerage by external stakeholders and also the increasingly intense competition for research funding.

Many of the issues highlighted by the studies reviewed in this chapter were also featured in the discussions with participants in this study. As we will see from the findings (Chapters 6, 7 and 8) and discussion (Chapter 9), this thesis provides a level of detail similar to that of Laudel's study, but across a broad mix of disciplines and across different institution types in England. The empirical work was undertaken in the late 2000s, in the run-up to the first Research Excellence Framework, which included the assessment of impact for the first time – and, as we will see, the effects of the impact agenda were certainly a key concern of academics in this study. This thesis also considered equally the effects of policies relating to both arms of the dual support system.

In Chapter 5 we will look in more detail at the sampling and methodology used in this thesis. First, however, we will discuss the conceptual framework employed here, which, like Lucas, Spurling and Colley, is based on Bourdieu's 'thinking tools' and theory of practice.

Chapter 4

A Bourdieusian perspective

4.1 Introduction

Whilst this thesis started as an inductive study, nevertheless, as even most grounded theorists would agree, no researcher can collect or analyse their data from a completely neutral theoretical or conceptual standpoint. Bourdieu liked to use Kant's famous dictum: "theory without empirical research is empty, empirical research without theory is blind" (Pierre Bourdieu, 1988: 774). As his collaborator, Loïc Wacquant (1992), put it "Bourdieu advocates the fusion of theoretical construction and practical research operations" (Colley, 2014: 668). Bourdieu himself did not like to be labelled as an advocate of any one particular theoretical approach, claiming that "one of the obstacles to the progress of research is this classificatory mode of functioningmaking it impossible to surpass false antinomies and false divisions" (Bourdieu & Adamson, 1990: 28). His success in avoiding being labelled is, perhaps paradoxically, illustrated by the fact that, as Harker *et al.* have noted, Bourdieu "has been authoritatively placed in all major theoretical traditions" (Harker, Mahar, & Wilkes, 1990: 213).

Bourdieu developed a range of concepts, in all of which he attempted to encompass both structure and agency, and which could be applied in almost any social space or field of activity. A number of authors, including Lucas and Colley, some of whose work we considered in the previous chapter, have applied a *Bourdieuian* framework in examining aspects of the UK higher education system. Bourdieu's own work spanned a great variety of different fields. His study of the field of higher education was presented most notably in his 1984 book '*Homo Academicus*', based on his in-

depth study of the French university system in the 1960s, and also in his *Science of Science and Reflexivity* (2001).

This chapter presents a necessarily brief overview of Bourdieu's key concepts, but sufficient to demonstrate why they form an appropriate framework against which to situate the subjective accounts of the academic participants in this study. As well as the better known concepts of *habitus*, *field* and *capital*, we will see that his lesser-known concepts of *illusio* and *hysteresis* are of particular relevance to this study. Overall, however, the central tenet of Bourdieu's sociological perspective that makes his work a fitting framework for a study such as this is, as Jenkins has noted, his "concern with the relationship between 'subjective hopes' and 'objective chances'" (Jenkins, 1992: 27).

4.2 Bourdieu's concepts and theory of practice

For Bourdieu the three concepts of *habitus*, *capital* and *field* are crucial to understanding the practices of any actors within a given social space (Maton, 2012: 51). These concepts constituted his 'philosophy of action', or 'theory of practice', and formed a methodological 'toolkit' that he applied across a range of different social contexts. As we saw in Chapter 3, Lucas used Bourdieu's 'thinking tools' as a framework in her 2006 book *The Research Game in Academic Life*, because they provided "a useful lens through which we can better understand the modern university system, organization and cultures within universities and the construction of academic status and identity" (Lucas, 2006: 54). Certainly it is pertinent that Bourdieu had studied the fields of education and higher education in such depth – among the many, varied, sociological and political domains he engaged with. (At the same time, however, we should note Lane's caution that it is important to understand the specificity of the French higher education system in the 1960s in order to understand how Bourdieu's concepts might have to be modified when applying them to our own higher education system and historical context (Lane, 2000: 9)).

Bourdieu viewed the three concepts of *habitus*, *capital* and *field* as an "inter-dependent and co-constructed trio...with none of them primary, dominant or causal" (Thomson, 2012: 67). Maton notes how Bourdieu (1986) viewed the relationship between the concepts in the form of an equation:

[(habitus) (capital)] + field = practice

which Maton explains as “one’s practice results from relations between one’s dispositions (habitus) and one’s position in the field (capital), within the current state of play of that social arena (field)” (Maton, 2012: 50). For Bourdieu, his philosophy of action was “condensed in a small number of fundamental concepts – habitus, field and capital – and its cornerstone is the two-way relationship between objective structures (those of social fields) and incorporated structures (those of the habitus)” (Bourdieu, 1998: vii).

We shall look at each of these concepts in turn, as well as Bourdieu’s lesser known concepts of *illusio* and *hysteresis*, before going on to consider the role that all these concepts play at the level of individual action (strategies) as well as in wider social reproduction.

Field

The concept of ‘field’ was very important to Bourdieu “as a framing structure to guide social science research” (Grenfell, 2012: 212), and as “a model for thinking about ongoing social pattern” (Jenkins, 1992: 19). Bourdieu, as Jenkins understands it, defines field as “a structured system of social positions - occupied either by individuals or institutions - the nature of which defines the situation for their occupants. It is also a system of forces which exist between these positions” (Jenkins, 1992: 85). Thus it encompasses structure as well as agency.

Furthermore, Bourdieu emphasised that fields needed to be analysed and understood ‘relationally’, that is “seeing all social phenomena in relation to their location in a given field and in relation to others in the field” (Rawolle & Lingard, 2013: 117). Colley notes that, for Bourdieu, fields “are typically characterised by a high degree of autonomy”, but (citing Deer, 2003) that “the field of higher education in the UK...has suffered a constant erosion of its autonomy in recent decades” (Colley, 2014: 673). This is important because, as Brew and Lucas have noted, “Academic autonomy...is critically related to how power issues are played out in academic settings” (Brew & Lucas, 2009: 8).

Bourdieu often made analogies between the functioning of a field and that of a game. For Bourdieu, the key characteristic of any field is that it is a site of struggle, in which “At stake in the field is the accumulation of *capitals*” (Thomson, 2012: 67). Lucas explains it as: “In each social field, agents struggle to accumulate [and

maximise] forms of 'symbolic capital'", and this symbolic capital "determines what is deemed important in any given social field" (Lucas, 2006: 58).

In summary, the field is the social space within which individuals act; and, for Bourdieu, this space is an integral part of understanding an individual's *habitus*.

Habitus

Bourdieu was interested in the 'genesis of dispositions' (in the individual) – claiming that he was "trying to develop a *genetic structuralism* [because] the analysis of objective structures – those of different fields - is inseparable from the analysis of the genesis, within biological individuals, of the mental structures which are to some extent the product of the incorporation of social structures" (Bourdieu & Adamson, 1990: 14). To this end he developed his concept of *habitus*. Of course, he was not the first to use this term – noting himself that it had been used by other authors before him, such as Hegel, Weber and others, albeit not in quite the same way (*ibid.*, 12)

Bourdieu describes his conception of habitus as "a system of acquired dispositions functioning on the practical level as categories of perception and assessment" (Bourdieu & Adamson, 1990: 13). It also results from interactions with others in the field and the field itself; as Jenkins shows, "the habitus only exists in, through and because of the practices of actors and their interaction with each other and with the rest of their environment" (Jenkins, 1992: 75). And to this we can add Harker's description of habitus as the way a culture is embodied in an individual (Harker, 1984: 118). Little wonder, then, that Reay describes habitus as a "multi-layered concept", a "compilation of collective and individual trajectories", and "a complex interplay between past and present" (Reay, 2004: 434).

Like field, habitus encompasses both structure as well as agency. However, Bourdieu primarily conceived of habitus as an instrument of agency, and argued against those who claimed it embodied a latent determinism (Reay, 2004: 432). However, Reay notes that for Bourdieu, whilst habitus "predisposes individuals towards certain ways of behaving", at the same time, it generates "a wide repertoire of possible actions, simultaneously enabling the individual to draw on transformative and constraining courses of action" (*ibid.*: 433) adding that, implicit within the concept of habitus, is a sense that it "operates at an unconscious level unless individuals confront events that cause self-questioning" (*ibid.*: 437). Indeed, it is widely accepted that habitus encompasses both structure and agency, the objective

as well as subjective aspects of human experience (Colley, 2014: 669). And Harker describes Bourdieu's use of habitus as a "mediating concept...between objective structures and practice" (Harker, 1984: 119), which can be minimally presented as:



Figure 4.1 Minimal Bourdieu model (reproduced from Harker 1984, p.119)

However, it should be added that Bourdieu did not see habitus as the only principle of production practices; he acknowledged that "it may be superseded under certain circumstances...by other principles, such as rational and conscious computation" (Bourdieu & Adamson, 1990: 108).

Capital

Whereas the term capital is more usually associated with an economic connotation, Bourdieu's use of the term is much broader: he aims "to extend the sense of the term...by employing it in a wider system of exchanges whereby assets of different kinds [be they cultural, social, scientific, etc.] are transformed and exchanged within complex networks or circuits within and across different fields" (Moore, 2012: 99). The goods, or capital, within any field can be categorised into four types. Jenkins lists these as: "economic capital, social capital (various kinds of valued relations with significant others), cultural capital (primarily legitimate knowledge of one kind or another), and symbolic capital (prestige and social honour)" (Jenkins, 1992: 85).

Lucas notes the distinction that Bourdieu makes between academic capital and scientific capital (though for the latter she uses the term research capital). She claims that Bourdieu would define academic capital as including "all the necessary roles and status involved in the reproduction of the higher education system" (Lucas, 2006: 71-2); whereas scientific capital is defined, by Bourdieu, as "a particular kind of symbolic capital, a capital based on knowledge and recognition" (Bourdieu, 2004: 34), including "rewards assigned through peer review (reputation, prizes, tenure, membership in societies, etc.) rather than transacted according to the logic of the market" (*ibid.*: 52).

Blackmore notes that the term capital can be both useful but also somewhat problematic: he describes how the elasticity of the term is useful, since “Almost anything can be labelled capital, if the term refers to something which is relatively scarce, or at least not possessed in great quantity by all, and which has a value of some kind”, but that at the same time “it is not always easy to estimate the presence or possession of capitals that are not material” (Blackmore, 2016a: 25), since the various forms of capital “may range from the highly tangible, such as respected academic outputs or the achievement of grants from prestigious funding bodies, to the more nebulous, such as the cultural capital of the membership of a network” (*ibid.*: 21). And, indeed, this difficulty has proved to be at the heart of many of the discussions surrounding the ‘impact agenda’.

The accumulation of capital confers prestige on an individual, and Bourdieu shows that this gives an individual the power that “defines their position in the field and, as a result, their strategies” (Thomson, 2012: 72, citing Bourdieu, 1998). And it is relevant to this study to note that in *Homo Academicus*, Bourdieu observed that accumulation of capital takes time and is thus often closely linked with age (Bourdieu, 1988: 87).

Illusio and hysteresis

Colley describes the concept of *illusio* as a “pivotal concept in Bourdieu’s later work” and “the primary way in which he expresses the interaction of habitus and field” (Colley, 2014: 668-9); however, she notes that it has been much neglected compared to his concepts of habitus, field and capital. And, indeed, it is true that very few of the great number of books and papers on the work of Pierre Bourdieu give much if any consideration to this concept. Yet Lucas, too, describes the concept of *illusio* as being critical to understanding the relationship between habitus and practice (Lucas, 2006: 63).

Bourdieu himself defines *illusio* as an “investment in the game” (Bourdieu & Adamson, 1990: 195)¹¹, and he believed that “Every social field...tends to require those entering it to have the relationship to the field that I call *illusio*” (Bourdieu, 1998: 78). Blackmore provides a nice interpretation of what Bourdieu means by the term: “that those who work in a field and become concerned to achieve success in it will increasingly come to believe strongly in the value of what they are striving for

¹¹ Although in *Practical Reason* Bourdieu notes that this interpretation of the term was first used by the Dutch historian Johan Huizinga (1998: 76).

and will try ever harder, whether that belief is recognised consciously or held unconsciously. *Illusio* is that which enables individuals to take a game seriously and give everything that they can to it” (Blackmore, 2016a: 104).

Lucas notes that the “agents involved in the ‘game’ within a social field do not perceive it as a game; they believe in it” and “they have an intense involvement with the rules of the game” (Lucas, 2006: 63), and Colley that “Habitus socialises people to feel their *illusio* simply as acting sensibly” (Colley, 2014: 670). However, Bourdieu went so far as to say that “agents well-adjusted to the game are possessed by the game and doubtless all the more so the better they master it” (Bourdieu, 1998: 79). And even though agents in the field may at times “want to overturn the relations of force within the field, [nevertheless]...they grant recognition to the stakes” (*ibid.*: 78).

Hardy describes how changes in either habitus or field normally take place gradually, “following anticipated pathways...where *habitus* and *field* are well matched” (Hardy, 2012: 127). But sometimes such changes can be abrupt or more foundational, resulting in habitus and field no longer being well-matched. This results in what Bourdieu terms ‘hysteresis’, where the habitus is “lagging behind the times, increasingly out of kilter with the new stakes in the field” (Colley, 2014: 675). Hardy describes the term hysteresis as invaluable in highlighting “the disruption between habitus and field and the consequences of this over time” (Hardy, 2012: 127). She notes Bourdieu’s lengthy discussion of the term and its effects in his *Homo Academicus*, based on his study of the dramatic changes in the French higher education system at the time of the student revolts of 1968 (*ibid.*: 133). Although less dramatic perhaps, Colley, whose paper we discussed in Chapter 3, believes that changes which have taken place in recent times in the management and assessment of higher education research, have resulted in an increasingly bureaucratic system, which in turn has changed the stakes – or objects of interest - in the field. Such changes inevitably have “an effect on the *illusio* of those in that ‘game’, demanding that their commitments shift” (Colley, 2014: 674-5). In the resulting hysteresis, agents must then, presumably, adjust their habitus to the new values, and amend their strategies - either consciously or sub-consciously - if they want to continue to compete ‘in the game’.

4.3 Strategies

As we have seen, for Bourdieu, in any social space or field, agents are vying competitively to maintain or improve their position via the accumulation of capitals, and they employ different strategies to do so (Thomson, 2012: 67). He believed that strategies, rather than rules, governed people's behaviour. As Colley notes, "within the game [field], players use their capital and strategies to make moves, take positions, seek to position others, play to win, and/or play to transform the game and its immanent rules" (Colley, 2014: 669).

Jenkins claims that for Bourdieu, "strategies...are the ongoing result of the interaction between the dispositions of the habitus and the constraints and possibilities which are the reality of any given field" (Jenkins, 1992: 83). And in talking about research strategies, Bourdieu states that the strategies employed depend on the position of the individual researcher within the field, and "within the structure of the distribution of capital" (Bourdieu, 2004: 36).

Lucas notes that "Bourdieu is at pains to emphasize that these strategies or practices should not be interpreted as a cynical calculation of ends and means. The strategies are more an unconscious attempt to realize one's potential in the academic field than a form of rational or conscious decision making" (Lucas, 2006: 63). Thus Bourdieu's use of the term strategy is somewhat different to the normal meaning of the term. Instead, it is in keeping with his "depiction of practice as an improvisatory performance" (Jenkins, 1992: 71), whilst recognising that individuals do, nevertheless, have goals and interests which govern their strategies.

4.4 Reproduction

Ideas of social reproduction and the role of prestige in science can be traced back at least to the 1960s, which saw a number of papers on the subject by sociologists of science, most notably Robert Merton - for example his influential paper '*Priorities in Scientific Discovery: A Chapter in the Sociology of Science*' (1957) and his later paper, '*The Matthew Effect in Science*' (1968). Bourdieu's interest in this area originally stemmed from his ethnographic work in Algeria, where he observed that "as an individual rises up the social hierarchy of status and class, so the vista of the realistically attainable deepens and widens, if only in small degree" (Jenkins, 1992:

28), but that in most social fields what is 'realistically attainable' is constrained by dominant actors.

Bourdieu maintained a keen interest in the workings of social reproduction throughout most of his work, and this interest embodied his concerns, as we noted in the introduction to this chapter, with the 'subjective hopes' and 'objective chances' of individuals in society. There are many similarities between Bourdieu's ideas on social reproduction and the work by Merton (1968) and others on the role of the Matthew Effect in science (see, for example, Azoulay *et al.*'s interesting discussion of 'status effects' in their paper '*Matthew: Effect or Fable*' (2014)). In his discussion of the so-called Matthew Effect in education, Lamb states succinctly that "Bourdieu viewed education as the means by which dominant social classes reproduced their culture and influence and sought deliberately to bring to light the usually invisible processes which underlie such social inequalities" (Lamb, 2011: 5). Bourdieu's best-known work on the topic is his book, with Jean-Claude Passeron, '*Reproduction in Education, Society and Culture* (1977). In this work, Bourdieu and Passeron make much reference to 'symbolic violence', which they define as "the imposition of systems of symbolism and meaning (i.e. culture) upon groups or classes in such a way that they are experienced as legitimate" (Jenkins, 1992: 104), and Jenkins adds that "This legitimacy obscures the power relations which permit that imposition to be successful" (*ibid.*: 104). Whilst reproduction occurs in all fields of social life, Bourdieu and Passeron argue that education is often the transmission mechanism by which this occurs: "Pedagogic actions reflect the interests of dominant groups or classes, tending to reproduce the uneven distribution of cultural capital among the groups or classes which inhabit the social space in question, hence reproducing social structure" (Jenkins, 1992: 105). In other words, processes of cultural and social reproduction act to maintain the *status quo* (*ibid.*: 81) in the interests of the dominant groups. And Bourdieu describes a dominant agent as "one who occupies a place within the structure such that the structure works in his favour" (Bourdieu, 2004: 34). Colley's sense of the importance of Bourdieu's concept of *illusio* is key here, also: quoting Golsorkhi *et al.* (2009) she claims that it helps us understand "how dominant actors can regulate and control a field" (Colley, 2014: 668), in her case referring to the role of policy-makers in the field of educational research.

Specifically regarding education, Bourdieu states that "our educational institutions are structured to favour those who already possess cultural capital, defined according to the criteria of the dominant hegemony...schools...treat all children as if

they had equal access to it” (Harker, 1984: 118), when in fact socio-cultural factors mean this is not the case.

Similarly in higher education, where the “core activities of universities focus on social, cultural and symbolic capital” (Blackmore, 2016b: 6), science works on the basis of a ‘reward system’ as first defined by Merton (1957). In his 2004 *Science of Science and Reflexivity*, Bourdieu discussed in some depth both the work of Merton and also the well-known 1967 paper by Cole and Cole ‘*Scientific Output and Recognition: A Study in the Operation of the Reward System in Science*’ which clearly influenced his thinking. Cole and Cole’s paper was based on their study of university physicists, and Bourdieu cited one of their findings that “The reward system [in science] operates in such a way as to encourage the creative scientists to be productive and to divert the energies of the less creative scientists into other channels” (Bourdieu, 2004: 11, citing Cole and Cole, 1967).

4.5 Summary

This brief overview of Bourdieu’s concepts and theory of practice has hopefully served to illustrate how they form a fitting framework for the current study. After the presentation of the study’s findings in Chapters 6, 7 and 8, Chapter 9 will then include a discussion of how the findings fit with, or differ from, this *Bourdieuian* framework. First, however, Chapter 5 will set out the methodology used in this study.

Chapter 5

Methodology

“sampling ought to be conducted so as to maximize the possibility of finding what you hadn’t even thought to look for.”

(Becker, 1998: 164)

5.1 Introduction

The aim at the outset of this study was to examine the effects of funding policies on the research that academics do – that is, on their freedom to choose what lines of enquiry they follow and the way in which they conduct their research. It also aimed to look at the strategies that academic researchers employ in order to strike a balance between their research aspirations and the research more likely to win funding, given the pressures on academics at most institutions to bring in external grant income. As described in Chapter 1, this research objective stemmed from ethnographic-type observations in my own workplace, rather than from a review of the literature and identification of a particular theory or hypothesis to test. Since these observations took place within, and were thus limited to, one particular research centre, one aim of the study was to extend these observations both to other universities and to other fields of research, so as to compare and contrast the findings across a number of variables. (The implications of my position as a ‘partial insider’ will be discussed in §5.5 below.)

As there was no explicit theory or hypothesis to test at the outset, an inductive approach was taken. Data collection and initial analysis were conducted in an iterative fashion - seeing what emerged from the data and reviewing interview questions where necessary (see §5.2 below). Whilst an initial literature review was conducted early on in the study, this was largely for the purpose of scoping the research and checking what other work has been conducted in this area. A more in-depth, and targeted, literature review (as presented in Chapter 3) was conducted

later on in the study once a significant amount of data analysis had been undertaken and a clearer picture of the findings had emerged.

5.2 Data collection: interviews

A qualitative approach was felt to be appropriate for this study since the aim was to gain an in-depth understanding of what effects funding policies have at the micro-level of the individual academic researcher. One-to-one interviews were felt to be the most appropriate means of gathering this data, allowing the author to build up a narrative picture, and a sense of voice, from each respondent. Interviews were semi-structured and open to whatever issues respondents highlighted as being important. Inevitably responses would be subjective, but it was precisely these subjective perceptions that the study aimed to examine.

The aim was to interview academics across a number of different disciplines (from across the natural sciences, social sciences and the humanities), institution types (both research-intensive and those more teaching- or vocationally-oriented), and at different career stages, so as to compare and contrast the narratives – to identify salient issues, commonalities and also differences (see §5.3 below for more detail regarding sampling). The inductive and qualitative approach adopted allowed for both the research process and the interview questions to evolve as new issues arose from the interviews.

Interviews were chosen as the method of data collection, since they allow for the investigation of complex issues in both breadth and depth. As Brown and Dowling have shown, interviews also “facilitate the personal engagement of the researcher in the collection of data, [allowing] the researcher to provide clarification, to probe and to prompt” (Brown & Dowling, 1998: 72).

Data collection was begun early on in the research process, and continued throughout most of the course of the study. The initial interview questions were not derived from the literature review, but arose as a result of the initial observations, over a period of time, in my workplace; these initial questions were then developed as the study progressed. As noted above, the interviews were semi-structured - this allowed for coverage of broadly the same issues, but at the same time permitted interviewees the freedom to both expand on, and digress, from the questions,

raising their own concerns where relevant. Thus, new questions arose as the study progressed.

Nearly all interviews took place in the academic's own office at their institution – as well as being more convenient for the interviewees, this was also expected to be conducive to their feeling more relaxed and able to take their time to answer questions. (There were just three exceptions: two interviews were conducted whilst the respondents were in London, and one interview was conducted by phone as the respondent was at home.) Most of the interviews took between one to one-and-a-half hours. Not surprisingly perhaps, the more experienced academics were usually the ones who expanded at greater length on the questions and also raised additional issues. They were, of course, able to comment on changes that had taken place over time, unlike early career academics. More junior academics were perhaps less *au fait* with institutional and external funding mechanisms and policy issues, but they provided a 'fresh' perspective on the issues discussed. They were usually - though not always - more open to some requirements, such as 'the impact agenda', as they had started their careers with such things already being a part of the research landscape. Interview questions had sometimes to be tweaked to fit the particular academic's context – for example, some questions might not be relevant to the very early career academics (for instance, changes relating to the introduction of full economic costing) or to those in particular disciplines. As discussed above, the interview questions inevitably evolved over time – particularly so during the initial pilot study phase (October 2011-March 2012). They continued to evolve, albeit to a lesser degree, in the light of findings from each interview, which allowed the author to probe the salient issues, and also as the initial data analysis threw up interesting or unexpected findings. (The initial six pilot study interviewees were re-contacted by email and asked to respond to a handful of additional questions that had evolved later and were felt to be important for comparison with the later data.)

For the initial pilot study of six interviews, clearly the number of institutions, career stages and disciplines covered was very limited. They involved academics at four different institutions, all of which were either large or smaller research-intensive universities; they covered five different disciplines, albeit mostly in the natural sciences, and the interviewees were either experienced or mid-career academics (further details are given in §5.3 below). Whilst constituting a limited sample, these interviews provided data with sufficient coverage to allow for an initial (if not in-depth) analysis, the findings of which suggested that the research objective of the

thesis appeared to be both valid and worth pursuing. Following on from this (and successful upgrade from MPhil to PhD), interviews re-commenced in June 2012 and continued until March 2015, employing purposive sampling in parallel with ongoing data analysis. In all, 22 interviews were conducted (see §5.3 below).

Interview questions

Interviews began with questions about the academic's own research – their field of research, whether their work was mostly theoretical or experimental, how much time they were able to devote to research, etc. Questions of key importance – as it would turn out – was whether or not they *needed* funding in order to carry out their research, and whether they felt subject to institutional pressure to apply for funding. They were then asked a number of questions relating to the funding environment and funders' policies - these included questions about the effects of research assessment exercises, and in particular the upcoming Research Excellence Framework¹², the effect of the 'impact agenda', and institutional resource allocation. Regarding external funders' policies, respondents were asked whether they felt funding was increasingly 'directed' or 'prioritised', with less funding available for 'blue skies' research, and whether, for instance, they felt there was an increasing move towards the funding of large consortia rather than funding for individual researchers. Finally, interviewees were asked a few more general, over-arching questions, such as whether they felt they were able to set their own research agenda, and whether there were any particular strategies they use so as to strike a balance between the research that was most important to them and that more likely to attain funding or fit with institutional requirements. A copy of the final interview schedule used is provided in Appendix I.

5.3 Context and sampling

i) Empirical setting

Due to restraints on time and resources, interviews were conducted in universities in England only. This had the benefit that the author did not have to allow for differences in the funding environments in, for example, Scotland or Wales. (Whilst the government funds university research in the devolved nations in a similar way, via the relevant funding council (or, in the case of Northern Ireland, via the

¹² Eighteen of the interviews were conducted prior to the REF2014 submission date of November 2013, and four were conducted after.

Department for Employment and Learning), there are some variations as to how these funding councils then allocate funds to institutions.) However, the study was conducted in different types of institutions – large research-intensive universities, smaller research-intensive universities, and also newer or more teaching-focused universities. So as to categorise the institutions and ensure a reasonable coverage of different types of institution in the study, the HEFCE ‘TRAC Peer Groups’ classification was used. This categorises institutions into six different groups (A to F) depending on their research income as a percentage of total income (with research income defined as the funding council recurrent research grant plus the total research grants and contracts returned in the HESA Finance Statistics Return).¹³ The Peer Group list for 2014-15 is given in Appendix 2. Data collection for this study only took place in institutions in groups A, B, C and D. Group A institutions are mostly Russell Group universities. The group C and D institutions involved in the study were ex-polytechnics that were now, according to the respondents, making moves to try to orient themselves as more research-focused universities. I chose not to conduct interviews in institutions in groups E and F – this was partly due to time and resource limitations, but also because the research/total income for these institutions is so small (and, in fact, group F institutions are specialist music/arts teaching institutions and so would not have been directly comparable). For data analysis, groups C and D were combined. Table 5.1 below (p.100) shows the number of interviewees per institution type.

ii) Sampling and variables

Purposive (non-probability) sampling was used for this study – interviewees were identified so as to cover a range of institution types, disciplines and career stage. Sometimes this was through a ‘snowballing’, opportunistic or word of mouth process - for instance, an interviewee might be asked to suggest peers in the same subject area but in another institution type. Sometimes potential interviewees were selected as a result of having been mentioned or quoted in the higher education press (e.g. *Research Fortnight* or *Times Higher Education*); and others through more purposive internet searches of potential institutions and/or departments. (One dilemma when ‘picking’ participants from institution websites was whether to choose people who seemed to have a large number of grants, or if this was effectively biasing the sample – i.e. that it would lead to choosing only ‘successful’ researchers. This was

¹³ For HEFCE TRAC Guidance see <http://www.hefce.ac.uk/funding/finsustain/trac/>; for HESA HEI income and expenditure details see: <https://www.hesa.ac.uk/data-and-analysis/providers/finances>

hopefully off-set by looking for academics with at least one or two research projects rather than a specific number of grants. However, only a relatively small number of interviewees were recruited for the study in this way.)

Whilst the purposive sampling used allowed for finding participants to ‘fill the gaps’, at the same time, as the study progressed, an open mind and flexibility were maintained so as to follow up any unusual questions or issues that arose (as per the quote from Becker’s *Tricks of the Trade* at the start of this chapter). For instance, in an article in *Research Fortnight*¹⁴ a distinguished professor at a large research-intensive institution, talked about the problems he had encountered during his career as a result of the fact that his specialist area of research included a quite controversial topic. I assumed that this must have also made it difficult to attain funding for this topic, but on contacting the professor he informed me that most funders do not wish to appear to be shying away from funding controversial research, so this had not, in fact, been a problem. Nevertheless, since it was an interesting issue and might throw up some unexpected findings, I went ahead with interviewing this academic as part of my research.

The sampling was an ongoing, cumulative process, with the aim of ultimately having a sufficient number and spread of interviewees so as to be able to compare and contrast the different variables – institution type, discipline, and career stage. It was important to cover a number of different disciplines and specialisms so as to take into account disciplinary differences and, in particular, the different funding profiles for those disciplines – the most obvious difference being between those for whom funding is essential in order to carry out their research (for example, to pay laboratory or large equipment costs), and those who can conduct their research without any funding at all. Interviewees were chosen from across a range of disciplines so that at least one discipline from each of the UK Research Council domains was included. (The one exception to this was that no interviewees were included whose discipline fell within the remit of the Science and Technology Facilities Council (STFC); this is discussed further in §5.5 below). Table 5.2 below (p.100) shows the number of interviewees per Research Council domain.

In some cases, two or more different disciplines from within the domain of one Council were chosen, since each Council spans quite different disciplines, and these may vary considerably in how cash-intensive they are. For example, the Engineering

¹⁴ Since the author of the article is one of the study’s interviewees, for reasons of confidentiality I have not cited the title or date of this article.

and Physical Sciences Research Council (EPSRC) covers both statistics and chemistry, amongst other disciplines, yet much statistics research can be conducted with little or no funding, whereas research in most areas of chemistry would be impossible without large amounts of funding to support laboratory staff, supplies and equipment. In addition, due to the initial 'snowball' sampling, there were clusters of interviewees in a couple of disciplines (four interviewees in statistics and four in chemistry). However this did allow for a greater focus on, and comparison of, the other variables – career stage and institution type - in these disciplines.

In some cases, the research of any one academic may span the remit of more than one Research Council: for example those working in life sciences might apply to either the MRC or BBSRC depending on the focus of the particular project; similarly, the research of a statistics academic might fall within the remit of almost any Research Council depending on the object of their analysis and whether they are collaborating with others in other disciplines. However, for the purposes of the study the respondents were categorised under which Council they saw as their main funder. (Of course, for some academics other sources of funding – such as the EU, Wellcome Trust, other charities, etc. - might be as important a source of funding for their research as the Research Councils, but it was felt that using Research Council domains was an acceptable way of ensuring that a good spread of different disciplines – and their relevant funding profiles - were included in the study.)

Another complication, however, when making assumptions or analysis based on how cash-intensive some disciplines are, is that, in fact, some academics may conduct a mix of research projects, some of which might require a large amount of funding, and some that require little if any. For a number of respondents in the study their research involved a mix of desk-based or low-cost research as well as more resource-intensive research (lab, computing, field-based or other work requiring large numbers of research staff). Thus, all these factors have to be allowed for when analysing the data and interpreting the findings.

Regarding the career stage of respondents in the study, the purposive sampling was also used to identify and include, ideally, an experienced academic (professor level), a mid-career academic (reader or senior lecturer level), and an early career academic (lecturer level), within each of these fields. (However, time and resource limitations meant it was not possible to include all three career stages for every discipline included in the study.) Of course, using academic titles – lecturer, senior lecturer, reader, professor – is a fairly crude proxy for years of academic experience.

After all, one may come across very young professors, or quite senior academics who have remained at lecturer level. Much more refined classifications have been used in, for example, the *Changing Academic Profession* studies; here, Locke and Bennion categorised respondents as either “young” (under 40, with a traditional academic career); “mature recent” (over 40, but having entered the profession in the last 10 years); “older, established” (over 40, and in academia for over 10 years; this group comprised professors but also other grades) (Locke & Bennion, 2010: 23). However, in my study all the respondents had been in academia all of their professional lives (with one exception: R2, discussed below), and it was felt that using their academic titles was a good enough proxy for the research objective. Table 5.3 below (p.101), shows the number of interviewees per career stage.

All but two of the respondents were academic staff (as opposed to contract research staff). The two exceptions were, in fact, the very first two respondents. The first respondent (R1) was a Senior Research Fellow, and thus the biggest driver of his need for funding was funding for himself (which he described as his “funding dilemma”). He had previously held an academic (and thus more secure) position at another institution, but had given that up for the very reason that he had felt the teaching requirements there were too much of a drain on his research time, whilst, at the same time, the pressure to bring in external research grants was “quite intense”.

The second respondent (R2) was a special case. In the very early stages of the study design, the plan was to include a number of researchers from the commercial sector for comparison with those in the university sector. However, it soon became apparent that this would be beyond the scope of the study’s resources, and also that it would not really be that pertinent to the study’s objectives, since most of the issues of interest were particular to the university research environment. R2 was a very experienced scientist who had spent his career in the commercial sector. Although I decided not to continue including non-university researchers in the sample, R2 was nevertheless a slightly special case for a number of reasons: he had long collaborated closely with academic researchers, he had at one time worked in conjunction with one of the Research Councils, and he did also hold a part-time academic research post. Thus, in many ways he could be viewed as being a ‘match’ with the target participant group, whilst at the same time being able to offer some very interesting insights into the differences between academic research and research conducted in the commercial sector.

Two of the interviewees (R1 again and R19) had very recently moved from one institution to another (interestingly, in both cases this had been from a group A university to a group B one). For analysis purposes their responses were counted as being those of their former institution.

The variable of Male versus Female was not considered to be an issue for this study, although an effort was made to include a representative number of female interviewees (i.e. a number reflecting the proportion of female academics in academia) – six interviewees were female and 16 were male. (There has, in fact, been recent work looking at the differences in grant success rates between male and female academics, showing that female academics are less successful than their male counterparts (e.g. Head, Fitchett, Cooke, Wurie, & Atun, 2013)).

Interviewees were contacted directly. Responses were positive in the vast majority of cases – an indication, one would infer, that the topic was one of interest to them. In fact, many explicitly commented on how interesting the proposed research was. (One historian, who unfortunately was not interviewed due to logistical reasons – the day I was visiting his institution, which was quite a considerable distance away, he was, ironically, in London for a REF meeting – commented that “I was thinking that the reason [for] my unavailability might make it into your thesis as a footnote!”)

iii) Additional data

As well as the 22 interviews conducted, some additional data was utilised for the study. Firstly, one of the interviewees in this study allowed me to draw upon the transcripts of six interviews he had conducted in 2008 (kindly taking the time to get agreement for this secondary use of the data from the original interviewees). These interviews had all been conducted at one group D university; all six interviewees were academics in the social sciences, but at various different career stages. Whilst only a small number of the questions were relevant to my study, nevertheless these provided valuable additional data. (These group D ‘case study’ participants are denoted in this thesis by the identifier Xn).

Secondly, during 2015-16 I assisted a colleague in conducting a number of interviews with experienced academics for a book project of hers (on a totally unrelated topic), and I had the opportunity to ask three of the interviewees questions relevant to my study. Again, whilst I could only ask one or two questions, nevertheless these provided valuable insights from disciplines/individuals who I would not otherwise have been able to include. (These participants have been

designated as 'commentators', and are denoted by the identifier Cn). Lastly, I make some reference to comments I received either by email or in discussions with individuals during the study, and these too are denoted by the identifier Cn.

In summary, then, the variables covered were:

- Career stage: experienced (professors) vs mid-career (readers, senior lecturers) vs early career (lecturers) academics
- Institution type (based on research income): TRAC Peer Groups A – D
- Discipline: a range of disciplines (ten in all) covering the natural sciences, social sciences and humanities. Disciplines from across the domains of six of the seven Research Councils - EPSRC, NERC, ESRC, BBSRC, MRC, AHRC

The tables below show the number of interviewees from each of the variable groups above.

Table 5.1: Number of interviewees by institution type (TRAC Peer Groups)

Group A	Group B	Groups C and D
11	6	5*

* Plus the six 'Group D case study' interviewees

Group A: Institutions with a medical school and research income of 20% or more of total income

Group B: All other institutions with research income of 15% or more of total income

Groups C & D: Institutions with a research income of 15% or less of total income

As per HEFCE TRAC Guidance, <http://www.hefce.ac.uk/funding/finsustain/trac/>

Table 5.2: Number of interviewees by Research Council domain area

AHRC	ESRC	EPSRC	NERC	BBSRC	MRC
3	6	6	4	1	2

If domain areas are combined more broadly into humanities and social sciences (HSS) versus natural sciences, then the number of respondents in each group is:

Natural sciences: 13

Humanities and social sciences: 9

Table 5.3: Number of interviewees by career stage

Experienced (Exp)	Mid-career (MC)	Early career (EC)
9	8	5

A table of all interviewees and additional data can be found in Appendix 3.

5.4 Data analysis

Interviews were recorded and then transcribed in full. On the face of it, this may sound very mundane, but in fact, listening back to the recordings of the interviews was in many ways the most interesting and enjoyable part of the research process. During the interviews themselves one has to pay close attention to what the respondent is saying, so as to probe further where necessary, ask for clarification, etc. Yet it is only when listening back to the audio recording afterwards that one really has time to take in the full picture of what the respondent has been saying. Sometimes one is even 'surprised' by comments you do not remember being made at the time, or being struck by the significance of comments which at the time had not seemed particularly remarkable. In some ways the analysis already begins – one inevitably compares responses to those made by previous respondents, and ponder how the comments add to or alter your original expectations – all in the simple process of transcribing the recording. This reflection can also lead to the modification of subsequent interview questions where necessary.

i) First stage of analysis

Regarding the more methodical analysis process, I initially contemplated using the computer-assisted data analysis software NVivo, and I did begin coding a number of transcripts in this way. However, I soon felt uncomfortable with this – it began to feel too mechanistic and that I was becoming too far removed from the data itself. Such software is no doubt extremely useful when handling much larger amounts of data; for my study, however, I was concerned that using NVivo might risk losing the detail and sense of individual voice of the respondents, which I considered to be very important. However, the process of thinking through the coding and the level of detailed analysis required when using NVivo was, nevertheless, a very useful

process, and I have no doubt this helped improve my subsequent analysis conducted 'by hand'.

The first step of the 'analysis' was to edit down the transcripts, as the verbatim transcripts inevitably include much in the way of repetition or digressions that are not relevant. Many textbooks suggest that one-page summaries should be made so that one can easily compare one transcript with another (e.g. Harding (2013: 57); Miles and Huberman (1994: 51)). However, I felt that reducing the transcripts to this extent meant losing too much of the rich and illustrative details, as well as the voice of the respondents. Nevertheless, one does need to 'crystallize' the data to some extent, in order to be able to focus on what was most important, pertinent, etc. and to be able to compare and contrast the different transcripts. Thus I aimed to reduce the transcripts down to two pages where possible, but often they were three to four pages in length - so many of the respondents' comments appeared to be both pertinent to the research objectives but also of such interest, that it seemed an injustice to 'force' the reduction down to two pages merely to be consistent. The interviewees were all very different individuals, thus it would have been unusual if they had all been uniform in the degree to which they expanded on their responses. Why, then, should their data be reduced in a uniform manner for the sake of 'neatness'?

Editing the transcripts constituted the first stage of data analysis, because whilst some of the process merely involves removing duplication, the key part of the process of reducing the transcripts involves decisions regarding not only what statements are relevant to the research objectives, but also identifying what other interesting, important or unexpected themes seem to be emerging from the data.

ii) Coding

The second stage of analysis entailed the actual coding of the data. This began with a methodical thematic analysis of the edited transcripts, identifying each salient or recurring theme, or issue, arising from the data. These themes were assigned descriptive codes. Sometimes these were *in vivo* codes, i.e. using participants' own terms/words, and others were *in vitro* codes constructed to reflect the data (Elliott & Higgins, 2012: 5). Subsequently themes were clustered into broader categories. Once clear categories, and the themes within them, had been identified, the process of comparing both commonalities and differences across the different variables (institution type, discipline and career stage) could begin. In addition, any

'peculiarities' - for example, issues specific to a particular discipline, career stage, institution type - were noted. As the coding progressed, transcripts were regularly re-read to ensure that themes identified in later transcripts had not been 'missed' in earlier ones (and also as a check that comments had not been taken out of context).

iii) Presentation of findings

In presenting the findings a significant degree of quotation has been included, as I felt it important to convey the academics' perspective - to present a narrative picture, in their own 'voice'.

5.5 Reliability, validity, limitations

i) Researcher as 'partial insider'

As discussed in §5.1 above, the researcher can rarely totally disregard their own perspective and concepts when conducting research. However, this need not be problematic provided this is acknowledged and reflected on. Bourdieu explicitly describes the research interview relationship as a "*social relation*" which inevitably affects the results obtained (Bourdieu, 1996: 18). My own 'social relation' with interviewees was that of a 'partial insider': as noted in Chapter 1, I worked as a research centre manager at the LSE. Part of my role was to assist the centre's academic and research staff apply for funding, and to keep abreast of policy developments within the HE research environment. Thus it is important to consider what implications both my role and possible pre-conceptions may have played in the conduct of the interviews and the analysis and interpretation of the data.

The term 'insider researcher' usually refers to someone who is undertaking research on the processes or governance at their own institution. This can therefore give rise to potential power play issues and even the possibility of intervening in the processes being studied. Perryman (2011) talks of the complex loyalties that this can give rise to. However, I consider my position to be that of 'partial insider', since the research was not focused on examining processes at my institution, but I was nevertheless working within the sector and had first-hand experience of the policies and issues that my study was examining. I also knew three of the interviewees well, and thus the 'social relation' in these cases was quite close.

A number of authors have considered the challenges and criticisms but also the positive aspects of being an insider researcher. Good discussions are provided by Labaree (2002) and Mercer (2007). Labaree describes “the hidden...ethical and methodological dilemmas” of being an insider researcher (2002: 97). Criticisms of insider research focus on the difficulties of the researcher being able to “take a clear and unbiased non-partisan approach” (Perryman, 2008: 871). Mercer discusses the potential problems if researchers reveal their own viewpoints in the course of interviews, as this can potentially encourage acquiescence on the part of the interviewees (Mercer, 2006: 10). However, there are many positive aspects: insider researchers have a greater knowledge and understanding of the context of the study setting; they may have an “empathetic understanding” that outsider researchers are less likely to have (Merton, 1972, cited in Mercer, 2007: 5).. This insider knowledge and understanding can give rise to a better rapport with interviewees which can facilitate greater openness. Certainly, I felt conscious during interviews that due to my research centre role and understanding of the difficulties of attaining grants and meeting other research policy requirements, helped me form a good rapport with interviewees - it put me on 'their side' as opposed to being part of university management - and thus, I believe, facilitated more open and in-depth responses. Furthermore, I felt that, due to my 'other' role as a doctoral student, interviewees recognised that I was on a journey which they themselves understood well and were open to helping with in terms of giving up their time for the interviews.

But what of potential bias and preconceptions when conducting the interviews and analysing and interpreting the data? With regards to the interviews, I realised, on reflection, that one or two questions were asked in what might be considered a leading way. For example, one question asked was “Do you feel that the funding available is increasingly directed?” Phrasing it in this way perhaps indicated my own preconception that this was indeed the case. It could have been asked in a more neutral way, such as, “Do you feel the balance of funding for blue skies and directed research is about right?” On balance, however, because my interviewees were academics, I was conscious of the fact that they scrutinised questions carefully. Thus, even if my own preconceptions were evident in the way one or two questions were asked, there were plenty of examples where the responses to these questions were not what I expected, and I do not feel that these preconceptions had any significant effect on the data. Furthermore, on completion of the thesis I re-read through all transcripts and my analysis in order to specifically reflect on whether my own experience in my work had influenced the way in which I had analysed and

interpreted the data. However, again I do not believe that any preconceptions I may have had have influenced my interpretation of the data. My work experience was based in just one research centre research, and my research objective at the start of the study was very broad – open to what I might find in other disciplines and other institutions. Much of the data I collected was significantly more varied than I had expected, and I do not feel I have in any way ‘fitted’ these data into preconceived theories or even perspective.

On balance, as many other authors have also concluded, I feel that the benefits of being an insider researcher outweigh the issues of potential bias or lack of objectivity, provided - as I feel has been the case in this study - any potential negative effects on the data collection and analysis have been carefully considered.

ii) Reliability and validity

When interpreting and analysing interview data it is important to note what Brown and Dowling refer to as the ‘epistemological paradox’ – that “the act of making your experience explicit of necessity entails its transformation” (Brown & Dowling, 1998: 8); that is, that in objectifying their activities, the perspective of the interviewee becomes that of commentator, not participant (Brown and Dowling claim this is a point very powerfully argued by Bourdieu, in his *Outline of a Theory of Practice*, 1977). However, I do not see this paradox as problematic, since it was the perspective of the academics that I was interested in, regardless of whether that was to some degree constructed. Furthermore, I believe that to some extent my own experience and knowledge of the field, my position as partial insider, meant there was less of a need for participants to objectify their activities.

However, when conducting the interviews I did soon realise that it was important to be aware – particularly with more experienced academics – of what other ‘hats’ they currently, or recently, wore. For instance, one participant was not only a head of department but also a Vice Dean for Research of his institute. It was clear early on in the interview that some of his responses to the questions were, understandably, those of him ‘wearing his Vice Dean hat’. Similarly, whilst interviewees were being asked about their own experiences and views, inevitably some occasionally drifted into generalisations; again, this is something to be aware of when subsequently analysing and interpreting the data and comparing with the responses of others.

Another issue in a qualitative study such as this is how to compare responses to questions that are very subjective – different people may use different terminology to mean the same thing. For instance, to the question ‘Is there institutional pressure to apply for funding?’ an academic at one institution may respond that there is ‘huge pressure’ and one at another institution that there is ‘strong encouragement’. How can we be certain of the degree to which these differ – whether one may be exaggerating slightly and another underplaying the pressure felt? (A quantitative study may – possibly – overcome this by asking respondents to report on a scale of, say, 1 to 5, which may be more comparable.) Furthermore, whilst you would expect there to be differences depending on the variables being considered (institution type, career stage), equally it is possible that two academics from the same institution, same department and at the same career stage, might give quite different answers due to differences in personality and perspective (i.e. despite these particular variables being the same for both, the *habitus* of the academics might nevertheless be quite different - a result of different backgrounds and experiences, for instance). Such differences in terminology need to be borne in mind when making any kind of generalisations. Whilst corroboration between interviewees may provide some measure of validity, nevertheless it is always difficult to validate such subjective responses.

One concern, at least early on in the research, was that the findings might merely comprise a list of pressures and obstacles cited by the academics interviewed – that it would simply provide an opportunity for them to voice their complaints. Yet whilst many clearly had their frustrations and were under a lot of pressure, most of the academics interviewed proved to be surprisingly balanced in their responses and comments, often pausing at length to consider their answers; some would even re-consider the responses they had just given (“actually, maybe that’s not true....”).

iii) Limitations

With more time and resources I would have liked to have had a bigger sample. A larger sample could have included yet more disciplines – for instance I had no interviewees from the field of engineering which I think would have been interesting for comparison. More interviewees from group C and D institutions would also have been useful (for data analysis purposes I combined these groups as I did not have a sufficient number of interviewees in each to warrant analysing them separately). Also, as stated above, no interviewees were included from the remit of the Science and Technology Facilities Council (STFC) which funds research in the resource-

intensive fields of astronomy, particle physics and nuclear physics. This was not intentional, and in fact I did try to include these but without response from the academics contacted. Inevitably this represents some limitation of the findings and their generalisability. However, Laudel's 2006 paper, discussed in Chapter 3, does at least provide detailed evidence from the field of experimental physics that proved to be very similar to the issues that emerged from the interviews in this study.

It is usual to continue data collection until some form of 'saturation' of emergent issues occurs, and there was a sense of that in my data analysis of later interviews. At the same time, every interviewee had such an interesting and almost unique perspective – doubtless a result of what Spurling described, as we saw in Chapter 3, as their "highly situated" activities depending on the 'role array' within their department (2012: 89). Thus, whilst 22 interviews may be considered a relatively small sample, nevertheless when viewed as the presentation of individual academic voice, the data from these interviews were more than sufficient to provide a very in-depth narrative picture that addressed the research objective of the study.

iv) Ethical considerations

Ethical considerations were not a big concern in this study, since it did not deal with very sensitive or personal issues. There was, perhaps, the potential for people to criticise their institutions, but in practice this did not happen: whilst many respondents did feel very frustrated, that frustration was aimed more at "the system" – i.e. at policies and structures mostly beyond the control of individual institutions.

Nevertheless, to allow interviewees to speak freely, appropriate measures have been taken ensure that all data has been kept confidential, and all references in the study would be – and have been – anonymised. Care has been taken to use appropriately vague identifiers in the text to remove the risk of identification.

At the start of the study, I was concerned that some interviewees might feel that if they talked of 'strategies' that this might somehow imply an underhandedness. I was lucky in that my first (pilot) interviewee, being someone I knew (and, conversely, him knowing that I had a good understanding of his and his colleagues' integrity), was very open as to the strategies that had sometimes to be employed in order to play the 'research grant game'. Thus, if subsequent interviewees seemed hesitant to talk in terms of 'strategies', I could give them examples that arose from earlier interviews: often they identified with these and then felt more comfortable in discussing their own strategies more openly.

5.6 Summary

This chapter has described the methods, sampling and analysis employed in this study. It has considered and reliability of the data, with particular consideration of the researcher's role as a 'partial insider'. Whilst the data derives from a relatively small sample of 22 interviews, as the next three chapters will show, they provided a wealth of in-depth and interesting data pertinent to the objective of this study.

Chapter 6

Pressures and constraints I: wider issues in academic research

“..the main thing is that you should try to do research that answers a question that is troubling you, even if it’s not yet troubling the rest of the world.” (C3)

6.1 Introduction

As we saw in Chapter 5, the empirical work of this inductive study has consisted of interviews with 22 academics, of different career stages, covering a range of different disciplines, and different types of institution. For analysis purposes the institutions were grouped into 3 different types, depending on research income. Some additional data was also drawn upon: firstly, a set of six interviews from another study at one group D institution conducted a few years’ previously to which the author was given access; secondly, I was able to ask one or two questions of a few interviewees on another ongoing study I was involved with; and lastly, a few comments are included from discussions held either by email or in person with a handful of other academics during the study.

The findings from the study are presented over this and the following two chapters. These three chapters focus less on differences between variables (we will look at these more in Chapter 9), but instead on the variety of issues raised, and comments made, regarding the range of different themes which emerged. This chapter and Chapter 7 present the pressures and constraints the academics described as affecting the research they conduct and how they conduct it. Whilst it is difficult to draw clear boundaries between the various policies and processes which give rise to these constraints, this chapter aims to look at wider, or more fundamental, issues affecting higher education research, whereas Chapter 7 focuses on more

operational issues which result from these trends and that affect academics' day-to-day work. (In reality, this distinction is somewhat blurred, and some of the issues could easily have fitted in either chapter.) This chapter will look at what I perceived (and what was subsequently confirmed by the literature review) to be an increasing external prioritisation of research funding, and the effects this has on academic autonomy over research agendas. Other issues explored are the balance of 'blue skies' versus applied research; the increasing concentration of research funding, and the role played by academic capital and prestige. And one issue that loomed particularly large during the conduct of this study: the requirement to demonstrate impact, and the questions this raises regarding what is valued and measured in academic research today.

The more operational issues which Chapter 7 focuses on, and which largely result from these wider trends, include increased competition for funding, research assessment mechanisms, institutional resource allocation, and pressures on academics to bring in external research grant funding.

Chapter 8 will look at the strategies that academics appear to employ – either consciously or subconsciously - in order to counteract this increasingly constrained funding environment and still conduct the research that they consider intrinsically worthwhile. These strategies allow them to offset, to some degree, the often conflicting pressures to produce high quality publications for the REF, demonstrate the impact of their work, and bring in research grant income to their institutions. Many of these strategies are not new – a number of them are the same or similar to those identified by Laudel and other authors whose works we considered in Chapter 3. However, as well as presenting these strategies in more detail here, it seems clear that the increased pressure on academics to bring in research funding, as well as the intense competition for funds and pressure to do well in the REF, have made these strategies both more pervasive and more necessary.

The findings consist of the perspectives of the individual academics interviewed, and are, of course, necessarily subjective. However, the feeling of being increasingly constrained in their research was common to those from all disciplines, even if these constraints manifested themselves in different ways depending not only on discipline but also on other factors, such as the prestige of the academic or the institution. Whilst the pressures and constraints were often common, the way in which the academics responded to these varied in a number of ways. A considerable degree of quotation is included so as to bring to the fore the voice of the academics -

something not often given sufficient prominence in other studies. The quotations illustrate not only the frustrations, but also the incredible resilience displayed by the academics. The richness, colour, humour - and sometimes surprising details - of the statements presented bring the study to life. They highlight the difficult line that academics have to tread in order to uphold their personal academic values in an increasingly market-driven higher education sector.

Following these three chapters presenting the findings, the subsequent chapter, Chapter 9, will summarise and discuss the findings further. It will look more specifically at the differences between variables – institution type, discipline and career stage – and what emerges from these. Furthermore, it will look at how the findings fit against the conceptual framework discussed in Chapter 4. Finally, Chapter 10, by way of concluding remarks, will then consider what the implications of this study's findings are for academics, institutions and policy makers.

A note on identifiers

In the following chapters, interviewees are referred to using a combination of descriptors - their position (e.g. professor, reader, etc.), their discipline, and/or their institution type (as well as their unique identifier – R1, X1, C1, etc.). Only the descriptors relevant to the context is given – e.g. the institution type may not be noted if this is not relevant to the point in question.

6.2 Autonomy versus accountability

In the past, an idealised view of an academic might have conjured up images of either the lone humanities scholar in his/her ivory tower, or of an idiosyncratic scientist at his workbench, both totally subsumed in the pursuit of esoteric goals, oblivious to worldly matters. They were rarely thought of as being accountable to either government or other paymasters, and the universities in which they work have long been considered to be the ultimate upholders of academic freedom. The quote at the beginning of this chapter, which was the advice that one professor (C3) said he gives to students and younger colleagues - "I still think the main thing is that you should try to do research that answers a question that is troubling you, even if it's not yet troubling the rest of the world" – illustrates this often idealised view, both of

and by academics, that they should be free to investigate whatever they believe merits investigation: that is, the research that they consider intrinsically worthwhile.

As we saw in Chapter 2, the Haldane principle, which enshrined the belief that scientists, not politicians, should determine what science is funded, has been upheld by successive governments in the UK, and supposedly continues to be abided by today. Yet in reality, since the 1970s, the principle has become increasingly eroded. The era of accountability, and the concomitant requirement to justify tax-payers' money, have put Research Councils and other funders under pressure to ensure that the research they fund will help address either societal or economic needs. As one interviewee, C5, put it “We keep saying, [the Haldane principle], that’s probably dead now.”

The majority of interviewees in this study did understand the need for accountability. Macro-economist C4,¹⁵ for example, believed it was a legitimate question to ask about the broader impacts of research, and went so far as to state “My personal view as a citizen is that society, through government funding, should put only a limited amount of money into things that are purely intellectual exercises”. However, autonomy over their research, the ability to set their own research agenda, to follow lines of enquiry that are of intrinsic interest to them without interference from external stakeholders, is a principle that most in academia held to be of fundamental importance to them, so as to protect the integrity of the research they conduct. Social psychologist R14, for instance, felt that, as an academic, she “should have free rein to do [her research] the way [she] wants to do it.” Whilst the respondents in this study did feel they could still set their own agenda, most felt that their ability to do so is becoming increasingly constrained. So whilst R15, an early career humanities academic, felt that he did have autonomy over his research - describing it, in fact, as “absolute freedom” – he nevertheless recognised that “It could be, though, that that turns out to be the freedom to starve, if you choose areas to research that nobody [cares] about.”

An interesting perspective was presented by R2, an oceanographer who had always worked in a commercial setting (but who also had a small part-time academic/university role). He had opted for the commercial sector because he was drawn to the practicality aspect – the fact that his research had a very direct application. He appreciated that in an academic environment you have more freedom to go in a particular direction, whereas in a commercial setting this is much more constrained -

¹⁵ Note, however, that C4 was an American academic visiting the UK.

everything is driven by a practical need, as well as the need to make a profit. However, through his work with academic colleagues, he was aware of the fact that here, too, choice was becoming much more constrained and more directed, albeit for different reasons, due to a mix of societal or economic requirements.

The concern for most participants was that it is becoming increasingly difficult to maintain a balance between their own interests and those of external stakeholders - that their autonomy over their research is being eroded. For example, professor of sociology R3 felt that higher education had changed hugely in the 30 years that he had been an academic, "It's become much, much more bureaucratic, audit driven". One contrasting view was that of a professor of hydrology, R8, who did not feel it was necessarily any harder today to do the research he wants to do than at the start of his career – "It's always been difficult to get the money". However, as we will see in Chapter 8, for most, this was now a difficult balance to maintain, and resulted in their adopting a variety of strategies in order to do so.

As we will see in the sections below, a number of other, interconnected trends, besides that of accountability, have also contributed to the erosion of academics' autonomy over their research.

6.3 Prioritisation of research (directed funding)

Universities have often been thought of as bastions of 'curiosity-driven' research, in contrast to commercial or government research settings. Yet, in fact, since the earliest days, science, or academic research in the natural sciences at least, has more usually been conducted with some practical goal in mind; purely basic, or 'blue skies', research in these fields has been the exception rather than the rule. But, as we saw in the section above, most academics still believe fervently that they should be able to explore scientific questions unhindered by pre-set goals or requirements. However, the increasing requirement today that research should address societal or economic needs has resulted in a shift of funding away from blue skies research and to increasingly directed and applied research. This, then, raises the question as to who exactly should be setting research agendas and deciding how research funding is distributed.

The mainstream funders of academic research, such as the Research Councils, usually make funding available via two modes: either 'responsive mode', or 'directed

mode'. Directed, or targeted, funding, which as we saw in Chapter 2 appears to be increasing, is aimed at particular areas, targets or objectives, even to find answers to specific questions. Whilst experienced academics may be involved in formulating these questions, nevertheless they are usually a reflection of government-determined priorities, and it appears quite an opaque (and subjective) process to most academics. Oceanographer R2 summed it up in his own words: "What happens in a Research Council is a bunch of people sit around and pontificate on which direction it should go in, and they'll do that with some external influences – from government and from the scientific community, and they'll formulate these relatively narrow directions; in some ways it's a much more prescribed process [than what happens in a commercial environment]".

Many academics in the study felt that too much of the funding available now is directed, with not enough funding available for 'blue skies' research. The majority of participants worried about the extent of prioritisation, feeling that because funding was increasingly directed it was making it harder to do the research they wanted to do. Professor of paediatric infectious diseases, R7, did not argue with some of the priorities, but felt that "the system has gone a bit too far in that the basic research is being stuffed". Reader in computational chemistry, R5, echoed these concerns: "it also feels like it's fixing what topics are interesting - the idea that Research Councils are picking particular themes to sponsor". To him this seemed far more controversial than the Research Councils' demand management measures (as discussed in Chapter 2; see also Chapter 7). He added that "even companies that do research have traditionally allowed a small amount of leeway for creative 'mucking about', because they understand that that's potentially where, in 15 or 20 years' time, something that came from that passionate mucking about might be the basis of what they carry on doing".

Sociologist R17 felt that in targeting funding at societal and economic issues, too much focus was on "the economic and the needs of business". He also believed that rather than devising "a really interesting and exciting agenda, [the ESRC] is saying we've been told by government [to focus on] issues around migration, security, terrorism, policing... it's great if you're in that area, but aligning the research capacity of your university sector with government priorities is profoundly problematic. ...it does lock out people with interesting and exciting ideas. Or subtly, and unsubtly, it means that people start trying to work to the agenda...or being creative with what the agenda really means."

Some academics felt that the Research Councils are diverting more funds into directed programmes. Organic chemist R9 believed that with the EPSRC “there is a vast amount of money that is being directed, to special initiatives, special calls...”. And whilst statistician R19 didn’t feel the ESRC had gone too far down that route as yet, she was worried by talk suggesting that they would be doing so. “I guess I’m a bit concerned about that because you think where does this list [of priority areas] come from?” She also worried that limiting proposals to certain areas risked stifling really new ideas that the Research Councils have not considered. And in the humanities, Professor of English, R22, was concerned about what the effects of AHRC prioritisation at the early career and PhD levels would be on future research: “there is a prioritisation issue at PhD [funding] level, which is obviously going to have knock-on effects later, for certain methodologies”.

Social psychologist R14 had concerns about the diminishing funding for responsive mode grant applications: “I think they are very much directing resources...the success rates of [Research Council responsive mode] grants are tiny, whereas if you wait for a specific call and then tailor it to that you stand a lot more chance”. Lecturer in English literature, R15, felt that the AHRC was also directing research too much: “You really have to do what they want, and have a project that so closely fits their remit that you’re probably selling your soul a little bit, and it does impact upon your choice of topic”. A more senior colleague at his institution, R21, echoed this, noting that: “Increasingly people are going to the British Academy and Leverhulme because the AHRC is becoming more and more restrictive in what they’re doing”.

Professor of psychiatry, R10, was not himself clear whether more funding was being directed than previously. “It does very much depend on the funder, and where their own funds come from – if they’re raising money from the public they’re likely to be much more prescriptive.” He did think that some of the medical charities had become much less willing “to listen to what the scientist wants to do and [instead] just follow the boffin”. That was also the experience of early career immunologist R11 who stated that the medical charities appeared to be funding less blue skies work and instead increasingly saying “apply if you can solve a problem in three years”.

Several participants referred to EPSRC’s prioritisation policies, including their controversial ‘Shaping Capability’ strategy (as mentioned in Chapter 2). However, although organic chemistry had been one of the areas omitted from the list of

priorities, R13 was somewhat stoical about this, claiming that the sub-discipline had actually been “a victim of its own trumpeted success, in that it more or less presented itself as a mature science, where all the important discoveries had been made, problems could be solved.... I think that was seized upon as a reason for not funding [this area]”. But it had resulted, inevitably, in there now being less chance of putting in an undirected proposal and getting that funded. In addition, in chemistry more broadly, the EPSRC had come up with a number of ‘grand challenges’ for the future, and computational chemist R5 stated that if your research did not fit in one of those areas then you have a problem when trying to get funding.

One of the more serious concerns raised by another organic chemist, R9, regarded the quality of science being funded when Research Councils decide to spend “£X million on topic Y”. If they then fund as many proposals as they can for that amount, they may well be funding some proposals which, in a responsive mode competition, would not get funded – in other words, they are not funding the best science, but rather as much science as they can within a certain topic and budget. Furthermore, physicist R1 and a colleague, C8, had even deeper concerns regarding this issue of ‘spending £X million on topic Y’ in cases where they felt that the question (or science) underlying topic Y is in itself flawed. In their case this had resulted in their either not applying for funding in their area, or even instances of having turned down funding. For example, describing funding directed by government departments, R1 stated: “[the calls] are very much in the area that I would want to do... But too directed, in the sense that they are asking for an answer and...scientific research doesn’t really work like that. ...they think they’re in a consultancy game where they just need to ask and somebody will go and get the tools out of the toolbox, turn a handle and produce the answer. But...the toolbox doesn’t exist, or a toolbox exists, but it’s entirely irrelevant. So I really have a problem there”. And similarly with Research Council funding he felt that some projects resulting from directed calls are doomed to fail because “It sort of feels as if NERC wants to promise to government that we will sort this out”, when often – for instance in the case of some climate change problems - this is just not possible yet. (He cited this as one reason why, as we will see in Chapter 8, people end up “doing their own thing” once they have been awarded funding, as they feel it is better to do something useful than waste months trying to come up with an answer that “doesn’t exist” or is “irrelevant”.)

Computational chemist R5 believed that the money available for responsive mode investigator-led grants at EPSRC had really shrunk, and at the same time there

were more people applying for them, so the chance of getting these types of grants is so low, that “actually it’s not clear it’s worth [applying] at the moment”. However, he also felt that there were other knock-on effects to directed funding that were impacting on what research academics conduct: more money has been put into the programme grant scheme (their flagship projects), and for big consortia and targeted at specific areas, with the result that even though “in theory responsive mode grants are based solely on the project...there aren’t very many of them... and if there’s an EPSRC programme grant in the area you’re working in, you can’t help but feel the chances of getting a responsive project funded is correspondingly lower”.

Others were critical of the seemingly arbitrary factors involved in the way some funding is allocated. Professor of psychiatry, R10, observed that: “I’ve noticed more and more the decision to fund is also based on what is defensible in the public space. That’s not always what is good [science]; ...it’s always been based on trade-offs - you know, ‘we haven’t given any money to mentally handicapped for a while’, or ‘we can’t give all the money to Oxford, we’re going to have to give some to Cambridge, or Cumbria or somewhere’; I think that’s always been the case, but I think it’s become more noticeable”.

Some interviewees, however, were understanding of the need for prioritisation of funding for certain areas or topics, though it was notable that these were primarily those whose research was more applied in nature. Professor of statistics, R4, stated that he had always been in favour of a certain amount of central planning for research. “I think it’s absolutely right that the government should [prioritise, because] if the government doesn’t invest in blue sky research in certain key areas, it will not be [able to compete globally] in those areas.” Another professor of statistics, R19, agreed that it makes sense to target research funding if there are particular gaps, but not to do it exclusively. Yet another statistician, R6, was also fairly supportive of directed funding: “I think NERC...have really identified some important things, and are doing it in a not entirely stupid way”. Although he did note that it probably varies between, and even within, Research Councils, and between different themes, concluding “I think it probably just depends on who’s in charge of the theme”. Furthermore, he added that, since his research was demand-led, he would usually look for directed funding anyway - for him, responding to external priorities was not a problem: “[applied] statistics is...demand-led. So a lot of the research directions I have at the moment are ones that have come up because I’ve been talking with someone and they’ve had a problem [and I’ve responded to that]”.

Similarly, R18, an early career organic chemist, believed that many scientists have always been “inspired to do things for practical reasons”, to solve problems, and that she was “very fortunate that at this moment in time lots of my research has energy applications, and energy is a really important thing”. However, the downside was that sometimes you “have ideas and you’re aware that they might just not be fundable” because they do not fit with the priority areas.

Professor of hydrology, R8, was also understanding of the need to prioritise, provided there were still funds available for blue skies research, “In the environment we have some real problems that need addressing, and there’s no reason why that shouldn’t be directed as long as it’s done well and efficiently and aimed at solving those problems”. However, he was concerned at the extent to which funds were directed: “[NERC] have shifted money more and more towards directed programmes and invitations to bid for things, rather than just the normal research round type of grants.” Furthermore, he felt that some priority areas had been dominating the remit of the Council, without there necessarily being any great advances to show for it.

Another knock-on effect of increasingly directed funding is the growing shift in the balance of funding for applied rather than blue skies research. Even amongst the natural and life scientists in the study this was a common concern that emerged. Funding for basic, blue skies research, or even more theoretical work, appeared to be becoming increasingly hard to get. For instance, organic chemist R9 recounted how it was important for his team to try to maintain a balance of about 50% fundamental work - trying to answer the ‘What if?’ questions - and 50% applications-oriented work, but that this was becoming increasingly hard to do. This appears to be partly due to government and funders’ prioritisation, and partly the requirement now in almost all research to demonstrate or point to some future economic or societal impact (see §6.4 below). Computational chemist, R5, remarked that “it’s become much harder to justify doing a piece of research because of the benefits that might accrue long-term, just doing it because it’s interesting, for its own sake. That’s always been a luxury, yet many key, long-term developments have come from people doing things they really believed in, where the applications weren’t clear...”.

This was echoed by another organic chemist, R13: he understood the need for accountability of tax payers’ money, but felt that blue skies research should not be under-valued, it “can lead to things which can change the future, particularly in areas like this, the big sciences, where...people have made discoveries that were

completely unexpected but that have changed things quite massively ...that...is the beauty of research, there's completely unexpected...unpredictable...results...Those are always the most interesting ones, and almost always result in publications well away from the original targeted area". He felt he could still set his own agenda, but that it was getting more constrained, commenting that "I think it will be inevitable that you kind of get funnelled down certain channels". Whilst he had not yet had to go down the very applied route, and felt he could still control what he does, he nevertheless thought that it would be the case that he would have to start responding more to the needs of industrial funders - and was not yet sure how he would respond to that.

Frustration over the lack of funding for blue skies, or 'what if?', research was also expressed by professor of paediatric infectious diseases, R7, who felt that it was becoming harder to get funding because of the increasing focus on applied work: "we've had applied projects, and out of that have come very interesting strains - vaccine candidates; but...we have absolutely no clue why it does what it does ...But if I put grant [applications] in saying 'it would be quite nice to know...' they just never win. BBSRC say that they still fund basic research, but if you put in basic research the loading is against you - it's not applied, you haven't got industrial funding, so you're already starting to fail... that's the reality".

Of course, not all participants were averse to the move towards more applied research - though notably, as we saw above, these were academics in disciplines that are more application-oriented. Professor of Statistics, R4, went so far as to say "I despair of the view that...if you do [applied work] it's dirtying your long-term vision...because most of the breakthroughs in theory have been back-influenced from applications... So I'm very much on the side of directed research".

One could, of course, question whether academics *should* have the right to remain steadfast in their determination to not be swayed by external pressures to research particular problems just because they are deemed to be important for societal or economic reasons, and instead remain focused on the "purely intellectual exercises", like C3 advised above. Is this now a selfish and outdated luxury? Consider this interesting divergence of views between an academic and her head of department: R22, a Professor of English literature at an elite research institution reported, perhaps surprisingly for such an institution, that her head of department was very much of the opinion "why write about something that only six people care about?" However, her own view was that "I'd rather do something where I can

genuinely point to it and say ‘this is new’...as with researching a minority area in the sciences, it would be there for people if it should suddenly become more mainstream”.

As we will see in the next section, the move to more applied research and away from blue skies has been much accelerated by the ‘impact agenda’.

6.4 The impact agenda

As we saw in Chapters 1 and 2, the ‘impact agenda’ consists of two strands: firstly, in 2009 the Research Councils introduced the requirement for research grant proposals to include specific details of what the expected (non-academic) impact of the project will be (who, outside of academia, will benefit from the research and how), as well as detailed plans as to how the researchers will engage with potential users and stakeholders; secondly, in the same period, the 2014 Research Excellence Framework, unlike the previous Research Assessment Exercises, included demonstration of research ‘impact’ as a significant element of the evaluation.

The ‘impact agenda’ has itself had a significant impact on academics and the research they conduct, especially since doing well in the REF was, and remains, of such importance to institutions - both in terms of profile as well as financially. Thus academics are now being made acutely aware all the time of the need to think ahead to what the potential impact of projects will be, and how they will be able to demonstrate and capture that. Whilst many of the academics in this study did not disagree, in principle, with the concept of demonstrating impact or that the government and public should expect this, many felt it has gone too far in this direction and that the onus is too great, and in some ways unrealistic.

Of course, those whose research is either applied in nature or lends itself easily to applications, have, in some cases, benefited from the impact agenda. Academics who were able to submit good ‘impact case studies’ (and have clear potential to continue doing so) found they were the focus of much institutional attention – the ability to demonstrate impact now being akin, in terms of academic capital, to having academic papers in the top journals. For example, social scientist at a group D institution, R20, found that the impact of his work had suddenly, and somewhat

unexpectedly, thrust him into the departmental spotlight in the run up to the REF: “[with] the REF, suddenly you had to do Impact Case Studies, then this question of how your research impacts, which works quite well for me as I’d always done the more applied stuff, and suddenly that’s in demand”. (However, as we will see in §7.5, there was an intense pressure that came with this for R20.)

For a few participants, demonstrating impact was not particularly problematic and they appreciated the reasons for, and even benefits of, doing so. For example, for R18, an early career organic chemist, the REF, and thus the impact agenda, had always been part of the research landscape, hence her comment that “I’ve always been in an atmosphere where thinking about the broader impact of your research has been a question that you’ve had to ask yourself”, and added that it “hasn’t consciously impacted on what I do, but I think subconsciously I’ve always been aware that you have to be capable of explaining why your work might be important”.

And, interestingly, for English literature professor, R21, whilst she felt that the impact agenda is changing the face of research, she did not see that necessarily as a problem “because it is another form of communication with people...and if it means that the public understands more of what we’re doing and why it’s interesting and relevant, that’s got to be a good thing”.

Professor of hydrology, R8, also felt that the impact agenda has some benefit in focusing people’s minds on how their research might be useful. At the same time, he noted that not all projects, of course, fall neatly into that type of applied or easily useful results. And indeed, for many of those in non-applied disciplines the impact agenda raised some quite problematic issues. Reader in social science, R17, did agree that demonstrating impact was valuable – he believed that “most people [in the social sciences] would have said they hope to make [the world] a better place by doing the kind of research they’re doing ...So it’s forced people to codify that”. However, his criticism was that “it doesn’t tend to lead to the valuing of work that might appear to be blue skies but [which] could be really important... We’ve got colleagues who didn’t go in [to the REF] who are doing very theoretical [work], and there was a sense that that wasn’t impactful or not based on excellent research – and that’s appalling, that’s really appalling; and it has huge consequences for what we implicitly appear to value as sociology. So... yes I think it does [affect how we work]”. The real danger, he felt, was that “a lack of evidence of impact is not evidence of poor research, bad research, valueless research”.

The flip-side of this not valuing research that is not impactful, was equally worrying – that is, valuing research that was impactful but not high quality. Professor of Statistics, R19, for example, stated: “I do feel that there’s too much emphasis on impact at the expense of quality, and the worst kind of research is research that is poor quality and high impact”. She felt that demonstrating impact was very difficult for her work, as it was methodological in nature; for her, showing impact was “quite a big ask”. The impact agenda affected what funding calls or initiatives she could realistically apply for. And whereas demonstrating impact was not so difficult for some academics conducting applied research, she felt that as an applied statistician it could be quite difficult because she works in a range of areas that she is not necessarily an expert in. In order to satisfy the impact requirements of the REF, the impact needs to be that on non-academic audiences: “So talking to the media about some work I’ve done in health can be quite difficult when I’m not an expert in health – I’m an expert in the methods I’ve used to do the analysis; so it makes me rely even more on collaborators, and I have to be careful who I choose for that”. Impact is now a major part of how the larger ESRC grants are evaluated, and, as a result, she would have to form collaborations in order to “deliver on the impact in a credible way”. However, she added that in terms of working with the non-academic sector: “it is actually something I want to develop more in the future, and I think that’s particularly led by the impact agenda, and really feeling that you do have to engage with non-academics because it’s so important for the way we’re evaluated - impact case studies, the REF, everything relies on having those contacts”. But whereas she felt that there was too much emphasis on impact, to the detriment of the scientific quality, early career immunologist, R11, on the other hand, felt it was frustrating having to detail in research grant proposals what the expected impact or translational aspect of the work would be as he believed this was fairly meaningless in terms of people reviewing the proposals: “it’s still going to pass or fail on the science, rather than whether it’s translational or not”.

Lecturer in English literature, R15, felt “It’s deeply problematic for humanities subjects...to show direct translation from a piece of research to extra-academic real-world impact”, and, like R17 above, he was very concerned that “some people will read that as well there isn’t value there. ...I still believe there’s value in arts subjects [even if] I’m not going to be curing anybody’s disease through what I do”. He added that “It prohibits the ability to experiment and just do what you want to do, if you’re having to think in advance of how you translate this and what those translational mechanisms are”. He also noted that dissemination alone does not count as impact

– “what I object to is them pushing the budget towards...something you can tangibly measure and quantify....They try and capture it in terms of educational, social benefit, but they want that to be a specific number of people, and every time you re-codify social benefit it goes into equally nebulous terms that are difficult to quantify....and if you can quantify it, I think you’re doing it wrong! It’s very problematic”. Furthermore, he felt they were being coerced “into doing things that they can map out the trajectory and translation into impact.” In a similar vein, professor of history, C7, wrote to say that: “Basically, arts, humanities, creative arts just aren’t reducible to the same kind of metrics that are used to evaluate “impact” in sciences, etc., and even there...the terrorism of generating demonstrable impact by criteria nobody who is actually an expert in the field has any respect for, is almost guaranteed to stifle, not promote, innovation.”

Reader in social psychology, R14, noted how it was harder to get funding for research where impact is not easy to demonstrate: “[I’m] a critical social psychologist, and there’s not a huge amount of funding in our area, because other disciplines have interventions and real things that you can measure [or change], and then you can have something at the end, but we don’t believe in any of that, we’re trying to turn all that on its head and interrogate everything. So it’s really hard to get funding for that, but actually I think it’s better science”.

Yet another problem related to the requirement to demonstrate impact is the timeframes involved. Professor of statistics, R19, observed that “the impacts may take a very long time, and they could be indirect”, but for post-grant evaluation reports, 12 months after a grant has ended, “you have to write an impact report...academic and also...societal and economic...but that’s really difficult. And it’s not enough to say that you’ve presented it to non-academics, but what else can you really say, because...one year after the grant’s ended....it’s too soon to say”. This inevitably leads to a tendency (as we will see in §6.6 below) to short-termism – encouraging academics to undertake research that will show ‘quick gains’. Professor of English literature, R21, for example, was worried that “I think sometimes you can produce short-term goals, but would they have the longevity of a monograph where you’ve written something that people can carry on reading for the next 30 years?” Macro-economist C4 felt the impact agenda “creates incentives to do kind of sexy work that’s going to get media attention and not to take the long-run view”. As per R19 above, he believed this was partly because there is not as yet an effective way

of how to assess impacts, and because they are often very indirect and, in many cases, it can take years to see how they play out.

6.5 Concentration of funding

As we saw in Chapter 2, the research assessment exercises were originally conceived as a response to demands for greater accountability, but also as a mechanism for distributing diminishing funds in a more selective way. They have inevitably resulted in the concentration of research funding into the larger, research-intensive institutions. It is also commonly argued that funding via the other arm of the dual support mechanism, through the Research Councils, also favours the research elite institutions, as a result of the so-called Matthew Effect working in favour of the academics at the more prestigious institutions. Whilst some would argue that funding selectivity is an economic or practical necessity, the majority of academics interviewed – even those at the more elite institutions - disagreed with the ethos of concentration.

R17, a sociologist at a group A institution, felt that current funding schemes are “locking out huge numbers of institutions and people from funding and opportunities at those institutions. I feel quite disgusted sitting in an Ivy League-style institution that will do better out of the landscape as a result”. He also noted that, whilst many academics now see winning research grants as largely down to luck, due to the increased competition and low success rates, that nevertheless “the so-called better institutions are more ‘lucky’, so they will by virtue of institutional reputation bring in more than others”. Others felt the concentration of funding by Research Councils was more blatant than this. Organic chemist, R9, for example, felt strongly about how the EPSRC was directing funding towards people: “they have these ‘preferred researchers’...which is purely subjective (some managers’ opinion in EPSRC)”, and he complained that the process was “completely opaque”. He cited a couple of examples where EPSRC had awarded considerable amounts of money without any peer review process – in one case by simply distributing a pot of money amongst people funded by their Leadership Fellowship scheme, and in another case to a large centre working on a very topical area of innovation; in both cases, he suspected this was the result of government pressure, and also because simply ‘handing it out’ was a way to ease the administrative burden on the Council. “That’s not good for science, it’s not good for the academy.”

Similarly, within the humanities, professor of English literature, R21, said of the AHRC: “they focus more and more on repeat calls, where people who have already got money can then apply for new funds, so the pot of applicants is getting smaller and smaller”. This was particularly having an impact on early career researchers, as she added that the AHRC’s “willingness to fund early career researchers has increasingly become restricted to researchers who have already been funded by them for their PhD”. Computational chemist, R5, also felt that funders were focusing on individuals (although this contrasts with the perception by some, as we’ll see in Chapter 7, that more funding is also being targeted at bigger, collaborative groups): “I think [EPSRC] are under some pressure to distribute limited resources to the people who are, not just most likely to benefit from it, but also who are most likely to do something that benefits EPSRC back, in terms of saying ‘we are funding internationally competitive research’”.

Professor of statistics at a research-intensive institution, R4, also stated that he was against all the research funding being concentrated in just a few institutions because excellent research and ideas could be found anywhere – “any other view is a kind of intellectual snobbery, basically”. Whilst he understood the need for critical mass in some circumstances, he nevertheless felt that “it mustn’t be an injection of funds into one place...innovation won’t necessarily come from the big teams, they’ll come from almost any direction”, adding that “you get huge resentment if you don’t give some leeway for the smaller institutions”.

This resentment was certainly reflected in comments by those at newer or smaller institutions. For example, early career academic at a group C institution, R15, complained that the research assessment exercises led to a “top-loading [of] funds into Russell Group institutions”; and reader R14 at another group C institution that “all the HE policy...feels like it’s so pro-Russell Group, they’re just trying to shut down anything else. And we’re...a post-92, but a really good post-92, and we’re starting to fly as a university, and then as we’re starting to fly they’ve changed all the policy. So it’s quite infuriating!” Similarly, R20, a senior lecturer at a group D institution, noted that “we’re quite good at getting say, British Council [grants, who] typically offer a few thousand, and people go to smaller bodies for a few thousand; but the really big, several hundred thousand bids are the ones we’re not doing quite so well on”. Even at a research-intensive institution, young academic R11 was very frustrated by the Wellcome Trust’s Investigator Awards scheme (as discussed in

Chapter 2) because “it just feels very elitist at the moment. It’s really changed the whole face of funding, across the floor, because of its knock-on effect”.

The importance to universities of improving their position in league tables, and thus the prestige of their institutions, resulted in additional pressure on some academics at smaller institutions. Reader at a group C institution, R14, stated that “there’s a real pressure here to get links with other universities,...[particularly] prestigious universities, to show that we can work with peers like that”. Lecturer in English literature, R15, at another group C institution, commented that his English department was going to be entered in the forthcoming REF even though they were not likely, as a small post-92 institution, to get much money back from it; nevertheless, there was pressure to do well because of its importance as a prestige factor. R15 also bemoaned the fact that it is becoming increasingly difficult to attain funding from the AHRC as a ‘lone PI’ unless you are “good enough reputationally” and that in the humanities “it’s still the single author monograph that is the unit of currency for reputational capital”. Yet he noted that it was the more prestigious grants, such as those from the AHRC, that universities are most interested in: “there are smaller grants from lots of institutions...but they don’t carry the prestige value. It’s almost not so much about the money. [The smaller funders/grants] do not carry the same weight – the AHRC is the one you want to get”. However, as well as the increased competition for such grants, another downside, he noted, was that proposals to the larger, more prestigious funders take much more time, compared to the relative ease of going to some philanthropic funders for smaller grants (see §7.6 below for more on this).

6.6 Other trends: short-term and ‘safe’ research

Timeframes of research funding

Another fundamental issue that emerged from the data in this study is the disjuncture between the often long timeframes involved in research and the much shorter timeframes resulting from research funding and assessment policies. At the start of the study, I was surprised that so many interviewees – when asked about their long-term research aspirations - saw ‘long-term’ as meaning between three to five years at most. However, it soon became clear that this is because their research plans are closely pegged to the length of most Research Council funding. For instance, professor of statistics, R19, considered her research goals to be “fairly

long-term, but no more than say three years, often that's led by a particular grant". Whilst she noted that longer-term goals than that tend to be vague, partly because research often goes off in unexpected directions anyway, she nevertheless added that it was also partly due to the fact that "government interests move very quickly, and [on] very short timescales".

However, there were some participants, mostly in the natural sciences, for whom longer-term projects, lasting 10 or more years, were very important for their work. Organic chemist, R13, for example, described his work as being "all about long-term strategies and long-term projects". These academics faced particular difficulties, because maintaining funding for these long-term projects was becoming increasingly problematic due to the short-termism of most funders' grants - and also because of the need to demonstrate impact and produce outputs on short timescales too. This could have a deleterious effect on what lines of research could be followed. For example, in his vaccine work, professor of paediatric infectious diseases, R7, noted that "There are things coming out of these projects that I'd absolutely like to do and I think are interesting, but I think we have to be realistic that the chances of doing that are quite small" because although he believed it to be an area that would be interesting, and has potential for development, it might well take 5 to 10 years, and "That doesn't fit into the [funder's] 5-year agenda, so you just have to say we can't, we'll just have to stop there".

Another organic chemist, R9, stated (as we saw in §6.3 above) that in an ideal world he would like to maintain a balanced portfolio of longer term projects as well as the shorter term projects that come up, such as problems from industry, or initiatives from funding agencies. However, it was now very difficult to maintain funding for the longer-term projects: "It's becoming increasingly difficult to maintain a topic or a programme of research that spans multiple funding rounds, multiple students, and many years". And, echoing the comments made by R7 above, he added "You get a grant that lasts for three years, you come to the end of the grant, and you've found some interesting things out, and what you want to do is take that to the next level; so you'll write another grant and put it in, and [the funder will] write back to you and say 'well you've already had money for this, why haven't you solved it in the three years?'" And to make matters worse, since the EPSRC had banned resubmissions, "you then can't apply for that idea ever again!"

Interestingly, for organic chemist R13 (at a newer institution than R9), the majority of his projects have been 9-10 years long, which he seems to have maintained by

never having the same source of funding for a continuing project. He had largely been able to do this by making use of funding for PhD students from institutional QR funds. Since the institutional funding was based on strategic decisions rather than externally refereed, this had allowed some continuity. (This was a particularly interesting comment, partly because his was a group C institution with a relatively small percentage of QR income; but also because – as we'll see in Chapter 7 - another reader at the same institution, R14, claimed to “never see” what happened to the institution's QR funding.)

Professor of hydrology, R8, also talked of the difficulty in getting support for very long-term projects “because you've got to keep coming up with a justification as to why this should be continued” - and he noted that he had spent 30 years researching something he originally thought he would ‘solve’ in his 3-year PhD! He reported that it was particularly difficult to get government or funders to commit funding to the continuation of some monitoring and data collection records, begun decades ago, in important environmental areas (such as catchment studies, or climate observations) “and yet we need those long-term records. So there are some areas where it's difficult to get funding when for many reasons it shouldn't be”.

Risk-averse research

There were also concerns about how, in the current funding environment there was an increasing trend to fund low-risk, or ‘safe’, research. Professor of psychiatry, R10, felt strongly about this: “several funding bodies that I know well have become increasingly risk-averse - even though they say they're not, they have.” He was concerned that in the current climate “as money gets tighter...there's a lot of tendency to [say], you know, [if] they've written 10 *Nature* papers they're going to write another 10 - they're really good, but they're safe”. On this point he recounted a very illustrative anecdote: years ago, the MRC had worried that they were not funding sufficiently innovative or risky research, so they set up a panel, of which he was a member, with a view to funding research projects that genuinely tried to take risks, and in all they funded about 40 or so projects. At the end of the scheme the evaluation panel were very pleased with the results, claiming it had been very successful – all the projects had done very well and resulted in “x number of *Nature* papers, and Y led on to bigger MRC grants, etc.” However, R10 had tried to insist that if there had been no failures at all out of these projects “then it wasn't that risky was it?” In fact, R10 was interested in how little research is done into funding: he himself had written a paper early in his career, critical of the peer review process of

research grants, in particular how little of it is evidence-based. “It’s remarkable ...how few trials are done of different methods of funding, or different methods of peer review”. He felt that in order to fund the best science you had to accept that there would be failures – he believed that if there were no failures then you must only be funding ‘safe’ science.

Professor of paediatric infectious diseases, R7, echoed these sentiments: “Essentially it’s playing safe – if it’s too risky then they won’t fund it, and if something doesn’t come out of it when you put your final review in at the end and you haven’t had any papers then you’re in trouble as well. It forces you to publish, and it forces you to play safe”. He added that “It’s not easy to take risks these days because if you spend three to six months on it and nothing comes from it you’ve wasted your time”. Even early career academics were aware of this trend towards ‘safe’ science: organic chemist R18 stated that this, together with the low success rates, “inevitably make all of us more cautious”.

Physicist R1 expressed similar concerns over the effect this has on science: “they won’t fund something that you can’t say exactly what you’re going to do. But if you *can* say exactly what you’re going to do then it’s probably not really research!” As we will see in Chapter 8, this needing to say exactly what you are going to do in order to get funding leads some to effectively “get the results first”, which R1 felt “pushes down good ideas”.

6.7 Summary

This chapter has presented the findings from the study that relate both to longer-term trends and also fundamental issues in higher education research funding which are affecting the conduct of academic research. We have seen how academics feel that a number of these developments are not only constraining their autonomy over what research they conduct, but also distorting what is valued in academic research. The impact agenda, in particular, has highlighted the danger that funders and institutions risk valuing research that is high impact regardless of the quality, to the detriment of high quality research for which it is harder to explicitly state what the impacts may be. Furthermore, academics were deeply worried about what the longer-term effects of the tendency to fund risk-averse and short-term research would be.

The next chapter will focus on the more operational issues and the constraints resulting from funding mechanisms and research assessment that affect academics in their day-to-day research. Chapter 8 will then look at the strategies that academics employ in order to balance these pressures so as to maintain their freedom to control their own research agendas – *without* that being “the freedom to starve”.

Chapter 7

Pressures and constraints II: operational issues

“Being at the...top is really pernicious because what then drives is having to achieve the metrics that allow you to stay there.” (R17)

7.1 Introduction

Whereas Chapter 6 considered wider, and more fundamental, issues in the funding of academic research, this chapter will look at the pressures and constraints that academics have to deal with more directly in the day-to-day conduct of their research as a result, directly or indirectly, of funding policies. As we saw in Chapter 2, these include: issues associated with research assessment; the increasing competition for funds, and greater institutional pressure to win research grant income; and other issues such as demand management and the move by funders towards funding larger collaborations.

Funders' policies, strategies and the funding schemes they offer inevitably change over time. The difficulties that many participants talked of regarded these changes and the often unanticipated knock-on effects these can have, not just on themselves but on institutional policies. Many of the difficulties stem from the fierce competition for research funding today, as government funding for universities remains static but increasing numbers of universities look to increase their research income (and thus prestige) by putting pressure on academics to win funding.

7.2 Competition for funding

Many of the academics in the study acknowledged that funding for research had been competitive for many years, it was not a new phenomenon; however, they felt that competition was now so fierce that getting funding was much more of a gamble, a lottery even. Professor of English literature at a group A institution, R22, observed that “because there isn’t enough funding for all the good people, *which* good people get the funding seems extremely chancy to me”. Organic chemist R13 (group C institution) stated that “I used to think there was *almost* no chance, now there’s *no* chance of getting funding”. Some attributed the increased competition directly to the fact that, as we saw in Chapter 6, there was less money ‘in the pot’ for responsive mode grants (making it particularly hard for those whose work is less applied) - professor of hydrology R8 (group A institution), believing that the shift of funds to more directed programmes had made the competition for funding even more fierce than it was previously.

Even high profile academics at research-intensive universities – who, as we saw in the last chapter, are usually perceived to be more successful as a result of the ‘Matthew Effect’ and the concentration of funding - were not guaranteed success in funding applications. For instance, professor of psychiatry at a group A institution, R10, noted that “If you get 1 in 4 then you’re doing well”. Interestingly, he added that whilst low success rates do put academics off from applying, at the same time “low success rate often means high prestige, or, at the Wellcome [Trust] at the moment, it means high [levels of] money, so if you win, it’s like winning the lottery”.

Since success rates are so low and putting a proposal together is a very labour intensive process, many academics commented that they now think much more carefully before submitting a proposal, and if they do, they take extra measures such as discussing the proposal first with the relevant Research Council, checking they have institutional support, looking for other possible support, etc. For instance, professor of paediatric infectious diseases, R7 (group A), said he now submits fewer applications than he did previously: he needs to feel really sure they will have a chance of funding, and that might include, for example, securing industrial support.

However, sociologist R17 (group A) took an altogether different approach in response to the increased competition and low success rates: “I think part of the lesson is to try and do things quickly and not put huge amounts of effort into it, because you know that you’re going to put something reasonably good together,

and then it's kind of the luck of the draw in terms of who your referees are, what was the funding priority, what the rapporteur has taken back to the board of the ESRC or whatever. I think a good idea will shine, as long as all the ingredients are there and it's written coherently. It's probably about the idea of getting that initial pitch over to people that's critical". Professor of English literature, R21 (group C), expressed a similar view: she felt that you could not let the low success rates put you off: "You've got to keep knocking them in and hoping for the best".

Professor of statistics, R4 (group B), expressed a concern about the stultifying effect low success rates had on recruitment of research staff, and that the difficulties had a deeply stressful effect on young academics. Certainly for early career academics it appeared to be a harsh time to be trying to build up their research track record. Lecturer in immunology, R11 (group A), felt that success rates had recently got worse since the Wellcome Trust, one of the key funders in his area, had changed the way they fund: with the introduction of their Investigator Awards scheme (replacing two of its previous grant schemes, as we saw in Chapter 2), he believed that there were more people, like himself, applying to the MRC and the BBSRC at a time when there is generally less money. "So it has got worse, and it feels more pressured." Lecturer in organic chemistry, R18 (group A), also felt that low success rates affected morale – "It's really hard to be rejected and be enthusiastic about doing it again". And sociology lecturer, R12 (group B), thought that more could be done for early career researchers to give them "a chance to get something on their own merit. It doesn't have to be large amounts".

Sociologist R17 (group A) felt that both funders and universities should place more trust in academics, and provide "more discretionary funding on a, you could call it a gambling model in a sense,...where you create happy and motivated people by giving them moderate pots of resource to go and pursue their dreams without having to jump through so many hoops. ...You might as well use [a] lottery as a way of administering ESRC funding and save huge amounts of money, it would be way fairer, you know".

However, organic chemist R9 (group A) described what has become a vicious circle: "EPSRC success rates have gone down, and it's very disheartening, and some people go 'oh I don't see why I should apply'; other people – myself included – think it means we've got to apply more often, and so you put in more grants...and success rates plummet even further". But what he was most critical of was the Research Council's response to that, which was to put in place demand

management measures, as we will discuss further below, in an effort to increase success rates.

Demand management measures

As we saw in Chapter 2, introducing demand management measures was one response by funders to tackle the increased volume of research grant applications and the resulting poor success rates. One of these measures is the expectation that institutions do more to vet proposals internally before they are submitted, or the Research Council might even set a limit as to the number of proposals an institution can submit to a particular call. As professor of sociology, R3, noted: “There are now internal mechanisms for evaluating what’s being proposed...the Research Councils, they practically demand that, because they’re trying to reduce the number of applications and to improve the quality of those they do get”.

Understandably, a number of the academics in the study disagreed with the measures, or at least the manner in which they have been implemented. Organic chemist R9 (at a group A institution) felt that the EPSRC’s demand management policies were ill-conceived: they had banned resubmissions of grant proposals, which he described, somewhat bluntly, as “stupid”. (Professor of statistics, R19, noted that the ESRC had also stopped accepting revised proposals, unless they invited them.) Furthermore, R9 also felt that the threat of ‘blacklisting’ those who had submitted a certain number of poorly-rated applications within a given period was the real factor putting some off from applying: “people are terrified of submitting proposals, not getting them funded, and having the EPSRC send a letter to their VC saying they’re blacklisted for 12 months....it’s career death!”

Computational chemist, R5, was less concerned about the threat of blacklisting, because he felt that if you are putting in *good* proposals you would not be able to submit enough per year to trigger that threshold (implying, perhaps, that this may be less of an issue for experienced academics). But whilst he believed the best approach was to put as much effort as possible into a proposal, he noted that it “does mean that if it doesn’t get funded it’s potentially much more depressing, and there’s a temptation to treat it a bit like a lottery and think that the way to success is to buy more tickets”. However, he noted that it is sometimes the institution’s *internal* vetting or prioritisation that can be a problem. For instance, where the Research Council explicitly states only one application can be submitted per institution: “That’s more of a practical challenge. I don’t think EPSRC’s demand management ‘three

strikes and you're out' is nearly so much a restriction as having funding that's available only in certain areas, and a specific number of proposals per institution". This was echoed by sociologist R17 with respect to the ESRC. He commented that where the institution can only allow one or two proposals to go forward, that internal process can create massive ill-feeling. Furthermore, professor of statistics C8 commented that in niche areas an institution might not always have the relevant expertise (beyond the group submitting a proposal) to conduct such evaluations.

Shift to funding larger consortia

As we saw in the last chapter, a number of the academics in the study felt that too many funding schemes were now focused on individual PIs, which benefitted those with high profiles and established track records, but made it harder for others. At the same time, however, a number of the interviewees believed there had also been a move by the Research Councils and other mainstream funders over the last few years towards funding fewer but bigger consortia, with less money available for 'lone investigator' grants. Sociologist, R17, said "They want fewer, bigger projects, as a kind of condensation effect". And there was a general feeling that this was largely a means by the funders to save administrative costs. (And indeed, as noted in Chapter 2, a former NERC employee, in conversation with the author, confirmed that this was partly the reason.)

Even in the arts and humanities, whilst the model of research is still that of the 'lone scholar', professor of English literature, R21, reported that the AHRC is increasingly moving towards collaborative research, "including, and especially, collaborations beyond the academy...They do still fund single monograph projects, but they no longer fund the kind of schemes where you say 'I need 18 months to finish my book'". A more junior colleague of hers, R15, concurred: "if you were good enough reputationally and had a strong enough project it wouldn't be a blocker [to get lone scholar funding]", but added that "there is an increasing move towards inter-institutional consortia". Another professor of English literature at a different institution, R22, also remarked that "funding projects are now quite ambitiously conceived". However, she did see a positive side to this for her discipline: partly because it minimises overlap, but also because "better than that, as what used to happen, one person spends all their lives on an edition [of an author] and then dies and all their work went to nothing".

Clearly there are a lot of advantages in collaborating with others, and greater chances of success when applying. For example, professor of paediatric infectious diseases, R7, noted it can facilitate interdisciplinary work, shared use of equipment and shared experience – “You can’t argue with that really. The question is whether that’s gone too far...they would say they still fund lots of grants, but most of those are applied”. Professor of hydrology, R8, did not feel it was absolutely necessary to submit funding proposals as part of a collaboration, but he too recognised that it did increase your chances of success.

But there are also downsides to working in larger teams. For one thing, as organic chemist, R13, noted, “smaller collaborations tend to reap dividends more quickly. They’re usually more focused...they result in successful outputs”. Several others echoed this sentiment. For example, professor of statistics, R4, remarked that there has to be a balance: whilst he had been successful in obtaining a number of large EU grants, these were less satisfactory in terms of producing papers: “some of [my] most successful grants have been small grants [to go off and] work with one other academic”. Another organic chemist, R9, also observed that whilst collaborating with others had advantages, nevertheless, single investigator-driven research was as important “because that is where you make the initial discoveries that lead on to the bigger questions”. Moreover, professor of hydrology, R8, felt that the large EU grants were both inefficient and too directed: “EU grants...seem a very inefficient way of doing things...they try to guide [the collaboration, outcomes to policy]...Only about 20% of the evaluation is of the science, the rest is how you’re going to contribute to economic growth, policy, etc.” And for him, too, having small grants was as productive as having big ones.

Others talked of the difficulties in managing large collaborative grants. Professor of sociology R3, for example, stated that “I’ve never put in for EU funding because I’ve always felt that it is too constrained” and because of the “amount of paperwork involved”. Social scientist, R20, (at a group D institution) said that he had planned to work on an EU grant application whilst on sabbatical, but for him it was a shock to discover that awards were typically in the region of 1.5M Euros – “that wasn’t really what I had in mind!” And he added that although there was pressure from the university for academics to win some of the larger Research Council grants, he preferred doing consultancy type work because “they tend to be small pots of money for fairly manageable projects”. Professor of statistics R19, also talked of the difficulties of managing large collaborations, because “if you’ve got people on for five

or 10% [of their time], it can be quite difficult to get them to deliver on that - everybody's busy, and if you're not seeing them regularly it's quite hard". Organic chemist, R13, highlighted a different, albeit related, problem when working as part of a large consortium: that Intellectual Property can be quite an issue, particularly if it involves drug design and potentially large sums of money, and if the universities involved "start thinking you might have a compound in your fridge that's worth vast amounts of money".

Early career academics recognised the advantages of collaborating with more senior, high-profile academics and benefiting from their experience (and prestige); but sociologist R12 worried that "for early career people there's a danger in that...sometimes working with more senior people can lead to you being exploited, and ultimately doing all the donkey work and them just signing it off". Reader in sociology, R17, worried that the move to larger grants would adversely affect early career academics: "that will be the major impact... that you then freeze out [junior researchers]". There was a concern that, for example, the removal of the ESRC 'Small Grants' scheme (which was discontinued in 2011), would have a particular impact on early career academics.

Professor of psychiatry, R10, whose work is multidisciplinary and funded from quite a diverse range of sources, didn't agree that all funders have moved to funding larger collaborations, although he acknowledged that it did depend on the subject. Much of his work, for instance, involved working with the military, and thus in this area they could not collaborate with others for security reasons. However, he recalled that there had been at one point a "mania in the MRC for collaborations....[but] I think they realised that wasn't working". And, echoing the comments made by others above, he went on to say that sometimes collaborations are "more trouble than they're worth...I know they always think it's economies of scale, but often it isn't an economy of scale because you waste so much time".

7.3 Research assessment

The issues presented so far in this chapter have mostly related to the funding of individual research projects by the Research Councils and other funders, which represents one arm of the dual support system. Now we will look at issues that mostly relate to the other stream of dual support funding – that allocated to

institutions by the Funding Councils on the basis of the periodic research assessment exercises.

The interviews for this study were conducted over a three-year period, which happened to be the lead-up to submissions for the 2014 Research Excellence Framework (with only the last four interviews taking place after the submission date of November 2013). Understandably, therefore, issues to do with the REF featured prominently in many of the conversations. The REF was clearly responsible for a great deal of the pressures that academics were experiencing, with many comments demonstrating the extent to which it dominated their working lives – such as “we do all inevitably go towards what’s assessed and where the money is” (R20), and “REF drives everything we do” (R15). And many talked of the distorting effects they felt the REF has on their work.

The research assessment exercises, now the REF, have for a long time had a considerable influence on where academics publish their research. There is strong institutional and departmental pressure on academics to publish papers in the most prestigious (high impact), or ‘REF-able’, journals, and to have the requisite numbers of papers ready in time. Inevitably this pressure has meant that academics have to strategise their publications in a way they would probably not do otherwise. Professor of paediatric infectious diseases, R7, summed it up by saying: “you have to think publication now, you’re under so much pressure because of the REF...we’re going ‘we could publish this all as one paper, but then going ‘no, forget that, we need to salami slice this so that we end up with two decent papers’...we’re all writing out the ones we want, and we’re salami slicing, and picking the [journal] impact factors...”.

In Chapter 6 we saw how it was easier for academics doing applied research to demonstrate impact. However, for many of these academics meeting the publishing requirements of the REF was harder, because producing REF-able publications often meant having to do more theoretical work. For example, statistician R6 noted that the Statistics REF panel had historically been a “bit sniffy” about research that is too applied, and thus he had to ensure that he also undertook some theoretical research: “So occasionally I have to write papers with obscure theorems in them which nobody can understand”. This same point was made by an early career statistician at another institution, R16, who felt that this was more of a constraint for him than having to demonstrate impact.

Another academic, R20, whose research was applied and who, as we saw in Chapter 6, was thrust into the departmental spotlight because he was able to produce a good Impact Case Study, faced a particularly acute pressure in the run-up to the REF. A social scientist at a group D institution, he related how “I led on an impact case study, so suddenly went from being not really anywhere in research to suddenly having a leading role”. However, this brought with it a huge amount of pressure, because in order for his impact case study to be submitted he needed to also have four published papers in the relevant period, but he only had three. Since submitting the case study would mean that six or seven of his other colleagues could be submitted to the REF, an enormous amount of pressure was put on him to secure the fourth publication in time – “that dominated my life for a while”. Understandably, he was left feeling very hostile to the REF process. (He reported that he did eventually secure a fourth publication at the eleventh hour, albeit in not as prestigious a journal as the department might otherwise have liked.)

For those doing non-applied research the REF also presented particular issues. Lecturer in English literature at a group C institution, R15, talked at length of his deep concerns regarding the process. He felt (as quoted above) that “REF drives everything we do, even if we do not get a huge financial pay-off...we are driven towards the target [of getting] high quality publications that will secure a good REF return”. But he believed that this was “bizarre, dis-jointed thinking, because we don’t get a huge amount of money from it as a post-92 small institution”; instead, as noted in Chapter 6, he acknowledged that it was seen more as a prestige factor. He continued: “We think [the REF] is a colossal waste of time, in which we [jump over] massive bureaucratic hurdles, at costs which exceed our own salaries doing the research exponentially, in order to play tick-box games of allocating money that we know is about top-loading funds into Russell Group institutions, primarily in STEM subjects. ...It would make far more sense to just give us the meagre amounts of money we need to continue doing what we do. ...If every...university could have a proportional slice of QR funding relative to its staff size – that would be a far better way that would avoid all that massive expenditure, especially given the difficulty of appraising quality within the humanities”.

However, this contrasted quite starkly with how a more senior colleague in the same department (R21), viewed the effect of the REF on their discipline: “The REF is keeping the monograph there as a legitimate and important source of output, because...in our panel, the monograph is going to be the thing that gets 4*”. And

although the impact element of the REF had affected the work they do (“Impact has made a big shift...it means that a lot of us are doing much more public-facing activity”), she was not too negative about that either, feeling that English academics on the whole were quite versatile. And yet, another professor of English literature, R22, at a group A institution, took a different view, remarking that: “[the REF] has certainly discouraged me from undertaking projects that I might otherwise have done. ...It’s not a case of ‘oh this sounds interesting, I can do it’, it’s a question of thinking quite calculatingly about ‘given that this won’t look all that impressive in REF terms, do I really have time to do it?’”

Another discipline-specific issue was raised by social psychologist, R14. The previous RAE had caused problems within her discipline: “Psychology is in a tricky area at the moment, because it’s run by the experimentalists and the neuroscientists, and there’s a lot of us psychologists who aren’t necessarily included in their camp, and that’s quite tricky [funding-wise]”. In the upcoming REF she believed that as much as 50% of psychologists in the UK would not be entered into a psychology submission “because it’s not friendly to qualitative [research]”. She said there had always been this split within the discipline, but it had not been a problem until the last RAE, when “psychology got re-grouped in with *medicine*, and that’s what’s caused the problem. It’s taken it from being a social science to a [quasi-]human science. In the last [RAE] we had some eminent qualitative social psychologists whose research was actually graded really badly, because it was graded by someone who never liked their research [methodology]...they’re opposed to it”.

The research assessment exercises also raised issues for those conducting inter- or multi-disciplinary research. Despite assurances by HEFCE that the 2014 REF would allow for the evaluation of multidisciplinary work, it was widely felt that only the very specialist, discipline-specific, research would receive the highest evaluations. For example, environmental economist, C6, commented that even in research areas that are intrinsically interdisciplinary, “at some point disciplinary forces of specialisation start to come to bear on these things” and the need to publish in the specialist (high-impact) journals can act as a driver against continued collaboration. Statistician R6 also commented that “I do think there’s a conflict between the REF and the move towards discipline crossing”, noting that he was very lucky because “people [here] are reasonably relaxed about the REF – if they weren’t I wouldn’t be

able to do a lot of my research, because a lot of the papers I...publish [are] outside of the Statistics literature [and] not relevant [for the REF]...”.

The REF was also seen as having an adverse effect on the dissemination of academics' research. Social scientist, R20, commented that “I think the whole thing about the more prestigious/less prestigious journals is very distorting...you must publish in some isolated academic journal that's read by [only] a few people but that has this huge status with it”. An example of this was given by statistician R16: he and colleagues had a paper that they had intended to submit to a multi-disciplinary journal, but that would mean “the department wouldn't be able to submit that as a REF output”; so instead they had to submit it to a more REF-able, mainstream statistics journal. “I'm sure [our paper] would have been read by many more people if it had been published in [the more multidisciplinary] journal”. Similarly, social scientist R17 was also critical of “the imperatives...towards publication of journal articles, and the securing of large monetary values where that's possible”, feeling that this acted against “academic boundary-crossing and writing accessibly but intelligently [for a wider audience]” which he felt should be more highly valued.

There were also issues regarding prioritisation here, too. Reader in social psychology, R14, was concerned by talk that her institution might set the research themes early for the next REF: “it's who sets the theme, and which research is prioritised, that makes me slightly edgy”. And early career organic chemist, R18, questioned whether “the relative importance [the REF] places on things are truly what you think reflects good science; so I would probably argue about the proportion of impact, of importance, that REF puts on different things”.

Of course, as we'll see in the next section, the REF also brought with it institutional pressures to increase grant income, and inevitably this raised its own issues; as sociologist R17 commented: “discussions of what our income is, and is it as good as it should be [for a group A institution] for the REF...that's the tail wagging the dog really”.

7.4 Institutional pressure to increase grant income

Due to the importance of the REF outcome, both financially and with respect to their position in league tables, many institutions – even smaller and previously less research-focused universities - have placed a greater emphasis on increasing their

grant income, and thus academics are under ever more pressure to apply for and win more research grants. However, the amount of institutional pressure on academics to bring in external research funding appeared to vary considerably - though not always consistently - according to quite a number of factors, including the type of institution, discipline, career stage, the academic's existing portfolio of research grants, and the size of the department.

Some academics in the less research-intensive institutions seemed to assume that the pressure must be greatest in the most research-intensive universities. However, the picture that emerged was a mixed one – though this may partly be due to subjective factors such as different uses of terminology and outlook between individuals. For instance, two fairly senior group A institution academics, R5 and R6, described the pressure at their institutions more as “strong encouragement” or “background” pressure; another, R8, as “no direct pressure as such”. At the same time, however, there was evidence of the pressure you would expect at these institutions from some other interviewees. For example, R7, a professor at an elite institution (the same institution as R5), described the pressure as ‘enormous’. Physicist R1 had felt such a “huge drain...in terms of pressures to bring in money” at his previous group A institution, that he had actually given up a tenured position there and instead taken up a ‘soft-funded’ research position at a group B institution. Group A sociologist, R17, needed little if any funding for his research but nevertheless felt there was an expectation from the university that “you’re either on a grant or you’re looking for a grant”. (When asked if there were any incentive schemes he replied “Well, jokingly, you get to keep your job”.) At yet another group A institution, the immediate response of a professor to the question of whether he felt under institutional pressure to apply for funding was “Of course! I can’t believe anyone answers no to that question”, although he did then qualify that by adding “at least in medical research”.

It was not just in the medical or natural sciences that academics at group A institutions felt under considerable pressure to bring in funding. Sociologist R17, for example, as quoted at the start of this chapter, stated that “Being at the...top is really pernicious because what then drives is having to achieve the metrics that allow you to stay there”. He felt that “forcing people to find a dollar value to what they do is counter-productive”, adding that “I do think that people are happier, more productive and doing more rigorous good work where they’re kind of free to get on with it”.

At the group B institution that physicist R1 had moved to, he felt the pressure to bring in funding was less. He still felt some pressure to apply for 'whatever comes up' that is relevant to his area, but he admitted that this could be a hang-over on his part from his experience at his previous institution - that and the fact that he himself, now that he was no longer on a permanent academic contract, was dependent on research funding for his salary. R16, an early career statistician at the same group B institution as R1, also thought that there was much less pressure here than other places he knew of; however, he believed that this was not the same across all departments - some colleagues in other departments at the institution did feel under tremendous pressure. And in fact, a more senior statistician at the same institution, said that the pressure was "huge", and that he feels he needs to apply for whatever relevant funding opportunities come up (although he acknowledged that the pressure was probably slightly less than at group A institutions). R16 reported that the institution had recently introduced a 'research incentives scheme' which he thought was good and would be a motivation for more people to apply for grants ("it's essentially giving you back [some of] the overheads, so...that's a really good thing").

At newer institutions, the pressure to bring in external research funds appears to be growing. As mentioned in Chapter 6, R13, an organic chemist at a group C institution, had been fairly successful in attaining institutional QR funds for his research. However, since this was effectively to the detriment of applications for external funding, the institution had "more recently started a system where if you're applying externally then the QR money is more likely to come to you" (see §7.5 below). Furthermore, he stated that there was also now a drive at his institution towards attaining Research Council funds that would count in the next REF, so this was adding to the pressure. Social psychologist R14, at the same group C institution, also commented that the university was now trying to "prove itself" by establishing a research reputation, and thus there was "a lot of pressure to pull in a grant - and a prestigious grant". She could not, therefore, afford to be "choosy" about what funding calls she responded to - "it *will* fit me, I *will* find a way".

Sociologist R20, at a group D institution, noted that for years he had conducted his research with little or no funding - "people did tend to do research off their own bat, or with a little bit of funding to cover travel. It's only in recent years that the emphasis on funding has increased". He still felt that there was not too much pressure from his institution and that applying for funds remained mainly "driven either by interests or

more often by people asking us to do [consulting]”. However, institutional pressure to bring in funds was now growing, especially for big Research Council grants - “where of course we’re up against everyone else whose university is telling them we must get more money”. Furthermore, he added that it was now a requirement when applying for sabbatical leave to specify what research grants you would apply for during your leave. Interestingly, X2, a more senior colleague of R20, viewed such pressure in a more positive way, commenting that “I would be annoyed if I wasn’t put under pressure to do research - that would mean they weren’t taking me seriously”.

R21, professor of English literature at a group C institution, had concerns that the “REF, and institutional issues of income generation...[are] re-shaping the field”. At her previous institution she had been a REF coordinator, and had compared the number of monographs submitted in English to the 2008 RAE with the number submitted to the 2014 REF.¹⁶ Despite the fact that they felt they had developed their research culture, the number of monographs had gone down. This, she felt sure, was due to the fact that “people were spending a lot of time writing grant applications to [research] councils, and that has really, decimated actually, the number of books people are writing. Because it takes a long time to write a grant application. You can easily write a chapter of a book in the time it takes to write a big grant application”. And despite the fact that she had a long list of monographs to her name, she agreed that if she wasn’t bringing in any research grant income someone would be knocking on the door saying “What are you doing?”

Bringing in external funding was certainly an important element for career progression at many of the institutions in the study - if not for early career academics then certainly at higher levels. For example, reader in computational chemistry at a group A institution, R5, noted that “if you want to make a case for promotion then part of that would be based on ‘what’s your record of attracting funding?’”. And this was the case even for those in the humanities; R21, professor of English literature, for instance, commented that: “[At reader level and beyond] it’s taken as read that you will have a track record of successful applications to external funders”.

Some early career academics did not yet feel conscious of pressure to bring in funding, but still appreciated the importance it played in career progression. Sociology lecturer, R12, for example, did not feel there was institutional pressure on

¹⁶ Her interview was conducted a year after the REF2014 submission.

her to apply for funds, although she did state that she was “under no illusions that it’s important for promotion and progression”. But other early career academics clearly were already experiencing such pressures. For example, lecturer in immunology R11 (at a group A institution), reported that he had certain targets to reach each year: “I need to be not only applying but successfully applying”. And chemistry lecturer at another group A institution, R18, said it was “departmental policy that every academic here in chemistry should be applying for one large grant a year”. Although she added that the pressure to apply came mostly from herself – “because it’s most important to me”.

There was some evidence of the misunderstanding between the ‘two cultures’ of STEM versus social science and humanities academics. For example, early career chemist, R18, commented that “it’s fascinating how wide the gulf is in a modern university between the business model of a science department and traditional arts departments like English. They just don’t know how easy they’ve got it”, adding that “in science, particularly in a chemistry lab, you actually feel responsible for the lives of your students”. Whereas social psychologist, R14, believed that it was so much easier for those in the sciences to bring in funds: “My mentor’s an engineer, who literally just has to smile in the morning to bring in a million pounds!” and, she added, it was “infuriating seeing people leap-frogging [career-wise] because their particular [sub-field] can pull in big grants”.

Professor of paediatric infectious diseases, R7, like others, felt that the institutional pressure to apply for funding was misplaced because, as we saw in the previous chapter, “you can put grants in, but there’s no point putting a grant in, particularly in the current climate, unless it’s a well-developed grant – you’ve got preliminary data, all that kind of thing; if you just put in speculative grants, frankly it’s a waste of [everybody’s] time”. This was echoed by professor of statistics, R4, who also felt that such pressure was misplaced - “it’s getting so hard to get grants that I’m not sure that pressure works necessarily”. And organic chemist, R9, sounded a note of caution, in that funding success can be cyclical as funding priorities change. Usually this would level out over the longer term, but could be problematic when institutions take a ‘snap-shot’ view of, say, three years and the amount of funding an individual had brought in during that time.

However, some academics were understanding of the difficulties faced by their institutions. R9, for example, recognised that “they’re treading a fine line between keeping the funding agencies sweet; they’ve got to play according to the current

rules, and all universities are there trying to maximise grant income”. And professor of English literature, R21, commented that “I can understand the institutional pressures, particularly in the current HE context, which is tough, so I understand why there are pressures and how goal-posts are shifting a bit. I would rather we survived by changing goal-posts than didn’t survive because we hadn’t”.

Diversification of funding

Whilst grants from the larger mainstream funders are considered prestigious, due to the increased competition for research funding many academics are having to look to alternative sources of funding, and indeed institutions are keen to encourage this. For example, professor of English literature, R21, noted that “researchers are increasingly encouraged to be entrepreneurial”. She added that “there’s lots of reaching out to other organisations, non-HEIs, but also cross-Council funding, medical humanities is a big thing at the minute – working between the Research Councils, ...the Wellcome Trust and even maybe the medical research councils... So yes I think research *is* changing, and it’s diversifying”. Social scientist, X3, commented that there was more and more pressure from the university to “engage in research...of all sorts of descriptions...[including] commercially funded research and commercially profitable research”.

This move to diversifying funding sources, together with the greater prioritisation of research funding and the emphasis on more applied research (as we saw in Chapter 6), meant that academics are increasingly encouraged to look to industry and the commercial sector as a source of funding. Of course, in some disciplines industry funding is not unusual. Organic chemist, R13, for example, had often received funding from industry – from a range of large or small pharmaceutical companies. Interestingly, he believed that funding from the bigger companies, as well as being more prestigious, actually allowed them more freedom, whereas funding for such collaboration provided by the Research Councils (e.g. via their ‘Knowledge Transfer Partnerships’, KTPs) to work with the smaller companies, was usually expected to be very applied. However, one of his concerns was the government or funders assuming that industry would fund a large part of work in their area, “and it does...but in India and Brazil, not in the UK”, and not taking sufficient account of what the impact of the big pharmaceutical companies leaving the UK would have on their work. This was echoed by another organic chemist, R9, who stated that there “used to be a lot of funding from the pharmaceutical and

agrochemical industries, but unfortunately the economic climate and the reorganisation of these industries mean that that funding is drying up”.

However, many of those in other disciplines were wary of accepting funding from industry or the private sector, worrying that it would be either too directed, or a difficult relationship to manage. For example, sociologist R17 commented that “you have to think about whether you’re selling yourself out by doing it – whether it’s appropriate”. Similarly social psychologist, R14, stated “my mentor...told me to start to look for companies and private sector. [But] ...I’m a bit of a purist...who [then] owns the research?” and she was concerned whether such funders would want a say in the findings you report – in other words, that it risks becoming consulting more than research. Physicist R1 had similar concerns. He felt that the sort of funding streams you get in consultancy or in government department funding are very directed, and that this meant that whilst you can be honest you “had to be careful of your terminology...[and] be a little bit politically aware”.

However, professor of statistics, R4, felt strongly that “making a big distinction between consulting and research is a mistake” because “consulting projects have [sometimes] spun off research ideas or even some theory...”. This might partly be due to the nature of his research, which was a mix of both theoretical and applied work. On the other hand, younger statistician, R16, whilst he was open to looking to industry or corporate funding, he was somewhat wary of this as a result of experience in the past when his postdoctoral position had been funded by a large commercial company: “the obvious constraint was publishing – some of the things in the research were confidential, so we had to get permission if we wanted to publish anything; ...and then in the end they were pushing us to do things that were directly relevant for them but not necessarily from the research point of view. So I couldn’t say it worked well in terms of application, of research output”.

Nevertheless, for some it could clearly work well. Computational chemist, R5, noted that the commercial funding his team got (for software they developed) is “great for us because it doesn’t come with any restrictions on it – or the restriction is that it has to be for something that is in the interests of the company... but that’s pretty broad. In practice it means that as long as we’re doing things that might fit in with their long-term plans, we can do what we want”.

For some academics – particularly those doing medical-related research – charitable foundations have long been a key source of their funding. These include

the large charities, such as the Wellcome Trust, but also many smaller charities who usually fund research into particular diseases or issues. However, organic chemist R9 noted that “because of the reduction in funding from other funders, competition has increased to such an extent that [the charities too] are now being forced to focus funding and reduce the amounts available”. However, a bigger issue arising now with funding from charities – and many other smaller funders, or even small ‘pots’ of funding from the more mainstream funders - is that this funding rarely covers the ‘full economic cost’ of the research, and as a result many institutions are less keen on academics receiving too big a proportion of their funding from charities. For instance, professor of psychiatry, R10, stated that whilst much of what they do *could* be funded by charities, “we couldn’t afford to have too much charity money because of the funding issue”. (This will be discussed further in §7.5).

Diversifying research income was also linked to the requirement to demonstrate impact. Increasingly there is funding specifically targeted at ‘knowledge exchange’, or ‘knowledge transfer’, activities – activities that will result in demonstrable impact. Organic chemist R13 commented that his institution was pushing them towards this type of funding because of the impact agenda – “you’re having to demonstrate that you’re having those sorts of outputs anyway”. And this was also true in the arts and humanities. For example, professor of English literature, R21, remarked that the AHRC also now expected researchers to undertake knowledge exchange activities as part of their research projects – “they would say ‘ok, what are you going to do in those 18 months that will bring in public-facing research?’ So you need to be prepared to do other activities as well. I think the idea of the old arts and humanities scholar who never comes out of the library is quite a relic”. And professor of hydrology, R8, felt that because every research grant now has to have a dissemination or knowledge transfer component to it (which, to get funded, has got to be good as well), that this is now shaping the work that is being done.

Organic chemist, R9, agreed it was important to undertake such activities, but felt strongly that the funding for this should not be taken out of the Science Budget – “if you believe that’s important then have a different budget, find the extra budget to do it”. And early career immunologist, R11, felt quite strongly that translational work would be much better left to companies or those with the expertise and funding to do this properly. “I think academia is for generating new ideas, and then for industry to pick up those ideas to move them on. I don’t think there’s any value in academics

trying to push an idea through to the clinic, because we don't have the background, or the resources...".

The need (or not) for funding

One point not made in the sections above is that, of course, not all academics *need* funding in order to conduct their research. Academics in the humanities and social sciences, in particular, often need little if any funding to do their work. Understandably, the greatest angst was felt by those who did not need funding in order to do their research, but who were nevertheless under pressure from their institution to apply for grants. This appeared to be the case regardless of what type of institution they were at. For example, social psychologist, R14 (group C), commented that "For the university it's very critical. For me it's not. I [only] need someone to transcribe my data, that's it. If I have a little bit of time, and some money to go collect my data, I'm fine. But...the university is very much about money at the moment, which is quite infuriating". For her personally, in her discipline, prestige "is about publications and esteem, not about the money", and she was frustrated that "all the grant applications that I write but don't get take me away from writing papers". This was echoed by professor of English literature, R22 (group A), who noted that "the humanities tend to be very cheap – they just need a good library and perhaps some travel funds for conferences or to go to specialist archives". And the following response by sociologist R17 (group A) was typical of others in the humanities and social sciences: "it's great to have resource. But there's so much you can do...with very little funding". A number of these academics echoed the comments of R14 above, that prestige in their disciplines is usually related to the number of publications and the prestige of the journals in which they are published, rather than the number of grants obtained. Early career academic of English literature, R15 (group C), put it nicely: "it's a waste of time applying for grants. I just want to do the thing, not write the meta-document that means speculatively I could do the research....the degree of hassle in putting in for a grant is overwhelming...you see six months of your life disappearing when you haven't then accumulated the publications you need to satisfy the next round of REF and [other] things that also give you promotion".

In many cases, bringing in funding was important for career progression, even though they did not need it to conduct their work. Early career academics appeared to be acutely aware of this. For example R15, again, stated that "Funding to do my research is probably completely unnecessary...However, for those career goals it is

entirely necessary... [external income is] strongly evaluated". This was echoed by R12, an early career sociologist (group B), who said that "getting funding [now] would be the thing that tips me over to senior lecturer. I don't think it's always necessary to actually do the research". And the same was sometimes true of mid-career academics too, such as Reader in social psychology, R14 (group C), who didn't need funding to do her research but who felt under pressure to bring in funding "just to tick that box [to make] professor"; and X3, a mid-career social scientist at a group D institution, felt that there were career implications of not bringing in research funding - "that's certainly an area where I feel that...if someone wanted to criticise then that's what they could say, I haven't brought in much money". Senior academics also felt that funding was something that was expected of them. For example, professor of English literature, R21 (group C), commented that the main reason she applied for research grants was "because it is expected of me" but also because "impact is becoming more important, and really to conduct impact-related activity I need funding".

As you would expect, for most of those working in the natural sciences, and especially those doing lab-based or other experimental work, funding is usually essential in order for them to conduct their research. Organic chemist R9 (group A), for example, described his research as "cash- and labour-intensive... if we don't have labs and we don't have students doing lab work then the research goes nowhere". This was echoed by a junior colleague, R18: "the reason we all write grants is because we want PhD students doing our experiments". In some social sciences, too, funding can often be a necessity: for example, sociology professor, R3 (group B), said funding was "absolutely vital - because I'm doing theoretically informed empirical research. So unless I spend all my time writing textbooks, it's absolutely crucial". Hence, for these academics applying for research grants was part and parcel of what they do, and they were thus often more accepting of institutional pressures to bring in grant funding.

Sometimes the need for funding is not just due to lab or equipment costs - it can be the need for large research teams. For example, professor of statistics, R4 (group B), commented that "you cannot do big science without funding - you cannot create a new field or be really innovative with one man and a dog.... You need to have teams". He had held a number of EU grants, and although he stated that "I could perfectly well keep on working on the mathematics on my own or with some co-workers for the next 10 years without stopping [i.e. with little funding]...

[nevertheless] even in the more mathematical or theoretical stuff, you do need PhD students and postdocs". This was echoed by physicist R1: although he had complained (of his previous group A institution) that "The pressure from the university is 'you need to have postdocs', whether you need them or not", he did add that it was important to have funding for things like administrative support, and at least a couple of postdoctoral staff: "having a team is very important for bouncing things off.....that's something I benefit from enormously".

Even when funding was not needed to pay for research staff or materials, academics across all disciplines often still needed funding if they wanted to have the *time* to do their research - they needed research grants to buy their time out of teaching or administrative duties. For example, professor of English literature, R21 (group C), commented that the "type of funding that is desirable, I think, is...research leave schemes that take you out of all duties, not just teaching, to get things completed". Similarly, for professor of statistics, R19 (group A), research grant income was a means to maintain her research-focused role, i.e. funds to buyout from some of her teaching time. In addition, she was the director of a research centre, and felt both a need and a responsibility "to build capacity in younger researchers", adding "we were getting no money from the institution, so without grant money that wouldn't be able to continue...So yes, it was strong pressure".

However, funding was not necessary for *all* of those working in the natural sciences. They could sometimes conduct their research with little or no funding – it often varied, depending on what they were doing. Interestingly, however, physicist R1 stated that "my research needs really big money...or not very much at all! And there's something of a problem, in that most of the money is in the middle ground. It's not big enough to do something *really* useful, and so taking it is something of a distraction". (This is particularly interesting if we recall the experimental physicists in Laudel's (2006) study who, as we saw in Chapter 3, felt that they needed to 'downsize' projects due to funding cuts, as opposed to Leathwood and Read's (2012) higher education researchers who were concerned that funders were funding larger grants. This fits then, with R1's comment that "most of the money is in the middle ground".) However, R1 did add that for some research trying to do things on a shoe-string budget, without sufficient resources (people or equipment), can be a waste of time. Computational chemist, R5, also stated that in his field it is possible, if you are working mostly on the theory, to do it without support. (He told of a

colleague who had “given up” trying to get funding because of the time involved and the low success rates; but this colleague was sufficiently senior to “get away with not applying”.) But R5 and his colleagues needed access to high performance computing in order to do their research, for which funding was necessary. And in any case, he added, “I’m not sure that I could be here [at his group A institution] without research funding, so it’s more binary than that”.

Professor of psychiatry, R10, whose work usually required large funds (grants of over a million pounds), noted that he could occasionally do some research with little funding at all: “no research is for nothing, because I’ve got a salary, but we’ve done some lovely work on very minimal stuff”. However, he expressed frustration at one of his colleagues who did all his work unfunded - and seemed to genuinely believe it to be wrong to be paid for his research – apparently without appreciating that it was those bringing in funding who were paying for the lights and the porters.

7.5 Institutional resource allocation

Institutions tend to have complex internal mechanisms, or Resource Allocation Models, for managing and distributing their income for the various activities they undertake, including research. However, in most institutions this mechanism is very opaque to the vast majority of academics. Many are completely unaware of how QR funds, or the overheads from the full economic costing (fEC) on their research grants, are dispersed within the university. (In fact, as we will see below, many are unclear on the difference between QR funds and fEC overheads altogether.) This lack of transparency can result in feelings of distrust and frustration on the part of academics. The language people used when asked about this highlighted the lack of transparency and feelings of distrust; for instance, organic chemist R9 described the overheads on his grants as being “sucked into the centre and we don’t see any of it”. Sociologist R17 went further, stating that “the institution wants to see large amounts of money going to the administrative centre...[to fund an] expansion-orientated administrative set of functions around research and enterprise”, which he found particularly frustrating when so many researchers were “working on quite soft money”.

Quality-related (QR) funds

In this study, academics were asked whether they felt that QR funds that the institution receives in some way trickles down to fund some of their research activities. (Anecdotally, the first academic who was asked this question, professor of hydrology, R8, laughed and responded “You managed to ask that with a straight face!”.) Other academics responded with comments such as “No, not at all” (R9), or “I’ve never seen it” (R14). This seemed to be the case regardless of their status, grant income, or even whether they had played a departmental role in the last RAE. For example, R7, a professor of paediatric infectious diseases at an elite research institution and with a good track record of funding, did not feel that QR funds funded his research activities in any way.

Professor of statistics, R19, at another group A institution stated that the resource allocation was not transparent at all. As an example, she described how at her institution they had undertaken an exercise where they tried to work out what different members of the department brought in financially, which she believed had been a highly flawed exercise - it was very much focused on teaching and what people brought in in terms of fees. Some people generated a lot of income through that, but then those people were not research active and yet were still being allocated the same proportion from QR...“it didn’t seem to work both ways – so if you were a researcher you wouldn’t get any credit, as you shouldn’t do, for teaching income that people had brought in, but they were getting research [QR] income”.

Unlike others, professor of psychiatry, R10, responded that he was acutely aware of the importance of QR funding, but this was because he had held a leadership role for research in his institute; he stated that “each school is different... we haven’t got a perfect formula...but it’s generally [accepted] that if you’re doing well [and bringing in grants] then you’re more likely to get your request for a new lecturer honoured than if you’re not, or for extra space, or ...bridging funds for postdocs” when needed. He added that it is difficult to have a true resource allocation model for small¹⁷ units: “Biostatistics”, he said, “if we had a resource allocation model, would fail [as a viable unit], well we can’t allow that”. But he stressed the important thing was to have “a transparent system, and one that people feel is just in the long run”. However, the study seemed to clearly indicate that this is precisely what most institutions fail to achieve.

¹⁷ The definition of “small” will of course vary considerably from one institution to another. R10 described his own unit as “not that big...about £65 million”, which I expect to some of the other academics in the study would seem huge.

Interestingly two of the early career academics did know what QR funding was (many of the more senior academics – even experienced academics at the research intensive institutions - had to be ‘reminded’ of what QR funds were). For instance, immunologist R11 commented that “we’re made to feel aware that that’s where our salary comes from”, and he added that since his teaching load was very light, he assumed that “most of the HEFCE/QR money probably pays for me and my lab, space and all of that”. More specifically, organic chemist R18 stated that as a new starter she had had “many hours of talks about the financial model of the university, and [QR] was flagged up as something that does trickle down – everything that comes into the university coffers ultimately helps support your research in one way or another, even if it’s just keeping the lights on”. However, she nevertheless seemed to confuse fEC overheads with QR funds, stating of the former: “[On] the one hand you can see it as a way for the university to lay its paws on money which the government [has] tried to set aside for scientific research; but on the [other]...it costs far more to teach an undergraduate student in chemistry than you’re making from their tuition fees...”.

Professor of hydrology R8 (group A) - who had initially laughed when asked the question - did in fact believe that some QR funds trickled down to his department, and then staff would get 1% of *staff costs* allocated to their own accounts. However, again, this implies some confusion or blurring of QR funds and fEC overheads. He added that it was not clear to him what happened to the rest of the funds - “It’s not clear how that works”; and even when he had been more involved in RAE matters in the past and had tried to find out “what the formula was” he stated “it was absolutely impossible...probably for very good reasons at the centre”. Similarly, professor of English Literature at another group A university, R22, was not aware of the mechanisms by which QR funds ‘trickled down’, but did feel “aware in a broad sort of way that the university thinks we’ve done well, and certainly I’ve noticed that we get a bit more personal research money than we used to”.

Early career English academic, R15, complained that the resource allocation was not well explained. “We received no [QR] money from the last RAE because we weren’t entered as a department”. Yet he noted that his “department gets 150 students in every year, paying £9,000 fees now...That is perhaps more of a source of income and may cross-subsidise some social science and science subjects, [more] than the relatively small amounts of QR funding that came in [from the last

RAE]. ...it's quite a complex ecosystem of funding, especially now that teaching funds have been withdrawn”.

Reader in organic chemistry, R13, at a group C institution, was unique in this study in claiming that his main source of funding is from the university itself, and that QR funding had been “extremely valuable”. He attributed this to the fact that his institution was trying to reposition itself as a research-focused university. The university had received some QR funding as a result of the last RAE that had enabled them to support PhD students (including overseas students) – but as yet not many academics were applying to that. So for him “it was relatively straightforward to get [this] money directly from the university, in reasonably significant quantities”. This was in stark contrast, however, to the response of another Reader – in social psychology - at the same institution (R14): when asked whether she felt QR funds at the institution trickled down in some way to fund some of her research she replied “I’ve never seen it...[It’s] not transparent...even as a reader it doesn’t trickle down to my level how it’s spent”. Despite his access to QR funds, R13 was nevertheless concerned about how funding would be distributed after the REF – “last time smaller research universities like this were given a reasonable go; I think it’s less likely that that will happen this time”.

Full economic costing (fEC)

Participants who had been conducting funded research projects prior to 2006 were explicitly asked about what effect the introduction of full economic costing (fEC) had had on how they resource their research projects. Prior to the introduction of fEC, most experienced academic researchers planning a funding proposal would have an idea of what their planned research project would cost – e.g. the cost of a postdoc for three years, the cost of, say, 10% of their own time, as well as an amount for the travel, computers, etc. they would need, and then add a set percentage for overhead costs (e.g. 56% of the direct costs for a proposal to one of the Research Councils). But post-fEC, the costing of a proposal has become considerably more complex with rates of indirect and estates costs, based on quite convoluted TRAC costing mechanisms, and academics have usually to rely on the (now specialist) university research administration staff to provide the calculations. (Indeed, professor of psychiatry, R10, described the main difference since the introduction of fEC as being that PIs no longer have control over these overhead funds anymore.) Under fEC, the overheads on a postdoctoral researcher are considerably higher than they were previously (often 100% of their salary). So, as described in Chapter

2, although the research in the institution is more sustainably funded - as was the intention of fEC (the infrastructure better supported, overhead costs better covered) - for individual academics it is more of a struggle to cost in the resources (especially research staff) that they need to carry out their research projects and still stay within the budget guidelines expected by the funder.

Many interviewees commented on, and were frustrated by, how 'expensive' fEC made grants appear, and that this often limits the number of researchers that can be employed on a grant, or research staff have to be costed in at lower salary bands than they would otherwise be. Early career immunologist, R11, was particularly frustrated by how expensive fEC made grants and especially hiring postdocs "you think...I want to pay someone £30,000 a year and it costs me £90,000", and he felt really bad that "you've got all these people coming out with PhDs going on to research assistant salaries because there's no money for postdocs, because it's so expensive". Similarly, professor of statistics, R19, commented that "You get a lot less for your money", and that the very high cost of involving more senior people, "often then limits the number of researchers that you can employ". She also felt it made people cut down on costing-in administration time, which was very short-sighted; for example, she said she had seen some really large grants, such as 5-year multi-million programmes, where the administrator was only 0.1 FTE, and as a result the projects suffer for it. "They'll also put in unrealistic amounts for themselves, to direct a large programme – people put in amounts of 5% [FTE]...". To make matters worse, some academics were frustrated that if anything the university looked for ways to "bump up the costs" (R12), with questions such as "is there anything else you can add?" And, similarly, sociologist R17 was scathing of a "tendency to scale up and so on".

Social scientist R20 at a group D institution, who often worked with charities, complained that the high cost of fEC grants made negotiating projects with external partners difficult; he gave an example where "[we] were working with perhaps the leading homelessness expert in the country and my day rate was higher than hers - and this was entirely down to full economic costing". As a result, for small projects they would often have to cost in less of the PI's time than they intended to work on the project – "which I know defeats the whole fEC logic".

The lack of transparency over institutional resource allocation models also extended to the allocation of research *time*. For instance, although senior lecturer in sociology, R20, could not immediately recall what QR funding was (which was not uncommon),

he assumed that this was what funded the system of research time allocation at his (group D) institution: they are allocated five weeks for research and scholarly activity, with those who are research-active getting an additional 300 research hours in their timetable. However, it was a bone of contention that “the amount of time you get doesn’t seem to vary very much according to whether you got an extra zero on a [research] contract.... I think for people who get really big grants there’s some adjustment made”. Whilst he acknowledged that it is not always easy to make adjustments at relatively short notice, he did feel the university could be a bit more flexible according to what research grants staff have. This same point regarding resource for research time was well illustrated by R17, Reader in sociology at a group A institution: “[research grant income] gives you defensible amounts of time that theoretically should be being bought out. But...it’s whether your institution actually recognises that. If I’m two days a week on an ESRC [grant], that’s not translating into somebody on 40% coming into the department to cover some of my teaching and admin. ...Tacitly I think people understand that... but how elastic is the relationship...?”

As we saw in §7.4 above, not only is there institutional pressure on academics in most universities to bring in external funding, but institutions are now also keen that the funding attained carries fEC overheads. Readers R14 and R13 - both at the same group C institution - reported that if they win grants that do not pay fEC then this is marked as a deficit against their unit by the university. R13: “when you [apply] to charities who won’t [pay] fEC, the university will essentially charge back to the school.... they make sure that it’s understood that the school is bearing the cost, and essentially on paper...it looks a little bit like a grant from a charity or the Leverhulme Trust...costs the school, [even though] the prestige of getting one of those particular awards outweighs it for the university”. Hence, professor R10’s comment (in §7.4 above) that they “couldn’t afford” to have too much charity money because of the overheads issue.

It is little wonder, therefore, that academics often had very negative feelings about how the institution handled overheads. For example, lecturer in English literature R15 said of research grants that it “feels like you’re being robbed by your institution... the university...want me to apply for grants [but] make it less likely I’ll get it because [they’re] whacking unrealistic costs on top of it that [funders] then refuse to pay. ...they already have the office space there...they need to find a way of [covering that] that doesn’t triple the budget”. This lack of clarity over the need (or

amounts needed) to cover existing infrastructure or staff was expressed by others, with many making comments like ‘the lab is still there’. Sociologist R17 felt “implicitly I think it’s an over-costing, particularly of social research – you cannot justify 100% extra cost for a staff member to... How has the institution been running if they didn’t get [the grant]? It’s kind of a sleight of hand that I suppose is required or gambled on.... I can understand the defence of it...but it’s double-dipping really, isn’t it? I’ll still have my job if I don’t get that project”. And organic chemist R13 echoed this: “I guess in accounting terms [they regard it] as a loss leader, but I guess it doesn’t really cost them anything – the labs are still there, the salaries are still paid”.

7.6 Time constraints

All the interviews seemed to indicate that the biggest challenge that academics faced *vis-à-vis* their research was actually the increased pressures on their *time*. Some attributed this to the fact that universities have become much more bureaucratic and audit-driven, and thus there were ever more administrative tasks to be completed. Professor of psychiatry, R10 (group A), for example, felt strongly that too much time and money is now spent on administrative or regulatory processes – such as governance, audits, ethics review - making some things, like clinical trials, prohibitive. “The amount of money that gets wasted in all that stuff means the amount you actually have available for improved research, I think, is significantly less”. Professor of Accounting, C3 (group B), reflected that the pressures of balancing teaching, administration and research “for many years has required well over 60 hours a week, to the detriment of family life”. Professor of Statistics R19 (group A) noted that the requirements of the REF and the impact agenda, as well as reporting to funders, added considerably to the administrative burden on academics today, and that “Keeping records of what you’ve done, entering all the details of your outputs into databases, this all takes quite a lot of time”.

The same was true at newer, less research-intensive institutions: at a group D institution, social scientist, X3, described the time pressures as “intense, scary, sometimes almost overwhelming”, and her colleague X5 described their role as “a job that has no boundaries and has no work-life balance”, and that much of it is “unseen work”. Another senior colleague, X2, who had started at the university when it was still a polytechnic, felt that there had been more time for research in the past

simply because student numbers were then much smaller. And a junior colleague, X1, who was very keen to do research, complained that her heavy teaching workload (because she was relatively new and having to do everything from scratch) made finding time for research almost impossible – “I need to try and fit it in and that sometimes means doing it on an evening or whatever to get it done”.

In nearly all cases (as noted with R20 above) there were big differences between the ‘in theory’ and ‘in practice’ time allocated for research, and furthermore this often varied “wildly” due to teaching and administrative commitments, and because of the way contract research ebbs and flows. There were inevitably huge sways between term time and non-term time, and the holding of grants that provided ‘buy-out’ from teaching and/or administration. In practice, as seen in §7.5 above, when academics held research grants which paid for some of their time, they rarely got like-for-like reduction of their teaching or administrative duties, and often it was not clear how time on grants is compensated for. Reader in sociology R17 (group A) said that whilst in theory he probably had two days a week for research, he had recently taken on a new faculty directorial role: “that’s supposed to be two days of my week, I’m supposed to be two days a week on the [X research] project, I have a senior admin role as exams officer, and I teach on top of that. So when you tot it up you say, well, that’s 150% of a job”. Thus, responding to funding opportunities, as the university encouraged them to do, meant that many ended up being over-committed at times, which could be very stressful.

Others also commented that research time was often squeezed by other activities. Sociologist R12 commented that “in theory I feel that I should be spending 40-50% [of my time] on research. In practice, I think because teaching is so immediate, often you feel almost selfish taking the research time. ...the research gets squeezed to Saturdays, evenings, holidays”. And social psychologist R14 noted that “officially as reader I get two days per week. But this year...[I am] working here [in the central research enterprise office] as well, [and also teaching]”. Senior academics often spent time helping more junior colleagues with their research. Professor of English literature, R21, for example, was a School Director of Research, and thus spent a lot of time helping colleagues write book proposals, grant applications, running workshops: “I spend as much time on that as I do on my own research. So at the present time my research is being squeezed by that role, because the institution measures me as much on that as it does on my own”. And computational chemist, R5, also noted the additional pressure resulting from the expectations of students

who were now paying much higher fees than before: “when you have students who are being charged at least three times as much as they were before...they’re expecting something more from that, from largely the same people who are having to compete for research funds when it’s more difficult”.

Grant-writing time

Of course, one of the activities that consumes large amounts of academics’ time is putting grant applications together. Whilst not a new phenomenon, of course, the increased pressure to apply for grants was compounding this issue. Almost all respondents commented on how time-consuming it is preparing research grant proposals. Professor of paediatric infectious diseases, R7, commented that “you are spending 30 to 40% of your time on this stuff”. He himself preferred to go for bigger grants, because “it takes just as much time to write a big grant as it does a small one; so you might as well write the big ones and do the little ones off the back of those if you feel [it’s] right”. This was echoed by professor of psychiatry, R10: “I don’t think it’s any more difficult to write a grant for £2 million than it is for £20,000”. However, as we saw in §7.2 above, *managing* large collaborative grants took up a great deal of time and commitment (but, as noted, smaller, lone-PI grants are increasingly harder to get). A number of academics commented on the time spent on managing big grants and research teams, with many stating that they steer away from applying to EU funds because of the time and bureaucracy involved. The comment by professor of hydrology, R8, was typical of many “I never get involved in EU projects unless it’s by invitation, because the management of those is so horrendous”. He added that such time commitments affect the time you’ve got available to think. “I’ve always put preference on time to think, rather than getting money in” (although, as we will see in the next chapter, he noted that he was lucky that at his stage of career he was able to rely on collaborating with others and being a “parasite” on other peoples’ funding).

For early career academics, writing grant applications could be particularly demoralising. Sociologist R12 reported that she had had four unsuccessful bids over the last few years, all of which had entailed a lot of work. She had spent a particularly long time – the best part of a year - developing a full proposal that had been successful at the outline stage, but which was then unsuccessful - “it kind of leaves a bad taste in your mouth, that whole process”. More senior sociologist R17 believed that “you need to be strategic. You need to think about what’s the opportunity cost of saying right, I’m going to spend the next month... you can really

burn yourself out through the application process". He was very critical, too, of internal institutional funding mechanisms. He recalled spending half of one period of study leave putting together an internal application, writing "the equivalent of almost an ESRC application", only for it to be turned down. He described it as a "low trust environment" with a "survival of the fittest mentality...a test as to whether you can even do the paperwork in time. And I think that mentality should be challenged, because it's taking time away from actually doing the research". Furthermore, he felt there was an element of exploitation because university managers took the view that "well, these people will work all hours of the day because they love what they do and they'll work weekends...".

As we saw in §7.4 above, those academics who do not really need funding in order to do their research, felt particularly frustrated at having to spend time on grant applications which might otherwise be spent writing papers for the REF (that would also benefit them more in terms of disciplinary prestige). For example, professor of English literature, R22 (group A), noted that in the same amount of time it took to write a funding proposal "one could write an article...and you know that the article will be accepted, [but] you have absolutely no idea if the funding will be or not; I personally prefer to do something more bankable". It was very interesting to note the views of oceanographer R2, who works in the commercial sector, on the opportunity costs of time spent writing grant proposals: "In a commercial world you would probably avoid bidding for something where your odds of success are less than 1 in 4. But in an academic environment it's invariably the case that the odds are far less than 1 in 4".

7.7 Summary

This chapter has looked at some of the more operational, or day-to-day, constraints facing academics and their research. Few of these constraints are, perhaps, new, but they have become compounded by the increase in competition – between universities generally and for research funds in particular – as well as the new emphasis on impact-related activities and 'grant metrics'. It is particularly hard for those who find themselves under pressure to bring in research grant funding when they do not actually need it to conduct their research. Together these constraints are making it particularly difficult for academics to conduct the research they feel is important to them – both to have the time to do so and to conduct it in the way they

would like to. Furthermore, some of these constraints, such as the publication requirements of the REF and the need to demonstrate the impact of their research, seem to pull academics and their research in different directions.

Chapters 6 and 7 may have painted a somewhat bleak picture. The next chapter, however, will look at some of the strategies, whether conscious or unconscious, that academics employ in order to balance these constraints and pressures and still manage to conduct the research that they believe is important.

Chapter 8

Strategies to strike a balance

“...there’s a temptation to treat it a bit like a lottery and think that the way to success is to buy more tickets.” (R5)

8.1 Introduction

The previous two chapters have looked at both the wider, more fundamental issues in higher education research, and also the more day-to-day pressures and constraints on academic researchers today. These have included trying to balance theoretical or basic research with more applied work, trying to maintain longer-term projects, coping with institutional pressures to bring in external income (at a time of increased competition for funds), trying to balance the often conflicting requirements of the REF versus the need to demonstrate impact, and the difficulty of finding time to conduct research in the face of increasingly heavy workloads. This last chapter presenting the findings of this study will look at the strategies that academics employ in order to navigate their way through these various constraints and demands, and still be able to conduct the research that they feel is intrinsically important to them. As professor of hydrology, R8, noted, “academics are not very good at being constrained – they’ll still probably go off and do what they want to do anyway.” This chapter will look at some of the ways in which they manage to do that.

Some of the academics in the study did not really think, consciously at least, in terms of ‘employing strategies’ *per se*. Sociologist R17, for example, described it more as a “kind of muddling through, a kind of survival”. Others agreed that strategies were needed because “there are boxes which have to be ticked [to meet Research Council requirements] or else you won’t get anywhere” (professor of English literature, R21). Some saw it more as a case of altering perspectives. For example, organic chemist R13, when talking of the need to fit to new, less

traditional, funding opportunities, commented that “it does change a little bit the way you look at your research. I’m not sure that’s bad...it’s just small changes in perspective”.

However, over the course of the interviews it became clear that there did exist a number of common strategies that were employed by the academics, ranging from the ‘small changes in perspective’ to the openly ‘playing the system’. As stated in Chapter 6, many of these strategies are not new – the majority are similar to those identified by some of studies discussed in Chapter 3; nevertheless, as with the issues identified in Chapters 6 and 7, recent policy changes and in particular the increased institutional pressure on academics to bring in grant funding and to produce high quality outputs for the REF, have made these strategies both more pervasive and more necessary.

8.2 Academic capital and prestige

An obvious strategy, even if it is unlikely to be thought of in such terms, is simply to aim to do well, i.e. to build up a track record. As we saw in Chapters 2, 3 and 4, science and academic research largely operate on a reward system based on academic capital and the prestige that this confers on individuals. This capital accrues from, for example, priority in research, papers in highly regarded journals, prestigious grants, highly cited papers, prizes and titles. As academics build up sufficient academic capital, and gain in prestige, both the ‘Matthew Effect’ and *Bourdieuian* reproduction appear to come into play, seemingly making it easier for those with, for example, a good track record of funding to attain yet more funding. For instance, reader in sociology at a group A institution, R17, commented that “if you’re doing well you’ll continue to do more well, because you seem to have a track record.”

Having grants was often cited by participants in the study as a means of mitigating the institutional pressure to bring in more funding. Reader in chemistry at a group A institution, R5, for example, stated “If I have a bit of funding and I’m able to produce several papers in high quality journals a year, then I have some breathing space. And if I have funding for a postdoc with overheads and can produce between six or eight good papers a year then, that’s not going to take me to the next level, but things are going pretty well”. Professor of sociology at a group B institution, R3,

stated that “I’m not under any particular pressure myself, not least because currently I’ve got these two grants, so while I’ve got them I’m in a kind of privileged position”. And R19, a professor of statistics at a research-intensive institution, recounted how they were “Constantly getting emails about new funding opportunities...so it was quite a relief when you got a grant and didn’t have to worry about it too much for a little while”. She added that, if she had not been in a strong position - because she had other funding - then she would probably have had to apply for “lots of little things”. It was also the case at newer institutions. For example, for R20, whilst his (group D) university was keen that academics try to win large Research Council grants, he knew that “as long as we’ve got the consultancy coming in we tick a box in having bid for funding and got funding, so I think that’s one means by which the pressure is kept off”.

For those for whom it was difficult to diversify their funding sources, building up a ‘track record’ with a particular funder could be especially important as a strategy. For example, professor of social statistics, R19, was somewhat constrained as not many other funders, besides the ESRC, fund the methodology work that she does. However, as a result she had “always gone for ESRC grants [and thus] you build up a track record with them”.

In fact, in some instances, where individual academics had a good portfolio of grants or a prominent profile, then departments or institutions might not be too choosy where their research grant income came from, or for what: professor of paediatric infectious diseases at a group A institution, R7, observed that one of his three core research areas did not really fit at all within the disciplinary area of his department, but, as he put it, “I get a lot of money for it, so frankly nobody cares”. And although he had reported that there was enormous pressure on academics at his institution to bring in research funding, he noted that “I feel slightly less pressure because I have this huge grant, which is considered quite prestigious”. Even so, he still felt that he has to be opportunistic: “If there are grant rounds which are absolutely in [your] remit then you have to do it”.

Building up academic capital or prestige allowed academics more choice in what they do – both in terms of what research they focused on and what grants they applied for (or which proposals they would join). For example, professor of statistics, R4, commented (somewhat modestly) “Now I [can] pick and choose a little bit, but...in the early days I would do anything”. And professor of sociology, R3, that “Because I’m [now] reasonably well networked people come to me [with invitations

to join funding proposals and collaborations]”. Meanwhile, professor of hydrology, R8, reflected that whilst earlier in his career he needed funding for a research team and for fieldwork, now – having built up a reputation - he could take advantage of being able to work “with some of the best people in the world in terms of data collection”, being, as we saw in Chapter 7, a “parasite” on other people’s funding. Even for early career academics, research grant ‘capital’ could soon make a difference. Lecturer in immunology, R11, for example, stated that at the start of his career he would apply for everything - too much in fact; but now, being at a group A institution, and “Having got to a point where I’m being funded a bit better, I can be a bit more selective about where I apply”.

8.3 Specialisation versus being a generalist

A number of academics in the study acknowledged that today it was important to strike the right balance between specialisation and diversification. In the face of intense competition for funding, it can be critical to have a number of different avenues open to them, rather than specialising on one line of enquiry only. The reflections of professor of statistics, R4, illustrated this nicely: “People who get prizes, etc. tend to have specialised more...They pick one particular field and become the leading figure in that field. I’ve always had a fear of over specialisation...I consider myself much more a polymath. ...most of my serious academic work is based on three or four [areas] that I flit between”. However, he cautioned that “the danger of being a generalist is that you [can end up] spreading yourself too thin. But being a generalist means more funding opportunities you can apply to. You’ve got to be versatile”.

An interesting take on getting this balance right between specialisation and diversification was made by reader in chemistry, R5: he said he had been inspired on hearing about how the company Apple had re-organised itself: “they had simplified things so they basically had four types of product – the four things they did. And I thought, if I’m pretending I can do any more than that then I’m just kidding myself”. The advantage of “having several things that I’m trying to do means that if one of them isn’t working out then you have the option of concentrating on one of the others”. By contrast, he related how colleagues in another department had specialised only in one particular area, but they recognised that this was a high risk

strategy should funding then be shifted away from that area – and he quoted one of these colleagues as stating “we actually don’t have a plan B”.

Whilst most academics felt they always had to be looking ahead for potential future funding opportunities, the need for a ‘plan B’ was particularly important for some. For example, for professor of paediatric infectious diseases, R7, whose research centred on vaccines: when a particularly effective vaccine is discovered the research funding for that work could quite suddenly dry up – the researchers could find themselves victims of their own success. So having other lines of enquiry ‘on the boil’ in these circumstances was critical.

For some, diversifying their research interests was not just driven by issues of research funding, but also a response to the impact agenda. However, some academics did not see this as problematic; for example, professor of English literature, R21, as we saw in Chapter 7, felt that English academics on the whole were quite versatile, and diversifying their interests could make their research more accessible to the public.

Engineering professor, C5, at a research-intensive institution, also felt that because of the changing funding landscape it was important to advise young academics to try to think of themselves as having a broad research platform - a set of capabilities that are not too sector-specific, because “you can’t make a 40-year career now by being too specific”.

8.4 Diversification and being opportunistic

Being a generalist, as we have noted above, helps increase the number of funding opportunities that academics can apply to. And, as we saw in Chapter 7, the increasing pressure to apply for funding at a time when resources are stretched is inevitably leading many academics to look at potential funders outside of the usual mainstream funders. Professor of English literature, R21, reported that at her (group C) institution they have a college business manager to advise on how to maximise research income and who encouraged diversification of resources. “He’s tended to move away from the Research Councils – not to say we shouldn’t apply to those, because they are important – but saying, bearing in mind success rates are so low you might be better off trying to get it from this source, or that source, or finding an interested private company or a public organisation, etc. who might

sponsor you". She also added that whilst the AHRC remains the main funder for her discipline, increasingly academics in the arts and humanities are going to funders like the Wellcome Trust, for example, to tap into the current 'wellbeing agenda': "there's lots of reaching out to other organisations, non-HEIs, but also cross-Council funding; medical humanities is a big thing at the minute". Again, this could be seen as a response both to the need to diversify sources of funding, but also a result of the impact agenda.

R15, a younger colleague of R21, was making the most of alternative ways of generating income – or income equivalent - at his institution: "they calculate media exposure and how much it's worth to them in terms of advertising revenue. One of my projects was featured in the THE cover story a while back, and they valued that as £30k's worth of advertising they would have had to pay to get that kind of exposure. So...I can turn that to my advantage and 'bill it' as though it were external income...".

Many of the interviewees recognised the need to be both opportunistic and strategic. For professor of sociology, R3, it was simply a case of "I have areas and I tend to work within...and then opportunities arise and I try and exploit those". Organic chemist R13, as we saw in Chapter 7, had been opportunistic in making use of both PhD studentships and institutional QR funding as a way to maintain funding for his longer-term projects. Others described taking advantage of calls in what might otherwise be a minor interest, or taking up sometimes unexpected opportunities. For example, professor of paediatric infectious diseases, R7, related how, earlier on in his career, he had had written a grant proposal for something he was not particularly interested in – "the area was the right area, it was something I could do, but it was entirely opportunistic, and I ended up getting a piece of kit that cost £100,000...[and] it's still [here]". He felt there was no way he would be able to get that piece of equipment today – not without match-funding or being part of a large consortium. "So that was absolutely 100% opportunistic." He continued, "You have to be strategic if these things come up, and you might think I have to stretch this a bit to get it into that round [but] it allows me to do what I want to do; I understand fully that I have to do what I said I would do in the grant, but if that allows me to do other stuff as well, you have to do it".

R7 also gave another, quite different, example of being opportunistic where money, rather than equipment, was the driver: as mentioned in §8.2 above, one of his three core lines of research was very different to his other work and did not fit within the

disciplinary area of his department: “What happens is, you get interested in an area of research, and frankly there are opportunities to get money, and I’ve done very well out of this particular [field]”. Thus he continued to maintain this line of research for that reason.

There were other examples of opportunism or serendipity: Reader in chemistry R5 related how, when a line of enquiry had not worked out as planned, he had searched the literature to see what else he could apply the research to, and discovered a field he did not previously know about: “up until that point I’d had no interest in the chemistry of the inter-stellar medium, because I didn’t know there was any. ... So five years ago I wouldn’t have predicted that that’s one of the things I’d be interested in, but now I’m a named associate on a research proposal that is a network for groups in France, where [French aerospace] are particularly interested in these types of systems”.

A number of other interviewees reported how they were lucky to be researching something that is currently considered a ‘hot’ or ‘sexy’ topic funding-wise. For example, as we saw in Chapter 6, organic chemistry lecturer, R18, noted that “I’m very, very fortunate that at this moment in time lots of my research has energy applications, and energy is a really important thing [today]”. Some noted how you had to actively look for the links between the research you are interested in and topics or issues of importance to government or society and thus funders. Professor of sociology, R3, for instance, had found such an opportunity in linking his health-related work to the concept of ‘choice’: “‘Choice’ in the current environment is quite a sexy topic; trying to find topics which you think are going to appeal is part of the deal really”. And reader in chemistry, R5, for example, talked of an instance where, for one of his research projects, “even though parts of the science are quite abstract...we linked [the process] explicitly to energy research – we were able to come up with a US Department of Energy report that said that this type of science will be crucial for basic energy sciences in 10 years’ time”. He continued that, by looking for independent evidence - for example, parliamentary reports - that say a particular topic is of economic or societal importance and might lead to significant job creation in the future, then that could be used as “a strong justification for doing some potentially quite esoteric basic science in that area”.

Again, it appears to be easier for those conducting applied research to be able to skew their research to fit the current topics of interest, and thus funding opportunities. Statistics academic, R16, for instance, noted that the fact that his

work could be used in different fields was no doubt “a good thing when it comes to funding... you can request funding from different [bodies]”. And professor of civil engineering, C5, related how the diversity of the problems that he worked on was partly due to the fact that “the funding landscape moves around”. For example, in his earlier career he had worked on energy problems, but at that time there was little interest in these, so he had applied the concepts and modelling to other areas. Now, of course, the situation had reversed, but that meant he had been able to “dust off” some of his earlier work: “I think academics are always going to be driven by their curiosity and their interests, but the good thing is they usually have some quite generic capabilities, particularly if they work in modelling and statistics and that kind of thing. So they can actually go a bit with the funding”.

As we saw in Chapter 6, many interviewees felt that Research Council funding, and that of some other funders, is becoming increasingly ‘directed’. But sometimes academics might ‘get lucky’; for instance, English academic R15 commented that “sometimes it’ll be that you’re doing the work you need to and the grant [call is] there, so...an opportunistic aspect”. For others, as well as needing to skew their research a little to fit with funding calls, sometimes it might also be a case of looking for niche areas. For instance, we saw in §6.3 how computational chemist R5 felt that the chances of getting a responsive mode grant in an area already covered by one of the EPSRC programme grants were very slim, so he felt it is a case of asking yourself “what’s not been covered?”

However, at the same time there could be downsides to being opportunistic too. R5, again, noted that a lesson he had learnt when a proposal had been rejected internally because, seemingly, it did not fit with the institution’s priorities, was that whilst that call had looked like an opportunity “on reflection it was just months of wasted effort”. He was thus inclined to steer away from more speculative opportunities or proposals in future.

Whilst some may feel that in diversifying or being opportunistic just to get funding there is an element of ‘selling out’, others viewed it more positively. Professor of statistics, R4, for example, concluded: “If your question is ‘Do you end up doing things you may not have started doing because that’s a good funding source?’ the answer is a definite yes”.

8.5 'Funding in arrears'

Whilst interviewees did not explicitly use this term, many described a practice that could be described as 'funding in arrears'. It was well illustrated by physicist R1: "the classic dilemma you have when writing a proposal...they won't fund something if you can't say exactly what you're going to do. (But if you *can* say exactly what you're going to do then it's probably not really research!)" And he related how a colleague of his maintains that "a good strategy for a research career is you do a piece of research, you have the answers, and just before you publish them you put in a proposal to do that research. It's then nice and clear; they'll give you the money to do that; you then publish it because you've got it, and you do something else!"

This was echoed by professor of paediatric infectious diseases, R7, who claimed that such a strategy was absolutely necessary in experimental work: "[In experimental work] you need really good preliminary data to get a grant in the first place. So a model...is you put in your preliminary data, but actually you've got a bit more results up your sleeve that was funded on the back of another grant. You then get your grant, and near the end you'll try and get some preliminary data for your next [project]. So it's a kind of shift. Morally you'd say, well, you're still getting funding for that, but in practice that's the only way to do it, and that's not unusual. ...if you don't put your grant in, certainly in our field, without some decent preliminary data, or you've published some stuff, then you're not going to get it. It's only playing the system".

Similarly, chemistry lecturer R18 said that she would always "try and get proof of concept for the results" before putting in a grant application. For example, together with a collaborator, she was "purposefully trying to get to the endpoint of...a biotechnological device, which hopefully will then let me write an application which will enable me to do some more fundamental molecular science, which if it isn't tied in with a proof of where we could go with applications might be less funded. I do strategically try and think in that way".

This was also the case, perhaps to a lesser degree, in the social sciences. For example, sociology lecturer R12 recognised that "having done that pilot work I'd be in a stronger position to make a case, and try to somehow link it to the priorities [the funders] have".

8.6 Collaboration *and* ‘doing your own thing’

As we saw in Chapter 7, many funders have moved increasingly to funding larger collaborative projects, making it harder to get smaller, PI-focused grants. Thus collaborating with others, forming consortia, has become increasingly important as a means to secure funding. We also saw, in §8.2 above, that forming collaborations was acknowledged by many as a way to pool prestige and capital. Computational chemist, R5, at a group A institution, observed that forming large collaborations, and even mechanisms such as doctoral training centres, were used “as ways of attracting additional funding”.

In the natural sciences, of course, collaboration is often necessary anyway in order to pool resources and because large teams are often required. Indeed many academics across different disciplines enjoy this aspect of their work. Even within social sciences, some problems or topics require the collaboration of multi-disciplinary teams, and this in turn can then lead to more potential funding opportunities. Sociology lecturer, R12, for instance, commented that collaborating with those with different disciplinary perspectives opened up more opportunities – such as submitting one proposal to different funders, each application emphasising different aspects or the perspectives of the different co-investigators. Similarly for social statistician R19, for whom most of her funding came from the ESRC, collaborating with others in different fields meant she could join applications to, for example, the MRC, which she would not be able to do on her own.

Reader in sociology, R17, noted that he and colleagues now strategically formed collaborations: “One thing that we’ve got better at... is creating networks of people in and outside the institution who are talking, know each other, can work together, and then when the right call comes up...we’re ready”. Of course, it was recognised that it was important to choose the *right* partners. For example, professor of paediatric infectious diseases, R7, stressed the importance of finding strategic partners or someone who is eminent in a particular area to lead a collaboration. This was echoed in an example given by sociology professor R3: “There were two of us who were driving it, and then a third person we chose strategically because we thought they would make a difference – both substantively but more so politically with the ESRC. ...it seemed to be quite a strong team, and that made a difference”.

As we saw in §7.2, early career academics recognised the advantages of collaborating with more senior, high-profile academics as a way to improve their

chances of getting research funded (although as R12 noted, that could also present a danger of exploitation). But even for more senior academics, collaboration in some instances was a way to make use of other people's funding. For example, as we saw in both §7.6 and §8.2 above, professor of hydrology, R8, whilst he needed funding for his research earlier in his career, now was able to rely on collaborating with others and being a "parasite" on other peoples' funding. (However, professor R8 also had another motive for collaboration - if the subject area was one of great importance to him: "I want to make sure they do it right! That's the main reason for being involved in a lot of these things".)

Usually collaborations are across different institutions. However, scientists R5 and R7 (in different faculties at the same group A university) both talked about initiatives within their institutions for them to form internal collaborations with other departments. R5 said this was a direct response to the fact that it is now much harder for single investigators to get funding for themselves as lead investigator. So [in his department] "there are some enormous consortia that are funded within the department or with other departments – it looks like a huge amount of money, [but] if you spread it out amongst everyone involved it's probably [equivalent to] eight individual grants, but seven of us are co-investigators". R7 described it as a way for the institution to branch out and build on existing strengths so as to "make that go a bit further", and this was echoed by R5, again, who noted that collaboration was also an opportunity "to promote the work we've already done" to others across the institution.

In fact, just being in a large department could shield many academics from the institutional pressures to bring in funding. For example, organic chemist, R9, at a research-intensive institution stated that "We're a pretty large department – we've got about 50 academic members of staff...so there's a certain amount of [spreading the load]. Not everybody's going to be doing well funding-wise all of the time". And chemist R5, at another large research-intensive institution, commented that "I don't feel I'm under pressure to apply for absolutely everything, partly because it's a big department and if I'm not applying to a particular scheme the chances are some of us will". Several others also commented that the size of their department was a factor. Statistician R6 noted that his department had expanded hugely, "which means it's easier to spread the admin loads around a bit" and thus enable more time for research. At smaller institutions this 'spreading the load' might take place across a school or faculty rather than just a department. For instance, professor of English

literature at a group C institution, R21, who was also a Director of Research for her school, stated that “if a particular highlight notice comes out from the Council, it’s expected that somebody in the school will come forward and say [they] might be interested in that”.

Collaborating with non-academic partners was becoming increasingly important too, and there were particular advantages in collaborating with industry. For example, professor of paediatric infectious diseases, R7, noted that “you get extra points, at least with BBSRC, if you’ve got industrial support, or if it’s very applied in nature”. Similarly organic chemist, R13, commented that including industry partners in a consortium could make the research more applied and thus more attractive to funders. And chemist, R5, also gave an example of a successful project application where “the fact that it would directly have some industrial involvement...made it attractive”.

As we saw in Chapter 7, a downside to collaborating, for the principal and co-investigators at least, was the amount of time required to actually manage the collaboration itself. (We saw, in §7.2, for instance, how statistics professor R19 commented that “if you’ve got people on for 5 or 10% [time] it can be quite difficult to get them to deliver on that”.) At the same time, however, collaborating with international partners helped increase academics’ profiles and could also bring further opportunities. For example, another professor of statistics, R4, agreed that whilst large EU grants can be less productive in terms of producing papers, he nevertheless felt that such large European grants were important in allowing you to make international contacts, keeping the PIs “high status, lots of money, lots of context, lots of intellectual stimulation...”. Furthermore, he added that with such international collaborations “you feel you’re really at the centre of things...if I hadn’t had done [those] I wouldn’t have felt I’d participated in modern life really”.

One, perhaps more devious, strategy was to join a consortium but then effectively ‘do your own thing’. Physicist R1 commented that in large collaborations it was not uncommon that “the people involved each want to do their own thing, which is very hard for the PI/coordinator”. He talked of one colleague (at another HEI) who was renowned for this, but who at the same time, R1 felt, was “doing exactly the right thing. Because he’s bringing in money, he’s maintaining the contacts, and he’s doing some good stuff. And if [the project is] not what it said it was going to do, it still drives forward the science and it gets those publications in high profile journals, which pleases the university, it pleases the funders, and drives forward the science.

And the fact that it wasn't actually what we said we were going to do becomes sort of irrelevant".

8.7 Moonlighting, or 'piggy-backing on'

Related to 'doing your own thing' were two other strategies - 'moonlighting' or 'piggy-backing on', both terms used by interviewees. 'Moonlighting' referred to the practice of diverting a few funds from other grants to do other research they wanted to do. Statistics professor, R4, commented that this was often necessary to do the more theoretical work for which it was harder to get funding. He added that applying for grants "is a distraction, but your favourite topic you're going to do anyway, and you could divert a few funds from these grants to do what you want to do." Similarly, physicist R1 noted that "when you have the money you're going to do what was said, but actually then if your two or three months of postdoc time [is spent] doing something kind of related but it was never written into the proposal...but it's clearly what's needed now, well you're going to do that". For organic chemist, R13, this kind of 'moonlighting' was sometimes a case of simple logistics – for example, where a student had completed a piece of funded work quicker than expected, or whilst they were waiting for laboratory supplies.

'Piggy-backing on' was a similar practice of conducting smaller projects on the back of other funding, which a number of academics felt was often necessary. A good example of this was given by professor of psychiatry, R10: "What we often do is...we get big funding for big stuff and then we'll use little bits from the charities, for example for a PhD student, for a particular area....Now if we were to do that [project] from scratch it would cost millions, but because we've spent the millions it actually cost just £60,000 for a PhD student. So that's the kind of piggy-backing on. Everyone does that, it isn't novel". This was echoed by R7, professor of paediatric infectious diseases, who, as we saw in §7.6, stated that "you might as well write the big [proposals] and do the little ones off the back of those if you feel [it's] right", adding that "effectively you will compromise sometimes on what you specifically want to do, but then if you get some money to do [X] and you're happy with 90% of it and you can do 10% on the back of it, that's fine. At least you can do something. It's better than having no money at all".

8.8 'Grantsmanship' and skewing your research

'Grantsmanship' was acknowledged as a key skill and critical to being successful in obtaining funding. In the face of increasing pressure to apply for grants, combined with the low success rates, grantsmanship skills were now more important than ever. Part of this is simply understanding the funders and working out what makes a successful application for a particular funder. For example, professor of psychiatry, R10, commented that "after a while...you understand [your core funders], you think this is going to work with MRC, this is more Wellcome, this is NIHR, this is more charity...".

The next stage of grantsmanship is honing the relevant writing skills. Chemist R5, for example, stated that "I think I now know how to write a Marie Curie fellowship application for someone.... I'll take [the applicant] through what I think is expected of the assessment, and try and design with them a project that they are going to write, that explicitly matches every point on the EC application scheme". Similarly Professor R7 noted that "[you have to] look at their call, throw the words back at them that they want, use positive words, all that kind of thing". Grantsmanship also entails an understanding of how peer reviewers would view your proposal; professor of hydrology, R8, commented that "you want to make sure you've answered all the referees' questions before the referees have even seen it".

The power of grantsmanship was brilliantly illustrated by an amusing anecdote recounted by professor of statistics R4: he had been asked to give a talk to younger academics in his department on how to win research funding, and so one of the things he talked about was grantsmanship. "In five minutes, having prepared the ground, we created a grant application on stochastic knitting. And they all laughed to start with, but when I talked to them about how fibres arranged randomly are stronger than fibres arranged in lines, and I talked of application of these strong materials in various engineering applications, and I said there already was a literature on the mathematics of knitting, and all we had to do was make that literature stochastic...of course, it was a complete spoof, but they were almost saying 'when do we start?!'"

Some 'ingredients' in academics' grant proposals today were in recognition of the fact that, as a number of interviewees commented, "it's no longer enough to say 'I think this is interesting'" (R5). As noted in §8.4 above, chemist R5 explained that for any proposal now he would look for some independent assessment that this is an

area of economic or societal benefit, or try to link the research to potential future applications. However, he cautioned that you do have to be careful: “you can couch the basic science that you want to do in a way that refers to something else that you’d like to think of as an obvious societal need; however, if that doesn’t come across well, or seems somehow a bit stretched” then you can get caught out (for example, by an over-zealous referee who thinks you are going to come up with an actual product). He acknowledged that in one of his applications “in the end it probably wasn’t successful because we pushed that wrap a bit too far”.

It appeared to be generally accepted that academics often had to ‘tweak’ or ‘shoehorn’ their research to fit with funders’ priorities or specific calls. Professor of English literature, R21, commented that “Sometimes that’s a good idea and sometimes it’s a bad idea”. But she hoped that in most cases she “might, with a bit of nouse, think if I take this in this direction it might help, but it will still be driven by what I want to look at”. Others made similar comments; chemist R9, for example, observed that “I’m certainly not averse to bending what they say in the call to fit us and vice versa”. Interestingly, Reader in computational chemistry, R5, viewed the need to fit his research to funding targets as a creative challenge: “can you make something you want to do out of what might initially look like a forbidding set of rules of what you’re allowed to do”. This was echoed, albeit somewhat more pessimistically, by social psychologist, R14, who, as we saw in §7.4, said: “it *will* fit me, I *will* find a way”.

Early career academics were also aware of the need to tweak their research in order to get funded. For instance, lecturer in English literature, R15, when talking about directed calls, commented that “I would consider it if I had an idea for a project, it was closely enough linked to a call that I didn’t feel I was compromising my integrity to modify it so that, certainly on paper, they were tightly linked”. But then he added that he might “accidentally, by the end of the project, come back to what I wanted to do originally”.

Other elements for writing a successful grant application included, as we have seen, making the research more applied, and finding industrial support. For some this was seen as problematic, but others did not have an issue with this. Organic chemist, R13, felt that now you had to apply for calls you would not normally apply for, which meant moving out of your comfort zone. He added that taking advantage of opportunities sometimes meant “being a bit liberal...with your interpretation of what it is you do”, and skewing your research to make it fit. He acknowledged that this

often meant having to take a more applied focus in responding to a directed call. “If I happen to be working on a piece of chemistry that could be applied to something very obscure, or could be applied to making a new antibiotic, then you always go towards the new antibiotic ...it really is just using things in which society has an interest to showcase the science that you’ve discovered”.

In fact, as we have seen, being able to demonstrate impact and potential future applications of the research has become an increasingly important factor in grant applications today. Nevertheless, professor of statistics, R19, stated that although there were pressures to show that *all* the research you do demonstrates impact, she tried “not to have too many of those kinds of projects that are more on the impact side”. Instead, if she had some projects “that are really good examples, especially if you think of the REF – if I’ve got something I think could make a really good impact case study, then I can hopefully do that in one project” which would allow her room and time for other more speculative research.

8.9 Following the money

Most academics appeared to accept that, to some extent at least, they had to be prepared to ‘follow the money’, although few would go so far as to undertake work they were really not interested in. Organic chemist, R9, for example stated that “It would be very easy just to follow the cash, but I don’t think that’s what being an academic is about”; nevertheless he acknowledged that “you do have to be aware of where the money is”. Professor of engineering, C5, remarked that “there’s no question that a lot of what we do is shaped by what the funding agencies are currently prioritising”.

Some researchers described how the focus within disciplines can change, when, for instance, new specialisms or methodologies evolve. Professor of sociology, R3, for example, reported that some years back “within psychiatry there was a very strong move away from social psychiatry to genetically-based explanation, so that’s where the money’s gone, and that’s impacted on the kind of research that’s being done, being funded”. Professor of gerontology, C2, talked of similar changes in her field which had influenced the direction in which she had taken her research earlier in her career. In such cases, researchers inevitably needed to decide whether they could and would follow these trends.

Social scientist R20 also reported that he had moved research direction at one point during his career, and then came back to his original area of expertise of homelessness, both moves having been driven by funding: “when homelessness wasn’t quite so much of a problem, particularly under the Labour governments, the volume of research [in that area] reduced. So one thing I do thank the coalition government for is making homelessness a problem again, certainly for research”.

Applied statistician, R6, reported that he did not really need funding to conduct his research (other than to work with others on collaborative projects). However, he did look for funding for another purpose – as a strategy to protect his research time: he intentionally looked for funding for postdocs or PhD students as a way to “stay engaged with the research, because with so many other pressures on your time...otherwise [the research] was just slipping off the radar”.

As per the quote at the start of this chapter, some academics’ response to low funding success rates was to view it as a lottery and thus think that the “the way to success is to buy more tickets” (R5), and attempt to ‘follow the money’ in that way. However, as we have seen in Chapter 7 (§7.2), academics were divided as to whether the best strategy was to apply more, or to be much more selective and careful as to when and how they applied for funding.

8.10 Voice...a strategy for the very few

Faced with so many pressures and constraints, you would think that many academics would try to fight against the status quo. It might be expected, for example, that particularly academics with sufficient academic capital and prestige would feel they had a ‘voice’ in terms of research and funding policies. However, this seemed very seldom to be the case – in fact, most academics in the study felt powerless in this regard.

Early career academics, in particular, felt they had no voice or forum to turn to regarding these matters. R11, a lecturer in immunology at a group A institution, felt things were “pretty bad” but that he “wouldn’t really know where to start, or feel that it wouldn’t achieve very much” if he tried to have a say. Similarly, lecturer in sociology at a group B institution, R12, felt she had no voice: “as an early career researcher you feel quite removed from the seemingly powerful bodies that make these decisions”, and she felt this was frustrating because “it’s so important for our

future careers". Another early career academic, R15, at a group C institution, voiced his comments via the media, but still to little effect. When discussing the REF he stated "I voice that opinion when I write for *the Guardian*....but it's not an outlet that does anything, because these systems are so entrenched, and they operate on these hierarchies of prestige and economies of reputational capital...".

The degree to which mid-career academics also felt they had little voice or power when it came to wider issues of research funding and assessment policies was surprising. Reader in social psychology, R14, for instance, was anxious to be promoted to professor sooner rather than later because of concerns that post-REF it would be the professoriate setting the research priorities for each of their schools, and if she was still a reader she wouldn't have a voice in that. And a reader in sociology at another institution, R17, commented "I think it's important to communicate with funders [about their agenda], but it's not clear what channels you go through to do that". And whilst R9, another mid-career academic, claimed to be very vocal and "not afraid to talk or write to MPs, ministers, select committees and the Research Councils", he thought many others are wary of doing that – "they don't want to be seen as trouble-makers".

Even very experienced academics expressed a lack of voice and powerlessness in these matters, at least beyond their institutions. Professor of statistics, R19, at a group A institution, stated that "I don't really feel that we have a voice on [funding policies], it's kind of driven from above". And chemist R5, despite being relatively senior and at a highly ranked research-intensive institution, felt that "those opportunities that I have had haven't amounted to very much...So in terms of changing policy and influencing which areas are going to get supported, then no", he didn't feel he had a voice, his first port of call was the department. And whilst he noted that the Royal Society of Chemistry does lots of lobbying on behalf of chemistry in general in the UK, nevertheless "for your own sub-discipline, it's important to be part of a group". Others had also commented on the need to work with, for example, learned societies and other disciplinary networks. It was succinctly summed up by R7, an experienced group A professor, who, whilst he noted that as "a professor I...get taken more seriously ...wrongly or rightly", but that nevertheless, "As an individual I mean nothing. The clout comes from either the institution or the learned societies". R7 also noted that his institution had good links with the Research Councils (they had "an enormous amount of funding" from the Research Councils, and also a strategic partnership with one of them), so he felt

that as a result the *institution* carried a lot of weight. However, this wasn't necessarily true of every research-intensive institution – R18 had commented that her department did not have a particularly good dialogue with any of the Research Councils.

However, a couple of the experienced academics did feel there were opportunities for some academics, personally, to have a say, at least in terms of what research is prioritised. Engineering professor C5, for instance, had observed that “As you get older you get more involved in these committees and so on which help to shape the funding agenda, and then at least you can have your say – you can say well this is interesting, that's interesting”. And the consequence of that was commented on by professor of statistics, R4, who noted that when the calls for proposals are issued by funders, “some of [the experts] who helped write the call are in an advantageous position, but that's partly because they're very good”.

8.11 Summary

This chapter has shown how a number of common strategies emerged from the study as to how academics respond to the various pressures and constraints - either from the funders or from their institutions – that they face in their research. As noted above, whilst many of these strategies are not new, this study shows just how pervasive and necessary their use has become. Some strategies were subtle, common sense responses to policy or institutional requirements. Others, such as 'doing your own thing', 'moonlighting', 'funding in arrears', were more strategic responses. And some academics were quite innovative in the ways they found to maintain what would otherwise be very hard to fund esoteric or theoretical research. A combination of most of these strategies was employed by nearly all of the academics in the study. It was clear that these strategies were mechanisms that allowed them to continue to conduct the research that was intrinsically important to them – most, if not all, of the time.

Chapter 9

The effect of funding policies on academic research

“We are all looking for marginal gains, in competition against colleagues and friends in our own disciplines, for a diminished pot of money.”

Thomas Harrison, 2014¹⁸

9.1 Introduction

This study set out with the broad objective of looking at the effects of research funding policies on academic research, and particularly their effects on the extent of autonomy that academics have over what research they conduct. It soon began to also explore the ways in which academics cope with an increasingly financially constrained environment. The previous three chapters have presented the findings from the study in some detail – both the wider issues affecting academic research today, resulting from government or institutional research funding and assessment policies, as well as the more day-to-day, or operational, constraints. Also presented were the strategies that academics employ in order to cope with these pressures and the constraints over their choice of research and how they conduct it – or in other words, how they strike a balance between the research that is important to them and that which might more easily attract funding or be published in high impact journals.

This chapter will now take a step back and look at the patterns that emerged from this data. First, we will see how the often unintended consequences of research

¹⁸ Harrison, T. (2014). The emperor of all maladies has spread to claim our souls. *Times Higher Education*, 24 April 2014, pp. 28-29.

policies today result in a number of conflicting pressures on academics, making it difficult for them to both satisfy the various requirements and still conduct the research they feel is intrinsically worthwhile. We will then discuss some of the differences that did - or did not - become apparent between the variables in the study, that is, any differences between institution type, the career level of the researchers, or between disciplines. Next we will look at how the findings fit with the conceptual framework discussed in Chapter 4, namely Bourdieu's concepts and theory of practice, and in particular his ideas on *hysteresis*, when changes in the field result in a time-lag in the match between *habitus* and *field*. This leads us to a discussion of who and what are the drivers of the various pressures, and who are the resulting 'winners' and 'losers'.

9.2 Conflicting pressures in academic research today

As we saw in Chapters 6 and 7, academics are subject to a number of pressures resulting from research funding policies, which increasingly constrain the autonomy they have over their research. Moreover, these pressures often appear to conflict with one another, pulling academics' research in different directions. These pressures largely stem from a triad of three key requirements that have come to dominate academic research:

- research assessment exercises, and now the Research Excellence Framework;
- the 'impact agenda'; and
- institutional pressure on academics to bring in external research grant income.

Impact vs REFable publications

Whilst demonstrating impact is a part of one of the REF assessment criteria, the type of activities required to satisfy this criterion can be very different to the research required to produce successful 'REFable' outputs, that is, publications in the more prestigious journals. 'Impact', in REF definition terms (see Chapter 2), requires engagement beyond academia, and thus entails addressing a very different audience than the readers of academic journal papers. As we saw in Chapter 3 and as indicated by the participants in this study, such activities usually entail a considerable time investment on the part of academics – building up new sets of contacts, producing new types of outputs (such as writing blogs, using social media), as well as the activities themselves (for instance, undertaking public

engagements, working with industry). Journal papers that count the most in REF terms tend to be those in highly specialised, single discipline journals; thus, even in academic terms, these works may be disseminated to what is relatively a very limited, or niche, audience. Such outputs still require a considerable investment of time, but this is more likely to consist of writing and revising papers, or further empirical work. Thus these two drivers of 'impactful' and 'REF-able' work appear to pull academics' research activities in very different directions. If we think in terms of the Gibbons *et al.* 'New Production of Knowledge' (as discussed in Chapter 2), it could be argued that the impact agenda drives research towards Mode 2 type research activities, whereas the requirement for 'REF-able' outputs maintains an emphasis on Mode 1 type research outputs.

Professor of ancient history, Thomas Harrison, described this scenario as a "false wedge that the REF has driven between books for a wide audience and weighty 'REF-able' research" (Harrison, 2014). Few academics have the necessary skills to be adept or successful at producing both 'impactful' research as well as papers in high impact journals. In this study, sociologist R17 noted that today "the model of an ideal academic is someone who can communicate to a lay audience, and does that energetically through blogs or through accessible books or writing for newspapers and so on, but also somebody who can convey complex material to their peers, and so on. So it's really all-singing-all-dancing".

For most academics it can be a difficult and stressful balance to maintain. For those whose work lends itself more easily to demonstrable impact (usually those whose work is very applied) – and who may thus be chosen by their departments as needing to produce an Impact Case Study for the REF - evidence of impact alone is not enough, since to be eligible for the REF they still need to submit the requisite number of 'REF-able' academic papers or books. In chapter 7 we saw just how stressful a situation this proved for R20 in the run up to the 2014 REF when he was put under considerable pressure to produce sufficient outputs in order for his impact work to be submitted...and thus to allow several of his academic colleagues to also be entered for the REF.

In the past, high profile academics might have been able to risk ignoring 'distractions' such as the requirements of research assessment exercises. An oft-cited example is that of Nobel prize-winner Peter Higgs, who recalled that when asked by his department to submit a list of his recent publications for research exercises he replied 'None' (Aitkenhead, 2013). But such behaviour would almost

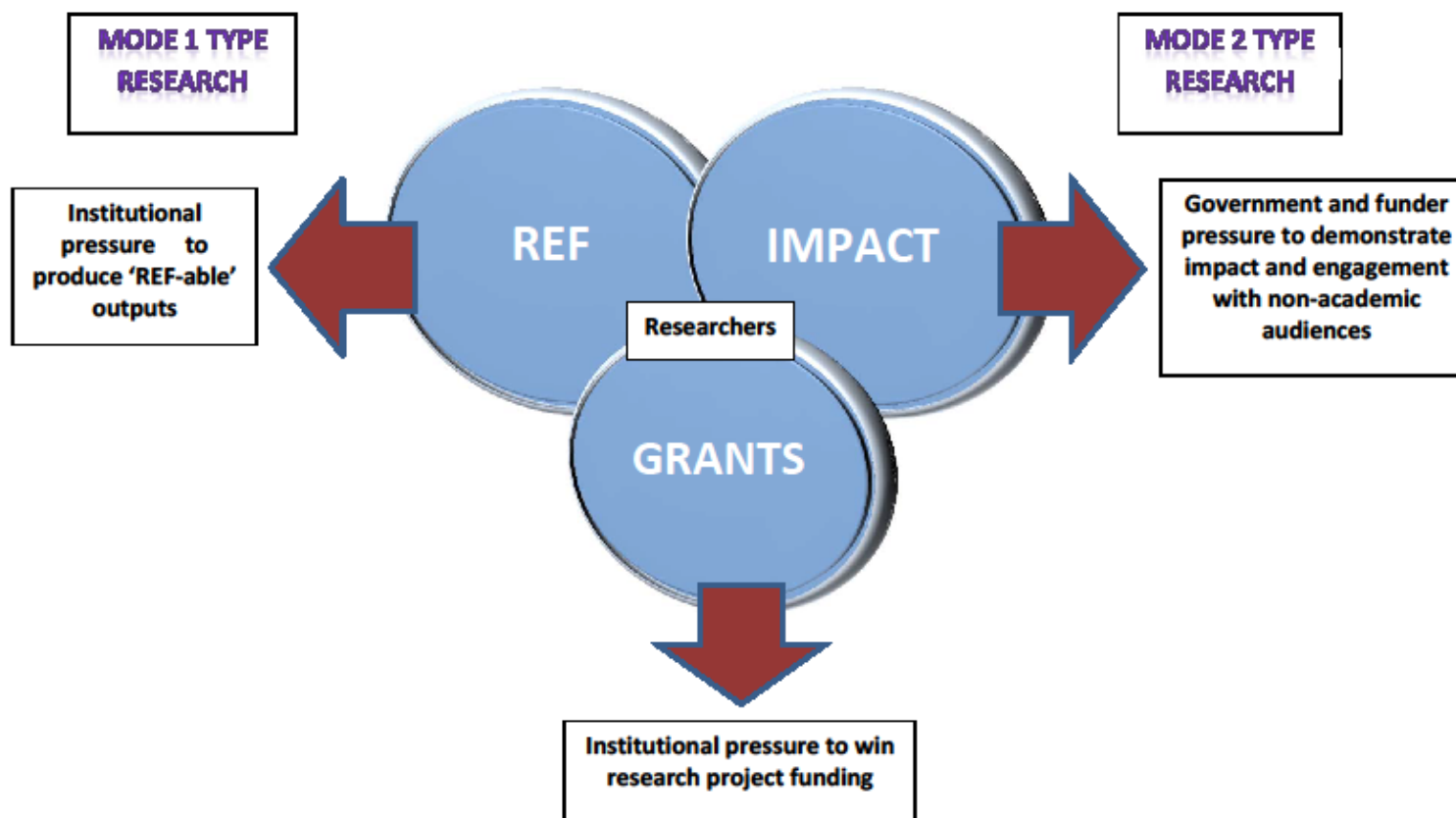
certainly be impossible today even for 'top' academics if they wish to maintain a focus on research – not being eligible for the REF, in the current climate, is likely to mean academics risk losing their research time altogether, with some institutions moving 'unproductive' staff (in REF terms) onto 'teaching only' contracts.

Grant income

Grant income is one of a number of important metrics used in the REF to evaluate a department's research. In addition, as we saw in Chapter 2, the increasing importance to institutions of their ranking in university league tables means that grant income has also become increasingly important to them as a metric of how their success is measured. Also, it seems as though the calculation of overheads used in the full economic costing of grant applications leads university managers to expect that research activities should cover their own costs from the income they generate, as opposed to being cross-subsidised by teaching or other activities (thus ignoring the fact that research prestige adds considerably to institutional reputation and thus attracts students; neither does it chime with the ideal of research-informed teaching). This institutional pressure to bring in funding often results in a dilemma and tension on the part of academics between the need to produce good quality journal papers and writing grant proposals to bring in external funding, both of which, as we have seen, can be extremely time-consuming.

Figure 9.1, below, illustrates this triad of key pressures facing academic researchers today, and how they can pull academic research in conflicting directions. (We should note that Figure 9.1 does not show the many other, non-research, pressures on academics - such as teaching, and pressures to improve the 'student experience' in the light of higher fees; nor the pressures due to increasing so-called managerialism – such as performance management, time recording, etc. And it remains to be seen exactly how the Teaching Excellence Framework (TEF), introduced in 2016-17, might now add to these pressures!)

Figure 9.1: Competing pressures on academic research



9.3 Differences between variables

As discussed in Chapter 5, the study included participants from across a broad range of three different categories of variables: different institution types (research-intensive as well as newer institutions), academics at different career stages (early career, mid-career and senior academics) and from a range of different disciplines (humanities, social sciences and natural sciences). So, do the pressures and constraints we have discussed affect academics in different ways depending on what type of institution they work at, their career stage, or their discipline? And do they respond differently? Chapters 6, 7 and 8 presented the findings from all participants. Here we shall focus on whether any clear differences emerged between those at A, B or C/D institution types, between earlier career and senior academics, and between those in humanities and social sciences versus those in the natural sciences.

Institution type

We saw in the preceding chapters that there was disgruntlement on the part of those at newer institutions because research funding policies are felt to be biased towards what are perceived as the elite research institutions. Of course, as we saw in Chapter 2, when research assessment exercises were introduced in the 1980s it was largely with the goal of concentrating research resources in fewer institutions. At that time the binary system still existed, so the number of institutions was much smaller than it would be after 1992, when the former polytechnics joined the pool of institutions eligible to enter the exercises. The policy goals of selectivity and concentration failed to foresee that so many of the smaller and newer institutions would try to compete for the limited research funds available. Again, as we saw in Chapter 2, the growing importance of league tables to institutions and the prestige associated with being seen to conduct research as opposed to teaching-only, has exacerbated this competition. Thus, whilst there may be a clear difference in the *amount* of research conducted at A/B versus C/D institutions, the *goal* of attracting research funding, through the research assessment exercises or for research projects, is one that appeared to be common to all institutions in this study. Since the so-called Matthew Effect appears to favour the bigger, more research-intensive institutions, it is not surprising that such dissatisfaction exists on the part of those at the newer institutions, particularly those institutions making a concerted effort to build a research profile, with the feeling that policies are all “pro-Russell Group” (R14).

You would imagine that the greatest pressure to bring in external research grant funding and to succeed in the REF would be felt at group A/B institutions, with less pressure at group C/D institutions. However, as we saw in Chapter 7, some degree of pressure was described by all the academics interviewed, regardless of institution type. It did appear, as you might expect, that there is greater pressure on those at A/B institutions, but a stark difference was not easy to tease out. This is partly because of the qualitative nature of the study – the relatively small sample, and in particular, the subjective differences in use of language. And, of course, to those at A/B institutions – and particularly for those whose research requires large amounts of funding – the pressure may just seem more ‘normal’ to them. The prestige of the institution could certainly add to the pressures on academics at the A/B institutions – as per R17’s comment that “it’s pernicious at the top”. But again, since this pressurised environment was normal to those who had always been at such institutions – and since they have the confidence arising from their position ‘at the top’ – this might be why some academics, such as R6, felt that at their institution “people are fairly relaxed about the REF”.

At group C/D institutions, some academics did appreciate that there was much less pressure on them than there would be at the research-intensive institutions. For example, X1 (at a group D institution) felt that this was because at her institution “not everyone does research”; and R13 (group C institution), as we saw, commented that he did not feel too pressured by the REF because “there’s less focus here [on 4*]...I’m quite happy with 3*!” (There could, of course, be considerable pressure for other reasons – for instance the pressure on R20 who, noted above and in Chapter 7, needed to secure a vitally important fourth publication so that his impact case study, and thus six other colleagues, could be entered in the REF.)

Nevertheless, as noted above, there was not by any means a clear-cut difference between group A/B and C/D institutions in this regard - there were one or two examples that countered the impression of ‘more pressure at A/B and less at C/D institutions’. For example, in response to the question of institutional pressure to bring in funding, two professors of English literature responded as follows: R22 (group A) commented that if she was not bringing in grants it would not be a problem; however, R21 (group C), despite being the author of a considerable number of single-author monographs, said there would be ‘someone knocking on her door’ if she was not bringing in any external income or doing outreach work.

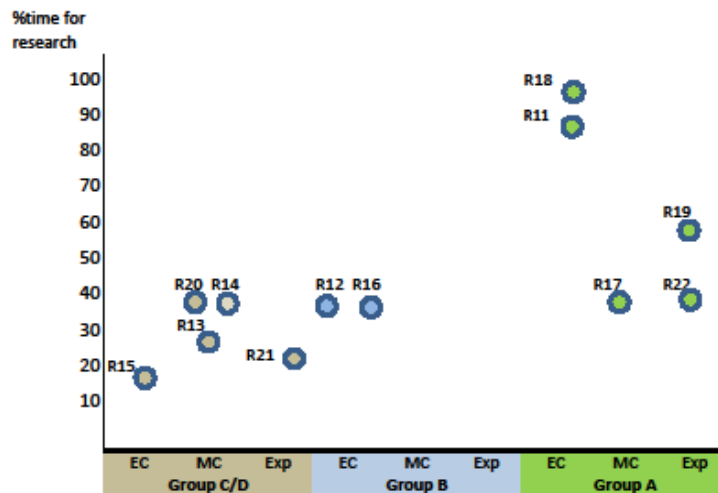
The group C/D institutions in the study appeared to be re-positioning themselves with respect to research, and thus, as we saw in the preceding chapters, as well as pressure on the academics to bring in research grants there was also pressure on them to forge links with the more prestigious institutions - as R14 put it: “to show that we can work with peers like that”. But academics at the group C/D institutions felt that it was harder for them to compete for funds and prestige against those at the research-intensive institutions. R14, again, commented that “the post-92s have a harder time...we’re not viewed in the same way, which is quite infuriating”; and R13 noted that “success rates are very low - particularly low at emerging research universities like this one”.

Interestingly, some academics at group C/D institutions were frustrated by a lack of sufficient focus on research at their institutions. For instance X4, an early career group D researcher, was concerned that the university’s outlook was too focused on locally or regionally relevant research. She felt that “there needs to be an emphasis on getting the very best out of members of staff who are willing and capable to produce top quality research in a high quality international journal”. This perhaps indicates that some group C/D institutions are not, as yet, expecting that their staff could be capable of producing research of a quality to compare and compete with the more research-intensive institutions, and thus focusing less on the importance for the REF of conducting internationally-recognised research.

One factor that did appear as a clear difference between those at A/B institutions and those at C/D ones was the amount of time they were allocated for research. Not surprisingly, those at the research-intensive institutions have more time allocated for research. Early career researchers at two different group A institutions, R11 and R18, both had in the region of 90% of their time allocated for research, whereas all those at group C/D institutions had between 20% and 40% of their time for research. Of course, it varied considerably between how much time people had *in theory* and how much time they actually had *in practice*, but the graph in Figure 9.2, below, shows a persuasive correlation between institution type and time for research (with the following important two caveats: academics in the earlier phase of the study, predominantly from group A/B institutions, were not asked about their time for research and are thus not included; secondly, the graph is based on very qualitative estimations of time). The position on the graph of R17, R19 and R22 (all group A) may appear to be much lower than expected, but this is most likely to be due to the additional leadership or administrative roles that these people often held (R19, for

instance, had noted that she was director of a research centre, and R17 that he also currently had a number of departmental administrative roles).

Figure 9.2: Time allocated for research



However, having time for their research was just as important to those at group C/D institutions as it was for those at group A/B ones. This seemed to be the case for all those at group C/D institutions in the study – with some, describing doing research as “paramount” (X4). And as we saw, R14, a social psychologist at a group C institution, complained that she had had to fight quite hard to get time for research at her institution: “I came from an old university where research is what you do; [I] had to spend two years of fighting [here] to get moved across to Reader. So now I have much more time to do my own work”.

Of course, it is impossible, from this study at least, to disentangle other factors besides that of institution type that have a bearing on the effects that research funding policies have – factors such as department size, or administrative duties, for example. As we saw in Chapter 3, there can be quite an ‘array’ of different niche roles that academics occupy within a department.

Disciplinary differences

At the start of the study I was not sure whether pressures and constraints resulting from research funding policies mainly affected those in the natural sciences, with only a lesser effect on those in the social sciences. I thought that perhaps

academics in the arts and humanities would be relatively immune to these. However, this turned out not to be the case at all. In response to an email I had sent, professor of history, C7, replied that “the scenario you are exploring certainly affects arts and humanities as much, if not more, than sciences and social sciences”, adding that (as quoted in Chapter 6) arts and humanities “just aren’t reducible to the same kind of metrics that are used to evaluate ‘impact’ in sciences”. And indeed the findings have shown that demonstrating impact was a particular difficulty for some (though not all) in the humanities.

The other issue, as presented in the preceding chapters, was the frustration on the part of social science and humanities scholars who need very little funding for their research but who are, nevertheless, expected by their institutions to bring in research grant funding. There was also a feeling that research policies generally are geared to ‘big science’. Lecturer in English literature, R15, for example talked about how, for humanities departments, the time and expense involved in taking part in research assessment exercises considerably outweighed what little funding they might receive in return. Academics in the sciences were much more likely to be accepting of the need, and thus the pressure, to win research grants, compete in the REF, and so on.

There was, however, as noted in Chapter 7, an indication of the misunderstanding that exists between those in different disciplines, or rather between the ‘two cultures’ of STEM versus social science and humanities academics, with early career chemist R18 feeling that “traditional arts departments like English...just don’t know how easy they’ve got it”, whereas social psychologist R14 commented, somewhat grudgingly, that ‘my mentor just needs to smile in the morning to bring in a million pounds!’ But whilst academics across all disciplines were affected by the pressures and constraints arising from research funding policies, the main difference was not between disciplines, but between those undertaking applied versus those conducting non-applied, or basic, research. This was a difference that has clearly been exacerbated by the impact agenda: those conducting applied research were not only much more able to demonstrate the impacts from their research, but this in turn meant they are at an advantage when it comes to winning grants due to the increasingly directed nature of most funding.

Career stage

All academics in the study – regardless of career stage - were subject to the pressures and constraints discussed in Chapters 6 and 7. The prestige and academic capital accumulated by the more senior academics did provide them with some ‘protection’ or immunity from pressures, but, as we saw in §9.2 above, unlike in the past, even the most prestigious academics today are unlikely to be able to totally ignore the requirements of research assessment exercises or of having to describe the expected impacts of their work when applying for research grants. At the same time, it is the more senior academics who are likely to be tasked with administrative burdens, such as having to write ‘research environment’ statements for the REF, and other department or institutional duties, which thus affected what time they have for their research.

Early career academics in the study did not appear to be any less subject to the pressures and constraints than their more senior colleagues. In fact, the harshly competitive funding environment made it particularly difficult for them to get their ‘first foot on the funding ladder’. They either, as in the case of R11 and others, had to apply for everything they could, despite the cost to their research (or personal) time, or, as noted by R12, would have to collaborate with more senior colleagues (though this might entail a risk of being exploited). No doubt as a result of these difficulties, they appeared more accepting of the need to ‘follow the money’, that is, to ‘fit’ their research to the objectives and steerage of funders or other external stakeholders. However, this then means that they are less able to conduct blue skies research or to follow their own intuitions as to what research questions might be the most important ones to examine. As junior academics, it was harder for them not to concede to the various pressures and constraints. We saw, for instance, that continued employment and career progression were of more concern to younger academics than their longer-term research goals.

At the same time, it also appeared to be the case that the younger academics were more open to some elements of the research policy environment today, such as the impact agenda and demands for accountability, perhaps because these were already a fixture of their working environment from the start of their careers. One of the comments by R18 that we saw in Chapter 6 illustrated this well: “I think subconsciously I’ve always been aware that you have to be capable of explaining why your work might be important”. It is possible, too, that younger academics were more aware that the impact agenda could, in fact, present them with alternative

opportunities for building up academic capital besides the now increasingly competitive grants from the mainstream funders of research. (This would be in keeping with the idea, as we saw in chapter 2, that academic capitalism can present new opportunities to academics to manage their academic careers (Blackmore, 2016a: 23, citing Slaughter and Leslie, 1997)). However, this may raise concerns as to whether this has a consequential effect on what research they conduct.

It is tempting to think of mid-career academics as constituting the “squeezed middle” when it comes to being most at the mercy of the pressures on academic researchers today. The more experienced, senior academics are more likely to have the prestige and track record to allow them to deflect at least some of the pressures; and for early career academics, departments usually try to keep the pressure off them a little for the first two or three years of their appointment. And, in fact, it did appear to be the case that it was the mid-career academics in this study who expressed the greatest angst and frustration at the pressures and constraints they were under.

Overall then, whilst I had imagined at the start of the study that there would be significant differences between the variables of institution type, discipline and career stage, this turned out not to be the case. The picture was much more complex and there appeared to be just too many other factors at play – the particular context of each individual academic, and, as noted above and in Chapter 3, the niche roles available to them within their institution and department. However, it could be that had the sample size been much larger then trends in differences between variables may have become apparent. In this study, the factor that seemed to have more bearing than any other on how academics were able to maintain their own research agenda in the face of policy and funding constraints was whether their research was applied as opposed to basic, fundamental research. Those conducting applied research were better able to demonstrate the impact of their research, and also appeared to be more likely to attract funding.

9.4 Bourdieusian hysteresis

As we have seen in earlier chapters, higher education research in the UK has undergone enormous changes over recent decades. This thesis has focused primarily on changes over the last ten to fifteen years, in which the predominant

changes have been those in research assessment, in particular the ‘impact agenda’, as well as the ever-fiercer competition for funding (made more difficult in some cases by funders’ ‘demand management’ measures). The findings certainly appear to illustrate that academic capital and prestige – whether of the individual or of the institution – has considerable bearing on the ability of academics to exercise autonomy over their research, as well as how easy or not it is for them to attain funding for their research. (Although the Lucas (2006) and Clegg (2008) studies considered in Chapter 3 showed evidence that at the other end of the scale, at newer institutions where there was less focus on research, some academics felt they had more autonomy as there were less demands on them.) However, of most interest perhaps is the interpretation our *Bourdieuian* perspective allows us of the effect on academics and their research that the emergence of the impact agenda has caused.

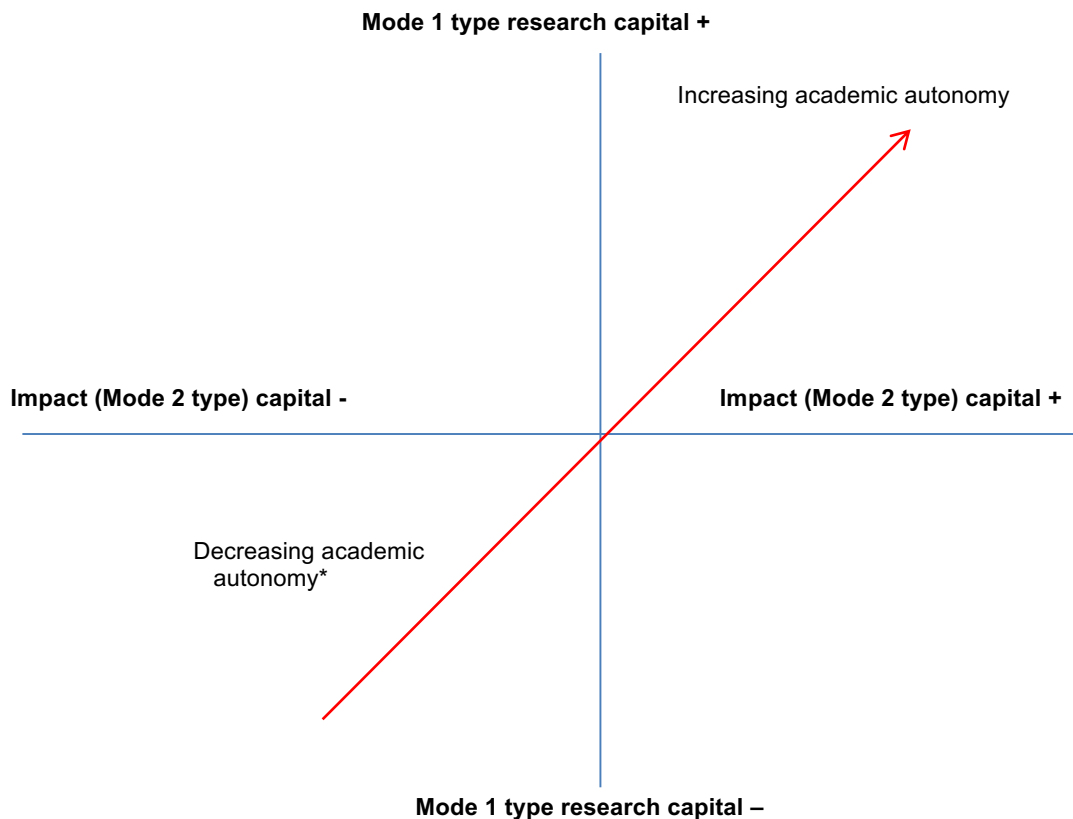
The impact agenda has introduced a new form of research capital – that is, demonstrable impact, or ‘impactful’ research - and caused a shift in the field of what counts as capital and thus what is valued, and also ‘fundable’, within the field, with knock-on effects in terms of how the players in the field view the ‘game’. The findings of this study are in keeping with Colley’s own personal experience where, as we saw in Chapters 3 and 4, she describes how changes in the management and assessment of higher education research have changed the stakes – or objects of interest - in the field, affecting the *illusio* of those in the game (Colley, 2014: 674-5). This, in turn, means that players’ *habitus* is “out of kilter with the new stakes in the field” (*ibid.*, p.675).

We can see how, in terms of *Bourdieuian* reproduction, this can lead to a crisis effect on some previously dominant agents in the field, who find that the research capital they have dedicated themselves to building up over their careers (papers in prestigious journals, large grants, etc.) is now somewhat undermined by the presence of an entirely different capital – demonstrable impact - that institutions and funders may now view as equally valuable. Furthermore, to attain this new capital requires quite different types of activities and skills, and a great deal of time investment. As Hardy notes, some actors may be more adversely affected than others: “Only some field participants benefit from changes in the field. There are successes and failures each time there is an hysteresis effect” – a lack of fit between *habitus* and the field (Hardy, 2012: 139). The findings of this study suggest that it is perhaps the early career academics, and those at newer institutions, who

may be more readily able to adapt to this new field structure than the more high-profile academics at research intensive institutions – at least initially. Bourdieu remarked that “like a good tennis player, one positions oneself not where the ball is but where it will be” (Bourdieu, 1998: 79). And so it seems in our study, that early career academics and those at newer institutions may be pursuing certain lines of research and activities because they think it will allow them to more easily demonstrate impact (especially now that funders and institutions are increasingly providing funding specifically for ‘knowledge exchange’ activities that will demonstrate impact). With time, of course, the habitus of the otherwise dominant agents may ‘catch up’ with this new structure of the game. However, Hardy cautions that in times of dramatic change the “*Habitus* evolves in response to these new opportunities, but in unpredictable ways, where the consequences for an individual’s field positioning are yet to be determined” (Hardy, 2012: 127).

This situation, where there are ‘competing’ forms of capital, is in keeping with Bourdieu’s view that fields consist of opposing forces, that they are *chiasmatic*, with different forms of capital operating as hierarchised poles (Thomson, 2012: 69). Figure 9.2, below, shows how this can be represented for this study, with one axis representing accumulation of ‘traditional’ elements of academic research capital (usually resulting from Mode 1 type activities), such as papers in prestigious journals, large grants, especially those from the more prestigious funders (and usually the most competitive/hardest to attain). Building up this kind of capital, and thus increasing prestige, normally allows academics more autonomy over their research agenda, and in turn makes it easier for them to attract further funding (the apparent Matthew Effect and *Bourdieuian* reproduction). On the other axis we have ‘impact capital’ as an opposing pole in that it results from very different activities and skills (and usually from Mode 2 type research activities).

It is too early to say whether, with time, this new form of capital will come to represent an equivalent degree of prestige as traditional forms of academic capital, but it is certainly already viewed as valuable to institutions.

Figure 9.3: Bourdieusian ‘chiasmatic’¹⁹

* Although Lucas (2006) and Clegg (2008) show that some academics at newer institutions felt they had more freedom than those at the research intensive institutions.

Drivers, winners and losers

The intense competition for both league table success and grant funding, and the emergence of demonstrable impact as a new form of research capital, that this thesis has highlighted, have inevitably resulted in winners and losers. Table 9.1, below (p.197), illustrates who/what appear to emerge as the key drivers, winners and losers of this triad of pressures on academic research – the REF, impact, and grant income. Looking at the table, we can see why academics in the study were fearful of a move to a situation where impact and income become of more concern to institutions than the quality and nature of the research being conducted. We can also see that one of the losers in this triad of pressures is research that is considered to be high quality but that has little immediately demonstrable impact, turning on its head what was previously the most prized capital. But a greater fear

¹⁹ Adapted from Thomson, 2012, p.69

on the part of the academics in this study was the opposite scenario, where research that is high impact but of less academic merit could come to be most valued by institutions and even funders, and the effect this would have on science in general in the longer run. The table also illustrates that another potential 'loser' is innovative, high risk research - research which is felt to be particularly susceptible to losing out in the grant peer review process as funders increasingly 'play safe' *vis-à-vis* funding decisions.

Strategies

Chapter 8 illustrated how academics employ a number of different strategies in order to balance and cope with the pressures resulting from these three often conflicting requirements of REF-able publications versus demonstrable impact versus grant income. These ranged from the small, unconscious, or common sense strategies, to the more conscious and deliberate "openly playing the system" ones. We can see why, in a context where agents are jostling for position and the accumulation of capital, Bourdieu sees the field as a site of struggle, and that agents therefore employ strategies to succeed, even if largely subconsciously. Bourdieu's notion of strategy is mostly to do with struggle for position within the field, or for recognition. However, the strategies that the academics in this study were describing were more ways to navigate their way through the various constraints in order to conduct the research that was important to them, rather than competing with each other. Yes, there was an element of competing against others, but largely there was a sense that all the academics felt to some degree united in their frustration and the fight against the increased bureaucracy today in the management of university research. So although the quote given by Harrison at the start of this chapter implies that the current pressures and constraints result in competition between academics, whilst this may be the case some of the time in some circumstances, I would argue that more salient than this is a sense of a united struggle to preserve that most prized of academic values - autonomy over what research they conduct.

Table 9.1: Key drivers, winners and losers

	REF (publications)	Impact (REF + RCs)	Grant income
Drivers	Research policy Institutions	Government/research policy Funders & society Institutions?	Rankings / league tables Institutions (focus on 'grant metrics') Research that <i>needs</i> funding
Effects on academics/ research	Pressure to publish in high impact journals Highly specialised, single-discipline research 'Salami slicing' of publications	Impact as what is valued More outreach and working with non-academic partners Distraction from core research?	Income as what is valued Fitting research to funders' priorities Distraction from "what if" questions
'Winners' (who and what)	Specialised, single discipline research ('Mode 1') Fundamental & theoretical research More senior/ prestigious academics Research-intensive institutions	Multidisciplinary research ('Mode 2') Applied- and policy-oriented subjects ("") Early career academics? Vocationally-oriented institutions?	High prestige academics High prestige institutions 'Sexy' topics 'Impactful' research
'Losers' (who and what)	Multidisciplinary research Newer institutions Lower profile academics	High quality but low impact research Fundamental & theoretical research Single-discipline research	High quality but less 'fundable' research High risk/innovative research Some multidisciplinary research? Lone PI; Early career researchers

9.5 Summary

This chapter has aimed to look at patterns and key outcomes that emerged from the study. As we have seen, there were not the clear differences between variables that I had envisaged there would be - a much more complex picture emerged. One reason for the lack of clear distinctions is because although institutions may differ in type, between research intensive and 'newer', smaller institutions, the incentives to perform well in both research assessment exercises/the REF and in university league tables mean that most institutions are striving to achieve the same goals.

The findings showed that whilst the so-called Matthew Effect, or *Bourdieuian* reproduction, appears to make it easier for those at the elite universities to attain research grant funding, nevertheless there is considerable institutional pressure on all academics - regardless of institutional type, discipline, or career stage - to compete for the limited resources available. Secondly, and perhaps of greater interest and concern, is that with the introduction of the impact agenda, the field of higher education research has undergone a foundational change - shifting the balance in what is most valued, and eroding the power of the hitherto dominant agents. For those whose research is more applied, or who were newcomers to 'the field' (i.e. younger academics), it was seemingly easier to adapt to the impact agenda requirements. Whether or not this represents a temporary shift in power, whilst the habitus of the players involved adapts to the new 'rules of the game', remains to be seen. Yet nevertheless, there was a sense from participants of a united struggle against the erosion of academic autonomy. To end with Bourdieu, Mahar *et al* state that in his later work, Bourdieu felt increasingly that "the concepts of strategy and struggle become tied together" (Mahar, Harker, & Wilkes, 1990: 17).

Chapter 10

Implications and concluding remarks

10.1 Summary of this thesis, its findings and contribution

This thesis set out with the objective of looking at how current funding policies affect academics' research activities, and in particular the autonomy they have over their personal research agenda. We have seen how shifts that have been taking place over the last few decades have quite radically changed the university research landscape. Universities now operate in an ever more competitive and marketised sector. As a result, success in the research assessment exercises, now the REF, and performance in league tables, have come to dominate university research activities. Research has become a complex and highly managed activity, with a focus on performativity and other research metrics.

Both the importance of the RAE/REF and grant income metrics have resulted in academics across all the institution types in this study being placed under increasing pressure to attain external research funding. Against a backdrop of declining public investment in university research and a growth in the volume of applicants for funding, academics inevitably face the dilemma of whether or not to alter their research plans so as to fit with government and funders' priorities. The introduction of 'impact' as a significant criterion of research assessment and proposal evaluation has added yet another policy-driven, external requirement that academics are under pressure to meet.

We have seen the number and range of different strategies that academics employ in order to navigate their way through this complex environment and still be able to conduct the research that is important to them, namely that which they feel is intrinsically worthwhile. Yet, inevitably, the priorities of government and funders are having some influence on the research that academics undertake. Furthermore, the

impact agenda now means that academics are also having to undertake different kinds of research activities.

By looking at academics across a broad range of disciplines, institution types and career stages, this study contributes to the existing literature that was reviewed in Chapter 3, most of which has either focused on specific disciplines, or primarily on only one arm of the dual support system. Furthermore, only a relatively small number of studies so far have looked at the effects of the impact agenda, and these have mostly been limited to specific disciplines. Moreover, this study provides details of the strategies academics employ to negotiate the increasing pressures and constraints on their research agenda, adding to those described by Laudel's 2006 study of Australian and German experimental physicists. We have seen how the constraints on academic autonomy, identified by earlier works, have continued to steadily increase. All the academics in the study, regardless of institution type or career stage, were affected by the policy changes and the resulting pressures to a greater or lesser degree. However, those whose work is more applied appeared to be able to adapt or fit with the policy changes more easily.

10.2 Bourdieusian framework

We saw in Chapter 3 that Spurling believed that many of the dilemmas that academics faced in their everyday practices could not be understood in terms of the accumulation of capitals (Spurling 2012: 79). However, as we saw in Chapter 4, in Bourdieu's theory of practice, capital is but one of three co-dependent concepts necessary in understanding the inner workings of any field. The habitus of the individuals, the capitals at stake and how they are accumulated, and the structure of the field itself, are all essential components of the 'game'. Using our *Bourdieuian* perspective we have seen that, as in other fields, academics display an intense sense of investment, or *illusio*, in the game. As such, many of the strategies they employ to succeed in the field and accumulate further capital stem from an almost unconscious adaptation to the stakes in the field. The more experienced academics, who have accumulated a greater degree of research capital and prestige over their careers, appeared better able to resist changes so as to maintain control over their personal research agenda. At the same time, early career academics were more open to some of the new requirements, such as impact, since they were entering the

field with this requirement in place; thus it appeared that they are better placed to accumulate this particular form of capital.

All fields inevitably evolve over time. As we saw in Chapters 2 and 3, the field of higher education has undergone significant changes over the last 30-40 years. Nevertheless, most of these changes have been fairly gradual. For example, the research assessment exercises, introduced in the 1980s, have been successively modified with each iteration over the subsequent years; and funders' priorities have become increasingly more strategic and economically-driven since the 1970s. However, the introduction of 'impact' as a criterion of research assessment and evaluation in the late 2000s represents a more abrupt and foundational change to the stakes in the field. The findings of this study indicate that impact, as a new, and quite different, form of research capital, is creating a potential crisis on the part of the hitherto dominant agents - the more experienced academics, and particularly those at the more prestigious, research-intensive institutions – who have invested much of their career in accumulating the more traditional forms of academic capital. This lack of fit between habitus and field is what Bourdieu describes as *hysteresis*. Whilst the habitus may, in time, adapt to the new stakes, the effects of this *hysteresis* may be unpredictable. This raises the question of what effect on science if all the actors in the field *do* adapt and prioritise the accumulation of this new form of capital, i.e. 'impactful' research, and less blue skies, curiosity-driven research is conducted? As one academic has commented "Academics have internalised research assessment to such a degree that the effects may be irreversible" (Harrison, 2014).

Thus we have seen how Bourdieu's theory of practice is invaluable in helping us understand not only changes to the objective structures of the field but also how these changes are incorporated in the habitus of the actors within the field.

10.3 Implications: for policy, institutions, academics, and science

As we have seen, government policy since the 1980s has been geared towards concentrating resources in fewer places and imposing a form of selectivity. And indeed, most research funding policies are perceived to propagate the Matthew Effect, with institutions and individuals with the most capital and prestige seemingly

finding it easier to accumulate yet more. However, the research assessment exercises did not have the selectivity effect the government intended, since most universities, regardless of type, have strived to do well in the exercises because of the importance of these in feeding into league tables and other measures of university success, all of which have been largely biased towards research metrics rather than other university activities. Rather than valuing what different institutions have to offer, government policies, and in particular the push for the marketisation of the sector, have resulted in nearly all universities being judged by the same metrics. It remains to be seen exactly how recommendations of the Stern Review²⁰ will be implemented for the next REF – and thus how this might affect the ‘game playing’ that institutions, and individual academics, engage in.

It is possible that the introduction of the Teaching Excellence Framework (TEF) will help address the bias towards research metrics in university assessment. However, as this study has made clear, academics’ time is already under enormous pressure: producing REF-able outputs, applying for grants, and undertaking impact or knowledge exchange type activities, all require huge amounts of time, and most academics still have to fit that around teaching and other administrative duties. Institutions will need to think very carefully what they expect (and offer) academics in the light of the TEF versus REF requirements.

Another significant change, particularly since the 1970s, has been the government’s expectation that publicly-funded research should contribute to economic and societal goals. We have seen that most academics would not dispute that some prioritisation is needed, but the question is whether this has gone too far. The current Higher Education and Research Bill going through parliament will now, for the first time, enshrine the Haldane principle, in law. Whilst this is doubtless welcomed by academics, it is not clear how much this will change the current status quo. For instance, Mark Walport, chief executive of UK Research and Innovation,²¹ stated that peer review of research and grant proposals “is about finding the right experts, and the experts that you want to assess whether a proposal is innovative are very likely to come from the business and innovation world” (Gallardo, 2017).

²⁰ <http://www.hefce.ac.uk/rsrch/refconsultation/> The key recommendations include that ALL research active staff be submitted to the REF, and more flexibility regarding the number of outputs submitted per UoA.

²¹ The new umbrella body that will fuse together the seven research councils, Innovate UK, and HEFCE’s quality-related funding role.

As we saw in Chapter 3, institutions and departments both have the ability to act as intermediaries between external stakeholders (government and funders) and individual academics, so perhaps they should be doing more in this regard. Institutions (particularly newer ones) would do well to provide more support to academics if they expect them to compete for research funds. Furthermore, we have seen that academics feel there is a complete lack of transparency on the part of institutions as to how they manage the internal allocation of the block grant from government, as well as research grant overheads, resulting in a marked sense of distrust. If institutions were to address this it would surely go some way to helping academics feel that the pressurised system within which they are working is at least a fair one.

The range of strategies we have seen that academics are employing are just small ways in which they are navigating the complex funding environment so as to maintain autonomy over their research. But it is doubtful whether these are enough to counter the wider implications for science of current research funding policies. This study has highlighted quite a number of concerns on the part of academics as to what the longer-term effects will be on the nature of research. These concerns can be summarised as: i) that what is valued by policy-makers, and thus institutions, is increasingly divergent from what is valued by academics (and what *should* be valued in research/science) – that there is a tendency on the part of institutions to value impact and income more than the quality of the research itself; ii) that there is too much emphasis on things that can be tangibly measured, and a concomitant devaluing of things that cannot be measured (which is particularly hard on academics for whom the impact of their work is difficult to evidence); iii) that the intense competition for funding is resulting in academics focusing on ‘safe’ science at the expense of riskier and more innovative research; iv) that policies are leading to a short-term view of science, and that there is already evidence that important, but longer-term, studies are struggling to attain funding; and v) that it is increasingly hard to fund blue skies, curiosity-driven research, which will surely have a negative impact on the wider and longer-term progress of science.

All these concerns would suggest that further work should be carried out to investigate more explicitly the longer-term impacts of recent policy trends. One academic in this study also noted that there has thus far been very little research into different methods of research funding, and again, such research would surely

be merited. Hopefully this study provides valuable empirical evidence that other authors can build on.

10.4 Final remarks

As mentioned in Chapter 1 and elsewhere, I believe that the real value of this study lies in the voices of the academics themselves. The interview data may paint a somewhat negative picture; however, that is because the focus of the study has been on the difficulties and constraints faced by academics regarding their research. To end as we started, with a quote from the late David Watson: in his book *'A Question of Morale'*, Watson recounts a traditional tale of university life that holds that, if you ask an academic how their morale is, they will reply 'rock-bottom'; but if you then ask them what they are working on their response will be enthusiastic and optimistic (Watson 2009). Similarly here, the vast majority of academics interviewed for this study, whilst recounting their tales of woe, nevertheless noted how important doing research was to them, and how much they valued their ability to set their own research agendas. Their concerns centred on fears as to what the longer-term and fundamental changes of current policies on the nature and conduct of research, and the value of science in general, may be. So to end with a few examples of these more optimistic quotes:

“Generally I think we do get time for research and we can do some really interesting things, so when I step back and think in research terms, in fact in most terms, it is a good place to work.” (R20)

“I can understand the institutional pressures, particularly in the current HE context, which is tough; so I understand why there are pressures and how goal-posts are shifting a bit. I would rather we survived by changing goal-posts than didn't survive because we hadn't.” (R21)

“In the end, the one thing that drives us all is the need to do the research that we want, and...I think people will find a way.” (R13)

These comments display a positive and pragmatic attitude on the part of academics – an illustration, perhaps, that they are so far managing to balance Bourdieu's 'subjective hopes' and 'objective chances' (Jenkins, 1992: 27).

Appendix 1: Interview questions

I About you and your research

1a) Can you tell me a little about the discipline and specialism(s) that you work in?

1b) Would you describe your research as largely theoretical, experimental, application oriented...?

1c) What is important in terms of prestige in your discipline – publications, grants,...?

2. Do you have long-term research aspirations – e.g. a particular line of enquiry that you stick to? Or is it more a case of applying your expertise to problems/questions as they arise?

3. How much of your time are you able to devote to research – both in theory and in practice? (without external funding)

4. How necessary is funding in order to carry out your research?

- and what type of funding is ideal?

5. What are the main sources of funding in your discipline?

6. Do you ever look to the private sector – industry/business – for funding? Or consulting?

- Out of choice or necessity? - Pros/cons?

7a. Are you very conscious of institutional (or departmental) pressure to apply for funding?

- Are there incentives?

7b. Do you feel that now you have to be quite opportunistic and apply for 'whatever comes up', or can you still pick and choose when and what sort of funding you apply for?

8. How does the REF affect the research you conduct?

9. How does having to demonstrate 'impact' (both for the REF and in Research Council applications) affect the research you conduct?

10. Concerning QR funding that your institution receives from HEFCE (as result of the REF): do you feel that some of that funding trickles down to fund your research in some way?

II Funders' policies

11. Do you feel that funders' policies (either overarching – e.g. priority setting, types of schemes, etc.) impose constraints on the research you do?

E.g. Do you feel that funding is increasingly 'directed', not enough for blue skies/ responsive mode research?

12. In order to attain funding today, is there an increasing need to undertake research as part of larger collaborations?

- If so, what are the pros and cons of that?

13. Do the current low success rates (for Research Council funding in particular) affect how/ when you submit a proposal?

14. Do you feel that it's harder to cost in the resources you need for a project since the introduction of fEC? [For younger academics: what support is there in applying?]

III Summary questions

15. Do you feel you are able to set your own research agenda?

- if not, what are the main barriers?

16. Are there any particular strategies you use in order to strike a balance between the research that is important to you and that which can more easily attain funding?

17. Do you feel you are able to voice your opinions and concerns as a researcher (regarding funding issues) to the relevant people/channels?

18. Is there anything I haven't asked about that you think relevant / you'd like to add?

Appendix 2: TRAC Peer Groups

Peer Groups for annual TRAC, TRAC fEC and TRAC(T) benchmarking 2014-15²²

Criteria (references to income are to 2012-13 data)

Peer group A: Institutions with a medical school and research income* of 20% or more of total income

Peer group B: All other institutions with research income* of 15% or more of total income

Peer group C: Institutions with a research income* of between 5% and 15% of total income

Peer group D: Institutions with a research income* less than 5% of total income and total income greater than £150M

Peer group E: Institutions with a research income* less than 5% of total income less than or equal to £150M

Peer group F: Specialist music/arts teaching institutions

*Research income is defined as the funding council recurrent research grant plus the total research grants and contracts returned in the HESA Finance Statistics Return (FSR).

Peer Group A

The University of Birmingham	University of Oxford
University of Bristol	Queen Mary University of London
University of Cambridge	The University of Sheffield
University of Exeter	The University of Southampton
Imperial College London	St. George's, University of London
The Institute of Cancer Research	University of Sussex
King's College London	The University of Warwick
The University of Lancaster	The University of York
The University of Leeds	University of Aberdeen
The University of Leicester	University of Dundee
The University of Liverpool	University of Edinburgh
Liverpool School of Tropical Medicine	University of Glasgow
University College London	University of St Andrews
London School of Hygiene and Tropical Medicine	Cardiff University
The University of Manchester	Swansea University
University of Newcastle Upon Tyne	Queen's University of Belfast
The University of Nottingham	

Peer Group B

Aston University	Loughborough University
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²² Reproduced from an earlier version of:
http://www.hefce.ac.uk/media/HEFCE,2014/Content/Funding_and_finance/Financial_sustainability/TRAC_Guidance/Annex%204.1b%20TRAC%20Peer%20groups%202015-16.pdf

The University of Bath	The University of Reading
Birkbeck College	Royal Holloway, University of London
Brunel University London	The Royal Veterinary College
Cranfield University	The University of Surrey
University of Durham	Heriot-Watt University
The University of East Anglia	SRUC (Scotland's Rural College)
The University of Essex	University of Stirling
Institute of Education, University of London	University of Strathclyde
The University of Keele	Aberystwyth University
The University of Kent	Bangor University
The London School of Economics and Political Science	University of Ulster

Peer Group C

The University of Bradford	The School of Oriental and African Studies
University of Brighton	University of Plymouth
The City University	University of Portsmouth
De Montfort University	The University of Salford
Goldsmiths' College	University of the West of England, Bristol
University of Greenwich	The University of Westminster
University of Hertfordshire	University of Abertay Dundee
The University of Huddersfield	Edinburgh Napier University
The University of Hull	Glasgow Caledonian University
University of Lincoln	Queen Margaret University, Edinburgh
Liverpool John Moores University	The Robert Gordon University
The Open University	

Peer Group D

Anglia Ruskin University	Middlesex University
Birmingham City University	University of Northumbria at Newcastle
University of Central Lancashire	Nottingham Trent University
Coventry University	Oxford Brookes University
University of East London	Sheffield Hallam University
Kingston University	The University of Wolverhampton
Leeds Beckett University	University of South Wales
Manchester Metropolitan University	

Peer Group E

Bath Spa University	Newman University
University of Bedfordshire	The University of Northampton
University College Birmingham	Roehampton University
Bishop Grosseteste University	The Royal Agricultural University
The University of Bolton	Southampton Solent University
Bournemouth University	University of St Mark & St John
Buckinghamshire New University	St Mary's University, Twickenham
Canterbury Christ Church University	Staffordshire University
University of Chester	University of Sunderland

The University of Chichester	Teesside University
University of Cumbria	The University of West London
University of Derby	University of Winchester
Edge Hill University	University of Worcester
University of Gloucestershire	Writtle College
Harper Adams University	York St John University
Leeds Trinity University	University of the Highlands and Islands
Liverpool Hope University	University of the West of Scotland
University of London	Cardiff Metropolitan University
London Business School	Glyndwr University
London Metropolitan University	University of Wales
London South Bank University	University of Wales Trinity Saint David

Peer Group F

The Arts University Bournemouth	Plymouth College of Art
University of the Arts, London	Ravensbourne
The Conservatoire for Dance and Drama	Rose Bruford College of Theatre and Performance Ltd.
Courtauld Institute of Art	The Royal Academy of Music
University for the Creative Arts	The Royal Central School of Speech and Drama
Falmouth University	The Royal College of Art
Guildhall School of Music & Drama	The Royal College of Music
Heythrop College	Royal Northern College of Music
Leeds College of Art	Trinity Laban Conservatoire of Music and Dance Ltd
The Liverpool Institute for Performing Arts	Glasgow School of Art.
The National Film and Television School	Royal Conservatoire of Scotland
Norwich University of the Arts	

¹ HEIs in Wales do not complete a TRAC(T) return and are therefore are not included in TRAC(T) benchmarking.

Appendix 3: Interviewees

R#	Instn group	RC	Discipline	EC/MC/Exp	M/F
R1	A	NERC	Physics	MC	M
R2	-	Corp sector	Oceanography	Exp	M
R3	B	ESRC	Sociology	Exp	M
R4	B	EPSRC	Statistics	Exp	M
R5	A	EPSRC	Chemistry	MC	M
R6	A	NERC	Statistics	MC	M
R7	A	BBSRC	Infectious diseases	Exp	M
R8	A	NERC	Hydrology	Exp	M
R9	A	EPSRC	Chemistry	MC	M
R10	A	MRC	Psychiatry	Exp	M
R11	A	MRC	Microbiology	EC	M
R12	B	ESRC	Sociology	EC	F
R13	C	EPSRC	Chemistry	MC	M
R14	C	ESRC	Social psychology	MC	F
R15	C	AHRC	English literature	EC	M
R16	B	EPSRC	Statistics	EC	M
R17	A	ESRC	Social sciences	MC	M
R18	A	EPSRC	Chemistry	EC	F
R19	A	ESRC	Statistics	Exp	F
R20	D	ESRC	Social sciences	MC	M
R21	C	AHRC	English literature	Exp	F
R22	A	AHRC	English literature	Exp	F
Group D case study					
X1	D	ESRC	social sciences	EC	F
X2	D	ESRC	social sciences	Exp	F
X3	D	ESRC	social sciences	MC	F
X4	D	ESRC	social sciences	EC	M
X5	D	ESRC	social sciences	MC	F
X6	D	ESRC	social sciences	MC	F
Discussants/correspondents					
C1	B	ESRC	International Relations	MC	M
C2	C	ESRC	Gerontology	Exp	F
C3	B	ESRC	Accounting	Exp	M
C4	-	ESRC	Macro-economics	Exp	M
C5	A	EPSRC	Chemical engineering	Exp	M
C6	B	ESRC	Environmental economics	MC	M
C7	D	AHRC	History	Exp	M
C8	B	EPSRC	Statistics	Exp	M

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