

Academic Research Careers in Scotland

A longitudinal study of academic contract
research staff, their jobs and career patterns

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Finally, thanks must go to the 1,827 contract research staff who completed questionnaires and to the research staff and others who agreed to be interviewed during the qualitative phase of the research. We wish them well in whatever career path they choose to follow.

The Institute for Employment Research

The Institute for Employment Research (IER) was established by the University of Warwick in 1981. The fields in which the Institute aims to promote advanced study and research include:

- the macroeconomic, industrial and spatial factors affecting employment;
- the relationship between the labour market and the rest of the economy;
- labour market behaviour and policy;
- developments in population, education, training and household behaviour affecting the labour market;
- evaluation of labour market policy;
- comparative international research in the above areas.

The IER is one of Europe's leading centres for research in the labour market field. Its work includes comparative European research on employment and training as well as that focusing on the UK at national, regional and local level. The Institute has one of the largest repositories of socio-economic data in the UK and excellent access generally to other databases. Econometric analysis of large datasets, survey-based sociological research, and studies using in-depth interviews are regularly employed. The work of the IER covers a wide range of research-related activities; basic and strategic research; labour market assessment and evaluation; household and employer surveys; technical assistance and consultancy; and an advanced study programme (including post-graduate research for higher degrees, training in labour market analysis for practitioners, and a fellowship programme for visiting academics, officials and other professionals).

Executive Summary

The overall aim of the ARCS project was to provide a systematic study of the career destinations of contract research staff in Scottish higher education institutions. The objectives underpinning this aim were to provide information about the employment destinations of contract researchers which could form the basis for effective staff development and careers advice, which would facilitate an assessment of the extent to which researchers' skills were used in employment beyond academia and to provide a broad assessment of the role of university research training in developing a skilled workforce, within and outside higher education.

Some of the key findings to emerge from the research were as follows:

The contract research population

- There were marked differences in the gender composition of contract research staff by subject area and discipline. Most contract research staff were aged between 25-39 but a significant proportion were older and appeared to have settled on contract research as a career.
- The contract research staff population was a truly international one covering a very wide variety of nationalities. Around 10 per cent described themselves as Scottish.
- Contract research staff were highly qualified and around two thirds held a PhD.

Contract research jobs

- Most contract research staff were on low job grades: 57 per cent at RG1A, 23 per cent at RG1B and 10 per cent at RGII. Women were more likely than men to be employed at RG1B and less likely to be employed at RGII.
- Around 40 per cent of contracts reported in 1998 were of 2-3 years duration. Despite this, over 80 per cent of staff who remained in academic contract research experienced a change in their contract during 1998-2000 and more than 60 per cent of these experienced at least two changes in contract during the period.
- In two thirds of cases, working hours were not stipulated and long hours seemed endemic: 29 per cent reported working 49-59 hours per week and 7 per cent reported working 60 or more hours per week (most common amongst research staff in senior grades).
- The activities of contract research staff mainly involved core research functions (data collection, analysis, experiments etc.) and few undertook supervision of others or of teaching.

Career histories

- Around two thirds of contract research staff entered their first research job with no previous work experience. Previous work experience mainly related to professional practice, training outside higher education, research work outside higher education, technical and support staff outside of academic research, lecturers together with a number of other types of jobs.
- The main reasons for taking a first job in research were principally concerned with interest in research or the issues being researched or a liking for academic life.
- Around 44 per cent of contract research staff had more than five years experience in research employment.
- The advantages of contract research were seen by employers mainly in terms of financial flexibility and getting the right person for the job. Costs were seen in terms of high recruitment costs, the loss of human capital and gaps in the staffing of research projects.

Career development issues

- Only 44 per cent of contract research staff were aware of the Concordat and less than half thought that progress had been made towards implementing it.
- Most universities offered staff development and training programmes and 80 per cent of contract research staff were aware of such opportunities. Only 68 were aware of training specifically for contract research staff and only 30 per cent had attended such a course. Those who attend such courses tend to regard them as useful.
- Only 35 per cent of contract research staff were aware of their employer having a formal appraisal and performance review system. A similar proportion had been formally appraised but half felt they gained nothing from the exercise.
- Informal supervision and mentoring was common with 60 per cent of contract research staff reporting such arrangements. Even here a third felt such review meetings were not useful (usually where they were infrequent).
- Only 12 per cent of contract research staff had received any form of formalised careers guidance or advice. Three quarters were unaware of any network to support contract research staff.
- Career appraisals and informal feedback on job performance were key priorities for contract research staff. More training would seem to be required for those managing contract research staff, particularly in personnel issues.

Career aspirations and orientation

- Around 40 per cent of contract research staff were actively seeking their next post. The proportion was lower when the preferred next post was in contract research.
- Contract research staff valued job content over other aspects of their job. Despite this, 70 per cent felt that obtaining employment on a permanent contract was either 'very important' or 'important'.
- The most important factors leading to an exit from contract research were job insecurity (by a wide margin), poor promotion prospects and low pay. The factor that might tempt ex-contract research staff to return to academic research would be the prospect of interesting and innovative research opportunities.
- Four types of research careers were identified: career starters, career researchers, career returnees and job starters.

Researching The Researchers

Career destinations after research

- Around one in three of contract research staff in post in 1998 had left contract research by 2000. Exit rates were somewhat higher than the average for men, those in their first research job and those who had previously worked outside academic research.
- The majority of contract research staff remained at the same job grade over the two year interval despite contract changes and renewals. Change was greatest amongst lower job grades (where some even moved to a lower scale).
- Slightly over half of all those leaving contract research staff remained in higher education. Only 17 per cent entered manufacturing and private services.
- Around 22 per cent of contract research staff in 1998 entered a permanent job in academic research during 1998-2000.
- More than one in three contract research staff who left academic research continued to be employed on a fixed term contract. This was least likely if the new career was in the manufacturing sector and most likely if in higher education or the public sector.
- Most ex-contract research staff felt their new career lived up to expectations. The most important benefits were job security and improved career prospects. Pay (although usually higher in the new job) was not regarded as important as the other two factors.
- Contract research staff cited many of the skills provided by contract research as being transferable to their new career. The most important were research methods, project management and communications skills.

Contract research issues for the future

- A number of issues for the future were identified. These included:
 - the insecurity of academic research careers and the impact of such insecurity for the individuals and institutions concerned. The report discusses the need improve job security for contract research staff;
 - the alienation of many contract research who felt isolated from their permanently employed colleagues and treated as 'second class citizens' by their employers. The discussion considers the need to integrate contract research staff into the mainstream of university employment;
 - the generally inadequate and ineffectual appraisal of contract research staff. This highlighted the need to improve appraisal and performance review,
 - the existence of a large group of staff who were pursuing a long-term career in academic research and for whom contract research was not just a short-term transition to some other career. The challenge is for higher education to meet the career aspirations of such staff;
 - the need to develop research careers, including matters of job grades, progression, staff development and, ultimately, a change in the culture of academic research.

1.1 Introduction

This research is part of a wider SHEFC initiative¹, set against increasing UK concern about the growing ratios of higher education research staff employed on fixed-term contracts², lack of career development opportunities and limited information about career destinations. The research provides, perhaps for the first time, a comprehensive picture of the Scottish population of fixed-term contract staff working in academic research. The project provides an opportunities to assess the impact of policy upon practice and, more specifically, to gain a measure of insight into positive career development interventions.

The research sheds light on several aspects of contract research. First, by revealing the nature of such employment, it provides a more solid basis for debate about academic conditions of employment. It also provides a benchmark against which to consider the likely consequences of impending developments such as the European Directive on Temporary Work. On a broader scale, the research provides robust evidence of the employment destinations of contract research staff, the extent to which researchers' skills are used beyond academia and the role of university research training in skills development within higher education and for society more widely. Has the expansion in HE contract research opportunities led to increased opportunities for research careers within or beyond academia, or does it merely reflect increasing academic casualisation of employment?³

1.2 Aim of the project

The overall aim of the project was:

- to provide a systematic study of the career destinations of contract research staff in Scottish higher education institutions (HEIs)

The objectives underpinning this aim were:

- to provide information about the employment destinations of contract researchers which could form the basis for effective staff development and careers advice.
- to assess the extent to which researchers' skills are used in employment beyond academia.
- to provide a broad assessment of the role of university research training in developing a skilled workforce, within and outside higher education.

The project sought to achieve this aim and these objectives by means of a wide ranging survey of contract researchers in Scottish HEIs. The survey examined the work histories and motivation and aspirations of contract researchers when they first took up contract research work. It also collected information about the skills acquired and used during the course of employment as contract researchers, the likely transferability and portability of those skills, future career aspirations and expectations, sources of advice and guidance, and other factors influencing the career trajectories and decisions of contract research staff.

¹ SHEFC Website: press release dated 15 February 1996 and Circular letter 5896 Contract Research Initiative.

² c.f. Concordat on Contract Research Staff Career Management, issued by the CVCP, SCOP, COSHEP, the Research Councils and the British Academy, which came into effect in September 1996. Subsequently, the Research Careers Initiative chaired by Professor Sir Gareth Roberts has been initiated from November 1997 to investigate the gap between policy and practice regarding the career development of contract research staff.

³ 'Campaign against casualisation', AUT Update, Issue 44, 23 October 1997, page 1

1.3 Context and issues

Contract researchers have been a growing proportion of the academic workforce for some time. Indeed, by 1998 (the year of the first ARCS survey) a relatively large proportion of employees in higher education were employed on a fixed-term contract. The 1998 Labour Force Survey found that 23 per cent of UK employees in higher education were employed on a temporary basis, compared to only 7 per cent of all employees in employment. Fixed-term contracts predominate such temporary employment in higher education (89 per cent) while accounting for just under half of temporary employment in other sectors. This means that around 20 per cent of employees in higher education were employed on fixed term contracts compared to 3 per cent amongst employees in employment as a whole.

Not all employees on fixed term contracts in the higher education sector were employed in research nor were all research workers employed on fixed term contracts. It is difficult to establish the precise extent of fixed-term research employment, but based on an analysis of Labour Force Survey data on the job titles of those employed on fixed term contracts in higher education suggests that research workers constitute around a quarter (26 per cent) of all such fixed contract employment⁴. This might amount to employment in the region of 3,500 contract research staff, or around 5 per cent of all higher education employment in Scotland⁵.

Information about research careers and transitions between academic research careers and other employment sectors has been, to date, very limited. The proportion of known employment destinations recorded in HESA statistics is low and, because of the high turnover among research contract staff throughout the academic year, HESA employment statistics for this group are flawed and may over-estimate numbers in employment at any one point of time. An earlier Pilot Study of contract researchers in Scotland provided an excellent snapshot of the population to be researched and the key issues of concern to policy-makers, academic employers and the researchers themselves. It was, however, a small sample study, which did not enable responses to be explored in detail.

In addition to investigating research careers within higher education, an important focus of the present research is the extent to which there was actual and potential movement between education and other sectors. Over two thirds of the Pilot respondents expressed a preference to remain in academic work, but this proportion is likely to vary by discipline - and the proportion expressing a preference for non-academic employment was not insubstantial. Some areas of research expertise are likely to be more transferable than others. The 1993 White Paper *Realising Our Potential: A Strategy for Science, Engineering and Technology* argued that the relationships between scientific innovation, commercial success and economic prosperity were of fundamental and growing importance in an increasingly competitive global economy. One of the outcomes was the inception of the Council for Science and Technology, with a brief to draw upon the Technology Foresight Programme's findings and work with government to ensure that public spending on research should be informed by independent and expert advice and be more responsive to (and influential upon) industry. The ARCS project provides some insight into the extent to which these initiatives have impacted upon research careers, with reference to the development of research opportunities and movement between academic and industry-based research employment.

⁴ The proportions of other fixed term employment in higher education were estimated as follows: lecturing staff, 57 per cent, and administrative and other support staff, 17 per cent.

⁵ The estimate of 3,500 contract research staff is less than the number of such staff recorded by HESA for 1997 but is not dissimilar to the number of researchers identified by Scottish universities in 1998 for the purpose of the ARCS survey.

As well as mapping the post-contract destinations of the researchers in the sample, it is important to probe and understand the reasons for entering contract research work in the first place. For many, fixed contract research was likely to represent a logical step in a considered career plan, whereas for others, academic research may have been regarded as a temporary or stopgap measure. The majority of respondents in the Pilot preferred that their next job should be an extension of their present contract or further academic research, but the question referred to the short term only, and it is obviously of interest to be able to estimate the extent to which researchers regard research as a long-term career objective. Information about motivation and career plans is vital in order to make an informed assessment of the destinations data.

The Pilot Study identified the Careers Service as the source of guidance most preferred by respondents but this largely reflected the process by which they secured their first research post. Despite relatively low pay and insecure conditions of employment, academic research has been an area of employment that attracted highly-qualified candidates with strong competition for vacancies, although this varied across disciplines, institutions and in response to particular job opportunities. It was clear that some fixed contract research posts were highly prestigious and obtained in the face of stiff competition whereas others evolved from relatively low-level temporary employment within organisations. The importance of transitions from postgraduate studentships to research employment was thus also an issue to be addressed by the research. In this regard, it was important to understand the part played by sources of guidance, be they official agencies or less formal channels (such as research supervisors and other academic mentors, friends, family or peer group), in influencing decisions about entry into contract research posts.

Finally, an issue that must be faced up to by higher education employers is the impending implementation of the European Directive on Fixed Term Work. When implemented, this Directive will limit the number and/or duration of fixed term contracts and limit the scope for designating a job as being a fixed term contract. A critical question facing higher education, and especially contract research, is the extent to which the Directive will impact upon contract research employment. The impact of the Directive can be gauged by considering the number and duration of contracts held by research staff. The justification for continued fixed term employment may also be judged by considering the extent to which those in fixed term research posts have a longer-term employment relationship with higher education employers. Both types of information were collected by the ARCS survey and will help inform the forthcoming and, perhaps, overdue debate about the employment status of academic research employees.

1.4 Definition of a contract research worker

The definition of a contract research worker is not completely straightforward and certainly caused some operational difficulties during the survey fieldwork. For the purposes of the ARCS study a contract research worker was defined as a person employed in a Scottish higher education institution on a fixed-term or similar type of contract and whose main function was that of research. The definition does not depend on the type of research carried out nor does it depend upon the formal job title of the individual (some contract researchers were appointed on lecturing grades). While this definition appears fairly straightforward, the identification of the contract research population of Scottish higher education institutions in practice is less straightforward. This issue is discussed in Chapter 2.

1.5 Structure of the report

The report is organised in the following manner:

Chapter 2 briefly described the various components of the ARCS study and deals with some technical issues such as the follow-up procedures and response rates. Chapter 3 describes the characteristics of the population of contract research staff in 1998 when first surveyed and examines the characteristics of contract research jobs. Chapter 4 looks at the routes by which contract research staff first entered contract research in higher education and the prior experience they brought with them (if any) to their first contract research job. The chapter also examines the motivation of contract research staff at the time they first entered research employment. Chapter 5 examines training and staff development issues, including awareness of the Concordat, training received and training needs and careers advice and guidance. Chapter 6 considers the career aspirations and orientation of contract research staff. It examines the extent to which contract research staff see themselves as having a long-term career in contract research and, if not, what their career goals might be. Chapter 7 analyses the career changes that occurred over the two year period covered by the ARCS study. It examines the changes that have occurred to those who remained in contract research at the end of the two-year study period. However, Chapter 7 is particularly concerned with identifying the jobs to which those leaving contract research went, the reasons for such career changes, the benefits arising and the skills transferred. Finally, Chapter 8 provides, by way of a conclusion, a discussion of some of the issues raised by the findings of the ARCS project.

Sources of Data

2.1 Introduction

The research project was based on three main components. These were:

- a panel study of contract researchers in Scottish HEI;
- case studies of 'typical' Scottish HEI contract researchers;
- interviews with key managers and administrators concerned with research policy and employment within Scottish HEIs.

2.2 The Panel Study

Survey design

A panel study covering a period of approximately two-years was undertaken of all those employed as contract researchers in Scottish HEIs. The first sweep of the survey took place in April-May 1998 with a second sweep in June-July 2000. Data was collected by means of a self-completion questionnaire. A covering letter explaining the purpose of the research (including the inducement of a prize draw for those who returned a completed questionnaire) and a pre-paid return envelope accompanied every questionnaire. Follow-up took the form of one complete repeat mailing of questionnaire, followed by two further reminders. The final reminder letter contained a short form on which those not wishing to return the full questionnaire could record the reason for their 'non-response'.

The population of contract researchers was identified for the research team by the Scottish HEIs included in the survey. The means by which questionnaires were distributed varied. In some instances, universities provided the names and addresses of contract research staff in post at the beginning of 1998. In these cases, questionnaires were mailed directly to research staff by IER. However, some universities were reluctant to provide a list of staff and where this was the case, questionnaires were supplied to the universities concerned who then mailed them to their research staff through their internal post on behalf of IER. Although there is no difference in principle between the two methods of contacting researchers, there is an important difference in practice. In the former case (direct mailing from IER) it is possible to control the precise timing of initial mailings and follow-up reminders. In the latter case, such precise control is not possible. In some instances where HEIs mailed questionnaires on behalf of IER, it was evident from the timing of responses that mailings lagged somewhat behind other parts of the survey and, for similar reasons, it was less clear that the same level of follow-up mailings has been carried out.

The first 'sweep' of the panel study provided an initial census of the population of contract researchers. The survey was designed to provide a number of different types of information, including baseline information on contract researchers; disciplinary background, qualifications, work history, research experience, funding source, length of current contract, gender, age, ethnicity, nationality, current institution and employment context within that institution.

The second 'sweep' of the panel study built upon information already collected in the first sweep and concentrated on identifying the career changes of respondents over the two year period.

The second stage of the survey collected information from all the 1998 respondents, regardless of their current employment context or status. The additional information collected at the second stage included:

- employment destinations upon leaving their initial job;
- options available to contract researchers at the termination of contracts and choices made;
- movements between HEI-based contract research and other academic employment (including permanent, temporary and part-time contracts);
- movements between HEI-based contract research and other research employment in the public and private sectors;
- movements between HEI-based research and other sectors;
- information about comparable skills development and work experience of contract researchers who remain in contract research posts over the period and those who move into more secure HEI employment or out of academia;
- the relationship between skills developed in contract research posts and employment trajectories;
- the short and long-term aspirations and career expectations of contract researchers.

Survey response rates

Two response rates can be considered. The first is the response to the initial survey in early 1998. The second is the response rate achieved from the second stage of the survey in mid-2000. It is difficult to establish the true response rate to the initial survey because the eligible population of contract researchers is not known with precision. The second response rate can be established accurately since it relates to the sample achieved in 1998 and followed up in 2000.

The population of contract researchers was established, in the first instance by the 13 universities selected for the ARCS study⁶. A total of around 3,300 contract researchers were identified by their employing institutions and postal questionnaires mailed out. A total of 1,827 usable questionnaires were returned. This works out as a response rate of approximately 55 per cent. However, two factors need to be taken into account. First, a number of contract researchers not previously identified emerged during the course of the research. Moreover, it also became apparent that some staff identified as eligible for the survey were in fact not eligible. There were two main reasons for this. A number of 'respondents' returned questionnaires indicating that they were not contract researchers. In this case such individuals were removed from the sampling frame. A more intractable problem was that it also became apparent that a number of those sent questionnaires no longer worked at the university in question. In the absence of a return from such individuals, it is difficult to distinguish between these ineligible persons and refusals and other non response.

Towards the end of the first survey process, a short questionnaire was included with reminder letters aimed at establishing reasons for non-response. A total of 39 forms were returned⁷. Although the number of forms returned was small, some indications of the factors relating to non-response can be obtained. Only 3 respondents (8 per cent) positively stated that they had not received a questionnaire in 1998. Around 60 per cent stated that they had received a form and the remainder (33 per cent) did not know. This suggests that initial contact was probably not a significant problem. Most questionnaire probably reached the intended respondent.

⁶ Universities were selected for the study on the basis of employing a significant body of contract research staff (based on the HESA statistics).

⁷ The final mailing of reminders was limited to the four universities having the lowest 'response rates'.

The most frequently cited reason for not returning the questionnaire was 'I found the questionnaire / work history section too complicated' (57 per cent of those who recalled receiving the questionnaire) while responses such as 'too busy', 'don't regard fixed contracts as a problem', and 'I am an overseas national with no long-term plans to remain in Scottish HEIs' were not mentioned by any 'non-respondent'. Around 11 per cent felt it was 'a waste of time' and around 50 per cent cited an 'other' reason in addition to other responses (usually related to a reluctance to provide what were seen as 'personal details'. Notwithstanding the small and probably unrepresentative sample, it was of concern to find that almost 40 per cent of all who returned a non-response form indicated that they were not a contract researcher. This appears to confirm the concern that that target population of contract researchers was not accurately identified by universities. If 30 per cent of the original mailings were to people who were not contract research staff, this would significantly raise the valid response rate. However, as the sample of non-respondents was very small and may itself be biased this inference cannot be regarded as more than indicative.

In the light of the experience of attempting to contact all contract research staff in post in 1998, and bearing in mind the findings of the non-response survey, it is very difficult to be sure of what the contract research staff population actually was at the time. For this reason it is also difficult to express the response rate in proportionate terms since the denominator is not known with certainty. Nonetheless, a sample of 1,827 represents a large sample and results derived from it can be expected to have some robustness and validity.

The panel study tracked the April 1998 cohort of contract researchers over a roughly 26-month period. A problem faced by all such longitudinal surveys is sample attrition where contact is lost with respondents as the result of changes of work or home address. Such sample attrition increases with the time interval between survey contacts and with the degree of employment and geographical mobility of the population being surveyed. In order to help minimise the problem of sample attrition and to help achieve a good response rate at the second stage of the survey, a number of measures were used to keep in touch with respondents. Most importantly, respondents were provided with a reply-paid 'change-of-employment' report card that they were asked to return should they change their job or employment status. Respondents about to reach the end of a contract were sent a 'transition report' card shortly before their current contract was due to terminate. The information from these career change reports helped to maintain a file of up-to-date addresses for respondents and facilitated the follow-up mailing in 2000.

The result of the second stage of the longitudinal study was that a completed second questionnaire was received from 1,135 respondents, an overall response rate of 62 per cent. These responses were made up of 768 respondents who had remained in contract research (although not necessarily the same job) and 367 who had left contract research for permanent employment in university research or other jobs outside academic research. Analysis of non-respondents, those who stayed in contract research and those who left by various characteristics (such as age, gender, subject area of research, length of time in research) did not suggest any significant differences between the three groups. This suggests that non-response bias may be low.

2.3 The Case Studies

Following the first sweep of the longitudinal survey, a number of case studies were carried out with contract researchers in Scottish HEIs. Semi-structured interviews were carried out with a range of contract researchers in different Scottish institutions, covering issues related to their work, their experience of contract research and of career development. Interviews were also carried out with relevant staff concerning institutional human resource policies towards contract researchers. Interviews were carried out on an on-going basis between the summer of 1998 and spring 2000.

Contract research staff interviews

Semi-structured interviews were undertaken with a range of contract researchers in different Scottish institutions. The interview schedule for contract research staff covered the following issues:

- Activities in current job
- Working conditions and support
- Previous experience and how respondent came to be in contract research
- Perceptions of experience and opportunities for progression
- Training and development received and needs
- Perceived advantages/disadvantages of contract research:
 - For the researcher
 - For the institution
 - For sponsors
- Future plans.

Potential interviewees were selected from respondents to the first sweep of the longitudinal survey. Initial contact was by e-mail. The case study sample was purposively selected to provide a range of researchers, ensuring representation by age, gender, subject area and type of contract. Interviews, which lasted on average between 30 and 45 minutes, were recorded and transcribed. Interviews were undertaken with 100 contract researchers in the following universities:

The University of Edinburgh
 The University of Aberdeen
 Napier University
 The Robert Gordon University
 Heriot Watt University
 The University of St Andrews
 The University of Glasgow
 The University of Dundee
 The University of Strathclyde
 The University of Stirling

A broad mix of researchers were interviewed, with representation from men and women in medical, science, engineering, maths and computing, social science and arts departments: most interviews were undertaken with researchers from science, social science, medicine and related fields as these represented the larger groups of cohort research staff. The age range of those interviewed was between early 20s to mid-50s, with the majority being in their late 20s/early 30s. Overall, more women were interviewed than men. The researchers interviewed included some non-UK nationals. Most of these came from within the EU although other nationalities included American, Canadian and Russian. The majority of researchers had been employed on at least one previous contract and several were involved in research management, including the management of entire research units.

Institutional interviews

Embedded within HEI visits, where the researchers carried out face-to-face interviews with 'typical' contract researchers, were a number of interviews with line managers and/or departmental heads and/or a senior member of the central management, about departmental/institutional research policy and practice. These visits provided information about differences in institutional practices influencing research opportunities and research careers and, within institutions, between discipline areas and departments.

Interviews were conducted in all of the universities listed above in which interviews were undertaken with contract research staff. In addition some institutional interviews were undertaken at Abertay (where no interviews were conducted with contract research staff).

2.4 The statistical accuracy of the ARCS findings

The sample of contract research staff for the qualitative interviews was selected in a purposive manner to ensure coverage of particular institutions, disciplines, job grades and contract research experience. While contract research staff in such a sample may be considered typical, the sample was not intended to provide data from which the characteristics of the population of contract research staff could be inferred.

Inferences about the population of Scottish contract research staff can safely be drawn only from the quantitative data of Sweeps 1 and 2 of the ARCS survey. A guide to the likely accuracy of results can be obtained by estimating 95 per cent confidence intervals. Such intervals (derived from the sampling error of a random sample) indicate the range of values within which 'true' population proportions fall on 95 per cent of occasions. In the case of the ARCS surveys it is necessary to adjust confidence limits to take account of the fact that the survey was a census of a finite population of contract research staff. Because the samples represented large proportions of the population, the accuracy of any findings was greater than a similar sized sample from an infinite population. To take account of this, a 'finite population correction factor' was used to adjust the confidence limits⁸.

⁸ 'Finite population adjustments' were made by multiplying confidence limits by a factor of $[1 - (\text{sample size}/\text{population})]$.

Table 2.1 sets out the 95 per cent confidence limits for the two samples of contract research staff forming the quantitative element of the ARCS study (Sweep 1 in 1998 and Sweep 2 in 2000). Since the size of the confidence interval reflects both the size of the sample (corrected by the finite population correction factor) and the proportion that is estimated, the table shows the confidence levels for different estimated proportions. The table also indicates the confidence levels that can be ascribed to the two sub-samples of Sweep 2 when the sample is divided into those who remained in contract research and those who left for another career.

The information contained in Table 2.1 should be borne in mind when considering the evidence presented in later Chapters. The margin of sampling error is smaller as the estimated proportion moves away from 50 per cent. However, where the findings are based on smaller sub-samples, potential sampling error will increase.

Table 2.1 Sampling variation in ARCS surveys

Survey result	ARCS 1, 1998 (1827 responses)	ARCS 2, 2000 (1135 responses)	In contract research in 2000 (768 responses)	Left contract research by 2000 (367 responses)
10 or 90%	+/- 0.9%	+/- 1.4%	+/- 1.9%	+/- 2.9%
20 or 80%	+/- 1.2%	+/- 1.9%	+/- 2.5%	+/- 3.9%
30 or 70%	+/- 1.4%	+/- 2.2%	+/- 2.8%	+/- 4.4%
40 or 60%	+/- 1.5%	+/- 2.3%	+/- 3.0%	+/- 4.7%
50%	+/- 1.5%	+/- 2.4%	+/- 3.1%	+/- 4.8%

Contract Researchers in Scotland

3.1 Introduction

The first key question to be addressed is who are the contract researchers and what kinds of jobs do they undertake? The first sweep of the longitudinal survey was a census of contract researchers in post in Scottish higher education institutions during Spring-Summer of 1998. Insofar as the population of contract researchers was correctly identified in the first instance and that non-response was random, the achieved sample provides a representative 'snapshot' of the population of researchers at that time.

3.2 Personal characteristics

Gender

The population of contract researchers was equally divided between males and females (50 per cent each). There were, however, considerable differences between discipline areas as can be seen from Table 3.1. Male researchers are particularly concentrated in engineering and, to a lesser extent, in science. Female researchers are disproportionately represented amongst those in medical science, social science, art and education (although the sample size is quite small in some instances).

Table 3.1 Employment of contract researchers by gender and discipline

	Row percentage			
	Male	Female	All	Base
Medical science	35	65	100	315
Science	53	47	100	857
Engineering & technology	70	30	100	244
Social science & Humanities	41	59	100	214
Art		100	100	8
Education	21	79	100	19
All disciplines	50	50	100	1827

Source: The ARCS Survey: IER 2001

There are also differences in the gender composition of research employment across higher education institutions (Table 3.2). An above average proportion of contract research workers were men in, for instance, Heriot Watt (76 per cent) and St Andrews (61 per cent) universities, while the proportion of women was above average in Stirling (64 per cent) and Aberdeen (60 per cent). These differences across universities will reflect many different factors but the most likely factor is differences in disciplinary areas of research in different universities which, in turn, will reflect the gender differences within disciplinary areas discussed above.



	Row percentage			Base
	Male	Female	Both	
University of Abertay, Dundee	71	29	100	7
University of Paisley	69	31	100	13
Napier University	47	53	100	32
University of Edinburgh	51	49	100	476
University of Strathclyde	59	41	100	139
Heriot-Watt University	76	24	100	85
University of St Andrews	61	39	100	124
Queen Margaret University College	38	63	100	8
University of Aberdeen	40	60	100	263
The Robert Gordon University	60	40	100	35
University of Dundee	45	55	100	211
University of Glasgow	46	54	100	351
University of Stirling	36	64	100	47
All	50	50	100	1791

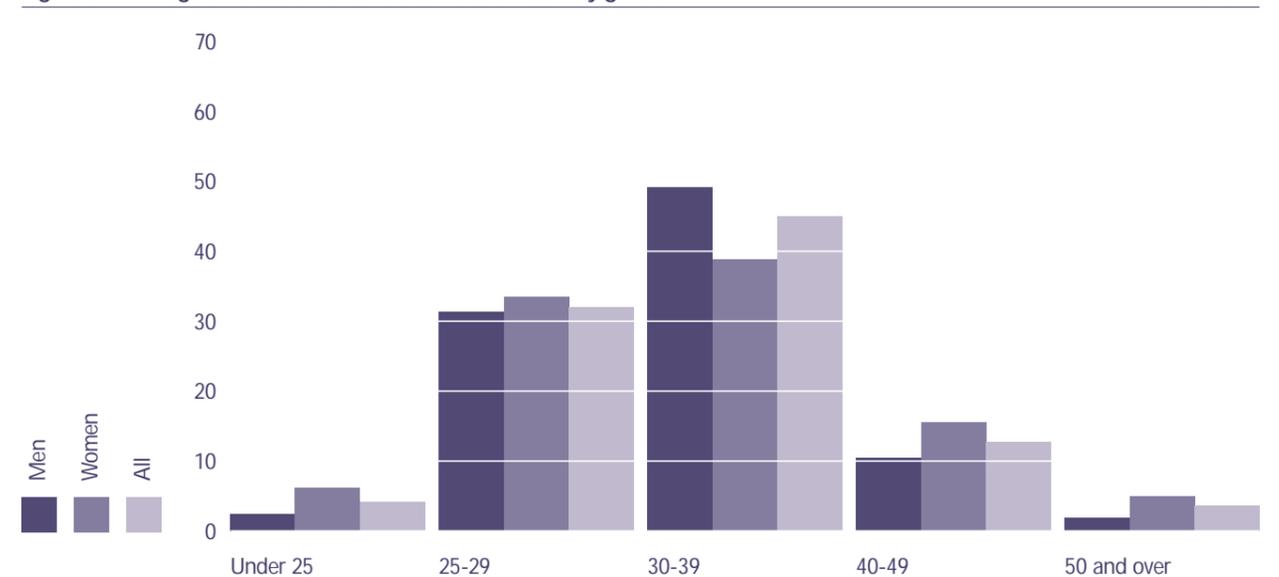
Source: The ARCS Survey: IER 2001

The age distribution of researchers

The great majority of contract research workers are aged between 25 and 39 years of age (78 per cent). This is evident from Figure 3.1. Around 5 per cent of contract researchers were under the age of 25 and about 17 per cent were 40 or over. The proportion of men and women in the 25-29 age group was very similar (33 per cent and 34 per cent, respectively). However, women were less likely than men to be aged 30-39 (39 per cent compared to 50 per cent) and more likely to be found amongst those aged under 25 (7 per cent) or over 40 (21 per cent).

Differences in the age of research staff were also evident across disciplines although small sample sizes limit the reliability of some estimates. A relatively large proportion number of research workers in social science (9 per cent) and engineering (8 per cent) were under the age of 25. Social science, however, also had a relatively large proportion of older staff as did education. In the former, 28 per cent of research staff were 40 or over while in education the corresponding proportion was 42 per cent (with 32 per cent being 50 or over). Only 12 per cent of those in science and 13 per cent of those in engineering were aged 40 or over. The reason for these differences probably reflect traditional career paths within each discipline. For instance, those working in education research often do so after an initial career at 'the chalkface' and are thus older on entry to research. In other disciplines the reverse is often the case: an initial research career is followed by entry into practice or some other career outside of research. Some of these issues will be explored in later chapters.

Figure 3.1 The age distribution of contract research staff by gender



Base: All Sweep 1 respondents (N=1827)

Source: The ARCS survey: IER 2001

Researchers from disadvantaged groups

Few contract research staff in Scottish universities were members of ethnic minority groups. Almost 91 per cent of men and 96 per cent of women (93 per cent overall) classified their ethnic group as White. There were very few Black or South Asian (Indian, Pakistani or Bangladeshi) research staff (less than 1 per cent and 1 per cent) and the largest ethnic group other than White was the Other category which was predominantly people of Chinese and other Asian origins. In view of the small sub-sample sizes involved, any breakdown of ethnic origin by discipline must be regarded as indicative only. All those in the sample and working in art or education research were White. Those of Other ethnic origin tended to be found working in social science, science and, especially, in engineering. South Asian research staff tended to be employed in science.

The broad ethnic groups discussed above disguise the diversity and international variety of the population of contract researchers. Researchers from a wide range of nationalities were present in the sample, covering countries across western and eastern Europe, Latin America, New Zealand and Australia and, to a lesser extent, from Asia and the Far East. Ten per cent of research staff described their nationality as Scottish. A list of self-identified nationalities is presented in Annex C.

While all universities are 'equal opportunities employers' and the barriers to employment in many research posts would appear low, very few people with a disability were working as contract research staff. Just 2.4 per cent of men and 1.2 per cent of women described themselves as having a disability or long-term illness that might limit (or be perceived to limit) the work they do. Although indicative only, the survey evidence indicates that the employment of people with disabilities as contract researchers was slightly more common in the social sciences and in medical science and less likely in science and engineering.

Household circumstances

Almost 40 per cent of contract research staff described their circumstances as being either single or widowed, divorced or separated (Table 3.3). Single people were most commonly working in engineering & technology and to a slightly lesser extent, in science. Researchers with single status were least common in medical science and social science. These differences probably reflect the different age distributions of research staff across disciplines. Of those living with a partner, in most cases the partner was in full-time or part-time employment. Around 9 per cent lived with a partner not in employment. A non-working partner was much more common amongst men (14 per cent or male researchers) than amongst women (4 per cent). A quarter of research staff had financially dependent children under the age of 18. The proportion of men with dependent children was slightly greater (27 per cent) than the proportion amongst women (23 per cent). This may be a reflection of the smaller proportion of female contract researchers who were aged 30-39 and could indicate that some women with dependent children withdraw from research employment.

	Column percentages		
	Male	Female	Both
Single	38	34	36
Married or living with a partner in full-time employment	32	53	43
Married or living with a partner in part-time employment	13	2	8
Married or living with a partner not in employment	14	4	9
Widowed, divorced, or separated	2	3	2
Other	1	3	2
All	100	100	100
Base	897	896	1827

Source: The ARCS Survey: IER 2001

3.3 Qualifications

Given the nature of research work and its location within higher education institutions, it is to be expected that contract research staff will be highly qualified and this turned out to be the case. Table 3.4 sets out the distribution of highest qualifications held by those covered by the survey. As can be seen, 83 per cent of all who reported a qualification held a post graduate qualification (23 per cent at Masters or post graduate diploma or equivalent level and 60 per cent held doctorates). Just under 3 per cent did not record any qualifications but it is not known whether they withheld this information or whether they did not possess formal qualifications.

Women in contract research jobs were less likely than men to hold a doctorate and more likely to hold either a first degree alone or some other post-graduate qualification, such as a masters degree or post-graduate diploma (Table 3.4). This difference is likely to be associated with the differences that were evident between the level of qualifications held in different disciplines (Table 3.5). The survey indicated that doctorates were most common in science (73 per cent), engineering & technology (54 per cent) and medical science (51 per cent). The first two disciplines have already been shown to employ a larger proportion of men than areas such as social science & humanities, art and education where the proportion of research staff holding PhDs and equivalent qualifications was below the average.

	Column percentages		
	Male	Female	Both
Other qualifications	†	†	†
Sub-degree qualifications	1	1	1
First degree or equivalent	13	20	16
Masters and other PG qualifications	17	29	23
Doctorate	69	51	60
All	100	100	100
Base	897	896	1827

† less than 1 per cent

Source: The ARCS Survey: IER 2001

	Column percentages						
	Medical science	Science	Engineering & Technology	Social Science & Humanities	Art	Education	All
Sub-degree	†	†	†	†	†	†	†
First degree or equivalent	19	14	18	17	13	26	16
Masters and other PG qualifications	29	12	27	45	75	47	22
Doctorate	51	73	54	36	13	26	61
All	100	100	100	100	100	100	100
Base	316	859	245	214	8	19	1827

† less than 1 per cent

Source: The ARCS Survey: IER 2001

The proportion of contract researchers holding a doctorate was highest amongst those aged 30-39 (70 per cent) and lower amongst both younger and older research staff. Those in lower age groups may have had insufficient time to achieve a doctorate and this is most evident amongst those aged under 25. The finding that research staff in older age groups were also less likely to hold a doctorate probably reflects the general expansion of higher education that has taken place in recent decades. It may also indicate that a form of 'qualification inflation' has occurred in which the qualifications asked of new recruits to research is steadily raised over time. Nonetheless, those respondents who had only been in a research post for a short while were least likely to hold a doctorate (Table 3.7). Of those who had worked in research for less than 12 months, around a third held a doctorate. As the duration of research career lengthens, the proportion of research staff holding a doctorate increases and peaks at 70 per cent amongst those who had worked in research for five years or longer.

Table 3.6 Highest qualification by age group Column percentages

	Age group					All
	Under 25	25-29	30-39	40-49	50 & over	
Sub-degree and other qualifications	1	0	0	1	4	1
First degree or equivalent	59	19	11	10	19	16
Masters and other PG qualifications	37	24	18	28	26	23
Doctorate	3	57	70	61	50	60
All	100	100	100	100	100	100
Base	94	598	794	228	76	1827

Source: The ARCS Survey: IER 2001

Table 3.7 Highest qualification by duration of research career Column percentages

	Time in a research post					All
	Less than 6 months	6-11 months	Between 1-2 years	Between 2 and 5 years	5 years or more	
Sub-degree and other qualifications				2	0	1
First degree or equivalent	27	29	21	16	12	16
Masters and other PG qualifications	35	34	30	22	17	23
Doctorate	38	36	48	60	70	60
All	100	100	100	100	100	100
Base	89	153	210	547	770	1827

Source: The ARCS Survey: IER 2001

The proportion of staff holding a doctorate varied depending upon their location within higher education. Research staff in a teaching departments or faculty were most likely to hold a doctorate (63 per cent) while those in a research institute or unit or other locations were less likely (52 per cent and 43 per cent, respectively). This difference may reflect differences in the skills and qualifications required in different locations or in educational and career backgrounds of the staff involved. Alternately, it may reflect differences in the opportunities to acquire a doctorate in terms of resources, policy or provision.

3.4 The job grade in current research post

There are several aspects of a persons job that can be considered. First there is the job grade. This has important implications for pay and conditions of employment. Second, there is the nature of the job in terms of the type of research (subject) and the tasks or content of the job - what people actually do as part of their employment. This section considers the first of these aspects: job grade.

Table 3.8 shows the distribution of research staff employment by job grade. The great majority of contract researchers (79 per cent) were employed on grades RG1A or RG1B. While there is no difference between males and females in terms of the proportion of employment in RG1A (57 per cent in each case), a somewhat larger proportion of women were employed at RG 1B grade (27 per cent compared to 18 per cent, respectively) and, correspondingly, a somewhat greater proportion of men were employed at the more senior RGII grade (12 per cent of men and 9 per cent of women). Overall, 89 per cent of research employment was to be found in the three grades RG1B, RG1A and RGII.

Table 3.8 Job grade of research staff by gender Column percentages

	Male	Female	Both
	Professor/Head of Department	1	0
Reader/Principal/Senior/Lecturer	4	2	3
Research Grade IV	1	1	1
Research Grade III	2	2	2
Research Grade II	12	9	10
Research Grade 1A	57	57	57
Research Grade 1B	18	27	22
Other	4	3	4
All	100	100	100
Base	897	896	1827

Source: The ARCS Survey: IER 2001

Job grade was strongly related to age (Table 3.9). Of those aged under 25, almost two thirds (61 per cent) were employed at the lowest research grade of RG1B while a third were employed on RG1A. This ratio was reversed for those aged 25-29 (33 on RG1B and 64 per cent on RG1A). While the proportion employed at RG1A remains much the same amongst those aged 30-39, the proportion employed at RG1B fall sharply to around 15 per cent. In age groups above 30-39, the proportion of staff employed on RG1A falls while the proportion on RGII increases.

Table 3.9 draws attention to the finding that a substantial proportion of research staff in older age groups were employed at grades at the lower end of the scale. Insofar as such employees have recently entered research such job grades may be appropriate to their lack of research experience. However, as Table 3.10 shows, a considerable proportion of those with long periods of employment as research workers were employed at these lower grades. Indeed, between a half and two thirds of those who had worked in research for two or more years were employed at RG1A. Moreover, while the highest proportion of employment at RG1B was found amongst those who had little experience of research work (less than 12 months), almost a quarter of those with two to five years of research experience were employed at RG1B and even amongst those with five years or more experience the proportion was still 14 per cent. It was also notable that it was only amongst the latter group (five or more years experience) that a significant proportion of staff employed at RGII were to be found (20 per cent compared to 4 per cent or less amongst those with less experience).

Table 3.9 Job grade of research staff by age group Column percentages

	Age group					All
	Under 25	25-29	30-39	40-49	50 & over	
Professor/Head of Department			0	1	4	0
Reader/Principal/Senior/Lecturer		1	4	3	4	3
Research Grade IV	1	1	1	2		1
Research Grade III		1	2	7	10	2
Research Grade II	1	0	14	24	21	10
Research Grade 1A	33	64	60	42	39	57
Research Grade 1B	61	31	15	13	15	23
Other	3	3	3	8	6	4
All	100	100	100	100	100	100
Base	94	598	794	228	76	1827

Source: The ARCS Survey: IER 2001

Table 3.10 Job grade of research staff by length of research career Column percentages

	Time in research					All
	Less than 6 months	6-11 months	1-2 years	2-5 years	5 years or more	
Professor/Head of Department					1	0
Reader/Principal/Senior/Lecturer	1	2	2	3	4	3
Research Grade IV	4	1		0	1	1
Research Grade III		1	1	1	4	2
Research Grade II		2	2	4	20	10
Research Grade 1A	42	49	59	65	54	57
Research Grade 1B	47	40	32	24	14	23
Other Research	6	5	6	4	3	4
All	100	100	100	100	100	100
Base	89	153	210	547	770	1827

Source: The ARCS Survey: IER 2001

Table 3.11 highlights the dominance of employment at RG1A and RG1B across all areas of research (although the small sub-sample sizes in some instances make the findings indicative only). With this caveat in mind, it can be seen that employment at lower grades (RG1B and RG1A) was more likely in science and engineering & technology (over 80 per cent were at one or other of these grades in these two areas) employment at the higher grade of RGII appeared somewhat more likely in social science and education (17 per cent and 33 per cent respectively). Nevertheless, the proportion of research staff employed at senior grades (RGIII or RGIV) were small in all discipline areas and even in social science (where the proportion was highest) only reached 6 per cent of staff.

The overall impression derived from the findings of the survey is that a large proportion of research staff were employed on grades towards the bottom of the research scales. Such employment was most common amongst young people new to research employment. However, employment at the lowest grades was by no means restricted to this group and employment at a low grade was to be found amongst many who had considerable research experience and appeared, in view of their age and length of service, to be following a career in research rather than being in research on route to other types of employment. This issue will be considered further in Chapter 4 below.

Table 3.11 Job grade of research staff by discipline Column percentages

	Discipline						All
	Medical science	Science	Engineering & Technology	Social Science & Humanities	Art	Education	
Professor/Head of Department		0	0	1			0
Reader/Principal/Senior/Lecturer	5	2	2	3			3
Research Grade IV	0	1	1	1		6	1
Research Grade III	2	1	2	5			2
Research Grade II	9	9	11	17		33	10
Research Grade 1A	54	62	59	43	75	44	57
Research Grade 1B	21	21	22	28	25	11	22
Other	8	3	2	3		6	4
All	100	100	100	100	100	100	100
Base	316	859	245	214	8	19	1827

Source: The ARCS Survey: IER 2001

3.5 Length of current contract

The length of the current contracts on which research staff were employed was calculated from the reported time in each current post and the date on which each contract was expected to end. Such an estimate is subject to a degree of error since it relies upon recall of time in current job and an accurate date for the end of the contract. It may also omit very short contracts and contract extensions, partly because respondents may not report them and partly because research staff on such very short contracts may not be identified and receive a questionnaire.

The ARCS survey suggests that few research staff were employed on a contract of 12 months or less (just 3 per cent overall). This finding must be treated with some caution because it is this group of research staff who are most likely to be missing from the sample. This is because such research staff are the most likely to be missing from any university list of contract research staff (with the likelihood of being missing depending on the ways in which staff lists are compiled and the frequency and accuracy of up-dating). They are also the group least likely to respond to surveys as they may not have the same facilities as other staff (for instance, a place for their post to be delivered) and they may be the group who see least benefit from completing a questionnaire. Having said that, the extent of any underestimate is impossible to measure.

While contracts of 12 months or less appear uncommon, contracts of between 1-2 years were more frequently encountered and accounted for over a third (38 per cent) of all research employment. A further 40 per cent had contracts of 2-3 years and the remaining 20 per cent had contracts of 3-5 years duration. There was no difference between men and women in regard to the proportion on very short contracts (12 months or less) and on long contracts (3-5 years). However, women were more likely than men to be on contracts of 1-2 years duration (41 per cent compared to 34 per cent) while men were more likely than women to be on contracts of 2-3 years. This difference is largely a reflection of the differences that exist in the contract lengths at different job grades combined with the tendency of women to be in lower job grades than men. Table 3.12 describes the pattern of contract lengths within each of the job grades covered by the survey.

	Length of contract				All contract lengths	All
	Up to 12 months	13-24 months	25-36 months	37-60 months		
Professor/Head of Department			40	60	100	6
Reader/Principal/Senior Lecturer		14	29	57	100	7
Lecturer		24	38	38	100	43
Research Grade IV		38	23	38	100	13
Research Grade III		19	26	55	100	38
Research Grade II	2	17	37	44	100	172
Research Grade 1A	2	38	44	16	100	942
Research Grade 1B	6	45	35	14	100	373
Other Research		38	38	24	100	31
Other	12	48	33	6	100	33
All	3	37	40	20	100	1827

Source: The ARCS Survey: IER 2001

Table 3.12 shows that very short contracts were exclusively to be found amongst those in grades RGII, RG1A and RG1B together with the 'Other' group. Lower job grades also have a large proportion of research staff working on contracts of 1-2 years. Slightly more than half of staff at RG1B were employed on a contract of no greater duration than two years. The corresponding figures for RG1A and RGII were 40 per cent and 19 per cent, respectively. Just 19 per cent of staff at RGIII were employed on contracts of 1-2 years but, surprisingly, 38 per cent of those at RGIV. In the latter case the number of respondents in the sample is small so the finding may not be reliable. It is possible that the contracts of such senior researchers are tied to some specific responsibility (leading a research unit, for instance) that is time-limited.

A substantial proportion of research staff on senior grades were on long contracts (3-5 years). Over half of those at professor/head of department or reader/principal lecturer/senior lecturer and at RGIII were working on such contracts. Almost half of those on RGII and round a third of staff at RGIV and at lecturer grade also had such long contracts. Perhaps most surprisingly, not insignificant proportions of research staff on low grades also had long contracts: 16 per cent at RG1A and 14 per cent at RG1B. This clearly indicates that many staff at RG1A and RG1B were engaged in research work that was other than temporary or transitory and were, in effect, engaged in a research career. Of course, the contract lengths reported here relate only to the contract current in 1998. Many research staff will have worked on previous contracts and their overall period in research may well exceed the contract periods discussed here.

Analysis of current contracts by discipline area does not suggest significant differences in practice between areas of research in terms of contract length. There is some slight evidence that rather more research staff were employed on 1-2 year contracts in engineering & technology (44 per cent) and in social science & humanities (43 per cent) while medical research and science seem slightly more likely to offer 2-3 year contracts (39 per cent and 43 per cent respectively). The differences were small, however.

3.6 Pay and conditions

The earnings of contract research staff in Scotland were sampled on two occasions as part of the ARCS project. The first occasion was the 1998 sweep of the quantitative survey. The second occasion was two years later at the second sweep of the longitudinal survey. While it is tempting to refer to the most recent evidence (the survey in 2000) such evidence is biased since it was drawn from those research staff who were employed as contract research staff in 1998 and remained in research in 2000. The 1998 sample is the more representative of the population of research staff as a whole.

The 1998 ARCS survey found that the overall average (median) annual earnings across all research staff was around £18,494 per annum⁹. As has already been noted, men were slightly more likely than women to be employed at higher job grades (notably RGII) and it is therefore to be expected that the median annual earnings of male research staff was somewhat higher (£19,000 per annum) than that of female research staff (£17,606 per annum). The estimated median annual earnings of the main research job grades is set out below in Table 3.13:

Table 3.13 Median earnings of contract research staff by job grade

Grade	Median annual earnings	Base
Professor/Head of Department	£39,000	6
Research Grade III	£29,800	35
Research Grade II	£24,600	166
Research Grade 1A	£18,494	902
Research Grade 1B	£16,925	359
All research staff	£18,494	1724

One notable finding of the survey was that almost 16 per cent of research staff in 1998 were not members of a superannuation scheme. In the case of staff on RG1B the proportion was 20 per cent or one in five. The lack of membership of a superannuation scheme underlines the precarious nature of employment for some research staff. Without membership of such a scheme research staff will not be eligible for long-term benefits such as pensions and may also lack short-term benefits such as protection of pay during periods of illness.

Around two thirds of research staff (65 per cent) reported that their weekly hours of work were not specified by their contract of employment. Where contracted hours of work were stipulated, the most common number of hours were 35 per week (reported by 20 per cent of those who had contracted hours). A further 20 per cent reported contract hours of 40 hours per week while 14 per cent reported 37 hours and 11 per cent reported 38 hours per week.

Actual weekly hours worked by research staff often exceeded contracted hours (although in two thirds of cases there were no contracted hours). Long hours of work appear to be a characteristic of contract research work. Half (50 per cent) of all research staff reported that they actually worked between 40-48 hours per week. However, more than a quarter (29 per cent) reported that they worked 49 or more hours per week and 7 per cent reported that they worked 60 or more hours per week. While this pattern was evident across all discipline areas, research staff in science appear rather more likely than others to be working long hours: 33 per cent worked 49 hours or above per week. However, long hours

⁹ Estimates of earnings in 1998 are based on 1,724 respondents.

of work were more likely to be reported by research staff in higher grades than in lower grades. Around 11 per cent of research staff at RGIII and 10 per cent at RGII reported weekly hours of 60 or more per week. This compares with just 6 per cent amongst staff in both RG1A and RG1B. In fact, 42 per cent of staff at RGII reported working 49 or more hours per week.

3.7 Discipline and subject areas

The location of contract research staff in terms of the institutions within which they were employed has already been discussed in Section 3.2 (see Table 3.2 above). In terms of their location within institutions, over 70 per cent of contract researchers were located in a teaching department and not in a separate research centre. The proportions varied considerably from university to university but, because the number of research staff from some institutions is small, it is unwise to draw general conclusions about institutional differences in the organisation of research. Nonetheless, where the numbers in the sub-samples are large, some differences were evident. In Edinburgh, the largest sub-sample, around 31 per cent of research staff worked in dedicated research institutes. In other universities where the sub-sample was large enough for reliable estimates – Aberdeen, Dundee, St Andrews and Strathclyde – the proportions in dedicated research centres was much lower; around 18-19 per cent.

The survey asked research staff to identify whether their research work was in a single discipline, was multidisciplinary or was interdisciplinary. In any event, respondents were asked to identify the discipline(s) or subject(s) involved. Classifying the resulting information poses something of a problem since many different combinations of subjects were possible. The survey recorded all the disciplines/subjects reported by research staff in the order in which they reported them. For many purposes the first mentioned discipline/subject was arbitrarily taken as an indication of the type of research being carried out by research staff.

Around 27 per cent of respondents indicated that their research related to a single discipline. Amongst this group more than half (57 per cent) cited science as their area of work. Around 17 per cent were working in medical scientific research and 13 per cent and 12 per cent respectively in engineering & technology and social science & humanities. Virtually no research staff in art or education regarded their work as single disciplinary.

An indication of the extent of cross disciplinary research amongst research staff who did not regard their work as single disciplinary is provided by Table 3.14. This table cross-tabulates the first subject area cited by respondents with the second subject area cited. The diagonal (from upper left to lower right) indicates the proportion of researchers who indicated two subjects within the same broad disciplinary area (for instance, 34 per cent of those in medical science and 61 per cent in science) while other columns indicate the extent to which the first discipline is combined with others.

Table 3.14 Combinations of research subject amongst research staff Row percentages

First subject area	Second subject area						All
	Medical science	Science	Engineering & Technology	Social Science & Humanities	Art	Education	
Medical science	34	44	9	11		2	100
Science	13	61	19	6		0	100
Engineering & technology	14	26	38	17	1	3	100
Social science & Humanities	9	18	12	56	1	5	100
Art				60	40		100
Education	11	33	11	33		11	100

Note: responses based on 950 respondents who indicated at least two areas of research

Source: The ARCS Survey: IER 2001

Table 3.14 shows that of research staff who named medical science as their first area of work, a large proportion (44 per cent) also named another area within science as their second area of research. Others combined engineering or social science with their medical research. Similarly, while many science research staff confine their multi or interdisciplinary work to other science subjects, a proportion also work in the area of medical research and engineering & technology. Multi and interdisciplinary engineering research appears to spread across most other disciplinary areas (except for art and education). Similarly, while most social scientists and researchers in the humanities confine themselves to subjects within those areas, a proportion are to be found combining their main area with medical science, science, engineering and, to a lesser extent, art and education. While few research staff regard themselves as working in a single discipline, 40 per cent confine themselves to a mixture of subjects from the arts. However, 60 per cent combine art research with the social sciences or humanities. Those in education research were the most likely to combine other disciplines with their first area of research. Common combinations were education with social science & humanities and education with science research.

Most contract researchers (43 per cent) describe their employment situation as that of being part of a research team while a further 6 per cent indicated that they were leading a research team. A small proportion indicated that they worked, and were funded, independently of others. Around a third (36 per cent) reported that they worked independently but were subject to supervision by senior colleagues. Relatively few (just 9 per cent) reported that they worked under the close direction of a senior colleague or colleagues. In the main, research staff appear to be reporting a degree of autonomy over their work with only a moderate amount of supervision. Analysis by discipline and by gender did not reveal any significant differences from this overall picture.

Almost half of research staff (48 per cent) reported working on just one project at the time of the first ARCS survey. Around 21 per cent of research staff reported working on two projects and a further 13 per cent were working on three projects. Taken together, 82 per cent of research staff were working on up to three projects. Nonetheless, a small minority of research staff claimed to be working on much larger numbers of projects, many reporting projects in double figures. Simultaneous work on several projects appears more common amongst research staff who worked in research institutes rather than teaching departments. Around 51 per cent of those in teaching departments were working on a single project, significantly greater than the 40 per cent in research centres. Similarly, while 10 per cent of research staff in teaching departments worked on four or five projects, this contrasted with 17 per cent in research institutes.

3.8 The content of research jobs

Quantitative evidence

Research staff were asked to describe the extent to which their current post involved various activities. These activities cover a range of tasks including those associated with securing research funding, analysis, dissemination of findings as well as supervisory and teaching activities. Respondents were asked to indicate whether they undertook the activities 'a lot', 'a little' or 'not at all'.

Table 3.15 describes the broad pattern of responses. Some activities central to a research function, such as conducting experiments, analysis data, writing up findings, and presenting findings at conferences were carried out by the majority (often the great majority) of research staff. Activities involving the analysis of data were, however, less common in the fields of art and education. Some degree of involvement in preparing research proposals was common, although a third of research staff had no involvement in this activity. Involvement in preparing proposals was relatively high in medical science and social science & humanities but low in engineering and in education research. Respondents working in medical science and in art appeared to be involved in the making of applications for personal research funds to a greater extent than research staff in other disciplines.

	Row percentages		
	Level of involvement		
	A lot	A little	Not at all
Drafting research proposals	21	43	36
Participating in preparation of research tenders	11	37	53
Making applications for personal research funds/extension of contract	16	35	49
Carrying out literature reviews for senior colleagues	10	28	61
Carrying out fieldwork or research experiments	71	14	15
Processing or monitoring data for senior colleagues	30	25	45
Participating in analysis of data	73	21	6
Making presentations to research sponsors	20	32	48
Giving papers at conferences	30	53	17
Writing up research findings for sponsors	33	36	30
Writing up research findings for publication	57	34	9
Supervising other research staff	18	37	45
Supervising post-graduate research students	16	30	54
Supervising computing or laboratory technicians	8	19	74
Classroom or seminar teaching	4	40	56
Supervision of undergraduate or taught Masters projects	9	34	57
Laboratory demonstrations to undergraduates or taught Masters students	3	21	76
Assessment or marking of students work	3	30	67

Base: All Sweep 1 respondents (N=1827)
Source: The ARCS Survey: IER 2001

Table 3.16 Activities involved in current research post by length of research career

	Percentage involved 'a lot' in activity				
	Length of time in research				
	Less than 6 months	6-11 months	12 years	2-5 years	5 or more years
Drafting research proposals	6	7	10	19	30
Participating in preparation of research tenders	2	3	6	9	16
Making applications for personal research funds/extension of contract	1	5	8	14	26
Carrying out literature reviews for senior colleagues	18	13	13	11	8
Carrying out fieldwork or research experiments	72	65	74	70	72
Processing or monitoring data for senior colleagues	36	30	42	31	25
Participating in analysis of data	70	66	70	75	75
Making presentations to research sponsors	16	18	18	20	22
Giving papers at conferences	15	23	18	31	35
Writing up research findings for sponsors	27	29	27	33	38
Writing up research findings for publication	32	46	43	61	63
Supervising other research staff	6	4	9	11	29
Supervising post-graduate research students	6	5	9	11	25
Supervising computing or laboratory technicians	2	1	3	5	14
Classroom or seminar teaching	1	3	5	4	5
Supervision of undergraduate or taught Masters projects	8	4	6	8	11
Laboratory demonstrations to undergraduates or taught Masters students	1	3	4	4	3
Assessment or marking of students work	1	2	3	5	4

Base: All Sweep 1 respondents (N=1827)

Source: The ARCS Survey: IER 2001

Other activities were less common. The preparation of literature reviews, project tenders and presentations to sponsors appeared limited to a small proportion of research staff. The preparation of literature reviews for senior colleagues was most common in social science & humanities and least common in engineering. In general, few staff reported involvement in supervision of other research or support (laboratory or computing) staff and few were involved in teaching activities such as project supervision, classroom work and marking of student work. Both classroom teaching, marking of student work and supervision of student work was most common in social science & humanities and in art. This was surprising but not wholly inconsistent with the finding of the survey that a quarter (25 per cent) of research staff were contractually required to teach or provide demonstrations.

The types of activities carried out in a research post were strongly linked to the length of time that a respondent had worked in research. Table 3.16 describes the pattern of involvement in activities (looking at where the task is undertaken 'a lot') by length of time in a research post. Core research activities – conducting fieldwork or experiments and data analysis – were carried out by most research staff regardless of the length of their research career. Activities involving preparation of proposals and submissions for funding tend to have been a more frequent aspect of the job where the length of time in a research career is long. Similarly, although many research staff were involved in some aspects of writing up findings and dissemination, substantial involvement ('a lot') was found more frequently amongst those with significant amounts of research experience. While it is understandable that research staff with the greatest experience and, arguably, expertise were the ones involved in the writing up and dissemination of research, the lack of involvement in 'publication' of research may be to long-term career disadvantage of those newly entered upon a research career, given the importance of publication for advancement within academic jobs.

It is, perhaps, not surprising that tasks which involved supervision of other staff or post-graduate students tended to be most commonly found amongst those with substantial research experience, particularly those with more than five years experience. Conversely, 'a lot' of involvement in the preparation of literature reviews and the preparation of data (as opposed to data analysis) tends to be relatively high amongst research staff with short periods of experience in a research career. Relatively few research staff of any length of experience were involved in teaching and related activities.

Since the length of time in a research career is strongly associated with age and job grade, similar patterns of activities are observed. Younger staff in junior grades tend to undertake core research activities and basic tasks such as data preparation while older staff and those in more senior grades are involved to a greater extent in obtaining funding, analysis and writing up and dissemination of findings.

Qualitative evidence

Job activities varied according to the length of experience and grade of the researchers concerned. The majority were engaged in work with a high degree of autonomy, although most were also working under the direction of a 'supervisor' who was generally a senior member of the department. Some researchers had meetings with their supervisor on a regular basis which they found very useful in terms of exchanging ideas and receiving feedback.

In other cases, the degree of active 'supervision' was nominal, in that the researcher was very much left to their own initiative in managing the day-to-day running of the project, able to develop the research as they saw fit in terms of adapting the methodology, experimenting with new techniques, and branching out into new areas of work. While this had acknowledged benefits in terms of developing research and project management skills, it was felt by some researchers that there may have been too much latitude allowed to them, feeling that they were somewhat lacking in direction and had not progressed as far as they might in career terms because of minimal curbs on their intellectual curiosity.

'I can pursue exactly what I want to pursue...in some respects that's been my downfall. I've gone off at too many tangents and tried to do too many speculative things. It's only now that I know what I would write a fellowship on and I'm ineligible for most of them.'

Female Postdoctoral Research Assistant, Biology Department, early 30s

Others felt that more active research management on the part of their supervisors would have been helpful to clarify roles and expectations within the lifetime of a project. For example, one female researcher in a Social Science department felt that on joining the research group she had been given the autonomy to undertake fieldwork as she saw fit but was always under the impression that at the writing stage, there would be more input from her senior colleagues. She was left feeling in need of more support when this did not materialise and felt somewhat isolated within the group as a whole because of this:

'They needed to be more up-front in terms of communication.. they chipped in at the final draft of the final draft which I found very frustrating. I thought I would learn a lot from working with others but at the end what I did learn came from battling with my own mistakes like a PhD.'

Female Research Fellow, Sociology, aged late-20s

Funding sources varied. Most were funded via the Research Councils and similar grant-awarding bodies, but several were funded by and working closely in collaboration with private companies, engaged in work which could be regarded as 'product development'. These researchers tended to be working in science and engineering fields and had more defined targets in terms of timetables and research outcomes. Although this kind of industrial contract was regarded as beneficial for establishing contacts and broadening opportunities outside of the academic arena, the funding associated with it appeared to be more precarious than that awarded by public and charitable awarding bodies, generally being short-term and subject to market and/or financial pressures faced by the company.

Many of the respondents, particularly those in the sciences or in receipt of funding council awards, worked on one contract/project alone, whereas others worked on more than one. These tended to work within research institutes where multiple projects were common in order to pool the funding to cover more than one researchers' salary.

The majority of respondents were involved in writing research proposals, even though in many cases they could not be named as principal investigator, because of funding regulations. Any input into the grant-writing process was felt to be valuable experience by the research staff interviewed, and an important step in their career development.

Those researchers with more experience were engaged in substantial management and administrative activities, including managing teams of other research staff and technicians and supervising postgraduate students. It was generally accepted that as research careers progressed, greater levels of administrative work would follow.

'As my career has progressed I've found it quite difficult to adapt to managing other people and being responsible for what they do... I find that it's coming easier to me now, but you learn from experience more than anything else.'

Female Analytical Chemist, late 20s, Department of Medicine

'I can see it will be harder [to maintain an involvement in hands-on research]... maybe it never gets to be fun again. My boss spends 99 per cent of his day doing admin and attending meetings.'

Female Postdoctoral Research Assistant, Biology Department, early 30s

All of the researchers interviewed had access to standard university terms and conditions regarding holiday entitlements, access to the superannuation scheme, etc. The complaint of many researchers was that they were too busy meeting deadlines to take holiday.

Career Histories

4.1 Introduction

The ARCS surveys collected a great deal of information about the careers of research staff in Scottish higher education institutions. The first sweep survey recorded the date at which the respondent first entered a contract research job. Subsequent jobs, both in research and elsewhere, were recorded by means of a work-history record. This work-history recorded details of research and other jobs, such as institution or employer, post and job title, dates of entry and exit and reasons for leaving. Where a period of unemployment or economic inactivity was experienced this was also recorded. The second sweep of the survey added to this picture by up-dating the work history and collecting additional data about contracts.

This Chapter focuses on the research posts occupied by respondents to the 1998 survey and the route by which people entered contract research (in terms of previous employment and motivation). Institutional policy towards the employment of contract research staff is also considered. The 1998 sample provides an approximation to a complete cross-section of contract research staff in higher education. Contrasting with this, the sample of contract researchers in 2000 may have been subject to differential exits from contract research posts as well as differential rates of non-response to the survey. As a result those remaining in a contract research post after two years may no longer be representative of the contract research population as a whole. For this reason, the 1998 sample provides the more representative picture of the typical contract research worker in higher education. Evidence from the second survey relating to job destinations (including those who remained in research) is presented in Chapter 7.

4.2 Life before research

While the work history data collected in 1998 concentrated on a period following entry into the respondent's first research post, summary information about employment prior to entry to research was also collected. This summary information took two forms. First, respondents were asked to state the number of years employment prior to taking a first research post. Second, they were asked to give the job title of the last period of employment prior to entry into the first research post.

The majority of research staff (67 per cent) reported having no employment experience prior to entering their first research job. For this group it must be inferred that they entered research directly, or after a short gap, from higher education. For them, their research post was their first experience of work. Of the remaining research staff with some prior work experience, the extent of such work experience was varied. Around a third of those with prior employment experience (10 per cent of the contract research population as a whole) had up to two years prior employment while around half (or 16 per cent of the contract research population) had been employed for 5 years or more prior to entering research.

Where research staff had entered research after a period of employment, a very varied list of jobs was reported. Summarising such diversity of employment for the purposes of discussion poses a problem since conventional classifications – such as occupation – tend to obscure the varied nature of the employment situations from which research staff were recruited. Broadly, prior employment tended to fall into one of six groups. These were:

- Professional practice or employment outside of higher education. Examples include people who previously worked as dental practitioner, psychologist, computer programmer, design engineer, doctor, electronics engineer, financial trader, nursing midwife, health visitor, IT manager, management consultant, nurse, physicist, physiotherapist, pharmacist, radiographer, social worker, teacher,



veterinary surgeon and members of the armed services. While the list of job titles within this group was very varied, there were several distinct clusters. The largest cluster related to people who were previously as health professionals, especially nurses and midwives, doctors, anaesthetists etc. A second cluster contained people previously employed as teachers in primary and secondary education. While this group is making a career change, it is apparently doing so from a position of strength based on a substantial amount of professional experience. Such experience may be a factor in their appointment.

- Trainee positions outside of higher education. Many of the shorted periods of prior employment related to employment at a trainee grade. People in this group were often in training for the professional occupations listed above and included trainee nurses, trainee teachers, trainee biologist, trainee clinical biologist, graduate trainee in a bank. This group represents people who are making an early change of career and may contain many individuals for who research work in higher education represents an escape from an earlier poor career choice.
- Research staff outside higher education. Around 20 per cent of those in employment prior to entering a research job in higher education were already employed in a research job outside higher education. Examples include researcher in chemical industry, researcher in Scottish Office, research engineer in the defence industry (electronics), and research librarian. Two areas of employment stand out amongst this group. The first is employment in the chemicals and pharmaceutical industry and the second is employment as a researcher in the health sector. A further group of researchers gave only a general job title such as research associate, research officer, research scientist and the like.
- Technician and support staff outside higher education. This group comprises people whose job titles suggest were working in a quasi-research role at junior level in the private sector, health service and elsewhere. Examples include a number of laboratory technicians, clerical assistant (data entry), computer technician, data input clerk, data analyst, horticultural technician, interviewer for a social research company, teaching technician and technical assistant to a company manager. This group was already employed in work that was, in certain respects, somewhat like research. A career move to research in higher education may therefore be relatively easy, although whether such a move represents a 'sideways move' or career progression is less clear.
- Lecturers and other employees in higher education. This small (around 5-6 per cent of those who had previous employment experience) but distinct group comprised many who had previously been working as a lecturer overseas (Sri Lanka, Peoples Republic of China, Mexico, Chile were examples of countries of prior employment) but also a group who were previously employed in the UK either at higher education institutions outside Scotland or in further education.
- Other employment. A number of other job titles prior to entry to a research post in higher education were reported. They appeared to be two broad groups within this category. First, some research staff appeared to have made a significant career change in order to enter research. Examples include several previously employed in the Civil Service at administrative grades, other administrative posts in the private, state and voluntary sector (for instance, the Church), conference organiser, teaching English as a foreign language (overseas), museum curator, carpenter and joiner, several who worked in free-lance or self-employed positions. In some cases this work experience would clearly be relevant to research employment but in others the connection was less clear. The second group within this category was people who had worked in some form of temporary or casual employment. Typical of such employment was working as bar staff, sales assistants in shops, hotel porter, despatch rider and various similar jobs. This group probably consists of people filling in time between completing their higher education and entering more permanent career. In some regards this latter group may be more used to working on short and fixed term contracts.

A fairly clear picture of prior employment emerges from the information provided by respondents to the ARCS survey. The majority of people being recruited into contract research posts for the first time come directly from higher education as they do not possess any significant prior employment experience. Around one in five of those with previous work experience (but only about 7-8 per cent of entrants to research overall) worked in some form of research job outside higher education, and a number worked in related jobs as technicians and laboratory assistants. Academics switching from teaching to research were also a small but discernible group. Those recruited to research with substantial experience of working outside higher education and research were predominantly people previously working in a health or medical-related sector. This included both health professionals and those working in sectors such as the pharmaceutical industry. The other notable area of previous professional employment was in primary and secondary education. These findings strongly suggest that research staff in medical science and education were likely to be distinctly different from their counterparts in other areas of research in terms of their work experience and their knowledge of working life outside of higher education.

Evidence from the qualitative interviews with contract research staff tends to support the picture created from the main survey. Most of the researchers interviewed had entered academic contract research directly after completing their studies, generally after a Masters or PhD qualification. Rather than consciously 'choosing' a contract research career, some had simply drifted into the academic environment via a combination of being interested in the subject and not really knowing what else to do. This had prompted them to engage in postgraduate qualifications which had then developed into a contract research job, either at their original institution or elsewhere. Being 'in the right place at the right time' appeared to be a common occurrence - coming to the end of a degree or postgraduate qualification when a new grant or contract was about to commence, and having the requisite knowledge, skills and interest to do the job.

Others had developed a research idea, or had been interested in a particular area of research and thus had gone into academic research for this reason. The attraction of doing a PhD was a strong pull factor in these cases. However, in a couple of institutions researchers registering for a part time PhD had found that they did not qualify to have their fees waived if the PhD extended beyond the length of their current contract.

For some, contract research was seen as 'natural progression', either because it provided necessary experience for a chosen career (particularly in some science-based areas), or because it represented a 'stepping stone' into a lecturing career. However, the common expectation that the majority of researchers were seeking a permanent lecturing post was not borne out by the interviews. Although this was the case for some, particularly in social sciences, the majority enjoyed research and wanted to remain working in it. Many perceived teaching as a burden which they did not find attractive.

A substantial number of interviewees had followed a less traditional route. Several researchers had had work experience in other settings. Previous experience prior to either re-entering higher education to do postgraduate work or to entering contract research directly included working as a police officer, teaching, working as an engineer in industry, and working in non-academic research in industry or for the Civil Service. Job satisfaction was mentioned by several as a reason for entering academic research, with the feeling that if offered a more stimulating and rewarding working environment with greater autonomy and a high level of interaction with colleagues.



Location or personal reasons for being in the area were also cited by a few as a reason for taking up their particular job. A small number of researchers had entered their area because it was any job, but these tended to be in the minority.

4.3 Reasons for entering research

People embark upon a career in research for many different reasons. Moreover, the explanation may change over time as career progression (or lack of it) colours perceptions of the wisdom of career choices. In the first ARCS survey respondents were asked an open ended question about why they entered research and also asked to select the reason for accepting their first research post from a number of alternative reasons. The results revealed a mixture of idealism, opportunism and a significant lashing of (presumably retrospective) cynicism.

Many researchers explained their decision to take their initial research post in terms of scientific curiosity, interest in their subject and enjoyment of the research process. The most commonly cited reasons for entering research were concerned with the interesting nature of research and enthusiasm for working in selected subject areas. There was also a common perception that research produced benefits to society and research staff benefited vicariously from this. Enjoyment of research and boredom with other work was also a motivating factor for a substantial number of people entering research posts. For instance, "I enjoyed the challenge of research and the pleasure of obtaining useful results" or "I had enjoyed working for my post-graduate degree and 'wanted out' of local government".

Many indicated that a job in an academic environment was attractive. Some linked this with flexible working conditions (in some instances linked to issues such as the need to combine childcare with employment). In other cases it was the pay and perceived career prospects that were the attraction. A significant number of respondents saw their entry into research as a natural progression from their earlier higher education studies or, in other cases, from their academic work as teachers or lecturers. Others saw entry into a research post as a stepping stone to a future lecturing post or some other form of career advancement. Widening professional experience was also mentioned on many occasions.

While positive reasons predominate, some reasons cited for entry to research employment were clearly opportunistic. Such reasons were most commonly a variation on the theme of being unemployed at the time, having no alternative job, the research post being the only form of employment open to graduates/post-graduates in particular subjects and having just drifted into research. Other opportunistic reasons related to taking a research post in order to secure funding for the completion of post-graduate studies, usually a PhD, and taking a particular research job because it allowed residence in a particular area (or a return to Scotland). More negative reasons were occasionally expressed. A polite response was that entry to research was because the respondent was "young and foolish". Comments that entry to a research job represented "a moment of near insanity" and "stupidity" were expressions of similar sentiment.

Specific reasons for accepting a first research post are shown in Table 4.1. This table shows the proportion of respondents who cited each reason, with the results broken down by broad area of research. The most commonly cited reason for entry to research was the perception that the job would be the first step towards a research career (cited by 66 per cent of respondents). Around a quarter of research staff believed that the job would help them enter, eventually, a lecturing career and a similar proportion felt it was a stepping stone in a professional career.

As already observed, enjoyment of subject area and the research process is an important motivation for many researchers and just over half cited these as reasons for accepting their first research job (51 per cent and 52 per cent respectively).

Comparison across discipline areas does not suggest major differences in motivation for accepting a first research post. However, a research post as a first step on a career in research was particularly strong amongst those working in science research. Those in medical research, and their counterparts in engineering and technology, were more likely to see their first research post in terms of access to a professional career than as a stepping stone to a lecturing job. Those working in medical science were less likely to cite the financial aspect of employment in research as a factor when accepting their first job. This probably reflects the fact that many entered medical research from professional practice where pay may be comparable if not better. Enjoyment of academic work and research were important reasons in all discipline areas

4.4 Research careers up to 1998

The ARCS study recorded information from respondents about their careers following on from when they first entered a research post. The work history data distinguished between time spent in jobs, periods out of work or in full-time study as well as attempting to distinguish between jobs, contracts, promotions and so on. This information can be looked at in several ways and this is discussed below. It is important to note that the work histories relate to different intervals of time. For some research staff, their first research post was a long time ago while for others, their first post is their current post.

Table 4.1 Reason for accepting first contract research post in higher education, by area of research Percentage citing reason

	Area or research						All
	Medical science	Science	Engineering & technology	Social Science & Humanities	Art	Education	
First stepping towards a research career	60	75	56	56	63	53	66
A stepping stone to academic lecturing	18	24	26	27	13	21	23
A stepping stone to a professional career	27	21	32	23	38	37	24
The best financial option at the time	33	40	39	46	50	63	40
Wanted to research the topic/issues involved	43	51	50	50	88	37	49
Enjoyed academic work and wanted to pursue subject further	48	54	49	52	38	26	51
Enjoy research and wanted to pursue it in an academic context	48	54	47	57	38	58	52
It enabled registration for a higher degree	21	16	18	12	13	16	17
Unable to secure independent funding for a higher degree	3	2	4	5		5	3
Provided an opportunity to develop transferable skills	36	30	26	34	38	26	31
Could not think of anything better to do	9	9	7	10		16	9
Other	7	7	10	8		5	7
Base	316	859	245	214	8	19	1827

Note: Columns sum to more than 100 per cent as more than one reason could be cited

Source: The ARCS Survey: IER 2001

Number of activities

Over a quarter (29 per cent) of research staff reported only one event – their first and current job – in their work history. It was uncommon to record more than five events in a work history (only 18 per cent exceeded this number) but a small proportion of research staff reported a large number of changes over their career in research. The maximum number of recorded events was a single case of 26 events, although 12 researchers reported 23 events in their work histories.

Research staff reported a variety of periods of employment. Two thirds (67 per cent) had experienced three or fewer jobs over their research career up to 1998. Some research staff reported relatively large numbers of jobs (up to a maximum of 23) although only 1 per cent reported more than 12 jobs. Around 16 per cent of research staff reported at least one period of non-employment (unemployment and economic inactivity excluding full-time study) in the period between entering research and the research job in which they were employed in 1998. Most had experienced only one period of non-employment but 29 per cent (or almost 5 per cent of the research population) had experienced two or more spells of non-employment (up to a maximum of 4 spells). Around 15 per cent of research staff had engaged in at least one period of full-time study during the period between entry to research and their current post and around one in five of these had two or more periods of study.

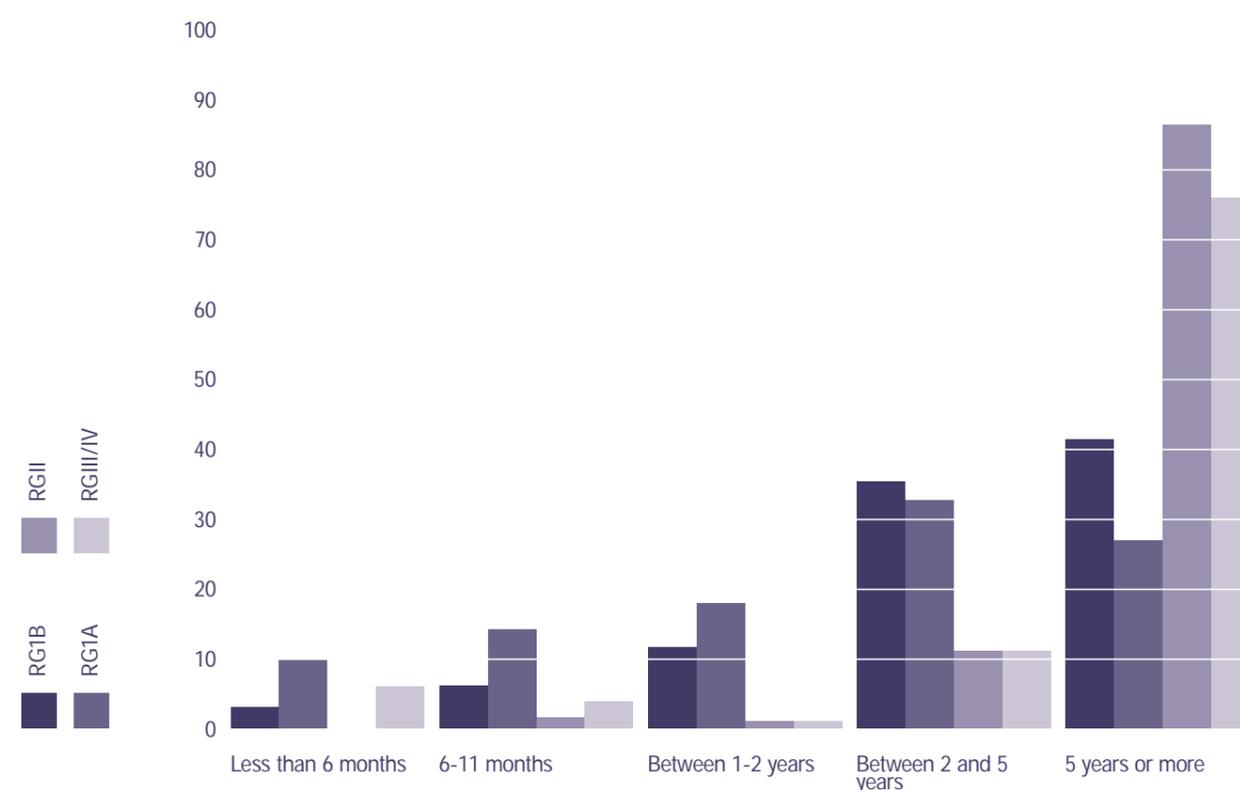
As a general rule, the larger the number of recorded activities, the greater the likelihood that a career would contain a period of non-work (unemployment or full-time study). In 93 per cent of cases, two activities were both jobs. In the case of five activities, only half (51 per cent) were all jobs with the remainder experiencing a period of study or other non-employment. Where research staff reported more than one period of unemployment, they tended to report a large number of jobs. For example, three spells of non-employment were found only amongst those with seven or more work history episodes while those with four spells of unemployment were only found amongst those with nine or more work history episodes.

Length of time in research employment

The total amount of time spent by individuals in their research careers up to 1998 varied greatly. As might be expected, length of research career was strongly related to research grade (see Figure 4.1). While 44 per cent of research had worked in research for 5 years or more, the proportion was 86 per cent amongst those employed at RGII in 1998 and 77 per cent amongst those at RGIII/IV. Nonetheless, a remarkable 42 per cent of those employed at RG1B and 27 per cent of those at RG1A had also worked in research for five or more years. Clearly a large proportion of those working in contract research are, de facto, engaged in a research career. Few (less than 4 per cent) of those employed at RG II had less than two years experience in a research job. Relatively short periods of research experience were more common amongst those employed at RG1B and RG1A. Around 22 per cent of those at RG1B and 40 per cent of those at RG1A had up to two years research employment experience. These last two groups probably represent research staff at the start of a research career. They may be contrasted with those in RGIII/IV grades with relatively short research careers many of whom were likely to be research staff who entered research jobs at a senior grade from employment outside of higher education.

Figure 4.1 Length of time in a research career up to 1998, by broad job grade

Per cent



Base: All Sweep 1 respondents (N=1827)

Source: The ARCS survey: IER 2001

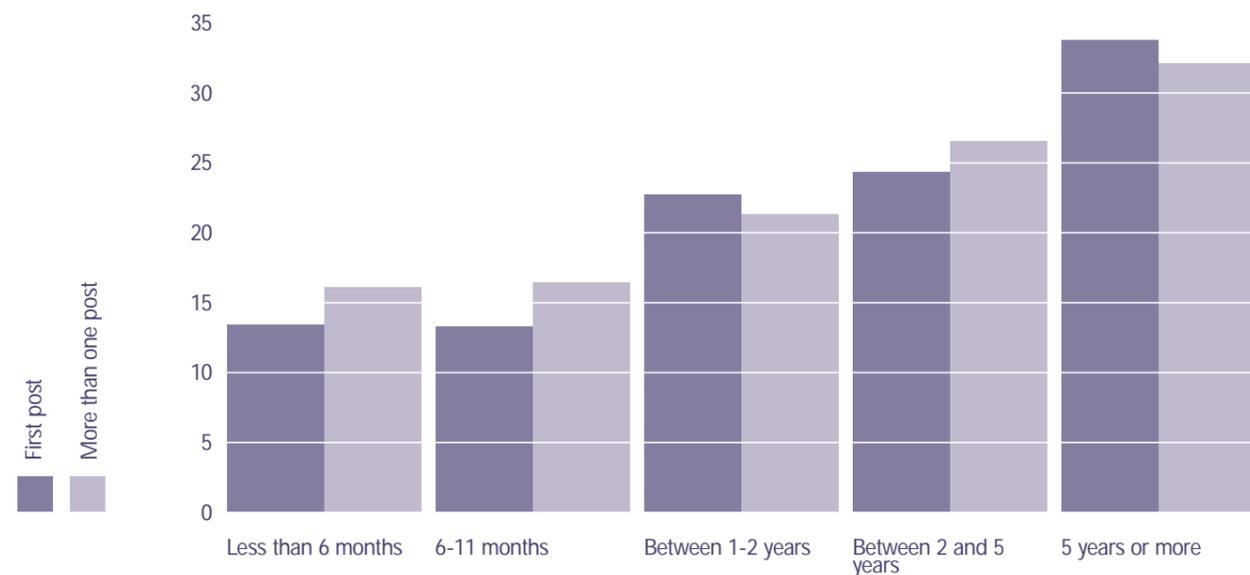
The median length of time spent in a research career was 50 months overall. Amongst different job grades the median amounts of time spent in research were 51 months for those on RG1B, 31 for those on RG1A, 124 months for RG II. Analysis by gender suggested a tendency for men to have longer research careers than women. However, this was largely the product of the overall distribution of men and women across research grades with rather more women in lower job grades and rather more men in senior grades. When job grades were considered separately, there were no significant differences in median time as a research between men and women within RG1A and RG1B job grades while the median duration of women in RG II grades was somewhat greater than men in that grade.

Time in current contract

In a third of cases (34 per cent) research staff were in their first and only contract research post. The remainder had experience in research employment that exceeded the length of their current contract. The length of time that research staff had been in their current post in 1998 is shown in Figure 4.2 which distinguishes between those in their first research post and those who had been employed in more than one post. The distributions are remarkably similar. Even where staff were in their first contract research post, many had been employed for long periods, many for over five years. Conversely, short periods of employment on a current contract were not restricted to those who were new to research as many research staff with considerable experience of research employment had only been on their current contract for a short while.

Figure 4.2 Time spent in current contract by number of posts, 1998

Per cent



Base: All Sweep 1 respondents (N=1827)

Source: The ARCS survey: IER 2001

Table 4.2 provides considers this matter further by looking at the time on current contract by length of research career. Obviously, the time in the current contract cannot exceed the total time spent in research employment, thus all figures lie to the right of the top-left to bottom-right diagonal. The table shows very clearly that substantial proportions of research staff with medium to long research careers have only been on their current contract for a short time. Thus, almost a third (32 per cent) of those employed in research for between 2-5 years had been in their current post for less than one year. Around a quarter of research staff with five or more years of research experience also had been in their current posts for less than one year. While this could be the result of recent promotions, the main reason is that the normal length of a contract for a research was relatively short. Section 3.4 (above) examined the length of contracts in current posts and found that 40 per cent overall were for a two year period or less.

Short contracts and frequent contract renewal appears to have been a way of life for many, if not all, contract researchers. Table 4.3 compares the length of time in current post with the length of time in employment by the current higher education employer. The table shows that while two thirds had been employed in both their current post and employing institution for between 6-11 months, the remaining third had been employed by their current employer for longer than the time spent on their current contract. As many as one in eight (12 per cent) of those in post for less than a year had been employed for five years or longer by their current employer. A similar picture was evident even in respect of research staff with longer current contracts

Table 4.2 Time in current contract by length of research career, 1998

Column percentages

Time in current contract	Length of time in research employment				
	Less than 6 months	6-11 months	Between 1-2 years	Between 2 and 5 years	5 years or more
Less than 6 months	100	5	9	15	10
6-11 months		95	14	17	15
Between 1-2 years			77	23	21
Between 2 and 5 years				45	33
5 years or more					21
All	100	100	100	100	100
Base	89	153	210	547	770

Source: The ARCS Survey: IER 2001

Table 4.3 Time in current contract by time employed by current employer

Row percentages

Time in current contract	Length of time at institution					All	Base
	Less than 6 months	6-11 months	1-2 years	2 - 5 years	5 years or more		
Less than 6 months	60	2	7	19	12	100	308
6-11 months		64	7	17	12	100	387
Between 1-2 years			60	15	14	100	460
Between 2 and 5 years				75	25	100	506
5 years or more					100	100	166
All	9	14	21	32	24	100	1827

Source: The ARCS Survey: IER 2001

A major difficulty facing the interpretation of the evidence from contract research histories is that the sample of research staff in 1998 consists of a very mixed group of individuals, some of whom had been in research careers for a long time and others who had just embarked on their first post and situations in between. The work histories thus refer to different periods of time. In the section that follows, the evidence is drawn from the second sweep of the longitudinal survey. The information thus refers to a common period of approximately two years. This allows comparisons to be made more readily.

4.5 Attitudes amongst contract research staff

A series of qualitative interviews were carried out in the institutions covered by the ARCS survey. As part of this qualitative work, information was collected from contract research staff themselves and from research managers and senior university managers with responsibility for human resources or for research policy.

Contract research staff tend to see the balance of advantage in fixed term employment of research staff as being biased towards their employers rather than the individual. Advantages for universities centred around the flexibility to select the staff required for a specific task without having longer-term obligations to them. Almost all contract research staff interviewed as part of the qualitative element of ARCS felt that their employer benefited from having no financial commitment to maintaining contract researchers' employment at the end of their contract, thereby avoiding redundancy payments. Many researchers felt that the universities perceived them to be little more than a commodity:



'The university doesn't see researchers as people. People in permanent jobs generally do not look on contract people as being people they should look after. They're someone to hire and fire – that's my impression.'

Male Senior Research Associate, Physics, mid-30s

Despite this, researchers felt that their work was a valuable resource for the university in terms of prestige, raising the university profile, attracting high quality academics and postgraduates, and contributing to the Research Assessment Exercise. Moreover, researchers generally felt that the nature of their contract had significant disadvantage to universities in terms of the human resource costs of such employment. High staff turnover could lead to a drain of skills, knowledge and personal networks and created costs in terms of training new staff and waiting for new staff to reach the same productivity levels as those who had left.

'People are sitting working with one eye over their shoulder. You're thinking about where the next job's going to come from and expending energy on that rather than your work. Skills are lost and it takes time to pick up... a lot of reinventing the wheel goes on.'

Male Research Associate, Engineering, late 40s

One particular issue raised by science-based researchers was that as post-doctoral researchers left contract research they took new methods with them:

'There's no core technical person who gets taught these things. If you had technicians who were taught how to do methods rather than developing them and then having those skills leave it would be better for the institution and for the PhD students there. I was supposed to be using a method developed by one of the Postdocs but they left and I couldn't draw on their expertise.'

Male Biochemistry Post-doctoral researcher, late 20s

Another problem with fixed term contracts were the associated recruitment difficulties and difficulties in aligning recruitment and project contracts. Researchers observed that project contracts would often start without anybody in post to do the work. This was the result of there being a shortage of applicants for what was, in essence, a temporary job paying less than could be gained working elsewhere in industry. This problem (and associated cost) appeared to be greatest in discipline areas such as computing and the natural sciences.

Researchers perceived similar advantages and disadvantages for the sponsors of research. The advantages were that contract researchers could be used for a finite piece of work, for instance, in order to test out new ideas, and that sponsors could call upon expertise when they needed it. The disadvantages were the loss of experience and 'piecemeal' research, the time and cost of training new recruits and having a person of 'unknown quality' on their project.

4.6 Institutional policy on contract research staff

Interviews with human resource managers and their like indicated that many of the universities covered by the ARCS study did not have a specific policy for dealing with contract research employment, although the majority had developed guidelines or a more formal 'code of practice' regarding the institutional position of contract researchers. These guidelines had been developed by Staff Offices, Personnel and Human Resource Departments since the introduction of the Concordat and sought to clarify the status of contract research staff within the institution.

In most cases, guidelines included the following:

- clarification of terms and conditions of employment, with contract research staff having access to the same terms and conditions as other staff;
- guidelines on appraisals and promotion processes;
- guidelines on job titles and associated levels of responsibility in order to ensure uniformity across departments and research centres;
- guidelines regarding the length of contract;
- guidelines regarding teaching;

During the period covered by the ARCS project a significant change in the terms and conditions of employment of contract research staff occurred, largely in response to the Employment Relations Act 1999. The controversial redundancy and unfair dismissal waiver clauses that separated contract research staff from other university staff were largely abandoned for new appointments and contract extensions. Access to superannuation schemes, holiday and other entitlements were the same as for permanent members of staff on the same grade.

Where appraisals were instituted for contract research staff they were generally implemented bi-annually and were performed on a departmental basis. Appraisals tended to be development rather than competence based, although this trend was changing, with the majority of human resource directors interviewed seeking to introduce a more performance-based process which they felt would 'sharpen up' the appraisal and create clearer links between job performance, development needs, and promotion. In a minority of institutions there was a trend towards annual appraisals although this was at the discretion of the department or research unit involved. It was recognised that in some departments, appraisals were not carried out as regularly or as thoroughly as they might be due to time constraints on the research manager or departmental head.

Promotion processes for contract research staff were usually part of the annual round of promotions within the university as a whole, although some universities were attempting to streamline the process by encouraging research grant-holders to review job grades at the end of a contract. Any salary increase arising from a promotion would have to be covered from within the existing grant, making promotion contingent on there being sufficient funds available. The facility to side-step the formal promotion round in this way was felt by many human resource directors to be a useful, if under-utilised mechanism, for contract research staff career development. One director commented:

'If the Head of Department or Principal Investigator agrees there's merit to progress to the next grade and if funds are available through the grant then the way is clear to advance that person without going through the Promotions Committee. As for the extent to which this is practised... it's getting better, but there are still some who don't know this facility exists. Departments with a higher ratio of contract research staff tend to be better informed.'

There was a degree of variation between institutions in this matter, with some preferring to restrict applications for promotion to the annual round. At one large institution, for example, it was felt that restriction to the annual round was preferable in terms of ease of administration, although it was recognised that:

‘What can happen is that requests are put in at odd times of the year and it’s difficult because people are on a limited length of contract and the annual review cycle doesn’t fit neatly in with their time here... if the request just misses a cycle there is a problem... the senior staff only start to think about it when they get the paperwork and then put people in at the last minute.’

Where contract research staff promotions were to be restricted to the annual round, the key task for management was to ensure that departmental heads and principal investigators were aware that contract research staff could be included in the annual promotions review and to encourage good planning. The university also needed to be flexible enough to deal with cases outside of the review cycle if necessary.

Many of the universities employing larger numbers of contract research staff were developing more visible promotion criteria based on research management experience, budgetary control, and the number and quality of publications. This was felt to be important to establish status and clarify career structures. For example, after a maximum of three years or the acquisition of a PhD, Research Assistants were generally expected to move to Research Fellow grade. Particularly in new universities where there was a lower base of existing contract research staff and little tradition of employing wholly research-based staff, human resource directors felt that this ‘clean slate’ should be capitalised on by establishing uniform job titles and related expectations in terms of responsibility and performance. In older universities with a larger and more longstanding population of contract research staff, more ad-hoc systems had developed across different departments and in these cases it was also a university-wide policy to attempt to establish a more uniform set of job titles and associated levels of responsibility.

Although the duration of the contract was always dependent on funding and the time scale of the work involved, most universities preferred longer contracts offering a fixed term of two or three years. A minority of universities also had a policy that six months notice should be given of renewal, although this was acknowledged not to happen in practice in many cases. Few universities had explicit guidelines on teaching for contract research staff. They tended to follow the Research Council guidelines of a maximum of 6 hours per week.

4.7 Advantages and disadvantages of contract research employment

The advantages of employing contract research staff as perceived by human resource directors and personnel managers centred around financial flexibility and getting in the right person for the job. As one human resource director of a large university commented:

‘We are able to recruit specifically for the skills for that project, when the project is finished the skill-set required for the next one might be quite different and we’re not in the business of re-training. It’s an advantage that you can have people with the exact skills you require.’

The sentiment that a university is ‘not in the business of re-training’ is somewhat disturbing given the educational mission of universities. Among new universities in particular, it was felt that the employment of contract research staff was good for the university’s standing in the Research Assessment Exercise and for the intellectual environment as a whole: moving research forward as a priority within the university and attracting a higher standard of recruits not just for research only positions but for teaching posts as well.

However, there were felt to be key disadvantages with the employment of contract research staff. These centred around high staff turnover, leading to:

- lack of consistency within research teams;
- high recruitment costs;
- loss of investment in training;
- gaps in staffing which increased the workloads and reduced the morale of other research staff and put at risk the quality of research output;
- high administrative workloads, and;
- more ‘short-termism’ in research.

It was recognised by most of those interviewed that contract research staff were employed on fixed term contracts because of the nature of research funding which was in turn determined by its own financial constraints. One respondent from a large university commented:

‘We must question what value we put on research. Research posts are only shaped because of how research is funded, and that’s why we at the grass roots can only employ people for the length of time we have funding.’

Overall it was felt by the institutional respondents that universities themselves could do very little about the fixed term nature of contracts. Some institutions raised issues regarding the mechanisms of funding, namely the need for Research Councils and other funding bodies to have more uniform pay scales and qualifications criteria (the example was given of how some expect researchers on a higher scale to possess a PhD and will not pay for a researcher on this scale who is without a doctorate). It was also commented that some grant awarding bodies left decisions about funding until the last minute making it difficult for institutions to guarantee contract renewals.

Regarding the nature of fixed term contracts, several alternatives were proposed. One institution was examining the possibility of introducing zero hours contracts for research staff based around anything from 0.2FTE to full time. The researcher would be under contract to the university but would be free to look for other work when the university could not offer more than a certain number of hours’ work per week. This was perceived as bearing ‘all the benefits of long term association but with none of the financial burden’. Other alternatives were to have regular contract reviews to assess whether contracts should be made permanent, based for example on length of continuous service, and to have ‘pools’ of researchers and technicians which could be ‘farmed out’ to various projects as and when needed, with researchers working within Faculties but across departments, and employed on either a permanent or a longer term contract.

Career Development Issues

5.1 Introduction

A major concern relating to any form of employment on short-term or fixed term contracts is that employers may see little return from investing in the training of such employees. For the same reason employers may feel they have little responsibility for staff development since they face a high turnover of staff on short and fixed term contracts. Ironically, such employees are probably in greater need of careers development to help them cope with the transitory nature of their current employment and to cope with life at the end of their contract. These are generic issues facing all employees in precarious employment and apply to contract research staff in higher education just as much as to other employees in such circumstances. However, universities are important employing institutions that like to consider themselves as good employers exemplifying 'good practice'. This is particularly so in regard to training and staff development since this is part of the mission of such institutions. This Chapter examines the evidence on these issues using both the quantitative and qualitative evidence from the ARCS project.

5.2 The Concordat

The Concordat on Contract Research Staff Career Management, issued by the CVCP, SCOP, COSHEP, the Research Councils and the British Academy came into effect in September 1996. It represented a significant initiative to improve the careers of contract research staff in universities and other higher education institutions. The success of the Concordat will, ultimately depend on the extent to which institutions implement it and the extent to which contract research staff are aware of it.

Only around 44 per cent of contract research staff in post in 2000 were aware of the Concordat despite having been in a contract research post for at least two years (1998-2000). A similar proportion (40 per cent) of those who by 2000 had left contract research were also aware of the Concordat. The most common means by which contract research staff became aware of the Concordat was through internal university documentation and publicity and by attendance at conferences, seminars or workshops (both held to discuss the Concordat or on general research topics). Colleagues in the workplace and the AUT were also sources of information that raised awareness of the Concordat. This pattern was the same for both those who remained in and those who had left contract research.

In terms of the implementation of the Concordat and its impact on research careers, there was little evidence of any significant feeling amongst contract research staff that progress had been made. Only 2 per cent of those contract research staff in post in 2000 thought that significant progress had been made with the Concordat while 44 per cent thought any progress was limited. On the other hand, only 18 per cent felt that no progress had been made with the Concordat, the remainder (36 per cent) being unsure.

5.3 Institutional policy towards training and staff development

All of the universities visited during the ARCS project had courses intended to meet the training and development needs of contract research staff. In the majority of cases there were courses specifically tailored to contract research staff, although in smaller institutions with fewer research staff employed on fixed term contracts there was a more general programme of staff development courses wherein contract research staff needs were addressed. If this is the case more generally across all Scottish universities, it would appear that some contract research staff were unaware of it. Slightly more than one in five (21 per cent) of contract research staff who remained in research in 2000 reported that their institution had no staff development or training programmes available at their institution.



It was felt in some institutions that the grant-awarding bodies should build in to grants more funding for training and development activities for contract research staff, not specifically pertinent to the grant in particular but contributing towards the individual's own career development. Otherwise, apart from dedicated SHEFC funding for development projects, there was very little leeway in which to offer more tailored support. As one human resources director stated 'we have no slack funds as such'.

Courses were typically delivered through university Staff Development or Careers Offices rather than through external consultants and were aimed at fulfilling the terms of the Concordat and meeting contract research staff needs voiced through mechanisms such as a university Contract Research Staff Forum. Some universities had also funded additional consultation hours in their Careers Service so that contract research staff could access advice there. However, it was recognised that many contract research staff did not feel the need to access careers advisory services because of their 'vocational maturity', despite the fact that many of them were perceived to be unclear about the transferability of their skills.

In general it was felt that the key target for courses should be research management, not only of project managers but the development of research management skills in all contract research staff. In more than one institution it was felt that research managers needed to become more aware of the career development needs of their contract research staff. One human resources director interviewed commented:

'If you talk to Principal Investigators they'll tell you contract staff shouldn't stay for long... but on the other hand if they get a good one they'll persuade that person to stay on. It's a dilemma faced by academics and they solve it in a way that suits them... they're sending out mixed messages.'

A major issue regarding courses, both for contract research staff and for their managers, was that of attendance. All the institutional contacts interviewed commented on poor attendance on some courses and many were actively trying to encourage contract research staff and research managers to attend by offering repeat courses at different times. Reasons for poor attendance were suggested as lack of time, lack of recognition for the need to attend a course, and a feeling of transience among the contract research staff population which might create a degree of apathy towards the usefulness of such events:

They feel 'that's not for us' and 'we're not going to be here that long anyway' so they don't get involved in what's going on.

Many institutions were attempting to change this situation by instigating greater representation among contract research staff, either through their own Contract Research Staff Forum or through existing Faculty or Departmental committees. Either a member of the contract research staff population would represent their group by election or an academic would be elected to act as their 'voice', attempting to get researchers more involved in decision-making processes within the university.

5.4 Training: the contract research staff perspective

Many contract research staff felt that widespread opportunities for training and development had been available within their institution. Almost 80 per cent were aware that their institution offered a staff development and training programme and 50 per cent were aware of a university induction programme for new members of staff. The proportion who were aware of any training offered

specifically for contract research staff was smaller although still amounting to 68 per cent of contract research staff in 2000. Attendance on such training was, however, much more limited with only 30 per cent of contract research staff reporting that they had ever attended such a course while in their current post. Around half (51 per cent) reported that they had attended some other form of training intended for academic staff (not specifically for contract research staff).

One possible reason for the low take up of training courses is that of insufficient time. Most contract research staff interviewed in the qualitative stage of the research indicated that finding the time to take these opportunities was difficult, mainly because they did not feel able to take time off. Some contract research staff encountered problems in being allowed time off by their principal investigator or manager. Time off for training appeared for many contract research staff to be at the discretion of their supervisor or head of department.

Most of those who engaged in teaching had undertaken some form of training course. Often this did not lead to the award of any form of qualification or certificate. Such training was often based around small group teaching, although some had also undergone training in research supervision and lecturing. One constraint on training that did arise for some contract research staff was that they were not able to attend more formal teaching courses designed for new lecturing staff. This was a particular problem for contract research staff whose contracts and job remit included a substantial degree of teaching, especially where teaching duties were introduced some time after commencing employment at the university, for instance, as the result of a new contract. As contract research staff in such situations may not be regarded by their employers as 'new' members of staff, they may be ineligible for training in support of teaching.

Where contract research staff had attended some form of training, they generally regarded it as useful. Around 66 per cent of those attending training for contract research staff found it useful (and only 17 not useful). Those who had attended courses aimed at academic staff in general (as opposed to contract research staff in particular) the verdict was even more favourable with 85 per cent of those attending finding them to have been useful.

Some contract research staff felt that training had not addressed their specific needs. The principal complaint was that training was 'too general' or 'too basic' and not geared specifically towards their needs. Those staff who had attended careers workshops for contract research staff had found the experience of limited use. They found that it was useful to engage with other contract research staff in the same position to share concerns and ideas but many, particularly the more experienced, found that material on CV writing and other job-finding skills was at too basic a level for them to be useful to them. Those who expressed views on alternatives would have preferred more information on funding sources and how to develop funding themselves, for example through a commercial sponsor. This was frequently mentioned in the qualitative interviews and by around two thirds (62 per cent) of contract research staff who remained in research posts in 2000.

Apart from obtaining funding, some frequently mentioned training needs related to the content or process of research. Around 41 per cent of contract research staff in 2000 would like training in writing for publication, 29 per cent training in analytical skills, 32 per cent in technical skills (laboratory techniques, research methods etc.) and a substantial number would like training in various aspects of information technology and computing skills. Clearly, it should not be assumed that all researchers feel themselves fully proficient in these areas. Other training needs related more to activities leading to an →

exit from contract research. For instance, 46 per cent of contract research staff cited a need for training in career management and 37 per cent wanted training in teaching for contract researchers. Supervisory skills and presentation skills were also in demand (51 per cent and 38 per cent, respectively).

5.5 Appraisal and support

Help for contract research staff can take a variety of forms. One form is that of appraisal and review. This was not just a management tool to ensure performance but a valuable form of feedback to the individual and an opportunity to identify training and staff development needs. Other forms of support concerned the resources available and the general status and standing of contract research staff within their employing institution.

Appraisal and performance review

Only 35 per cent of contract research staff who were in contract research in 2000 (after a minimum of two years in a research post) were aware of their employer having a system of appraisal and performance review. The most frequent response was 'don't know', suggesting a considerable degree of ignorance on this issue rather than lack of appraisal systems. A similar proportion (34 per cent) of ex-contract research staff reported having been formally appraised in their last contract research job.

Amongst those contract research staff who were in post in 2000, around one third (32 per cent) had been subject to a formal appraisal in their current post. Where appraisal had not taken place, this was sometimes due to unavoidable circumstances, for example industrial action, but in the majority of cases an appraisal had never been offered to them. This would appear to conflict with university guidelines with many institutions having a bi-annual appraisal policy for contract research staff as well as academic staff.

Almost half (46 per cent) felt they gained nothing from such an appraisal, although 15 per cent felt it was useful and had helped establish their long-term career goals and 39 per cent felt it had helped identify their training needs. The widespread perception that appraisal had achieved nothing may be explained by the finding that one third (33 per cent) of those who had been appraised believed that no action had been initiated on issues identified during the appraisal process and a further quarter (26 per cent) did not know if such action had been taken.

While formal appraisal was not widespread in terms of coverage or frequency, informal supervision and review was much more so. Around 60 per cent of contract research staff in post in 2000 had a nominated supervisor with whom they had regular review meetings. Such informal review meetings were held with various frequencies. Around a third of contract research staff with such informal meetings on a weekly basis (36 per cent) and a further quarter would meet their supervisor on a monthly basis (25 per cent). However, for a small minority of contract research staff, performance review meetings even of an informal nature were infrequent. Around 13 per cent reported such informal reviews only every 3-6 months and 7 per cent reported informal reviews less frequently than every six months (in some instances annually).

Informal review meetings with the designated supervisor commonly were concerned with discussion of work in progress (mentioned by 58 per cent of contract research staff). This is understandable given the weekly or monthly nature of the majority of such meetings. Publication of results was also a commonly cited activity in informal review meetings (41 per cent). Less commonly mentioned were

sponsors needs (14 per cent), financial assistance (3 per cent) and teaching (9 per cent). However, it is of some concern to note that only 10 per cent of contract research staff taking part in an informal review process reported any discussion of their individual training needs and only 15 per cent reported discussion of staff development issues. It is important to note that the figures cited here relate to the proportion of contract research staff who mentioned a topic as ever being discussed in an informal review meeting and not the frequency with which such topics were discussed. Thus, it would appear that 90 per cent of those covered never discussed their training needs during an informal review meeting and 85 per cent never discussed staff development issues.

Despite informal review being more prevalent than formal appraisal there is little evidence that it is more successful in meeting the needs of contract research staff for help with career development. Almost a third (31 per cent) of those who were subject to informal review felt that such meetings were not useful in regard to career development. This was a view most commonly held where such review meetings were infrequent. A further third (35 per cent) felt that such meetings were only a little bit useful and only 34 per cent saw them as useful.

An alternative to formal or informal performance review is to receive informal feedback from a senior colleague even though that person is not nominated as a supervisor. Around 60 per cent of ex-contract research staff reported having informal mentoring from a senior colleague in their last contract research post and this is close to the corresponding figure of 59 per cent amongst those who remained in contract research. However, those who remained in a contract research post provided additional detail of the frequency of such mentoring and informal supervision. Only 8 per cent reported frequent feedback from senior colleagues, 28 per cent reported occasional feedback and 21 per cent very infrequent feedback. Thus although it would appear that around two thirds of contract research staff did receive some form of informal review, much of that process appears infrequent and unlikely to be very effective.

Other forms of support for contract research staff

The majority of contract research staff felt confident that they had access to the best facilities and technology on offer. Some felt that they were working at the forefront of their field in terms of advancing subject knowledge, new techniques, and new technologies. However a few of the younger researchers commented on the limited infrastructure available to them in terms of office, desk and lab space. In some cases it was felt that facilities for junior staff depended very much on the profile of the relevant supervisor within the department.

'I have a desk in a lab, where there are chemicals flying everywhere. Lab space is minimal. Postdocs just don't qualify for an office unless you work for a big Professor.'

Male Postdoctoral Research Assistant, chemistry department, mid-20s

Working hours were very much left at the discretion of the individual: there were no set hours of work. Many researchers commented that this made them more likely to work extra hours, because they had the freedom to do so. It was one of the more enjoyable aspects of the job that this degree of flexibility existed, although a few added that the temptation to work very long hours had caused friction with partners or families.

While some interviewees perceived they had support from their department and the requisite technical and secretarial support they required, an equal proportion found that they did not have this support. Several interviewees stated that they felt very much on their own in their work. Knowing the boundaries of what they could expect, in terms of secretarial support for example, was a difficult issue for some where departmental or unit heads had not made this clear.

As regards research support, many were unhappy with the level of support they felt was accessible to them. They felt that they were dependent upon the patronage of their supervisor or research group leader, which gave rise to feelings of vulnerability if that patronage was under threat because of retirement or departmental politics.

'I feel pretty naked in the university and dependent on the patronage of the guy I work for. He's retiring in the next couple of years and it makes me – all of us – feel very vulnerable.'

Male Research Fellow, mechanical engineering, early 50s

'I only have 18 months of my contract left to run and I don't think my boss necessarily thinks it's a good idea for me to stay on in the position I'm in... they tend to get rid of contract research staff once the group leader doesn't want them any more. I'm becoming an extremely expensive Postdoc.'

Female Postdoctoral Research Assistant, biology, early 30s

There was felt to be scope for greater levels of support in terms of careers advice and guidance. This was particularly the case amongst those researchers who felt that they had taken a misdirected career step or who had reached a stage in their career where they were beginning to lose their momentum in terms of career progression or research focus. Several of these commented on the need for greater input from the department or university in terms of personal feedback, regular peer review, or career mentoring. It was also felt that more information should be made available regarding research funding opportunities and constraints such as age limits.

'In academic research, nobody tells you what you're good or bad at, or gives you careers advice. We did get appraisals in my old job and they were very useful, but you get nothing here - it's very ivory tower. My boss would say you shouldn't be an older researcher, there's a limit to your shelf life. But no one's ever said to me cut your losses and move on.'

Female Postdoctoral Research Assistant, Biology, late 30s

'I would have liked to have had more information about age and time limits and more training in grant writing. You need guidance to know that you shouldn't just take the first job that comes along when you finish your PhD... you don't know 'the rules' until it's too late to do anything about it.'

Female Postdoctoral Research Assistant, Biology, early 30s

Some researchers spoke of feeling 'detached' from the university and somewhat adrift even from the infrastructure within their own department. Some, particularly those researchers who had been working in contract research for some time, or who were older researchers, felt they had received very little feedback on potential 'next steps' and that the opportunities available to them for progression were very limited.

At one institution, however, an interviewee had recently begun to attend a contract research support group and had found this extremely beneficial in terms of sharing information, experiences, and concerns.

5.6 Career development

Almost half (46 per cent) of contract research staff in post in 2000 identified career management as a training need. This may well have been because few (just 12 per cent) had received any formalised careers guidance or advice in their current post. In the small proportion of cases where such advice was provided, it was mostly provided by the university Career Service but was sometimes provided by a supervisor, a mentor or a head of department/research unit.

More than three quarters of contract research staff in post in 2000 were unaware of any support network in their institution (despite having been employed there for at least two years. Such networks, where identified, were normally located centrally by the university rather than within the department or faculty or external to the university.

Some researchers, especially in science subjects, spoke of the increasing emphasis placed on publications when applying for contract extensions, promotions or new job. This emphasis had increased pressure on them to get results and, if the project was not going well, this could lead to high levels of stress and anxiety. Most, however, felt that there was enough scope for producing publications and attending conferences, etc, which were activities perceived to be essential for establishing contacts, raising individual and departmental profiles, and developing opportunities for career progression. One problematic issue raised was that if the project was long-term and the contract shorter-term, it could be difficult to produce publications:

'Your project might end before the project comes to a climax... it can be hard to publish long term work on a short term contract.'

Male postdoctoral researcher, Chemistry, late-20s

Other factors which researchers identified as being important to their career progression included having the support of a senior colleague, being able to submit grant applications or have a large input into this process, and being able to develop teaching experience. One key factor which researchers identified was being able to show a progressive body of work in one particular area. While some researchers had been able to build up their knowledge of one area on a series of contracts, others had moved from topic to topic as different contracts arose which they felt weighed against the development of a credible academic career.

Career Orientation and Aspirations

6.1 Introduction

Contract research staff come to research in a variety of ways, some with significant work experience while others enter directly from full-time education. Some see their first research job as a stepping stone to a career in research, some see research as a necessary period of professional development while others stumble into research or enter for opportunistic reasons with little or no career goals in mind. The motivation for taking a first research job was discussed in Section 4.3 above.

Once in a research post, contract research staff will form a view about whether the job lived up to their expectations and will likely assess their prospects in research and elsewhere. Whether they choose to remain in contract research in higher education will depend upon the net advantages of being a research worker in a university and perceptions of the relative scope for career progression in university contract research posts vis a vis jobs elsewhere. Clearly, individuals will differ in their assessments. Those who are really dedicated to their subject and committed to research work may endure insecurity and low pay to a greater extent than those who lack such commitment, have career aspirations outside higher education and research or whose personal circumstances make it difficult to continue in such employment. This Chapter examines the orientation and career aspirations of contract research staff.

6.2 Active job search amongst contract research staff

In 1998, when first surveyed, around four in ten (42 per cent) of contract research staff were actively looking for their next post. There was very little difference in the proportions actively seeking a new post between contract research staff from different subject areas nor between different job grades. As might be expected, those with the least experience (in terms of total time in a research career) or new to post (less than 12 months in post) were less likely to be seeking a new post than others with a greater amount of research experience. The rate of active search for a new post was greatest amongst contract research staff who had 2-5 years of research experience in total (54 per cent) and amongst contract research staff in the 30-39 year age group (46 per cent). Young researchers, those aged less than 25, were as unlikely to be seeking a new post as older researchers aged 50 or over (29 per cent and 27 per cent, respectively).

Whether or not a new post was being actively sought in 1998 appeared to have been associated with individual preferences for the next post. Table 6.1 shows that only a quarter of contract research staff wishing for an extension to their contract were actively looking for their next post. Amongst all others, between 40 and 50 per cent were actively seeking their next post. This suggests that many contract research staff who wished for an extension of their current contract either suffered from a degree of inertia or else had an expectation that their contract would be renewed at the end of their current contract.

Ideally, next post would be:	Row percentages				Base
	Actively looking	Not actively looking	All citing type of post	% of all research staff	
Extension of my current contract	24	76	100	21	386
Different research post current institution	44	56	100	11	197
Research post at another HEI	47	53	100	8	149
Research post in (non-university) independent research organisation	44	56	100	4	76
Research post in industry or commerce	45	55	100	9	168
Research post in the public or voluntary sector	40	60	100	5	21
Lectureship in Higher Education	50	50	100	18	334
Move out of research into a different occupation	56	44	100	15	283
Other	38	63	100	5	90
All	43	57	100	100	1827

Source: The ARCS Survey: IER 2001

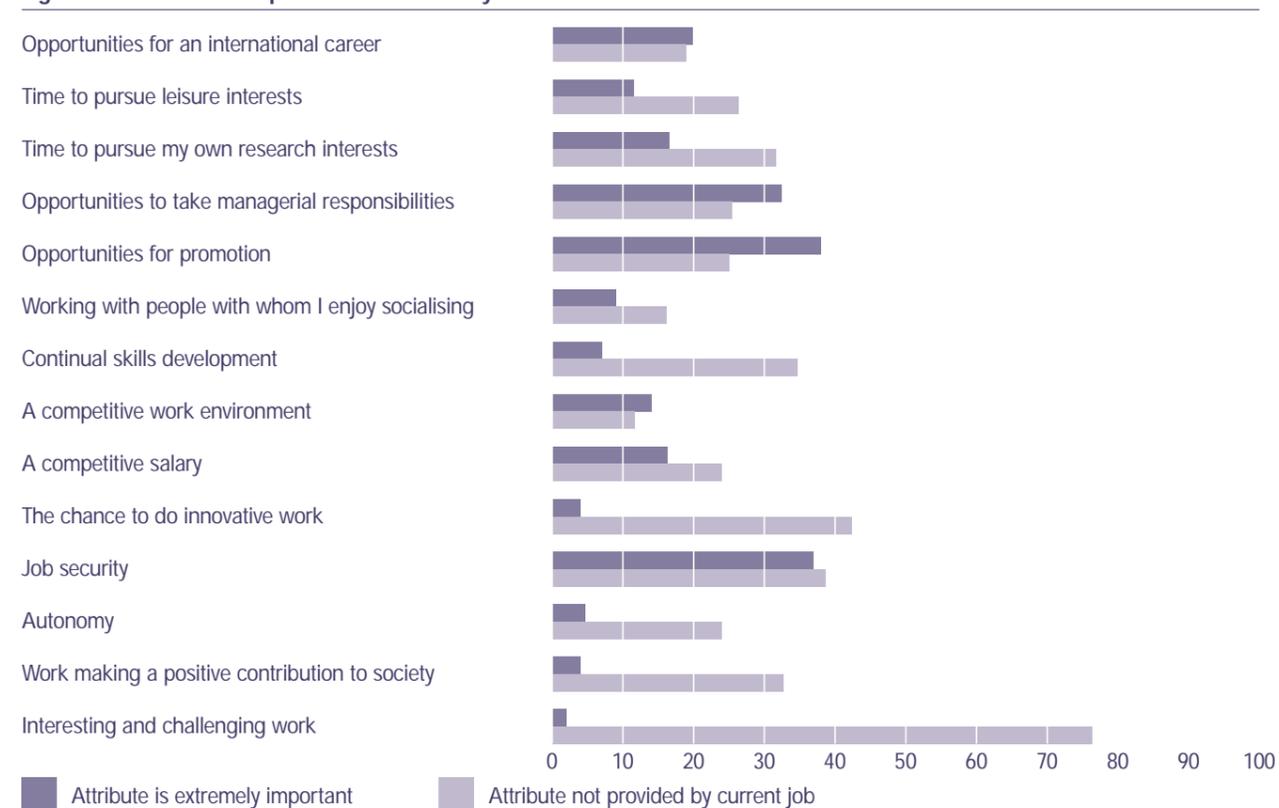
After two years, little had changed. Where respondents remained in contract research in 2000, 45 per cent were actively looking for their next post (a figure close to that of 1998). It is, however, interesting to note that those individuals who had left contract research by 2000 were much more likely to have reported in 1998 that they were actively seeking a new post and a new post outside of contract research in higher education. Around 32 per cent of those who remained in contract research in 2000 had been actively seeking a new post in 1998. This compares to 55 per cent of those who had left contract research by 2000¹⁰. Evidently, many of those who by 2000 had left contract research, were already actively seeking to do so at the time of the first ARCS survey in 1998.

6.3 Job attributes: preferences and reality

All contract research staff surveyed in 1998 were asked to rank 14 job attributes in terms of their importance. These job attributes included characteristics such as job security, interesting work, opportunities for promotion and so forth and were ranked from 1 (extremely important) to 5 (not important at all). Contract research staff were also asked to indicate whether their current job provided these attributes, using the same list of job attributes and a scale of 1 (very much) to 5 (not at all). Figure 6.1 lists the job characteristics and the proportions of contract research staff indicating that each was 'extremely important' and the proportion indicating that their current job provides these attributes 'not at all'.

¹⁰ Clearly this difference could be affected by those who were non-respondents in 2000. However, the proportion of those contract research staff who did not respond to the 2000 survey who were actively seeking a new post in 1998 was 47 per cent which is close to the overall average of 42 per cent. This suggests that non-response has not significantly biased the findings.

Figure 6.1 Job attributes: preferences and reality



Base: All Sweep 1 respondents (N=1827)

Source: The ARCS Survey: IER 2001

Analysis of the rankings points clearly to the central importance of interesting and challenging work to most contract research staff. Around 76 per cent of contract research staff gave this job attribute a ranking of 1. This job attribute stood out above all others as being a high priority for most contract research staff. Other job attributes of extreme importance (ranked 1) to large numbers of contract research staff were innovative work (42 per cent), job security (38 per cent), skill development (34 per cent), making a positive contribution to society (32 per cent) and opportunities to pursue own research. Opportunities for an international career, for managerial responsibilities and for working with people they enjoy socialising with, were all ranked as extremely important by much smaller proportions of contract research staff. A competitive salary was ranked as extremely important by 24 per cent of contract research staff (as was opportunities for promotion) but a competitive working environment was ranked this high by only 11 per cent.

Whatever the preferences and priorities of contract research staff, the reality of their jobs may be different. In fact, as Figure 6.1 shows, many contract research staff did feel that their jobs were extremely interesting and challenging, although, at 44 per cent, the proportion was well below the proportion who felt such a job attribute extremely important. Many also felt their jobs offered many opportunities for innovative work. However, there were clear discrepancy between desirable job attributes and reality in several aspects of research jobs. For instance, while few contract research staff (1 per cent) felt that job security was not important at all, 36 per cent felt their current job offered no job security. Similarly, hardly any (2 per cent) felt that promotion were not important at all, but 37 per cent felt that their current job offered no such opportunities.

The evidence from the 1998 survey thus strongly suggests that contract research staff were motivated to take research jobs by a desire to do interesting and innovative work. They valued job content over other aspects of employment such as security, promotion and pay. This did not, however, mean that job security was of no interest. Indeed, 70 per cent of contract research staff surveyed in 1998 felt that obtaining employment on a permanent contract was either 'very important' or 'important'. Around 15 per cent thought that obtaining a permanent contract was not very important and just 3 per cent thought it not important at all (the remainder being not sure). In the event, most felt that their jobs delivered on interest but failed to deliver on job security, promotion opportunities and pay.

6.4 Reasons for remaining in contract research: 'pull' factors

The advantages and disadvantages of contract research jobs were explored in greater detail in the qualitative interviews with contract research staff. The main advantages of working in academic research, as reported by those interviewed, were perceived to be:

- the flexibility of the working environment;
- the degree of autonomy over the work itself;
- the scope for moving between projects or jobs, broadening experience and developing and absorbing new ideas;
- the freedom to do research in a desired area; and
- 'it keeps you on your toes'.

The majority of contract research staff interviewed relished the flexible nature of working in a university research environment. A move into industry was not considered a particularly attractive option for those who felt that, in comparison to higher education, such an environment would be restrictive and pressurised, not only in terms of the more structured working day, but in terms of the scope of the research itself.

'I have considered a move into industry, but everything there is geared towards the product. If someone decides it's not viable then you have to move on to something else whether you're interested in it or not.'

Male Senior Research Associate, Physics, mid-30s

Academic research was thought to be an environment wherein creative thinking could flourish and where researchers had scope for greater freedom and experimentalism than elsewhere, testing new ideas and developing new techniques. This created a challenge, in terms of allowing the researcher greater autonomy over the direction of their research.

Movement between jobs and/or projects was viewed to be an advantage by some researchers, generally the younger contract research staff who were just embarking upon their careers and who had few personal or family commitments. Opportunities for collaborating with, and learning from, colleagues were also perceived as highly rewarding aspects of the job.

Many of these 'advantages' are related to working in an academic research environment, rather than to being employed in contract-based academic research per se. Some researchers pointed out that the valuable experience gained initially as a contract researcher could be obtained equally in a permanent research post, where 'if you don't like it, you can move on'.

6.5 Reasons for exiting contract research: 'push' factors

The qualitative interviews with contract research staff revealed perceptions of the costs and difficulties of being a contract researcher. The principal disadvantages cited by those interviewed all related to the issue of contractual status. They focused on

- the insecurity aspects (both long- and short-term, cited by nearly all respondents);
- the limited scope for progression;
- the need for geographical mobility;
- the difficulties of developing more specialised knowledge.

The key disadvantage of working on a fixed term contract in academic research was the lack of security. This was manifest in two ways: the lack of short-term security, at times such as the end-month of a contract, when future funding remained uncertain; and lack of long-term security, in terms of being able to build progression into a career and planning for long-term commitments such as buying a house. The fact that salary levels tended to be relatively low in contract research contributed to feelings of insecurity. Low morale and stress as a result of the nature of the contract was an issue raised by some researchers.

'Contracts aren't the best part of the job. It's a bit of a strain... this last contract was renewed in June and it got to the middle of May before I knew what was happening. This sort of work is a bit of a gamble.'

Male Research Associate, electrical engineering, early 30s

In the long-term, many of the contract research staff interviewed felt that continuing to work in academic contract research was not sustainable. The key factor in this was generally the age of the researcher. Those who had reached a point on the scale where they found themselves 'trapped' by a combination of being at a relatively high point on the pay scale while not being able to apply for or attract their own research funding were the most likely to be considering whether to move out of research or feeling that they would be in effect 'forced out' because of the lack of scope for them to progress.

Some younger researchers were aware of this critical stage, having commented on the number of more experienced colleagues they had encountered who were at this point. Their response was, typically, to take the approach that by this stage of their career it would be a case of leaving academic research if they had not yet secured funding individually. This was a common response among young science researchers in particular:

'I don't want to be a Postdoc who's done ten or fifteen years. I have a clear plan. I have a fellowship fixed up for two years and I'll use that to get a lectureship- if not then I'll go into industry. I'm only 25 now... but I think by 30 people start scratching their heads a bit. I just don't want to float around the system.'

Male Postdoctoral Research Assistant, chemistry, mid-20s

The lack of scope for progression in academia was a key issue. Several researchers felt that the only way to progress was to become a lecturer. Clearly for some, the traditional route of combining research and teaching duties was the ultimate ambition and contract academic research was perceived as an effective 'way in' to the lecturing profession. However, this raises a development issue in that some researchers felt that they were being excluded from teaching even though it was theoretically part of their job, having to push to attend teaching courses and not being able to acquire the level of experience they hoped for which could enhance their chances of obtaining a tenured post.

In the event, the main reason why staff actually left contract research in higher education was because their contract came to an end. This was the reason for 60 per cent of those who were no longer contract research staff in 2000. However, those who had left contract research cited other factors as well and the end of their contract accounted for only 18 per cent of the responses to the survey question about motivations for leaving contract research. Job insecurity was cited by 54 per cent as was lack of promotion opportunities by 34 per cent and poor pay by 28 per cent. Not all exits from contract research were for negative reasons, as 45 per cent indicated that their career move was part of a long-term career strategy while 36 per cent said that they left contract research in order to extend their skills and gain wider experience. When asked to indicate the main motivation for leaving contract research, more than half cited either the ending of their contract or job insecurity. Only 16 per cent said their main motivation was to further a long-term career plan and 7 per cent to enhance their skills and work experience.

6.6 Future career plans and factors influencing these

Contract research staff surveyed in 1998 were asked about their long-term career plans and the role (if any) played by academic research in such career plans. Respondents re-contacted in 2000 were also asked about their career plans. Those remaining in contract research after two years were asked whether they saw their job as part of a long-term career path. Those who had left contract research had, by definition taken a decision to start a new career. The relevant question in this case is whether such people would contemplate a return to contract research in higher education at some future date or whether their career change was irreversible. A number of contract research staff were also interviewed in depth about their career aspirations and long-term plans.

The career plans of contract research staff in 1998

Only around one in three (34 per cent) of contract research staff, when asked in 1998, indicated that a career in academic research was a long-term career aim (Table 6.2). As might be suspected, the proportion who were looking to a long-term career in academic research was higher (44 per cent) amongst those who, two years later, remained in research than it was amongst those who by 2000 had left contract research (20 per cent). Nonetheless, it is notable that less than half of those who remained in research in 2000 contemplated a long-term career in academic research.

Long-term careers outside of academic research most commonly involved entry to lecturing posts in higher education (traditional academic career) which accounted for a quarter of long-term career goals. Careers in professional practice or management (12 per cent) or in a research post in industry or commerce were also career goals for many contract research staff. The latter two career paths were more common amongst those who had, in fact, left contract research by 2000. A career as an independent research worker, employment in the public or voluntary sectors or in research administration were not commonly aspired to career paths amongst contract research staff in 1998.

Table 6.2 Long-term career plans: contract research staff, 1998

Preferred long-term career option	Stayed in contract research	Left contract research	Column percentages
			All research staff
Career in academic research	44	20	34
Traditional academic career	23	31	25
Research in industry or commerce	8	13	11
Independent research (non-university)	5	4	4
Public sector or voluntary sector research	2	2	2
A career in research administration	3	2	2
Professional practice or management outside	9	18	12
Other	5	11	9
Total	100	100	100
Base	768	367	1827

Source: The ARCS Survey: IER 2001

Contract research staff who were women appeared more likely than men to intend to remain in contract research in higher education (37 per cent compared to 31 per cent) and less likely to contemplate a career in academic lecturing (21 per cent and 30 per cent respectively). Men were also more likely than women to contemplate a career in industry or commerce (13 per cent compared to 9 per cent). In terms of other broad career paths, the career aspirations of men and women appeared similar.

Highly qualified people tend to be of above average geographical mobility, because they operate in national and international jobs markets and have greater potential earnings gains from mobility, and for this reason academic contract researchers would also be expected to be of above average mobility. This is borne out by 1998 survey which found that around 40 per cent of contract research staff were prepared to work elsewhere in the UK and slightly greater proportions were prepared to work in other European countries (42 per cent) or the rest of the world (44 per cent). Most contract researchers would consider a job in most parts of Scotland, with 68 per cent indicating that they would be prepared to work in the Lothian region and 60 per cent in the Strathclyde region.

The career plans of those remaining in contract research in 2000

Two years later, less than half of those who continued to be employed as a contract research worker (44 per cent) reported that their current job was part of a long-term research career. Around 22 per cent regarded their job in 2000 as a 'stop-gap' until a new career opportunity in research arose. However, a quarter (24 per cent) viewed their contract research job as a stepping stone into a lecturing position, 14 per cent as a stop-gap until a new non-research career emerged and 12 per cent as a 'training' opportunity for entry into some other career outside academia.

Comparison of the population of contract researchers in 1998 and those remaining in academic research two years later (in 2000), suggests that those who remained were less geographically mobile than the average. Whereas 40 per cent of contract researchers were prepared to consider a job in the rest of the UK, the corresponding figure amongst those who remained was 30 per cent. Similarly, whereas 42 per cent of the 1998 population were prepared to work elsewhere in Europe the figure is 28 per cent amongst contract researchers who remained in academic research in 2000. The corresponding figures for preparedness to work in elsewhere in the world were 44 per cent and 23 per cent, respectively. It would seem that those contract researchers most likely to consider a job outside of Scotland were, not surprisingly perhaps, disproportionately represented amongst those who had left academic contract research by 2000 leaving behind a somewhat less mobile group of staff. →

The proportion of contract research staff who felt their current post to be part of a long-term career plan increased with age. Less than 30 per cent of contract research staff aged below 25 saw their research post as part of a long-term career plan as did 35 per cent of those aged 25-29. This contrasts with 64 per cent of those aged 40-49 and 75 per cent of those aged 50 or above. Correspondingly, younger researchers were more likely to report that their jobs were stop-gaps until something else appeared or to be a stepping stone to another type of career outside academic research. Clearly many younger contract research staff were unclear about their career prospects and intended career paths while those who were older were, perhaps not surprisingly, more clear about the reason they were employed in contract research.

Slightly more than a third of contract research staff remaining in academic research in 2000 (39 per cent) reported that their long-term career plans had changed between 1998 and 2000. Nonetheless, even where such career plans had changes, it was evident that many contract research staff retained the same broad career orientations. For instance, of those who reported in 1998 that academic research was their preferred long-term career goal but by 2000 reported that their career goal had changed, more than half (57 per cent) continued to wish to pursue a long-term career in research. Those who no longer wished to do this generally now wished to enter a long-term lecturing career, work in industry or commerce or work in a consultancy. Similarly, of those who, in 1998, wished a long term career in academic teaching (but reported a change of career plans in 2000), 47 per cent continued to want to enter a lectureship in the long-term.

Looking at the 354 contract research staff who expressed a different long-term career preference in 1998 and 2000, the main reasons for the change in career plans were predominantly concerned with conditions of service (mentioned by 53 per cent) and poor pay (also mentioned by 53 per cent). The nature of the work, relationships with senior staff and other reasons were less frequently cited as factors bringing about a career change (each was mentioned by around a third of contract research staff who changed their career plans).

Qualitative evidence on contract research staff career plans

Qualitative evidence from contract research staff provides some support for the findings of the quantitative survey but suggest that the situation may be complex. Although many contract researchers felt that they would like to remain in academic research, the short-term nature and uncertain future of many contracts was a major obstacle to this, as well as the lack of progression routes. As many researchers reached their early thirties, they were looking at other possibilities: a move into lecturing or a move out of academic research altogether. For others, although comparatively few, moving out of academia, for example into industry or a consultancy, was a possibility. Some respondents were also intending to go on to further study.

'As you get older you effectively price yourself out of a job... it's a real obstacle to staying in academic research. I'm not sure if I'd get another contract - it'll get more and more difficult. I don't see this as being a long-term job - I'm looking at a move into industry, or into the teaching side of things.'

Male Research Associate, electrical engineering, early 30s

Others were considering a move out of contract research for pragmatic reasons, feeling that with tough competition for lectureships it was unlikely that they would achieve the traditional progression into teaching that they sought:

'There's stiff competition in the top flight... I think I'd do well in a company environment and am looking for jobs, they seem to offer more stability and longer term career development.'

Male Post-doctoral researcher, biochemistry, late-20s

The need for geographical mobility was perceived to be a disadvantage among researchers who were settled in an area but felt that they might have to move away in order to secure another job in academic research. Several of those interviewed had partners who were also working in contract research and this was perceived to be a particular difficulty which could place pressure both on the individuals concerned and on their relationship.

'I've recently got married and we are thinking about children, but being on a fixed term contract you don't know where you stand. My husband's on a fixed term contract as well so he'll be out of a job in September and I might be in November... who's to say we're going to get jobs in the same city? It's difficult to make long term commitments in your personal life.'

Female Research Associate, Biological Sciences, mid-20s

Attitudes towards contract research amongst those who left contract research between 1998-2000

The attitudes of those who left contract research for other employment outside academic research provide a measure of the strengths and weaknesses of contract research as a career. Some caution needs to be exercised in the interpretation of the results of such an analysis since such individuals are a self-selected group who chose not to remain in research. They are unlikely to be typical of contract research staff in general but they may reflect those who are more mobile, more ambitious or just more sensitive to employment conditions.

Table 6.3 describes the main factors that might lead those who had left contract research by 2000 to consider a return to such employment in the future. The most commonly cited reasons for considering a return to contract research were missing developing new and innovative research projects (cited by 46 per cent), the working hours and flexibility of working (36 per cent), the academic environment (34 per cent) and the autonomy of being able to plan ones own workload (31 per cent). Other factors were far less frequently cited. The single most important factor was that ex-contract research staff missed working on research projects. Given that the nature of research is so highly rated by contract research staff this is hardly surprising.

Ex-contract research staff were asked to consider a wide range of factors that could be a deterrent to a return to contract research. One very striking result emerged. Ex-contract research staff were almost unanimous in identifying job insecurity (i.e. short-term contracts) as the main reason they would not consider a return to contract research. Overall, this factor was identified by 88 per cent of ex-contract research staff and it was the main factor in 54 per cent of cases. Pay levels and lack of promotional opportunities were also cited as deterrents to a return to contract research by over half and almost two thirds of ex-contract research staff respectively. Poor treatment by their previous department or previous university were also commonly cited. Nonetheless, when the main reason for not returning to contract research is considered, all reasons pale into insignificance in comparison to that of job insecurity.



Reason to return to contract research (all citing reason)	Male	Female	Both
Miss working hours/flexibility	35	36	36
Miss developing & working on research projects	43	49	46
Miss working in academic environment	34	34	34
Miss being able to plan own workload	29	33	31
Dislike commercialism of working in industry	13	12	13
Personal reasons	7	16	13
Would take any job that came up	20	19	18
Other	21	13	17
Main reason to return to contract research			
Miss working hours/flexibility	11	12	11
Miss developing & working on research projects	39	36	37
Miss working in academic environment	11	6	8
Miss being able to plan own workload	7	6	6
Dislike commercialism of working in industry	2	8	6
Personal reasons	2	8	6
Would take any job that came up	14	8	11
Other	16	15	16
Total	100	100	100
Base	180	176	367

Source: The ARCS survey: IER 2001

Reason not to return to contract research (all reasons cited)	Male	Female	Both
Job insecurity issues	85	90	88
Pay levels	64	43	54
Lack of promotional opportunities	67	60	64
Bureaucracy of university environment	19	25	22
Lack of training and development opportunities	28	27	28
Treatment by principal researchers	23	25	24
Treatment by department	33	40	36
Treatment by university at large	38	45	42
Wanting career outside academia	20	16	18
Wanting to work in more structured manner	14	20	17
Personal reasons	12	16	14
Limited availability of jobs in your discipline	32	36	34
Other	11	12	12
Main reason not to return to contract research			
Job insecurity issues	50	58	54
Pay levels	11	3	7
Lack of promotional opportunities	6	6	6
Bureaucracy of university environment	1	1	1
Lack of training and development opportunities	1	3	2
Treatment by principal researchers	2	3	2
Treatment by department		1	1
Treatment by university at large	6	1	3
Wanting career outside academia	6	2	4
Wanting to work in more structured manner	1	3	2
Personal reasons	1	4	2
Limited availability of jobs in your discipline	3	7	5
Other	11	8	10
Total	100	100	100
Base	180	176	367

Source: The ARCS survey: IER 2001

6.7 Career 'types'

Although some contract research staff were young, just starting out on their careers and gaining valuable experience in the early years, others had been in contract research for a considerable period and many have reached a point where they have to take serious decisions regarding their longer-term future and security. Lecturing opportunities may be relatively few in some fields and contract researchers may not have been given the opportunity to gain experience in lecturing in order to progress in an academic career, if that is what is desired.

Some would prefer to remain in academic research, as an ideal option, but may feel the need to move on to a more secure, if less satisfying position as a lecturer or outside academia altogether.

In these cases, valuable experience, skills and knowledge built up over time may be lost to institutions.

Some people may come into contract research rather later in their career, as a natural progression from research or practitioner work in a related area, or in order to change career. In certain cases, support may be lacking for this group, who are not in the same position as younger contract research staff, in that they have a range of experience behind them, which is not necessarily put to full use.

Looking at the range of contract researchers interviewed, a number of general categories of researcher may be identified, based on factors such as type of contract, stage in career, etc. These are:

- **Career starters** (i.e. those in their first or second contract, who enter contract research as a means of gaining experience in order to move into a tenured academic position or a more permanent research career related to their area of expertise, but possibly outside academia.) These tend to be individuals who stay in contract research for a relatively short time and fall into two types within this category:
 - Those on **Prestige awards** (e.g. British Academy or EPSRC career development awards)
 - Those on **Standard contracts** (usually between 1-3 years, with monies from funding councils).
- **Career researchers** (i.e. those who have been in contract research for longer, usually on a series of fixed-term contracts). There are again two types of researcher within this category:
 - Upward movers (those who are gaining more experience and responsibilities such as writing proposals, often have a degree of support from their supervisor and have moved into higher paid positions, sometimes at senior level, and sometimes with a greater degree of security)
 - Serial contractors (those who have experienced a number of fixed-term contracts, or renewal of contract, without necessarily obtaining a greater degree of responsibility. In some cases, researchers have been forced to move from one fixed-term contract to another at a lower level).
- **Career returnees** (those who have entered contract research at a later stage in their career, either moving into academic research from related research in another sector, or those who have entered a career in academic research after returning to higher education study). Career returnees may also be identified within the category of career researcher.
- **Job starters** (individuals who enter contract research because it is a job, rather than for specific career-related reasons, who may decide to remain in research or related academic work, but who might equally move to another sector or area of work).

Career Destinations After Research

7.1 Introduction

The ARCS survey collected data relating to contract research staff over a two year period. The nature of contract research staff employment was considered in Chapter 4. This Chapter looks at the career changes that took place over the two year interval up to 2000.

Roughly two thirds of those contract research staff surveyed in 1998 and again in 2000 remained in contract research in higher education. The remaining one third had left contract research in higher education for other forms of employment. In some cases, the change merely represented a shift from contract research on a fixed-term or other 'temporary' contract to a permanent (open-ended) contract with the same employer. In other instances, the job change marked a shift in career to employment outside research and/or higher education. This Chapter examines the evidence relating to the job destinations of those who were in a contract research post in 1998. It examines the jobs of those who remain in contract research in higher education (in terms of promotion or other changes) as well as looking at the jobs taken by those leaving contract research. The Chapter also examines the reasons cited for making a career change and considers whether negative aspects of contract research or positive aspects of other employment were factors in the job change decision. Finally, the Chapter attempts to identify the extent to which previous experience of contract research in higher education provided skills that were capable of being transferred to other jobs.

7.2 Retention and exits, 1998-2000

A total of 1,135 research staff responded to the longitudinal survey at the second stage conducted in 2000. Of these, around two thirds (68 per cent) remained in a contract research post at the end of the two years. The remaining one third had left contract research by mid 2000.

Unemployment amongst ex-contract research staff

Most of those who left academic research were in employment at the time of the second sweep of the ARCS survey but not all. Approximately 5 per cent of those who had left contract research were unemployed. This amounted to less than 2 per cent of those who were in contract research in 1998. Around 6 per cent of those leaving contract research jobs had returned to full-time education as students, while a further small number had retired, were on maternity leave or were otherwise economically inactive.

The rate of exits from contract research

There is a good case for regarding the one third leaving contract research as the lower limit of the exit rate. This is because those who left academic contract research were likely to be more difficult to contact than those that remained. Consequently, those who left research might be expected to form a larger proportion of non-respondents than those who remained, biasing the sample towards those remaining. The extent of such a bias, if it exists, cannot readily be determined.

Men were slightly more likely than women to have left research by the end of the two year period (35 per cent and 30 per cent, respectively). Exit rates (the proportion leaving research in higher education) were, as might be expected, highest amongst research staff in junior grades (Table 7.1). Around 34 per cent of those at RG1B had left research by the end of the two year period, 28 per cent of those at RG1A and just 22 per cent of those at RGII. The exit rate was also high from other research grades, but this encompasses a mixture of senior staff and junior support staff making it difficult to provide a single explanation of the relatively high exit rate amongst this group.

Job grade	Stayed in research	Left research	All	Base
RG1B	66	34	100	220
RG1A	72	28	100	571
RGII	78	22	100	121
Other grades	63	37	100	223
All grades	68	32	100	1135

Source: The ARCS Survey: IER 2001

The exit rate from contract research was relatively high amongst those for whom the research post in 1998 was their first research job. Around 37 per cent of those in their first research job in 1998 had left research in higher education by mid 2000 compared to 30 per cent of those who were on second or subsequent research jobs. It is a plausible explanation to suggest that some in their first job decided that a career in research was not for them and left for other types of employment. Exits from research careers were also most likely where research staff had been employed in research for between one and five years, regardless of whether this employment was in their current job or in a series of research posts (Table 7.2). This may reflect factors such as the optimal timing of career moves or the reality of fixed term contracts ending. Exit rates were lowest amongst those with long research careers (five or more years) and those with short research careers (less than 1 year).

There was little evidence of marked differences in the rates at which research staff left contract research from different discipline or subject areas. Insofar as such differences were discernible, the rate of exit appeared relatively high from research staff in medical science (36 per cent) and engineering & technology (40 per cent).

Time in research career	Stayed in research	Left research	All	Base
Less than 6 months	62	38	100	58
6-11 months	69	31	100	85
Between 1-2 years	64	36	100	108
Between 2 and 5 years	60	40	100	322
5 years or more	74	26	100	516
Time in current post				
Less than 6 months	71	29	100	221
6-11 months	72	28	100	219
Between 1-2 years	62	38	100	267
Between 2 and 5 years	64	36	100	313
5 years or more	76	24	100	115
All	68	32	100	1135

Source: The ARCS Survey: IER 2001

One factor that was associated with exits from contract research was employment prior to entry to academic contract research. Only 35 per cent of those who remained in contract research had prior work experience compared to 41 per cent of those who left contract research. This association might be explained in several ways. Some of those with prior work experience may have decided upon a career path in which contract research is just a transitional phase while those that remain contain more who have decided on a career in research. Alternately, those who have worked in other jobs may have a greater awareness of employment conditions and opportunities outside of contract research.

7.3 Those remaining in contract research jobs

Number of contracts

Where contract researchers remained in higher education research during the whole of the two year period from April 1998 to April 2000, four out of five (82 per cent) experienced at least one change of contract. Where such a change of contract was experienced, around a third (36 per cent) had just one change of contract while a further 20 per cent experienced two changes of contract. However, two in every five (44 per cent) had experienced at least three contract changes and a sizeable minority (21 per cent) had a change of contract on at least five occasions during the two year interval covered by the ARCS survey.

Women were slightly more likely to have experienced a change in contract but the difference was only small (84 per cent compared to 81 per cent). As might be expected, contract changes were more prevalent amongst lower research job grades than higher grades. Around 82-84 per cent of those on RG1B, RG1A and RGII experienced at least one contract change but the extent of contract changes amongst those on RGIII/IV was still high at 77 per cent.

The research experience of those remaining in contract research

One possible explanation of why particular individuals remain in contract research posts is that they were people at a relatively early stage of their period of research employment (while those that left were people who had reached the end of their period of research activity). This explanation sees contract research as a career phase through which individuals pass on route to something else. To explore this possibility the cumulative time spent in contract research of those who stayed and those who left was compared.

Because of the longitudinal nature of the ARCS study, any individual who remained in contract research in 2000 must have been employed in contract research for a minimum of two years. Many already had considerably longer experience of employment in contract research. Around half (52 per cent) of those who remained in contract research had been in such a job for 5 or more years at the start of the study in 1998 and, thus, had been in a contract research job for 7 or more years by the time of the second ARCS survey in 2000). A further 26 per cent had, by 2000, been in contract research for between 4-7 years. By comparison to those individuals who left contract research, those remaining tended to have a greater amount of experience of contract research and many appeared to have been engaged in a longer-term career in contract research.

Job grade and promotions

Comparison of job grades in 1998 and 2000 suggests significant changes amongst research staff on lower grades (RG1B and RG1A) and relative stability amongst those on higher grades (RGII and RGIII/IV). Over the two-year period, only 5 per cent of research staff on RG1B remained on that grade with most (74 per cent) moving up to RG1A (and the remainder moving to other contract research →

grades). A little short of half (45 per cent) of those on RG1A jobs in 1998 remained on that grade in 2000 but 39 per cent reported a retrograde move to RG1B while just 6 per cent reported a promotion to RGII. In contrast to lower job grades, most of those on RGII and RGIII/IV remained in the same job grade in 2000 as in 1998: 72 per cent of those on RGII and 77 per cent of those on RGIII/IV. Most changes from RGII were promotions to RGIII/IV while those leaving RGIII/IV entered other research grades.

7.4 Sector and types of job taken by ex-contract research staff

Where ARCS respondents had left contract research by the time of the 2000 survey, they were asked to classify their new post, both in terms of broad sector (for instance, higher education, private sector manufacturing and so on) and by job type or function (such as teaching or management). A list of job titles and employers of those who left contract research is provided in Annex B.

Sectors of employment

Table 7.3 describes the employment destinations of academic contract researchers in 1998 who were no longer in such jobs in 2000. Although they had left contract research, slightly over half (54 per cent) remained within the higher education sector. Of these, most either obtained a permanent post in academic research (22 per cent) or a teaching post (20 per cent) in higher education. A further 12 per cent of ex-contract research staff obtained some other form of employment in higher education, most commonly in a professional or administrative capacity.

Table 7.3 Employment destinations of those leaving contract research, 2000

Employment destination	Number	Per cent
Further and higher education		
HE Teaching	69	19.8
HE Management	8	2.3
HE Professional	18	5.2
HE Administrative	11	3.2
HE Technical	6	1.7
HE Research	76	21.8
FE Teaching	2	0.6
FE Research	4	1.1
Private sector manufacturing and services		
Private Manufacturing Management	2	0.6
Private Manufacturing Professional	6	1.7
Private Manufacturing Technical	12	3.4
Private Manufacturing Research	11	3.2
Private Services Management	5	1.4
Private Services Professional	10	2.9
Private Services Administrative	3	0.9
Private Services Technical	8	2.3
Private Services Research	3	0.9
Consultancy		
Management	3	0.9
Professional	9	2.6
Administrative	1	0.3
Technical	2	0.6
Research	5	1.4
Policy orientated		
Management	1	0.3
Professional	5	1.4
Technical	2	0.6
Research	6	1.7
Voluntary sector		
Management	2	0.6
Professional	1	0.3
Technical	1	0.3
Research	4	1.1
Other employment		
Teaching	7	2.0
Management	6	1.7
Professional	20	5.7
Administrative	3	0.9
Technical	4	1.1
Research	7	2.0
Self employment		
	5	1.5
All employment destinations	348	100.0

Source: The ARCS Survey: IER 2001

Less than one in five of those leaving contract research entered a job in private sector manufacturing or services (17 per cent, overall). Of the 9 per cent entering manufacturing, most entered jobs that were technical or research oriented. This contrasts with jobs in the service sector which tended to be in professional occupations. A small proportion of ex-contract research staff joined consultancies and some became self-employed (less than 8 per cent taken together). Other areas of employment were policy-related (central and local government, agencies and similar organisations) and the voluntary sector although even together these two sectors amount to little more than 6 per cent of employment destinations

There were noticeable differences in the destinations of individuals from different subject backgrounds. More than two thirds of those from a social science & humanities background left research for employment elsewhere in higher education, a figure that was higher than other discipline areas. Apart from higher education, the only other significant area of employment for social scientists would appear to be in policy related jobs (9 per cent). Researchers from medical science and from engineering & technology appear least likely to enter jobs in higher education although many do so (43 per cent and 47 per cent respectively). In the former case, contract research staff were more likely to enter jobs in private services (especially the health service), consultancy and self-employment and a

miscellaneous collection of 'other' jobs (12 per cent, 10 per cent and 26 per cent, respectively). In the case of engineering & technology, a relatively large proportion of researchers left for jobs in private services (14 per cent) and consultancy and self-employment (12 per cent). Research staff in science mostly entered higher education jobs (56 per cent) but also moved to jobs in manufacturing to a greater extent than other researchers (13 per cent).

As a general rule, staff who left contract research for employment in manufacturing or in private services tended to be towards the bottom of the age distribution. Around 30 per cent of those aged 25-29 entered those two sectors. Entrants to higher education, on the other hand, tended to be somewhat older. Around 62 per cent of those aged 30-39 left research for other jobs in higher education (and 55 per cent of those aged 40-49). Only around 40 per cent of those aged below 25 left research for other jobs in higher education. Age tends to be associated with the amount of experience of research employment. It is not surprising therefore to find that entry to jobs from contract research tend to be predominantly by people with significant amounts of experience of employment in research. This was particularly the case with respect to entry into other jobs in higher education and policy oriented jobs (although the numbers in the sample are small).

Type of job

An alternate way of looking at jobs taken by research staff is to focus on the functional nature of the job rather than its location within the economy. Jobs taken by research staff were classified into six broad functional areas: teaching, management, professional practice, administrative, technical and research. Table 7.4 describes the distribution of employment by job function and highlights some important differences between discipline areas. Contract research staff working in medical science or in science were more likely than other contract research staff to leave higher education for jobs that continued to involve research. These two groups of contract staff were also the least likely to enter teaching. Medical research staff had a high likelihood of leaving contract research for professional practice. Engineering & technological researchers were somewhat more likely than scientists to enter teaching and commonly entered professional, technical and research jobs. Excluding researchers in the field of art (where the sample is extremely small and analysis thus unreliable) it was researchers in the field of social science & humanities that were most likely to enter a teaching function. Otherwise they were most likely to enter professional practice or remain in research but outside higher education.

Table 7.4 Type of job by previous area of research, 2000 Column per cent

Job function	Previous area of research					
	Medical science	Science	Engineering & technology	Social science & humanities	Art	Education
Teaching	8	15	25	43	100	33
Management	5	9	6	3		
Professional	39	15	24	17		33
Administrative	3	5	2	6		
Technical	2	13	22	3		33
Research	43	43	22	29		
All types of job	100	100	100	100	100	100
Base	76	156	58	44	2	3

Source: The ARCS Survey: IER 2001

Table 7.5 Type of job by gender, 2000 Column per cent

Job function	Sector		Gender		All
	Higher Education	Other	Men	Women	
Teaching	33	*	19	20	20
Management	*	11	7	*	6
Professional	10	34	19	24	22
Administrative	*	*	*	*	4
Technical	*	21	15	8	12
Research	47	26	39	35	37
All types of job	100	100	100	100	100
Base	163	140	166	137	303

* Percentage suppressed because of small cell size.

Source: The ARCS Survey: IER 2001

Some differences were evident between the types of jobs taken by men and women (see Table 7.5). While a similar proportion had entered teaching jobs, women were more likely than men to have left contract research to enter a professional job while men were more likely than women to have entered a technical or research job. However, it should be noted that well over a third of men and women left academic contract research for a job that continued to have research as its main function. Where the new research job was in higher education, the change represented a switch from contract research to a job having permanent status. Around 47 per cent of those remaining in higher education continued to work in research while most of the rest entered teaching jobs. Around 26 per cent of those leaving higher education continued to work in a research post (which might be permanent or fixed term). The most common types of jobs taken outside of higher education were professional (34 per cent) or technical (21 per cent) jobs.

7.5 Type of contract in jobs after contract research

According to the 2000 Labour Force Survey, around 7 per cent of employees in Great Britain were employed on a fixed term contract. Fixed term contracts were more common in higher education and particularly so in research activities. All ARCS respondents were all employed on fixed term contracts in 1998. The two thirds that remained in contract research in 2000 continued (by definition) to be employed on a fixed or temporary contract. Those research staff who left academic contract research might have entered either permanent employment or continued to be employed on fixed term contracts. It is an interesting question to consider whether an exit from academic contract research was in fact an escape from fixed-term contract employment.

Contract research staff who moved to other types of research jobs in higher education were by definition entering permanent posts. This group represented about 22 per cent of those who left academic contract research. Table 7.6 describes the contractual position of the remaining 78 per cent people who left contract research either for a non-research job in higher education or any type of job outside higher education. A small proportion of respondents (just under 4 per cent) were excluded because they did not to know their employment status).

Job function	Fixed term	Permanent	All	Base
Higher & further education	43	57	100	168
Manufacturing	16	84	100	31
Private services	7	93	100	29
Consultancy & self employment	25	75	100	24
Policy orientated	58	42	100	13
Voluntary sector	43	57	100	7
Other	33	67	100	40
Teaching	41	59	100	59
Management	24	76	100	21
Professional	29	71	100	68
Administrative	55	45	100	12
Technical	26	74	100	35
Research	31	69	100	312
All types of job	32	68	100	368

Source: The ARCS Survey: IER 2001

It is striking to note that around one third of contract research staff leaving research in higher education continued to be employed on a fixed term contract. This might be because they continue to be employed in similar types of job but in a different sector. However, as Table 7.6 shows, while around 31 per cent of those who left higher education research for a research position elsewhere worked on a fixed term contract, the proportion of people who took jobs on fixed term contracts in teaching and administration was even greater. Even in managerial, professional and technical jobs, more than a quarter continued to be employed on fixed term contracts. This was much greater than the national average.

Table 7.6 also reveals a clear division between the private sector and others. Almost all of those now working in private sector services (93 per cent) were in permanent positions and the great majority (84 per cent) in the manufacturing sector. Those obtaining a job outside of the private sector stood a good chance of being employed in a fixed term contract. Over half of those working in policy oriented jobs were on fixed term contracts as were 43 per cent of those in higher and further education and the voluntary sector.

Clearly, leaving contract research does not, for many, represent an escape from the insecurity of fixed term employment, although it needs to be remembered that one in five contract research staff moved from a fixed term contract in higher education research in 1998 to a permanent position in higher education research in 2000. The relatively large proportion of those who leave contract research in higher education for fixed contract posts elsewhere may simply reflect a move from higher education to another sector while the nature of the work, and the associated contractual nature of the job, remains unchanged. However, as already seen, movement into fixed term jobs outside of research, especially in the public sector, are common. The reason for this might be that this is the way that the jobs market is developing (and is more evident because it is recent changes in employment that are being considered).

Alternately, it may be that a period of fixed term employment as a contract researcher has the effect of increasing the probability of taking a fixed term job in the future. This might work by reducing the resistance of the individual to taking such a job (a fear of employment insecurity might be overcome by experience of such employment) or it may be that a record of fixed term employment is not attractive to employers offering permanent posts, leaving further fixed term employment as the most likely prospect for those with such a career history.

7.6 Gains from employment outside contract research

Although many who left contract research continue to be employed on a fixed term or temporary contract, it is clear that most are not. It is also clear that most see fixed term and short contracts as a major deterrent to working in contract research. One advantage of the change in career must be the gain in job security. In addition to the gain in job security, there may be other gains, notably in terms of salary.

Table 7.7 provides an indication of the extent to which there were financial gains from leaving contract research. Comparing the salary in their last contract research job with salary in the job after contract research enables respondents to be categorised into those that experienced an increase in salary, those that experienced a decrease and those for whom there was no change. The results of the analysis are presented by job grade in 1998, sector of employment and type of job. It is important to note that salary information was collected in terms of income bands covering £5,000. To detect a change in income the actual change in salary must be such as to move the respondent from one size band to another. Smaller salary increases that fall within the same income band will not be detected. The figures in Table 7.7 therefore will understate, possibly significantly, the extent of the salary changes that occurred.

Table 7.7 Changes in salary after leaving contract research

	Fall in salary	No change	Salary increase	All	Base
Research grade in 1998					
RG1B	13	43	44	100	62
RG1A	21	39	40	100	195
RGII	18	32	50	100	28
Other grades	10	42	48	100	72
Location of job outside contract research					
Higher & further education	9	37	54	100	168
Manufacturing	3	19	77	100	31
Private services	21	34	45	100	29
Consultancy & self-employment	21	46	33	100	24
Policy orientated	15	31	54	100	13
Voluntary sector	29	43	29	100	7
Type of job					
Teaching	8	29	63	100	59
Management	5	29	67	100	21
Professional	12	35	53	100	68
Administrative	50	42	8	100	12
Technical	17	29	54	100	35
Research	9	42	50	100	312
Total	12	36	53	100	368

Source: The ARCS Survey: IER 2001

Table 7.7 shows that just over half (53 per cent) of ex-contract research staff experience a detectable increase in salary. A further third experienced no detectable change (although as explained above, this may disguise small increments within an income size band. This is strongly indicative of there being substantial gains in income from an exit from contract research.

There appears to be relatively little difference in the scope for salary gains of different for different grades of contract research staff. More significant is the location of the new job (sector or industry) and, even more significantly, the type of job. Ex-contract research staff entering manufacturing industry appear most likely to gain a significant salary increase while those entering the voluntary sector appear particularly at risk of a reduction in pay. A fall in pay is also a possibility in private services and in self-employment and consultancy. Ex-contract research staff entering teaching or management appear more likely to gain financially than other types of job function. Those entering administration appear particularly unlikely to experience a salary increase and particularly likely to suffer a fall in income (50 per cent of those entering administration reported a fall in salary).

Around two thirds of ex-contract research staff felt that the experience of the job outside of contract research had lived up to their expectation (either entirely or mostly). Most of the remainder felt it too early to pass judgement. Few felt the new job had failed to live up to expectations. Three out of four ex-contract research staff felt that their daily working life in their new job was better than being a contract researcher. More than half (52 per cent) of all ex-contract research staff cited pay levels as a reason why their current job was better than working as a contract researcher. However, other aspects of the new job were often just as frequently cited. In particular, job security (63 per cent) and career development opportunities (62 per cent) were slightly more frequently mentioned than pay. The challenge of the work, a better working environment, training opportunities together with professional recognition and better treatment by other employees were also frequently cited aspects of the new jobs that represented an improvement over contract research.

When asked to identify the most important factor making their current post better than contract research, the single most frequently mentioned factor was job security (mentioned by 27 per cent). This was followed by career opportunities (14 per cent) and the challenge of the work (11 per cent). Interestingly, pay was the most important factor in making the new job better for only 5 per cent of ex-contract research staff.

7.7 Contract research and transferable skills

The ARCS survey has shown that over the course of a two year interval around one third of contract research staff left research employment in universities for other jobs. Such exits represent a loss of 'human capital' to university contract research but represent a potential gain to new employers. Indeed, there is a view that academic contract research may act as a 'seedbed' in which research skills are nurtured before being transplanted to other locations. If such a process exists it should be evident amongst those in the ARCS survey who had left contract research by 2000.

When asked which skills had been developed by their experience of employment as contract researchers, those who had left contract research by 2000 identified a wide range of skills. The most frequently mentioned were research techniques (88 per cent), writing for publication (81 per cent), oral presentation skills (77 per cent), knowledge of the academic arena (76 per cent), communication skills (67 per cent), and time management skills (61 per cent). Other skills were clearly important but mentioned less frequently. These included project management, team working, flexible working

and self-confidence. Amongst the least frequently mentioned skills developed while a contract researcher were exposure to and experience of working in a wide range of sectors and organisations and information and communication technology (ICT). The latter was mentioned, surprisingly, by only 38 per cent of ex-contract research staff. However, it may be recalled from Chapter 5 that ICT was often identified as a training need amongst contract research staff. When asked which was the most valuable skill acquired, the single most common skill mentioned was research techniques (35 per cent) followed by project management skills (12 per cent). Other than these two skills, the proportions citing other skills were all in single figures.

Most ex-contract research staff felt that the skills acquired during their employment as a researcher were beneficial in helping them to obtain: 52 per cent felt they were very beneficial and 29 per cent thought they were quite beneficial. In the majority of cases (54 per cent) this was because the previous contract research job had provided transferable skills. In around a third of cases (35 per cent) the previous research post had provided the specific skills need for the new job while 25 per cent indicated that it was through the networks created while a contract researcher that the new career had been located.

Ex-contract research staff were able to bring various skills to their new post. Most of the skills developed as a contract researcher were mentioned by significantly large numbers of ex-contract research staff as having been transferred to their new career and the most useful transferred skills were research techniques and project management. However, communications skills was mentioned by 11 per cent of ex-contract research staff as the most useful transferable skills. Not all felt adequately prepared for their new career, however, and 50 per cent mentioned that they were unprepared for the organisational differences between their previous academic employer and their new employer. Almost 30 per cent mentioned the intensity of such cultural differences in the workplace as being something they were not prepared for. Around a quarter also mentioned that they were unprepared for the intensity of the pace of work outside of contract research and the absolute need to meet business targets. Some unpreparedness was also evident in regard to work flexibility. One in five ex-contract research staff mentioned that they were not expecting the lack of flexibility that they encountered outside of the academic research environment. More positively, many (24 per cent) were surprised by the level of training and support given to them in their new career. Clearly there is scope for a better preparation for working arrangements outside higher education and this might be an issue addressed by Careers Advisors.

Some Contract Research Issues

8.1 Introduction

The ARCS study provides a uniquely detailed and statistically robust view of contract research staff on fixed term contracts employed in higher education in Scotland. It provides detailed information on the population of contract research staff in post in 1998 and, by tracking them over the following two year interval, an insight into their career destinations. This insight covers both those who remained in academic contract research and those who left for other careers.

Many of the findings of the research come as no surprise (especially to anyone familiar with or having worked in academic contract research), particularly in regard to the nature of academic contract research work and the experiences of contract research staff. However, such findings were drawn from a large sample and have the force of being statistically robust and representative. Other findings are new and shed light on hitherto little known aspects of contract research. This is especially so in respect of the work histories and subsequent careers of contract research staff.

A summary of the key findings from the study were presented in the Executive Summary at the front of this report. This final Chapter takes the opportunity to reflect on some of the issues raised by the research and to consider some of the implications for university employers, for those engaged in providing support and guidance to contract research staff and, of course, to contract research staff themselves.

8.2 Improving job security

At the heart of many issues relating to academic contract research is the fixed-term (often short-term) nature of the contract of employment. It is clear that many contract research staff have worked in contract research for relatively long periods of time on numerous contracts, often of quite short duration. More than two in every five academic contract researcher in 1998 had been engaged in a research career of five or more years, and the proportion was even greater in senior research posts. Most of these careers were characterised by numerous short-term contracts and contract extensions and more than one in five of all researcher staff covered by the ARCS survey had experienced at least five contract changes over the two years covered by the survey.

The fixed term and short-term nature of contracts appears to have consequences that permeate the whole academic research sector. Those in contract research feel disadvantaged and insecure compared to colleagues elsewhere in higher education. Those with research management or human resource responsibilities in universities feel that (whatever financial advantages there may be) short and fixed term contracts increase the burden on project management and the administration of personnel. Morale and productivity suffer as a consequence. At any moment, between 40-50 per cent of contract research staff were actively seeking their next post. This represents a huge distraction from current work. Around a third of contract research staff had left contract research at the end of the two year period covered by the study. It is illuminating to note that ex-contract research staff identify job security as being the principal gain from their new career (far more than pay) and view job insecurity as the principal deterrent to a return to academic contract research in the future.

The contract issue is a difficult one to address given the piecemeal nature of funding, over which universities themselves may have little control. In some cases, however, it is evident that fixed term employment forms part of the culture of contract research. It may be seen as a 'rite of passage' into a research career or as a test of determination and dedication to academic research. As a result, employment on fixed term contracts may be insisted upon even when it is not really necessitated by

funding considerations. When contract research staff left to take careers in private sector manufacturing, hardly any were employed on fixed term contracts. Since there is no reason to believe that the prospects of the manufacturing sector were more secure than those of the education sector (to the contrary, in fact) the difference may be the result of different employment practices and conventions.

Where funding is precarious, suggested alternatives which might lead to longer term contracts have included the identification of research centres which would have more long-term funding and be able to build up and maintain a cohort of staff, zero hours contracts, and a pool of long term contract or permanent staff within Faculties which could be 'sub-contracted' to departments and units as needed, on an 'agency' type basis.

By far the most significant development on the horizon is the impending implementation by the UK government of the European Commission Directive on Fixed-Term Work. Agreed by the European Council in 1999, the UK government is currently engaged in consultation over the implementation of the Directive¹¹. The Directive seeks to prevent less favourable treatment for employees on fixed term contracts and to limit the scope for employing the same person on a series of contiguous contracts. It also aims to improve access for those on fixed-term contracts to training and careers guidance and improve access to information about permanent jobs.

The Directive aims to abolish 'redundancy waiver' clauses from fixed-term contracts. Although welcome, this proposal is largely redundant since most universities have abandoned the practice in response to the Employment Relations Act 1999. Other aspects of the Directive could have more far reaching consequences. The Directive sets out three options:

- that the number of fixed term contracts should be limited;
- that the total duration or successive durations of such contracts be limited;
- that fixed-term contracts only be renewed where an objective justification can be made for doing so.

Which option, or combination of options, will be implemented remains to be seen. However, the UK government has already signalled its intention that the regulations, when implemented, will apply to all employees. There is no reason to suppose that higher education and contract research will lie outside the coverage of the regulations. This being so, the pertinent question is whether an objective justification can continue to be made for the employment of contract research staff on fixed-term contracts. External and time limited funding of research may be an allowable justification for some, even the majority, of contract research staff in higher education. However, even if a minority were to fall within the remit of the new regulations, the effects could be significant because of the large number of contracts held, the often contiguous nature of those contracts and the length of time that many staff have worked in contract research. Where some staff are changed to permanent contracts, employing institutions may find it difficult to maintain such different contractual arrangements within the ranks of contract research staff.

8.3 Integrating contract research staff

One consequence arising from the fixed term nature of contract research staff employment (indeed of all fixed term employment) is that it leads to a difference in status between those on fixed-term contracts and other employees on permanent employment contracts. Apart from the obvious difference in the precarious nature of fixed-term employment, the difference in status is all pervasive with differences in superannuation arrangements, leave entitlements, access to university facilities and resources and so on. Many contract research staff report feeling like second class citizens and feeling isolated even alienated from other employees in the university. The absence of strong support for contract research staff issues by many of their (permanent) teaching colleagues reinforces such impressions.

Many institutions have attempted to address some of these issues. At the strategic level the Concordat was intended to deal with some of the differences in status of contract research staff, while the Association of University Teachers (AUT) attempted to place contract research staff issues further up the national agenda in recent years. Positive though these developments are, the impact at grass roots appears slim. Less than half of all contract research staff covered by the ARCS study were even aware of the Concordat. Where they were aware of the Concordat, hardly any thought significant progress had been made towards implementing it with most just unsure. Another institutional response to feelings of isolation amongst contract research staff has been to introduce Forums to bring contract research staff together and to address issues. These seem to have been modestly successful. Nonetheless, more than three quarters of contract research staff were unaware of any support network in their institution.

It may be that all efforts to address the widespread feeling of second class citizenship amongst contract research staff can only address symptoms unless the fundamental factor of the employment contract itself is address.

8.4 Improving appraisal and performance review

Some form of performance review is essential, both to the individual contract researcher and to their employer. A review of performance helps the individual assess how well they are carrying out their current work and reduces any sense of isolation. Such a review is also important to the institution as it contributes towards quality control. Performance reviews also offer opportunities for longer-term issues to be addressed, such as long-term career goals, training needs, promotion prospects as well as academic and research issues to be aired.

Systems of formal appraisal for academic teaching staff are now commonplace. This was not the situation for contract research staff. Looking at contract research staff who were in a research post over the whole two year interval of the ARCS study revealed that only 32 per cent had participated in a formal appraisal in that period. Unfortunately, almost half who had been appraised felt they gained nothing from the exercise with many reporting that no action had been taken on issues identified in the appraisal.

¹¹ Details of the EC Directive on Fixed Term Work and the DTI consultation exercise can be found at www.dti.gov.uk/fixd/riashort.htm

Informal appraisal and performance review was much more widespread with around 58 per cent reporting a review with a senior colleague (who was sometimes nominated to act in the role, for instance as a mentor). Even here, many felt they had gained nothing from the experience. This is not entirely surprising since in a substantial minority of cases such informal performance reviews were very infrequent (not uncommonly bi-annual or even annual). Where performance reviews took place on a frequent basis the topics discussed usually concerned current work in progress and publications rather than long-term issues of careers or assessments of training and staff development needs.

It is clear from the evidence of the ARCS survey that contract research staff appraisal, whether formal or informal, is an activity that is notable by its omission rather than anything else. While there will be examples of excellent practice in appraisal and performance review, they will be few and far between. It is not surprising that many contract research staff – especially those in junior grades – feel undervalued when even their senior colleagues appear, apparently, uninterested in them and their work.

8.5 Meeting career aspirations

There are many myths about contract research workers. One such myth is that academic research provides a 'seedbed' in which various skills are developed and nurtured before being transplanted into sectors outside education. Such knowledge transfer undoubtedly happens. However, it is important to note that it was the long-term career goal of more than half of all contract research staff covered by the ARCS surveys to remain in the academic world. Indeed, around a third wished a long-term career in academic research while another quarter wished to enter a more traditional academic teaching career. Only around one in ten wished to conduct research in industry and commerce while a similar proportion wished to enter professional practice.

These long-term career aspirations have important implications for the kind of careers advice and guidance and other support offered to contract research staff. Insofar as it is legitimate to seek to support the aspirations of individuals (rather than following some other set of priorities), the career orientations of contract research staff revealed by the ARCS study strongly suggest that careers advice and guidance and career development activity should be directed towards helping research staff to remain in academic research, preferably in a permanent post, or to develop the skills necessary to enter lecturing posts rather than in preparing for and advising on entry to jobs in industry and commerce. There may, of course, be other priorities such as securing a supply of research talent for industry and commerce and contract research staff career decisions may not always be well informed. In either case, career guidance and support should focus on informing contract research staff of the opportunities outside of academia.

At present, sadly, there appears to be little career development activity of any sort. Almost half of all contract research staff identified career management as a training need. However, only 12 per cent had ever received any formal careers guidance. Where advice and support was given, it seemed in many cases to be aimed at helping contract research staff to leave academia to enter other activities, when the real need for many was to develop a career in academic research or enter a lectureship. Advice on how to escape from contract research also has a negative effect on staff morale and can reinforce views that such work is not valued.

8.6 Developing research careers

In recognising that many contract research staff wish to develop a long-term career in academic research, it must also be acknowledged that opportunities must be created for the development of research careers. There are several aspects to this.

In the first place, many contract research staff careers to date appear to consist of frequent short contracts. Many contract research staff appear to be 'treading water' in career terms. When contracts are renewed they are usually renewed on the same job grade as the previous contract. Very little upward movement was found amongst those contract research staff who remained in academic research over the two years of the ARCS study. Around three in every four contract research staff at RG1B, RGII and RGIII remained in the same grade in 2000 as in 1998. Only in the case of those employed at RG1B in 1998 was there any evidence of significant numbers being up-graded. Further evidence relating to the relative stability of job grades can be found in the work histories of contract research staff. There were substantial numbers of contract research staff with long histories of employment in academic research who continued to be employed at junior grades. There is also evidence, both from the quantitative surveys and from the qualitative interviews, that a renewal of contract was sometimes accompanied by a reduction in salary as increments already achieved were lost. Some contract research staff started new contracts back at the bottom of the relevant pay scale.

When asked about the benefits of their new careers, ex-contract research staff most commonly cited (after job security) the opportunities available for career progression. Similarly, lack of career progression acted as a major deterrent to a return to academic research. Given the evidence relating to those contract research staff who stayed in academic research, this is not surprising. However, if the aspiration of many contract research staff to develop a long-term career in academic research is to be realised, this issue must be addressed. Such issues arise less frequently in respect of other academic staff because contracts for such staff, if permanent, are not subject re-negotiation. One approach to tackling progression issues is, therefore, to switch to permanent contracts. In the absence of such a radical move, the issue might be addressed through codes of good practice, establishment of criteria for promotion and, of course, an effective system of appraisal to implement such promotions. Appraisal might also contribute in providing guidance on research career development. It should be noted that many contract research staff identified training needs covering core research skills – analytical techniques, statistics, ICT – and provision of such training might help individuals not only to be better researchers but to progress. However, the most pressing training need, from the perspective of research career development, is that of project management and related management skills. If contract research staff are to progress it is reasonable to expect that those that do will accept responsibilities for managerial tasks and they need to be equipped with the skills necessary for such roles.

Finally, perhaps the most significant factor in the development of research careers would be to change the culture of research. The culture of much contract research is of a workplace in which a large number of transitory researchers are employed for a short while before progressing to other careers. These transitory contract research staff are managed by more senior, long serving researchers. It needs to be recognised that this stylised world is largely and increasingly illusory. There are many individuals currently working in contract research who have, de facto, a research career having been there for many years. There would be more were it not for the absence of job security and poor opportunities for career progression. Changing the culture is a prerequisite of developing research careers.

Annex A

Questionnaires and other data collection instruments

No.



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ACADEMIC RESEARCH CAREERS IN SCOTLAND (ARCS)

A panel study of the career paths of contract research staff employed in SHEIs in March 1998 undertaken on behalf of the Scottish Higher Education Funding Council

This questionnaire covers four main areas: current employment situation, career history, educational background and longer-term career plans and aspirations. The information provided will be treated in strictest confidence, in conformity with the requirements of the *Data Protection Act 1984*. No information about individuals will be passed to the funding agency, employers or any other third party.

If you have any queries in the course of completing the questionnaire, please contact the project secretary, Maureen Garcia, on the above numbers or e-mail m.a.garcia@warwick.ac.uk. She will put you in touch with a member of the research team if she is unable to provide the answer herself.

SECTION 1 : CURRENT POST

1. a) What is your current job title?

b) What is your Research Grade?

Professor/Head of Department	1	<input type="text"/>	Research Grade II	6	<input type="text"/>
Reader/Senior Lecturer/Principal Lecturer	2	<input type="text"/>	Research Grade III	7	<input type="text"/>
Lecturer	3	<input type="text"/>	Research Grade IV	8	<input type="text"/>
Research Grade IB	4	<input type="text"/>	Other Research Grade <i>PLEASE SPECIFY</i>	9	<input type="text"/>
Research Grade IA	5	<input type="text"/>		
			Other Grade <i>PLEASE SPECIFY</i>	10	<input type="text"/>
				

2. How long have you been a) in your current post? years months

b) employed at your current institution? years months

c) employed in research? years months

3. When is your current contract due to end? month year

4. How many different projects are you working on at the moment ?

5. Which one of the following best describes your employment situation?
PLEASE TICK OPTION WHICH APPLIES TO YOU, for BOTH a) AND b)

- a)
1. Leading a research team 1
 2. Independent grant-holder/researcher 2
 3. Working as part of a research team 3
 4. Working independently, but supervised by senior colleagues 4
 5. Working under the close direction of senior colleague(s) 5
 6. Other *PLEASE SPECIFY* 6

- b)
1. Working in a separate research institute or unit 1
 2. Working within a teaching Department or Faculty 2
 3. Other *PLEASE SPECIFY* 3

6a. Do you consider that the research you do is single-discipline, multi-disciplinary or interdisciplinary? *PLEASE TICK*

1. Single discipline 1
2. Multi-disciplinary (i.e. involving collaboration between researchers from more than one discipline) 2
3. Interdisciplinary (i.e. in a subject area such as Management in which researchers in draw on more than one discipline) 3

6b. Please state discipline(s) or subject area involved

7. How did you first find out about your current post?

1. Via research supervisor or academic who taught me 1
2. Via another academic contact or network (including colleagues) 2
3. Through the University careers service 3
4. Notice on a university notice board 4
5. Advertisement in a national newspaper 5
6. Advertisement in a specialist publication (e.g. *New Scientist*) 6
7. Advertisement in a local paper 7
8. On the Internet 8
9. Via recruitment/employment agency 9
10. By approaching the institution/department speculatively 10
11. By submitting grant application 11
12. Other (*PLEASE SPECIFY*) 12

8. How far does your current post involve the following activities?

TICK ONE BOX FOR EACH ITEM

	A lot	A little	Not at all
1. Drafting research proposals	1	<input type="checkbox"/>	<input type="checkbox"/>
2. Participating in preparation of research tenders	2	<input type="checkbox"/>	<input type="checkbox"/>
3. Making applications for personal research funds/extensions of contract	3	<input type="checkbox"/>	<input type="checkbox"/>
4. Carrying out literature reviews for senior colleagues	4	<input type="checkbox"/>	<input type="checkbox"/>
5. Carrying out fieldwork or research experiments	5	<input type="checkbox"/>	<input type="checkbox"/>
6. Processing or monitoring data for senior colleagues	6	<input type="checkbox"/>	<input type="checkbox"/>
7. Participating in analysis of data	7	<input type="checkbox"/>	<input type="checkbox"/>
8. Making presentations to research sponsors	8	<input type="checkbox"/>	<input type="checkbox"/>
9. Giving papers at conferences	9	<input type="checkbox"/>	<input type="checkbox"/>
10. Writing up research findings for sponsors	10	<input type="checkbox"/>	<input type="checkbox"/>
11. Writing up research findings for publication	11	<input type="checkbox"/>	<input type="checkbox"/>
12. Supervising other research staff	12	<input type="checkbox"/>	<input type="checkbox"/>
13. Supervising postgraduate research students on a day-to-day basis	13	<input type="checkbox"/>	<input type="checkbox"/>
14. Supervising computing or laboratory technicians	14	<input type="checkbox"/>	<input type="checkbox"/>
15. Classroom or seminar teaching	15	<input type="checkbox"/>	<input type="checkbox"/>
16. Supervision of undergraduate or taught Masters projects	16	<input type="checkbox"/>	<input type="checkbox"/>
17. Laboratory demonstrations to undergraduates or taught Masters students	17	<input type="checkbox"/>	<input type="checkbox"/>
18. Assessment or marking of students work	18	<input type="checkbox"/>	<input type="checkbox"/>
19. Other (PLEASE SPECIFY)	19	<input type="checkbox"/>	<input type="checkbox"/>

9. How important are the following in determining access to employment and career development in your field of academic research? (PLEASE TICK ONE BOX FOR EACH ITEM)

	very important	important	not sure	not very important	not at all important
1. Written communication skills	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Verbal communication skills	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Presentation skills	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Specialist subject knowledge	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Team-working skills	5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Leadership skills or potential	6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Energy and willingness to take initiatives	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Having a senior academic mentor/patron	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Academic publications	9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Other (PLEASE SPECIFY)	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. **Have you been able to take advantage of any of the following career development or training a) in your current post and/or b) in your career so far?**

PLEASE TICK ALL THAT APPLY

far	a) Current	b) So
1. The opportunity to work for a higher degree during working hours	1 <input type="checkbox"/>	<input type="checkbox"/>
2. Sabbatical leave	2 <input type="checkbox"/>	<input type="checkbox"/>
3. The opportunity to work for a higher degree in own time	3 <input type="checkbox"/>	<input type="checkbox"/>
4. Structured research training	4 <input type="checkbox"/>	<input type="checkbox"/>
5. Structured training in teaching techniques	5 <input type="checkbox"/>	<input type="checkbox"/>
6. Accredited teaching development (e.g. a Diploma in teaching)	6 <input type="checkbox"/>	<input type="checkbox"/>
7. Information and Communication Technology (ICT) training	7 <input type="checkbox"/>	<input type="checkbox"/>
8. Presentation and/or personal skills development	8 <input type="checkbox"/>	<input type="checkbox"/>
9. Project management skills	9 <input type="checkbox"/>	<input type="checkbox"/>
10. Advice or training in career development	10 <input type="checkbox"/>	<input type="checkbox"/>
11. Other <i>PLEASE SPECIFY</i>	11 <input type="checkbox"/>	<input type="checkbox"/>

11. **What are your current annual earnings from your research post, before deductions for national insurance, etc.?**
 £ per annum

12. **Are you a member of a superannuation scheme in your current post?** Yes No

13a) **Are you *required* to undertake any teaching or demonstrating duties?** Yes No

IF YES

b) **How many hours per week (during term)?**
 hours

c) **Are you paid extra for these duties?** Yes No

14a) **What are your weekly contractual hours of work ?** 1 hours 2
 tick if hours not specified

b) **How many hours per week do you normally work?**
 hours

15. **How long does it normally take you to travel from home to work (one way)?**
 minutes



16. Which of the following applies in your current situation? PLEASE TICK ALL THAT APPLY

- 1. The funding for my post runs out at the end of my current contract 1
- 2. Further external funding has been/will be applied for in order to extend my contract on the current project(s) 2
- 3. Further external funding has been/will be applied for in order to extend my contract with new project(s) funding 3
- 4. The onus is on me to attract external funding to cover my employment costs after any current contract ends 4
- 5. My post may be reviewed by my employer for a further fixed term 5
- 6. I may be offered a more secure contract by my employer 6
- 7. Other (PLEASE SPECIFY) 7

.....

SECTION 2 : ACADEMIC AND EMPLOYMENT BACKGROUND

17. Qualifications already obtained:
a) undergraduate and higher degrees (e.g. BSc, MA, PhD)

Degree	Academic subject area or Discipline	Class of award (if relevant)	Year of award	Awarding Institution

b) Other postgraduate/professional qualifications (attained via study and examination)
PLEASE GIVE DETAILS OF LEVEL, SUBJECT AND AWARDING INSTITUTION OR AGENCY

Award	Academic subject area or Discipline	Class of award (if relevant)	Year of award	Awarding Institution

c) Membership of Professional Associations (other than by examination) (PLEASE LIST)

.....

18. Are you currently registered for a higher degree ? Yes No
 IF YES, PLEASE GIVE DETAILS

Degree	Academic Subject area/ Discipline	Expected date of submission	Awarding Institution

IF YOU HAVE COMPLETED ONE OR MORE RESEARCH DEGREES:

19a) Did you receive any grants or sponsorships to facilitate your studies? Yes No

19b) IF YES, Please tick all funding sources that apply

- | | | | |
|---|----------------------------|---|-----------------------------|
| Grant from the institution where I studied | 1 <input type="checkbox"/> | UK private industry/commerce | 8 <input type="checkbox"/> |
| Research Council | 2 <input type="checkbox"/> | UK charity | 9 <input type="checkbox"/> |
| British Council | 3 <input type="checkbox"/> | EU Commission (EC) | 10 <input type="checkbox"/> |
| British Academy | 4 <input type="checkbox"/> | Overseas government or educational body | 11 <input type="checkbox"/> |
| Royal Society | 5 <input type="checkbox"/> | Overseas private industry/commerce | 12 <input type="checkbox"/> |
| Other central/local government | 6 <input type="checkbox"/> | Overseas charity | 13 <input type="checkbox"/> |
| UK public corporation/nationalised industry | 7 <input type="checkbox"/> | Other <i>PLEASE SPECIFY</i> | 14 <input type="checkbox"/> |
-

20. Year in which you were first appointed to a research post

1	9		
---	---	--	--

21a) Number of years in employment prior to your first research post
 IF NONE, GO TO Q22 years

21b) IF IN PRIOR EMPLOYMENT What was your main occupation prior to this post?
 (PLEASE GIVE JOB TITLE AND BRIEF DESCRIPTION)

21c) Why did you enter research? (PLEASE SPECIFY BRIEFLY)

22. **Why did you accept your first contract academic research post?** (TICK ALL THAT APPLY)

- | | | |
|--|----|--------------------------|
| 1. It seemed to provide a first step towards a research career | 1 | <input type="checkbox"/> |
| 2. It seemed to provide a stepping stone into academic lecturing | 2 | <input type="checkbox"/> |
| 3. It seemed to provide a stepping stone into a professional career (other) | 3 | <input type="checkbox"/> |
| 4. It was the best option for me at the time, financially | 4 | <input type="checkbox"/> |
| 5. I particularly wanted to research the topic/issues involved | 5 | <input type="checkbox"/> |
| 6. I enjoy academic work in my subject area and wanted to pursue it further | 6 | <input type="checkbox"/> |
| 7. I enjoy research and wanted to pursue it in an academic context | 7 | <input type="checkbox"/> |
| 8. It enabled me to register for a higher degree as part of my employment | 8 | <input type="checkbox"/> |
| 9. I was unable to secure independent funding to do a higher degree | 9 | <input type="checkbox"/> |
| 10. It provided me with an opportunity to develop transferable research skills | 10 | <input type="checkbox"/> |
| 11. I couldn't think of anything better to do | 11 | <input type="checkbox"/> |
| 12. Other (PLEASE SPECIFY) | 12 | <input type="checkbox"/> |

23. **Please indicate how far you agree or disagree with the following statements:**

- | | Agree
strongly | Agree | Not
sure | Disagree | Disagree
strongly |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. I am satisfied with my career progress so far | <input type="checkbox"/> |
| 2. I have no definite career path in mind | <input type="checkbox"/> |
| 3. I expect to remain employed in research | <input type="checkbox"/> |
| 4. I expect to achieve my long-term ambitions | <input type="checkbox"/> |
| 6. Being on a temporary contract causes me considerable stress | <input type="checkbox"/> |
| 7. Temporary contracts facilitate the creation of job opportunities for researchers | <input type="checkbox"/> |
| 8. Temporary contracts are an inevitable career stage | <input type="checkbox"/> |
| 9. Temporary contracts allow employers to test motivation and ability in a competitive world | <input type="checkbox"/> |

SECTION 3 : CAREER HISTORY

In the pages which follow, you are asked to provide details of your career history since the beginning of your first research post and ending with your current post. Start with the month you began your first research post and account for ALL time, including jobs, full-time courses or periods when you have been self-employed, in unpaid work, unemployed or not seeking employment (non-employed). If you have had more than twelve different activity periods, we will be grateful if you will photocopy the two-page spread on pages 7-8 as required, continue your career history on the additional sheets and attach them to the questionnaire. Please count extensions to contracts or promotions within institutions or research teams as SEPARATE activities.

24 CAREER HISTORY INFORMATION

PLEASE READ THE NOTES BELOW BEFORE COMPLETING THE GRID

For each activity, please indicate the appropriate option and/or give brief details, as identified in the example.

In column 3, we ask you to state the nature of your main activity. In most cases this will be straightforward. In cases where you were engaged in more than one career activity, you should decide which you regarded as the main one.

If you have had periods where you have undertaken consecutive temporary jobs unrelated to research, please classify such time as one activity period of temporary employment.

In columns 4 and 5 we ask you to indicate any *additional* employment or career-related study undertaken alongside the main activity.

Columns 6, 7 and 8 ask for information about periods of paid and unpaid work. In column 9, please indicate for **all** periods of activity, WHY you changed to the next activity, by writing the numbers from the list below which applied. Please write the *main* reason in the first box, as indicated in the example.

Reasons for change of activity:

1. Fixed term job/contract/course ended
2. Personal/family reasons
3. Moved to better career opportunity
4. Offered promotion within organisation
5. Obtained employment
6. Found a better paid job
7. Found a more secure job
8. Wanted to change to different kind of job
9. Dissatisfied with work or employer
10. Given notice/made redundant
11. Other (please specify)

.....

1 Date from: month, year	2 Date to: month, year	3 Nature of main activity (PLEASE WRITE NUMBER OF OPTION WHICH APPLIES IN BOX)	4 Did you have any other paid work during this period?	5 Did you undertake study for additional qualification(s) during the period?
Jan. 93	Dec. 96	1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed 7. Non-employed <input checked="" type="checkbox"/> 1	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

For each period where the main activity is in paid or unpaid work please give relevant details			9 ALL PERIODS Reasons for change to next activity (SEE LIST ON THE LEFT)
6 a) job title b) name of employer c) department or unit d) location	7 Type of contract (ENTER NUMBER IN BOX) 1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling	8 Brief description of job content	
a) Postdoctoral Research Assistant b) Edinburgh University c) Rutherford Laboratory d) St. Andrews	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text" value="1"/>	Lab research on vaccine development	main reason <input type="text" value="1"/> <input type="text" value="4"/> <input type="text"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>		main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>		main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>		main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>		main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>		main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>		main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>		main reason <input type="text"/> <input type="text"/> <input type="text"/>

CAREER HISTORY INFORMATION

PLEASE READ THE NOTES BELOW BEFORE COMPLETING THE GRID

For each activity, please indicate the appropriate option and/or give brief details, as identified in the example.

In column 3, we ask you to state the nature of your main activity. In most cases this will be straightforward. In cases where you were engaged in more than one career activity, you should decide which you regarded as the main one.

If you have had periods where you have undertaken consecutive temporary jobs unrelated to research, please classify such time as one activity period of temporary employment.

In columns 4 and 5 we ask you to indicate any *additional* employment or career-related study undertaken alongside the main activity.

Columns 6, 7 and 8 ask for information about periods of paid and unpaid work. In column 9, please indicate for **all** periods of activity WHY you changed to the next activity, by writing the numbers from the list below which applied. Please write the *main* reason in the first box, as indicated in the example.

Reasons for change of activity:

1. Fixed term job/contract/course ended
2. Personal/family reasons
3. Moved to better career opportunity
4. Offered promotion within organisation
5. Obtained employment
6. Found a better paid job
7. Found a more secure job
8. Wanted to change to different kind of job
9. Dissatisfied with work or employer
10. Given notice/made redundant
11. Other (please specify)

.....

1	2	3	4	5
Date from: month, year	Date to: month, year	Nature of main activity (PLEASE WRITE NUMBER OF OPTION WHICH APPLIES IN BOX)	Did you have any other paid work during this period?	Did you undertake study for additional qualification(s) during the period?
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full-time 2. Employed part-time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

For each main activity in paid or unpaid work please give relevant details			9 Reasons for change to next activity (SEE LIST ON THE LEFT)
6 a) job title b) name of employer c) department or unit d) location	7 Type of contract (ENTER NUMBER IN BOX)	8 Brief description of job content	
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
a) b) c) d)	1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="checkbox"/>		main reason <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>



SECTION 4 : CAREER PLANS AND ASPIRATIONS

25a) Which of the following would you consider applying for as your next post?
TICK ALL WHICH APPLY

- | | | |
|---|---|--------------------------|
| 1. An extension of my current contract | 1 | <input type="checkbox"/> |
| 2. A different research post in my current institution | 2 | <input type="checkbox"/> |
| 3. A research post at another higher education institution | 3 | <input type="checkbox"/> |
| 4. A research post in a (non-university) independent research organisation | 4 | <input type="checkbox"/> |
| 5. A research post in industry or commerce | 5 | <input type="checkbox"/> |
| 6. A research post in the public or voluntary sector | 6 | <input type="checkbox"/> |
| 7. A lectureship in Higher Education | 7 | <input type="checkbox"/> |
| 8. A move out of research into a different occupation (PLEASE SPECIFY)
..... | 8 | <input type="checkbox"/> |
| 9. Other (PLEASE SPECIFY) | 9 | <input type="checkbox"/> |

25b) Ideally, what would your NEXT post be? (PLEASE WRITE NUMBER FROM ABOVE LIST IN BOX)

26a) As far as longer-term career plans are concerned, which of the following do you consider as possible options? TICK ALL WHICH APPLY

- | | | |
|--|---|--------------------------|
| 1. A career in academic research | 1 | <input type="checkbox"/> |
| 2. A traditional academic career involving teaching and research | 2 | <input type="checkbox"/> |
| 3. Research in industry or commerce | 3 | <input type="checkbox"/> |
| 4. Independent research (non-university) | 4 | <input type="checkbox"/> |
| 5. Public sector or voluntary sector research | 5 | <input type="checkbox"/> |
| 6. A career in research administration | 6 | <input type="checkbox"/> |
| 7. Professional practice or management outside academia | 7 | <input type="checkbox"/> |
| 8. Other (PLEASE SPECIFY) | 8 | <input type="checkbox"/> |

26b) Which of the above is your preferred option? (PLEASE WRITE NUMBER IN BOX)

27a). Where are you (or would you be) prepared to seek employment?
TICK ALL WHICH APPLY

- | | | | | | |
|--------------------------|---|--------------------------|-------------------------------|----|--------------------------|
| 1. Grampian region | 1 | <input type="checkbox"/> | The North of England | 7 | <input type="checkbox"/> |
| 2. Tayside/Fife region | 2 | <input type="checkbox"/> | London and South East England | 8 | <input type="checkbox"/> |
| 3. Lothian region | 3 | <input type="checkbox"/> | Elsewhere in UK | 9 | <input type="checkbox"/> |
| 4. Strathclyde region | 4 | <input type="checkbox"/> | Elsewhere in Europe | 10 | <input type="checkbox"/> |
| 5. Central region | 5 | <input type="checkbox"/> | Other world locations | 11 | <input type="checkbox"/> |
| 6. Elsewhere in Scotland | 6 | <input type="checkbox"/> | (PLEASE SPECIFY)
..... | | |

27b) Which would be your preferred option? (PLEASE WRITE NUMBER FROM ABOVE LIST IN BOX)

28. Are you actively looking for your next post?

Yes No



29. Please indicate the methods you are using or will use to find your next post:
(TICK ALL WHICH APPLY)

- | | | |
|---|----|--------------------------|
| 1. Application for extension to current contract pending (or planned) | 1 | <input type="checkbox"/> |
| 2. Application for new funding at current institution | 2 | <input type="checkbox"/> |
| 3. Consultation of University Careers Service | 3 | <input type="checkbox"/> |
| 4. Registration with one or more specialist recruitment agencies | 4 | <input type="checkbox"/> |
| 5. Scrutiny of job vacancies in national Press | 5 | <input type="checkbox"/> |
| 6. Scrutiny of job vacancies in specialist journals or periodicals | 6 | <input type="checkbox"/> |
| 7. Speculative approach to potential employers | 7 | <input type="checkbox"/> |
| 8. Consultation of Internet recruitment sites | 8 | <input type="checkbox"/> |
| 9. Exploring informal networks/professional grapevine | 9 | <input type="checkbox"/> |
| 10. Other <i>(PLEASE SPECIFY)</i> | 10 | <input type="checkbox"/> |

30. On a scale of 1-5 where 1 = extremely important and 5 = not important at all, how important are the following job attributes to you? PLEASE WRITE THE APPROPRIATE NUMBER FOR EACH ATTRIBUTE IN THE BOXES IN COLUMN (a)

and on a scale where 1 = very much and 5 = not at all, how far does your current post provide these attributes? PLEASE WRITE THE APPROPRIATE NUMBER IN COLUMN (b)

- | | | (a) | (b) |
|---|----|--------------------------|--------------------------|
| 1. Interesting and challenging work | 1 | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Work which makes a positive contribution to society | 2 | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Autonomy | 3 | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Job security | 4 | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. The chance to do innovative work | 5 | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. A competitive salary | 6 | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. A competitive work environment | 7 | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Continual skills development | 8 | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Working with people with whom I enjoy socialising | 9 | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Opportunities for promotion | 10 | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Opportunity to take managerial responsibility | 11 | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Time to pursue my own research interests | 12 | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Time to pursue leisure interests | 13 | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Opportunities for an international career | 14 | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Other important attributes(s) <i>(PLEASE SPECIFY)</i> | 15 | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | |



31. At this stage of your career, how important is it to you to obtain employment on a permanent contract? (PLEASE TICK ONE BOX ONLY)

very important	important	not sure	not very important	not at all important
<input type="checkbox"/>				
1	2	3	4	5

SECTION 5 : PERSONAL DETAILS

The final section of the questionnaire deals with personal characteristics which may be relevant to your experience of career development and the labour market. We hope that you will be willing to provide this information, which will enable us to assess the relationship of such variables to research career trajectories.

32. Are you? (PLEASE TICK AS APPROPRIATE) MALE FEMALE

33. How old are you? YEARS

34. What is your nationality?

35. Please indicate which group best describes your ethnic origin or descent by ticking **ONE only** of the boxes below:

1. Indian	1	<input type="checkbox"/>	6. Black Caribbean	6	<input type="checkbox"/>
2. Pakistani	2	<input type="checkbox"/>	7. Black African	7	<input type="checkbox"/>
3. Bangladeshi	3	<input type="checkbox"/>	8. Black other (PLEASE SPECIFY)	8	<input type="checkbox"/>
4. Chinese	4	<input type="checkbox"/>		
5. Asian. other (PLEASE SPECIFY)	5	<input type="checkbox"/>	9. White	9	<input type="checkbox"/>
.....			10. Other ethnic group (PLEASE SPECIFY)		
			10	<input type="checkbox"/>

36. Do you have a disability or long-term illness which may limit (or be perceived to limit) the work you can do? Yes No

37. Please indicate which situation best describes your current circumstances:

1. Single	1	<input type="checkbox"/>
2. Married or living with a partner in full-time employment	2	<input type="checkbox"/>
3. Married or living with a partner in part-time employment	3	<input type="checkbox"/>
4. Married or living with a partner not in employment	4	<input type="checkbox"/>
5. Widowed, divorced, or separated	5	<input type="checkbox"/>
6. Other (PLEASE SPECIFY)	6	<input type="checkbox"/>

38a) Do you have any financially dependent children under 18 years old? Yes No





38b) IF YES, *Please indicate age of youngest child*

	5 or under	<input style="width: 50px; height: 20px;" type="text"/>
	6-12	<input style="width: 50px; height: 20px;" type="text"/>
	13-18	<input style="width: 50px; height: 20px;" type="text"/>

39. *Do you have any other financial dependants (excluding children under 18)?*

Yes No

(IF YES, PLEASE SPECIFY)

40. *Which of the following describes your current housing situation*

1. Owner-occupier (inc. mortgage)	1	<input style="width: 50px; height: 20px;" type="text"/>
2. Rent from Local Council	2	<input style="width: 50px; height: 20px;" type="text"/>
3. Rent from Housing Association	3	<input style="width: 50px; height: 20px;" type="text"/>
4. Rent from private landlord	4	<input style="width: 50px; height: 20px;" type="text"/>
5. Rent from University	5	<input style="width: 50px; height: 20px;" type="text"/>
6. Live in parental home	6	<input style="width: 50px; height: 20px;" type="text"/>
7. Other (<i>PLEASE SPECIFY</i>)		

If you have any other comments you would like to make about your experience of employment as a contract researcher, or about the academic research labour market more generally, please feel free to write them below or attach additional sheets if necessary.

FINALLY, PLEASE TURN TO THE LAST PAGE



●

Thank you very much for taking the time to provide the information requested. As explained in the covering letter, this project is a two-year longitudinal panel study which aims to track the career development and labour market transitions of all contract research staff employed in Scottish HEIs, whether or not they remain in academic research. In order to facilitate this, we will be grateful if you will provide us with your contact details which, we stress again, will not be passed on to any third party or used for any purpose other than to contact you in connection with this research.

PLEASE USE BLOCK CAPITALS

Name:

Department or Unit:

Institution:

Work address

Home address

.....

.....

.....

.....

.....

.....

.....

.....

Telephone number:

.....

Fax number:

.....

e-mail address:

.....

Please remember to keep your transition record card in a safe place and return it to us (FREEPOST) when your current contract ends OR if your employment situation changes in the meantime.

Thank you

●

CONFIDENTIAL



University of Warwick, Coventry CV4 7AL, Tel: 024 7652 2672, Fax: 024 7652 4241

ACADEMIC RESEARCH CAREERS IN SCOTLAND (ARCS)

Follow up survey of contract staff employed in Scottish Higher Education Institutions

PLEASE COMPLETE IF *STILL EMPLOYED* IN ACADEMIC CONTRACT RESEARCH.

SECTION 1: CURRENT POST

1. a) What is your current job title?

b) In which department do you work?

c) In which institution do you work?

d) What is your current research grade? (*Please tick one box only*)

Professor/ Head of Department	1	<input type="checkbox"/>	Research Grade 1A	5	<input type="checkbox"/>
Reader/ Senior Lecturer/ Principal Lecturer	2	<input type="checkbox"/>	Research Grade II	6	<input type="checkbox"/>
Lecturer	3	<input type="checkbox"/>	Research Grade III	7	<input type="checkbox"/>
Research Grade 1B	4	<input type="checkbox"/>	Research Grade IV	8	<input type="checkbox"/>
Other Research Grade (<i>please specify</i>)	9	<input type="checkbox"/>	Other Grade (<i>please specify</i>)	10	<input type="checkbox"/>

2. How long have you been:

a) In your current post years months

b) Employed at your current institution years months

c) Employed in research years months

3. a) When did your current contract **START**? month year

b) When is your current contract due to **END**? month year

4. Is your post full or part-time? (*Please tick*) full-time part-time

5. a) Have you experienced an end in contract during the April 1998 to April 2000 period? (Please tick)

Yes 1 No 2

b) How many times have you had a change in contract? (Please tick)

1 2 3
4 5 5+

SECTION 2: CAREER PLANS AND ASPIRATIONS

6. a) Which of the following would you consider applying for as your next post? (Please tick all that apply)

- 1. An extension of my current contract 1
 - 2. A different research post in my current institution 2
 - 3. A research post at another higher education institution 3
 - 4. A research post in a (non-university) independent research organisation 4
 - 5. A research post in industry or commerce 5
 - 6. A research post in the public or voluntary sector 6
 - 7. A research post in a policy oriented environment 7
 - 8. A lectureship in Higher Education 8
 - 9. A move into self-employment (i.e. as a freelance researcher) 9
 - 10. A move out of research into a different occupation (please specify) 10
-
- 11. A non-research post in commerce/industry 11
 - 12. A move into private sector consultancy 12
 - 13. A non-research post in a policy orientated environment 13
 - 14. Other (please specify) 14

b) Ideally, what would your **NEXT** post be? (Please write number from above list in box)

7. a) As far as longer-term career plans are concerned, which of the following do you consider as **POSSIBLE** options? (Please tick all that apply)

- 1. A career in academic research 1
- 2. A traditional academic career involving teaching and research 2
- 3. Research in industry or commerce 3
- 4. Other research organisation 4
- 5. Policy related research 5
- 6. Voluntary sector research 6
- 7. A career in research administration 7
- 8. A self-employed freelance researcher 8
- 9. Consultancy 9
- 10. Professional practice or management outside academia 10
- 11. Other (please specify) 11

b) Which is your **PREFERRED** option? (Please write number from above list in box)

8. Have your long-term career plans changed during your employment as a contract researcher? (*Please tick*)

Yes 1 No 2

9. What has caused your change in long-term career plans? (*Please tick all that apply*)

- | | | |
|------------------------------------|---|--------------------------|
| 1. Conditions of service | 1 | <input type="checkbox"/> |
| 2. Pay | 2 | <input type="checkbox"/> |
| 3. Nature of work | 3 | <input type="checkbox"/> |
| 4. Relationships with senior staff | 4 | <input type="checkbox"/> |
| 5. Other (<i>please specify</i>) | 5 | <input type="checkbox"/> |
-

10. Are you actively looking for your next post? (*Please tick*)

Yes 1 No 2

11. Where are you (or would you be) prepared to seek employment? (*Please tick all that apply*)

- | | | | | | |
|-----------------------|---|--------------------------|---------------------------------|----|--------------------------|
| Grampian region | 1 | <input type="checkbox"/> | The North of England | 7 | <input type="checkbox"/> |
| Tayside/ Fife region | 2 | <input type="checkbox"/> | London and the South East | 8 | <input type="checkbox"/> |
| Lothian region | 3 | <input type="checkbox"/> | Elsewhere in the UK | 9 | <input type="checkbox"/> |
| Strathclyde region | 4 | <input type="checkbox"/> | Elsewhere in Europe | 10 | <input type="checkbox"/> |
| Central region | 5 | <input type="checkbox"/> | Other (<i>please specify</i>) | 11 | <input type="checkbox"/> |
| Elsewhere in Scotland | 6 | <input type="checkbox"/> | | | |
-

SECTION 3: PERSONNEL DEVELOPMENT, TRAINING AND CAREER MANAGEMENT

12. Have any of the following changed in your institution? (*Please tick all that apply*)

- | | | |
|---|----|--------------------------|
| 1. Recruitment and selection of contract research staff | 1 | <input type="checkbox"/> |
| 2. Conditions of service (<i>i.e.</i> working hours, redundancy, renewal and extension of contracts) | 2 | <input type="checkbox"/> |
| 3. Promotion and salary issues | 3 | <input type="checkbox"/> |
| 4. Informal regular peer reviews (<i>i.e.</i> by a supervisor or equivalent) | 4 | <input type="checkbox"/> |
| 5. Formal appraisal | 5 | <input type="checkbox"/> |
| 6. Training and personal development courses for contract research staff | 6 | <input type="checkbox"/> |
| 7. Career development assistance | 7 | <input type="checkbox"/> |
| 8. Changes in the attitude towards contract research staff | 8 | <input type="checkbox"/> |
| 9. The role played by contract research staff in the University (<i>i.e.</i> presence on committees, Supervision of PhD students <i>etc.</i>) | 9 | <input type="checkbox"/> |
| 10. Other (<i>please specify</i>) | 10 | <input type="checkbox"/> |
-

13. Are you aware of any of the following facilities at your institution for contract research staff? *(Please tick all that apply)*

- | | | |
|---|---|--------------------------|
| 1. An induction programme | 1 | <input type="checkbox"/> |
| 2. A University staff training and development programme | 2 | <input type="checkbox"/> |
| 3. A study leave scheme | 3 | <input type="checkbox"/> |
| 4. A bridging funding scheme to cover gaps in financial support | 4 | <input type="checkbox"/> |
| 5. A system of appraisal and regular performance review | 5 | <input type="checkbox"/> |
| 6. Other <i>(please specify)</i> | 6 | <input type="checkbox"/> |
-

14. Do you have a nominated supervisor with whom you have regular review meetings (not a formal appraisal)? *(Please tick)*

- | | | | |
|-----|---|--------------------------|----------------------------|
| Yes | 1 | <input type="checkbox"/> | Go straight to Question 15 |
| No | 2 | <input type="checkbox"/> | Go straight to Question 18 |

15. How often do these informal review meetings occur? *(Please tick one box only)*

- | | | | | | |
|------------|---|--------------------------|-----------------------|---|--------------------------|
| Daily | 1 | <input type="checkbox"/> | Three to six monthly | 5 | <input type="checkbox"/> |
| Weekly | 2 | <input type="checkbox"/> | Six to twelve monthly | 6 | <input type="checkbox"/> |
| Monthly | 3 | <input type="checkbox"/> | Yearly | 7 | <input type="checkbox"/> |
| Bi-monthly | 4 | <input type="checkbox"/> | | | |

16. What is usually discussed during these meetings? *(Please tick all that apply)*

- | | | |
|--|---|--------------------------|
| 1. Work in progress | 1 | <input type="checkbox"/> |
| 2. Sponsors needs | 2 | <input type="checkbox"/> |
| 3. Individual training requirements | 3 | <input type="checkbox"/> |
| 4. Career development issues <i>i.e.</i> help with looking for next post | 4 | <input type="checkbox"/> |
| 5. Writing publications, applying for research grants, fellowships | 5 | <input type="checkbox"/> |
| 6. Mentoring and advice | 6 | <input type="checkbox"/> |
| 7. Financial assistance | 7 | <input type="checkbox"/> |
| 8. Teaching | 8 | <input type="checkbox"/> |
| 9. Other <i>(please specify)</i> | 9 | <input type="checkbox"/> |
-

17. Do you find these meetings useful in terms of career development? *(Please tick one only)*

- | | | | | | |
|----------|---|--------------------------|----|---|--------------------------|
| Yes | 1 | <input type="checkbox"/> | No | 3 | <input type="checkbox"/> |
| A little | 2 | <input type="checkbox"/> | | | |

18. Do you receive informal feedback on your performance via senior colleagues who are not formally nominated as your supervisor? *(Please tick one box only)*

- | | | | | | |
|--------------|---|--------------------------|--------------|---|--------------------------|
| Frequently | 1 | <input type="checkbox"/> | Infrequently | 3 | <input type="checkbox"/> |
| Occasionally | 2 | <input type="checkbox"/> | Never | 4 | <input type="checkbox"/> |

28. Thinking ahead, what types of training course do you feel would benefit your career development? (*Please tick all that apply*)

- | | | | |
|-----|---|----|--------------------------|
| 1. | Applying for research grants and fellowships | 1 | <input type="checkbox"/> |
| 2. | Career management | 2 | <input type="checkbox"/> |
| 3. | Teaching for contract researchers | 3 | <input type="checkbox"/> |
| 4. | Presentation skills | 4 | <input type="checkbox"/> |
| 5. | Writing for publications | 5 | <input type="checkbox"/> |
| 6. | Technical skills (laboratory techniques, research methods <i>etc.</i>) | 6 | <input type="checkbox"/> |
| 7. | Time management | 7 | <input type="checkbox"/> |
| 8. | Supervisory skills, team management | 8 | <input type="checkbox"/> |
| 9. | Project management skills | 9 | <input type="checkbox"/> |
| 10. | Analytical skills | 10 | <input type="checkbox"/> |
| 11. | Other (<i>please specify</i>) | 11 | <input type="checkbox"/> |
-

29. Have you had any formalised career guidance or advice during your current post? (*Please tick*)

- | | | | |
|--------|---|--------------------------|----------------------------|
| Yes | 1 | <input type="checkbox"/> | Go straight to Question 30 |
| No | 2 | <input type="checkbox"/> | Go straight to Question 31 |
| Unsure | 3 | <input type="checkbox"/> | |

30. Who provided this careers advice? (*Please tick all that apply*)

- | | | | |
|----|--|---|--------------------------|
| 1. | Supervisor | 1 | <input type="checkbox"/> |
| 2. | Head of Department (if not supervisor) | 2 | <input type="checkbox"/> |
| 3. | University careers service | 3 | <input type="checkbox"/> |
| 4. | Other (<i>please specify</i>) | 4 | <input type="checkbox"/> |
-

31. Are you aware of any support networks explicitly for contract researchers in your institution? (*Please tick*)

- | | | | | | |
|-----|---|--------------------------|----|---|--------------------------|
| Yes | 1 | <input type="checkbox"/> | No | 2 | <input type="checkbox"/> |
|-----|---|--------------------------|----|---|--------------------------|

32. Where is the support network located? (*Please tick all that apply*)

- | | | | |
|----|---------------------------------|---|--------------------------|
| 1. | Department | 1 | <input type="checkbox"/> |
| 2. | Faculty | 2 | <input type="checkbox"/> |
| 3. | Centrally within the University | 3 | <input type="checkbox"/> |
| 4. | Externally | 4 | <input type="checkbox"/> |

33. Are you a member of a trade union *i.e.* the AUT? (*Please tick*)

- | | | | | | |
|-----|---|--------------------------|----|---|--------------------------|
| Yes | 1 | <input type="checkbox"/> | No | 2 | <input type="checkbox"/> |
|-----|---|--------------------------|----|---|--------------------------|

34. Are you aware of the Concordat on Contract Research Staff Career Management? (*Please tick*)

- | | | | |
|-----|---|--------------------------|----------------------------|
| Yes | 1 | <input type="checkbox"/> | Go straight to Question 38 |
| No | 2 | <input type="checkbox"/> | |

35. How did you become aware of the Concordat? (Please tick all that apply)

- | | | | |
|---|--|---|--------------------------|
| 1. Internal documentation | | 1 | <input type="checkbox"/> |
| 2. Colleagues in my own institution | | 2 | <input type="checkbox"/> |
| 3. Colleagues from outside my own institution | | 3 | <input type="checkbox"/> |
| 4. The media | | 4 | <input type="checkbox"/> |
| 5. AUT/ union notification | | 5 | <input type="checkbox"/> |
| 6. Other means (please specify) .. | | 6 | <input type="checkbox"/> |

36. How much progress do you feel has been made by the Concordat? (Please tick **one** box only)

- | | | | | | |
|----------------------|---|--------------------------|-------------|---|--------------------------|
| Significant progress | 1 | <input type="checkbox"/> | No progress | 3 | <input type="checkbox"/> |
| Limited progress | 2 | <input type="checkbox"/> | Unsure | 4 | <input type="checkbox"/> |

SECTION 4: JOB SATISFACTION

37. How satisfied are you with the following aspects of your job? (Please rate on a scale of 1 to 5 where 1 means very satisfied and 5 means very dissatisfied)

- | | | |
|---|---|--------------------------|
| 1. The amount of pay you receive (remuneration package) | 1 | <input type="checkbox"/> |
| 2. The opportunities for career progression | 2 | <input type="checkbox"/> |
| 3. The recognition you get from work colleagues | 3 | <input type="checkbox"/> |
| 4. The recognition you get from senior colleagues | 4 | <input type="checkbox"/> |
| 5. Conditions of service | 5 | <input type="checkbox"/> |
| 6. Your job security | 6 | <input type="checkbox"/> |
| 7. The job itself | 7 | <input type="checkbox"/> |

SECTION 5: LONGER TERM CAREER PLANS

38. Thinking of your career in the longer-term, do you consider your current post to be:

- | | | |
|---|---|--------------------------|
| 1. Part of a long term contract research career | 1 | <input type="checkbox"/> |
| 2. A stop-gap position until new career opportunities undertaking research emerge | 2 | <input type="checkbox"/> |
| 3. A stop-gap position until a new, non-research career emerges | 3 | <input type="checkbox"/> |
| 4. A stepping stone into a lecturing position | 4 | <input type="checkbox"/> |
| 5. A stepping stone training role for a non-academic position | 5 | <input type="checkbox"/> |
| 6. Other means (please specify) | 6 | <input type="checkbox"/> |

39. Are you willing to relocate in order to secure your next position within contract research? (Please tick)

- | | | | | | | | |
|-----|---|--------------------------|----------------------------|----|---|--------------------------|----------------------------|
| Yes | 1 | <input type="checkbox"/> | Go straight to Question 40 | No | 2 | <input type="checkbox"/> | Go straight to Question 41 |
|-----|---|--------------------------|----------------------------|----|---|--------------------------|----------------------------|

40. Where would you be willing to move to? (Please tick all that apply)

- | | | | | | |
|-----------------------|---|--------------------------|----------------------------|---|--------------------------|
| Elsewhere in Scotland | 1 | <input type="checkbox"/> | Northern Ireland | 4 | <input type="checkbox"/> |
| England | 2 | <input type="checkbox"/> | Rest of Europe | 5 | <input type="checkbox"/> |
| Wales | 3 | <input type="checkbox"/> | Worldwide (please specify) | 6 | <input type="checkbox"/> |

41. Why would you *not* consider relocating in order to secure another contract research post? (*Please tick all that apply*)

- | | | | |
|----|---|---|--------------------------|
| 1. | Family commitments <i>i.e.</i> partner s jobs | 1 | <input type="checkbox"/> |
| 2. | Insecurity of another short-term contract | 2 | <input type="checkbox"/> |
| 3. | Social reasons, don t want to leave circle of friends | 3 | <input type="checkbox"/> |
| 4. | Wanting to exit contract research | 4 | <input type="checkbox"/> |
| 5. | Quality of life in location of current post | 5 | <input type="checkbox"/> |

SECTION 6: CAREER HISTORY DURING SPRING 1998 — SPRING 2000

We would like to determine how your career history has developed during the April 1998 — April 2000 period. We would therefore be grateful if you could fill in the enclosed work history sheet for us and return it with the questionnaire.

SECTION 7: PERSONAL DETAILS

The final section of the questionnaire deals with personal characteristics, which may have impacted on your experience of career development during the April 1998 to April 2000 period. This section only deals with *changes* in personal circumstances that have occurred during this period.

42. How have your personal circumstances changed during the April 1998 to April 2000 period? (*Please tick all that apply*)

- | | | | |
|----|--|---|--------------------------|
| 1. | Got married or started living with partner in full-time employment | 1 | <input type="checkbox"/> |
| 2. | Got married or started living with partner in part-time employment | 2 | <input type="checkbox"/> |
| 3. | Got married or started living with partner not in employment | 3 | <input type="checkbox"/> |
| 4. | Widowed, divorced or separated | 4 | <input type="checkbox"/> |
| 5. | The birth of a child | 5 | <input type="checkbox"/> |
| 6. | No change | 6 | <input type="checkbox"/> |

43. Have you obtained any of the following qualifications during the 1998-2000 period (*Please tick all that apply*)

- | | | | |
|----|---------------------------------|---|--------------------------|
| 1. | PhD | 1 | <input type="checkbox"/> |
| 2. | Masters degree | 2 | <input type="checkbox"/> |
| 3. | First Degree | 3 | <input type="checkbox"/> |
| 4. | Vocational Qualification | 4 | <input type="checkbox"/> |
| 5. | University Certificated Course | 5 | <input type="checkbox"/> |
| 6. | Other (<i>please specify</i>) | 6 | <input type="checkbox"/> |

44. Please indicate the salary you receive in your current post. (*Please tick **one** box only*)

- | | | | | | |
|-----------------|---|--------------------------|-----------------|---|--------------------------|
| <£10,000 | 1 | <input type="checkbox"/> | £25,000-£29,000 | 5 | <input type="checkbox"/> |
| £10,000-£14,999 | 2 | <input type="checkbox"/> | £30,000-£39,000 | 6 | <input type="checkbox"/> |
| £15,000-£19,999 | 3 | <input type="checkbox"/> | £40,000-£49,999 | 7 | <input type="checkbox"/> |
| £20,000-£24,999 | 4 | <input type="checkbox"/> | £50,000+ | 8 | <input type="checkbox"/> |

PLEASE WOULD YOU PROVIDE US WITH THIS INFORMATION IN CASE WE HAVE ANY QUERIES CONCERNING YOUR ANSWERS.

Name: Email:

45. If you have any other comments you would like to make about your experience of employment as a contract researcher, or about the academic research labour market more generally, please feel free to write them below or add attach additional sheets if necessary.

CAREER HISTORY INFORMATION FOR THOSE STILL

Name:

Email:

We are trying to ascertain the career movements since 1998 of those people still employed in contract research. Please could you indicate the changes in contract you have had during the April 1998 to April 2000 period.

PLEASE READ THE NOTES BELOW BEFORE COMPLETING THE GRID

For each activity, please indicate the appropriate option and/or give brief details, as identified in the example.

In column 9, please indicate for all periods of activity, WHY you changed to the next activity, by writing the numbers from the list below which applied. Please write the main reason in the first box, as indicated in the example.

Reasons for change of activity:

1. Fixed term job/contract/course ended
2. Personal/family reasons
3. Moved to better career opportunity
4. Offered promotion within organisation
5. Obtained employment
6. Found a better paid job
7. Found a more secure job
8. Wanted to change to different kind of job
9. Dissatisfied with work or employer
10. Given notice/made redundant
11. Other (please specify)

.....

1 Date from: month, year	2 Date to: month, year	3 Nature of main activity (PLEASE WRITE NUMBER OF OPTION WHICH APPLIES IN BOX)	4 Did you have any other paid work during this period?	5 Did you undertake study for additional qualification(s) during the period?
April 98	April 99	1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input type="checkbox"/> 7. Non-employed <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

EMPLOYED IN ACADEMIC CONTRACT RESEARCH

For each period where the main activity is in paid or unpaid work please give relevant details			ALL PERIODS 9 Reasons for change to next activity (SEE LIST ON THE LEFT)
a) job title b) name of employer c) department or unit d) location	6	7 Type of contract (ENTER NUMBER IN BOX)	8 Brief description of job content
a) Postdoctoral Research Assistant b) Edinburgh University c) Rutherford Laboratory d) St. Andrews		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text" value="1"/>	Lab research on vaccine development main reason <input type="text" value="1"/> <input type="text" value="4"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>

7. Please indicate the salary you receive in your current post. (Please tick **one** box only)

- | | | |
|-------------------|---|--------------------------|
| <£10,000 | 1 | <input type="checkbox"/> |
| £10,000 - £14,999 | 2 | <input type="checkbox"/> |
| £15,000 - £19,999 | 3 | <input type="checkbox"/> |
| £20,000 - £24,999 | 4 | <input type="checkbox"/> |
| £25,000 - £29,999 | 5 | <input type="checkbox"/> |
| £30,000 - £39,999 | 6 | <input type="checkbox"/> |
| £40,000 - £49,999 | 7 | <input type="checkbox"/> |
| £50,000 + | 8 | <input type="checkbox"/> |

8. Do you receive any other additional benefits in your current post? (Please tick **all that apply**)

- | | | |
|----------------------------------|---|--------------------------|
| 1. A contributory pension scheme | 1 | <input type="checkbox"/> |
| 2. A company car | 2 | <input type="checkbox"/> |
| 3. Private health insurance | 3 | <input type="checkbox"/> |
| 4. The ability to work at home | 4 | <input type="checkbox"/> |
| 5. Flexible working hours | 5 | <input type="checkbox"/> |
| 6. Other (please specify) | 6 | <input type="checkbox"/> |
-

9. Where is your current post located? (Please tick **one** box only)

- | | | |
|---|---|--------------------------|
| 1. In the same local vicinity as my last contract research post | 1 | <input type="checkbox"/> |
| 2. Elsewhere in Scotland | 2 | <input type="checkbox"/> |
| 3. The North of England | 3 | <input type="checkbox"/> |
| 4. London and the South East | 4 | <input type="checkbox"/> |
| 5. In the rest of England | 5 | <input type="checkbox"/> |
| 6. Wales | 6 | <input type="checkbox"/> |
| 7. Northern Ireland | 7 | <input type="checkbox"/> |
| 8. Elsewhere in Europe | 8 | <input type="checkbox"/> |
| 9. Other (please specify) | 9 | <input type="checkbox"/> |
-

10. What was your salary when you left your contract research post? (Please tick **one** box only)

- | | | |
|-------------------|---|--------------------------|
| <£10,000 | 1 | <input type="checkbox"/> |
| £10,000 - £14,999 | 2 | <input type="checkbox"/> |
| £15,000 - £19,999 | 3 | <input type="checkbox"/> |
| £20,000 - £24,999 | 4 | <input type="checkbox"/> |
| £25,000 - £29,999 | 5 | <input type="checkbox"/> |
| £30,000 - £39,999 | 6 | <input type="checkbox"/> |
| £40,000 - £49,999 | 7 | <input type="checkbox"/> |
| £50,000 + | 8 | <input type="checkbox"/> |

SECTION 2: REASONS FOR LEAVING CONTRACT RESEARCH

11. a) What were the main motivations for your leaving contract research? *(Please tick all that apply)*

- | | | | |
|-----|--|----|--------------------------|
| 1. | End of contract | 1 | <input type="checkbox"/> |
| 2. | Job insecurity — desire to work in a permanent position | 2 | <input type="checkbox"/> |
| 3. | Lack of training and employee development on offer | 3 | <input type="checkbox"/> |
| 4. | Lack of promotional opportunities within department | 4 | <input type="checkbox"/> |
| 5. | Scarcity of research fellowships | 5 | <input type="checkbox"/> |
| 6. | Desire to undertake research within a non-academic, commercial or policy-related environment | 6 | <input type="checkbox"/> |
| 7. | Increased competition for lectureships | 7 | <input type="checkbox"/> |
| 8. | Desire to raise salary | 8 | <input type="checkbox"/> |
| 9. | Part of long-term career plan | 9 | <input type="checkbox"/> |
| 10. | To extend skill-set and gain a wider set of experiences | 10 | <input type="checkbox"/> |
| 11. | Partner's move | 11 | <input type="checkbox"/> |
| 12. | Maternity leave | 12 | <input type="checkbox"/> |
| 13. | Difficulties of balancing career and family life | 13 | <input type="checkbox"/> |
| 14. | Other <i>(please specify)</i> | 14 | <input type="checkbox"/> |

b) Which was the **MAIN** motivation? *(Please write number from above list in box)*

12. Whilst in your **previous contract research** post did you ever receive any of the following? *(Please tick all that apply)*

- | | | | |
|----|---|---|--------------------------|
| 1. | Induction training | 1 | <input type="checkbox"/> |
| 2. | Informal mentoring from senior colleagues | 2 | <input type="checkbox"/> |
| 3. | Formal supervision | 3 | <input type="checkbox"/> |
| 4. | An appraisal | 4 | <input type="checkbox"/> |
| 5. | Training initiatives explicitly for contract research staff | 5 | <input type="checkbox"/> |
| 6. | Professional development guidance | 6 | <input type="checkbox"/> |
| 7. | Personal development guidance | 7 | <input type="checkbox"/> |
| 8. | Other <i>(please specify)</i> | 8 | <input type="checkbox"/> |

13. Whilst in your last contract research post were you aware of the Concordat on Contract Research Career Management? *(Please tick)*

Yes 1 Go straight to Question 14

No 2 Go straight to Question 15

14. How did you become aware of the Concordat? *(Please tick all that apply)*

- | | | | |
|----|--|---|--------------------------|
| 1. | Internal documentation | 1 | <input type="checkbox"/> |
| 2. | Colleagues in my own institution | 2 | <input type="checkbox"/> |
| 3. | Colleagues from outside my institution | 3 | <input type="checkbox"/> |
| 4. | The media | 4 | <input type="checkbox"/> |
| 5. | AUT/ union notification | 5 | <input type="checkbox"/> |
| 6. | Other <i>(please specify)</i> | 6 | <input type="checkbox"/> |

SECTION 3: CONTRACT RESEARCH EXPERIENCE

15. a) Which of the following do you consider to have been developed by your experience as contract researcher? *(Please tick all that apply)*

- | | | | |
|-----|--|----|--------------------------|
| 1. | Research techniques (<i>i.e.</i> laboratory skills, research methodologies) | 1 | <input type="checkbox"/> |
| 2. | Project management skills (budgeting, tendering for projects <i>etc</i>) | 2 | <input type="checkbox"/> |
| 3. | Time management skills | 3 | <input type="checkbox"/> |
| 4. | Writing for publication | 4 | <input type="checkbox"/> |
| 5. | Oral presentation skills | 5 | <input type="checkbox"/> |
| 6. | ICT skills | 6 | <input type="checkbox"/> |
| 7. | Team working | 7 | <input type="checkbox"/> |
| 8. | Experience of working in the academic arena | 8 | <input type="checkbox"/> |
| 9. | Exposure to and experience of working with a wide range of sectors/organisations | 9 | <input type="checkbox"/> |
| 10. | Ability to work flexibly | 10 | <input type="checkbox"/> |
| 11. | Confidence | 11 | <input type="checkbox"/> |
| 12. | Communication skills | 12 | <input type="checkbox"/> |
| 13. | Other (<i>please specify</i>) | 13 | <input type="checkbox"/> |

b) Which do you consider was the **MOST** valuable skill or quality acquired? *(Please write number from above list in box)*

16. Do you consider that the skills you acquired as a contract researcher were beneficial in helping you obtain your current role? *(Please tick **one** box only)*

- | | | | | | |
|------------------|---|--------------------------|--------------------|---|--------------------------|
| Very beneficial | 1 | <input type="checkbox"/> | No benefit | 3 | <input type="checkbox"/> |
| Quite beneficial | 2 | <input type="checkbox"/> | Unsure/ Don t know | 4 | <input type="checkbox"/> |

17. Did your experience as a contract researcher provide you with the training and skills needed to enter your current post? *(Please tick)*

- | | | | |
|-----|---|--------------------------|----------------------------|
| Yes | 1 | <input type="checkbox"/> | Go straight to Question 18 |
| No | 2 | <input type="checkbox"/> | Go straight to Question 19 |

18. How did your experience as a contract researcher facilitate entry to your current post? *(Please tick all that apply)*

- | | | | |
|----|---|---|--------------------------|
| 1. | It equipped me with all the prerequisite skills needed for the job | 1 | <input type="checkbox"/> |
| 2. | It provided me with transferable skills with which to develop my new career | 2 | <input type="checkbox"/> |
| 3. | Networking whilst a contract researcher generated this career opportunity | 3 | <input type="checkbox"/> |
| 4. | Other (<i>please specify</i>) | 4 | <input type="checkbox"/> |

19. a) What skills gained or developed through contract research have you transferred to your new post? (Please tick all that apply)

- | | | | |
|-----|--|----|--------------------------|
| 1. | Research techniques (<i>i.e.</i> laboratory skills, research methodologies) | 1 | <input type="checkbox"/> |
| 2. | Project management skills (budgeting, tendering for projects <i>etc.</i>) | 2 | <input type="checkbox"/> |
| 3. | Time management skills | 3 | <input type="checkbox"/> |
| 4. | Writing for publication | 4 | <input type="checkbox"/> |
| 5. | Oral presentation skills | 5 | <input type="checkbox"/> |
| 6. | ICT skills | 6 | <input type="checkbox"/> |
| 7. | Team working | 7 | <input type="checkbox"/> |
| 8. | Experience of working in the academic arena | 8 | <input type="checkbox"/> |
| 9. | Exposure to and experience of working with a wide range of sectors | 9 | <input type="checkbox"/> |
| 10. | Ability to work flexibly | 10 | <input type="checkbox"/> |
| 11. | Confidence | 11 | <input type="checkbox"/> |
| 12. | Communication skills | 12 | <input type="checkbox"/> |
| 13. | Other (<i>please specify</i>) | 13 | <input type="checkbox"/> |

b) Which skill has proved the **MOST** useful? (*Please write number from above list in box*)

20. Did you feel unprepared for any of the following when you entered your new role? (*Please tick all that apply*)

- | | | | |
|----|--|---|--------------------------|
| 1. | Lack of flexibility in working hours | 1 | <input type="checkbox"/> |
| 2. | Pace of work | 2 | <input type="checkbox"/> |
| 3. | Intensity of cultural differences in working environment | 3 | <input type="checkbox"/> |
| 4. | Organisational differences | 4 | <input type="checkbox"/> |
| 5. | Absolute need to meet business targets | 5 | <input type="checkbox"/> |
| 6. | Level of training and support given | 6 | <input type="checkbox"/> |
| 7. | Other (<i>please specify</i>) | 7 | <input type="checkbox"/> |

21. What do you miss most about academic contract research? (*Please tick all that apply*)

- | | | | |
|----|---|---|--------------------------|
| 1. | Working flexibly | 1 | <input type="checkbox"/> |
| 2. | Academic freedom to develop ideas and research projects | 2 | <input type="checkbox"/> |
| 3. | Being in control of own workload | 3 | <input type="checkbox"/> |
| 4. | Colleagues | 4 | <input type="checkbox"/> |
| 5. | University facilities generally | 5 | <input type="checkbox"/> |
| 6. | Nothing | 6 | <input type="checkbox"/> |
| 8. | Other (<i>please specify</i>) | 7 | <input type="checkbox"/> |

SECTION 4: LONG-TERM CAREER PLANS

22. Do you intend to continue your career outside of academic contract research? (*Please tick*)

- | | | | |
|-----|---|--------------------------|----------------------------|
| Yes | 1 | <input type="checkbox"/> | Go straight to Question 23 |
| No | 2 | <input type="checkbox"/> | Go straight to Question 24 |

23. a) Why would you **NOT** consider another post as a contract researcher in an academic institution? (*Please tick all that apply*)

- | | | | |
|-----|--|----|--------------------------|
| 1. | Job insecurity issues <i>i.e.</i> short-term contracts | 1 | <input type="checkbox"/> |
| 2. | Pay levels | 2 | <input type="checkbox"/> |
| 3. | Lack of promotional opportunities | 3 | <input type="checkbox"/> |
| 4. | The bureaucracy associated with the university environment | 4 | <input type="checkbox"/> |
| 5. | Lack of training and development opportunities | 5 | <input type="checkbox"/> |
| 6. | Treatment of contract researchers by principal researchers | 6 | <input type="checkbox"/> |
| 7. | Treatment of contract researchers by department | 7 | <input type="checkbox"/> |
| 8. | Treatment of contract researchers by university at large | 8 | <input type="checkbox"/> |
| 9. | Wanting a career in a commercial or policy-related environment | 9 | <input type="checkbox"/> |
| 10. | Wanting to work in a more structured manner | 10 | <input type="checkbox"/> |
| 11. | Personal reasons <i>e.g.</i> family issues | 11 | <input type="checkbox"/> |
| 12. | Limited availability of jobs in your discipline/ field | 12 | <input type="checkbox"/> |
| 13. | Other (<i>please specify</i>) | 13 | <input type="checkbox"/> |
-

b) Which of the above acts as the **MAIN** deterrent preventing you from returning to a contract research post? (*Please write number from above list in box*)

24. a) Why **WOULD YOU** consider working in a contract research post in the future? (*Please tick all that apply*)

- | | | | |
|----|--|---|--------------------------|
| 1. | I miss the working hours/flexibility | 1 | <input type="checkbox"/> |
| 2. | I miss developing and working on new, innovative research projects | 2 | <input type="checkbox"/> |
| 3. | I miss working in an academic environment | 3 | <input type="checkbox"/> |
| 4. | I miss being able to plan my own workload | 4 | <input type="checkbox"/> |
| 5. | I dislike the commercialism of working in industry | 5 | <input type="checkbox"/> |
| 6. | Personal reasons <i>i.e.</i> family commitments | 6 | <input type="checkbox"/> |
| 7. | I would take any job that came up | 7 | <input type="checkbox"/> |
| 8. | Other (<i>please specify</i>) | 8 | <input type="checkbox"/> |
-

b) Which of the above acts as the **MAIN** reason for wanting to return to a job as a contract researcher? (*Please write number from above list in box*)

SECTION 5: REFLECTIONS ON CAREER TO DATE

25. Has your experience in your current post lived up to your expectations when accepting the job? (*Please tick one box only*)

- | | | | | | |
|----------|---|--------------------------|--------------------|---|--------------------------|
| Entirely | 1 | <input type="checkbox"/> | Too early to say | 4 | <input type="checkbox"/> |
| Mostly | 2 | <input type="checkbox"/> | Don't know/ unsure | 5 | <input type="checkbox"/> |
| No | 3 | <input type="checkbox"/> | | | |

26. Do you consider your daily working life in your current post to be better than that whilst working as a contract researcher? (*i.e.* is the grass really greener?) (*Please tick*)
- Yes 1 Go straight to Question 27
- No 2 Go straight to Question 28

27. a) Why do you consider this to be the case? (*Please tick all that apply*)

- | | | | |
|-----|---|----|--------------------------|
| 1. | Pay levels | 1 | <input type="checkbox"/> |
| 2. | Job security | 2 | <input type="checkbox"/> |
| 3. | Challenge of work | 3 | <input type="checkbox"/> |
| 4. | Working environment | 4 | <input type="checkbox"/> |
| 5. | Career development opportunities | 5 | <input type="checkbox"/> |
| 6. | Training and personal development opportunities | 6 | <input type="checkbox"/> |
| 7. | Treated as an equal | 7 | <input type="checkbox"/> |
| 8. | Find the work interesting | 8 | <input type="checkbox"/> |
| 9. | Pace of work | 9 | <input type="checkbox"/> |
| 10. | Professional recognition | 10 | <input type="checkbox"/> |
| 11. | Other (<i>please specify</i>) | 11 | <input type="checkbox"/> |

b) Which is the most important? (*Please write number from above list in box*)

SECTION 6: CAREER HISTORY DURING SPRING 1998 — SPRING 2000

Please give details of all your employment between April 1998 and April 2000 on the **enclosed sheet**. Please start with your earliest post and finish with your current one.

SECTION 7: PERSONAL DETAILS

The final section of the questionnaire deals with personal characteristics, which may have impacted upon your experience of career development during the April 1998 to April 2000 period. This section only deals with *changes* in personal circumstances that have occurred during this period.

28. How have your personal circumstances changed during the April 1998 to April 2000 period? (*Please tick all that apply*)
- | | | | |
|----|--|---|--------------------------|
| 1. | Got married or started living with partner in full-time employment | 1 | <input type="checkbox"/> |
| 2. | Got married or started living with partner in part-time employment | 2 | <input type="checkbox"/> |
| 3. | Got married or started living with partner not in employment | 3 | <input type="checkbox"/> |
| 4. | Widowed, divorced or separated | 4 | <input type="checkbox"/> |
| 5. | The birth of a child | 5 | <input type="checkbox"/> |
| 6. | No change | 6 | <input type="checkbox"/> |

CONTINUED OVERLEAF

29. Have you obtained any of the following qualifications during the 1998-2000 period? (*Please tick all that apply*)

- | | | |
|------------------------------------|---|--------------------------|
| 1. PhD | 1 | <input type="checkbox"/> |
| 2. Masters degree | 2 | <input type="checkbox"/> |
| 3. First Degree | 3 | <input type="checkbox"/> |
| 4. Vocational Qualification | 4 | <input type="checkbox"/> |
| 5. University Certificated Course | 5 | <input type="checkbox"/> |
| 6. Other (<i>please specify</i>) | 6 | <input type="checkbox"/> |

PLEASE WOULD YOU PROVIDE US WITH THIS INFORMATION IN CASE WE HAVE ANY QUERIES CONCERNING YOUR ANSWERS.

Name: Email:

WE WOULD LIKE TO UNDERTAKE TELEPHONE INTERVIEWS WITH SELECTED FORMER CONTRACT RESEARCH STAFF IN ORDER TO FIND OUT MORE ABOUT THE REASONS WHY PEOPLE LEAVE ACADEMIA. ALL THE INFORMATION ACQUIRED FROM THIS INTERVIEW IS CONFIDENTIAL. IF YOU ARE PREPARED TO TAKE PART IN A SHORT TELEPHONE INTERVIEW, PLEASE FILL IN YOUR NAME AND TELEPHONE NUMBER(S) IN THE SPACE BELOW.

Name:

Telephone (home):

Telephone (work):

IF YOU HAVE ANY OTHER COMMENTS YOU WOULD LIKE TO MAKE ABOUT YOUR EXPERIENCE OF EMPLOYMENT AS A CONTRACT RESEARCHER, OR ABOUT THE ACADEMIC RESEARCH LABOUR MARKET MORE GENERALLY, PLEASE FEEL FREE TO WRITE THEM BELOW OR ATTACH ADDITIONAL SHEETS IF NECESSARY.

CAREER HISTORY INFORMATION FOR THOSE *NOT* STILL

Name:

Email:

We are trying to ascertain the career movements since April 1998 of those people who have left contract research. Please could you indicate the job changes you have had during the April 1998 to April 2000 period.

PLEASE READ THE NOTES BELOW BEFORE COMPLETING THE GRID

For each activity, please indicate the appropriate option and/or give brief details, as identified in the example.

In column 9, please indicate for **all** periods of activity, **WHY** you changed to the next activity, by writing the numbers from the list below which applied. Please write the *main* reason in the first box, as indicated in the example.

Reasons for change of activity:

1. Fixed term job/contract/course ended
2. Personal/family reasons
3. Moved to better career opportunity
4. Offered promotion within organisation
5. Obtained employment
6. Found a better paid job
7. Found a more secure job
8. Wanted to change to different kind of job
9. Dissatisfied with work or employer
10. Given notice/made redundant
11. Other (please specify)

.....

1	2	3	4	5
Date from: month, year	Date to: month, year	Nature of main activity (PLEASE WRITE NUMBER OF OPTION WHICH APPLIES IN BOX)	Did you have any other paid work during this period?	Did you undertake study for additional qualification(s) during the period?
April 98	April 99	1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed 7. Non-employed <input style="width: 20px; height: 15px;" type="text" value="1"/>	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input style="width: 20px; height: 15px;" type="text"/> 7. Non-employed	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input style="width: 20px; height: 15px;" type="text"/> 7. Non-employed	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input style="width: 20px; height: 15px;" type="text"/> 7. Non-employed	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input style="width: 20px; height: 15px;" type="text"/> 7. Non-employed	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>
		1. Employed full- time 2. Employed part- time 3. Self-employed 4. Unpaid work experience 5. Full-time study 6. Unemployed <input style="width: 20px; height: 15px;" type="text"/> 7. Non-employed	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>	Yes <input style="width: 20px; height: 15px;" type="checkbox"/> No <input style="width: 20px; height: 15px;" type="checkbox"/>

EMPLOYED IN ACADEMIC CONTRACT RESEARCH



For each period where the main activity is in paid or unpaid work please give relevant details			ALL PERIODS 9 Reasons for change to next activity (SEE LIST ON THE LEFT)
a) job title b) name of employer c) department or unit d) location	6	7 Type of contract (ENTER NUMBER IN BOX)	8 Brief description of job content
a) Postdoctoral Research Assistant b) Edinburgh University c) Rutherford Laboratory d) St. Andrews		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text" value="1"/>	Lab research on vaccine development main reason <input type="text" value="1"/> <input type="text" value="4"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>
a) b) c) d)		1. Fixed term 2. Other temporary 3. Permanent/ Open-ended 4. Rolling <input type="text"/>	main reason <input type="text"/> <input type="text"/> <input type="text"/>

Annex B

Job titles and employers of those leaving contract research

Job Title	Employer	Research Grade in 1998	Discipline/Subject Area as reported in 1998
Lecturer	Glasgow University	RG1B	Art
Public Arts Information Consultant	Self-employed	Other grades	Art
Academic Development Adviser	Napier University	RG1A	Education
Lecturer	Ulster University	RG II	Education
Transcription Officer	Royal National Institute for the Blind	Other grades	Education
Administrative Officer	Paisley University	RG1A	Engineering & technology
Applied Mathematician	Edinburgh Petroleum Services Ltd	RG1A	Engineering & technology
Careworker	Blue Arrow Care Agency	RG1A	Engineering & technology
Centre Manager	Paisley University	RG1B	Engineering & technology
Consultant Ergonomist	Nickleby HFE Ltd	RG1A	Engineering & technology
Developer	Graham Technology	RG1B	Engineering & technology
Development Engineer	Aubec R & D Ltd	RG1B	Engineering & technology
Graduate Design Engineer	Sanderson Watts Associates	RG1A	Engineering & technology
Housing Officer	Cairn Housing Association	RG1B	Engineering & technology
Laboratory Systems Support	Quintiles	RG1B	Engineering & technology
Lecturer	Napier University	RG1B	Engineering & technology
Lecturer	Surrey University	RG1B	Engineering & technology
Lecturer	Edinburgh University	RG1B	Engineering & technology
Lecturer	Dundee University	Other grades	Engineering & technology
Lecturer	Napier University	RG1A	Engineering & technology

Lecturer	Strathclyde University	RG1B	Engineering & technology
Lecturer	Strathclyde University	RG1B	Engineering & technology
Lecturer	Heriot-Watt University	RG1B	Engineering & technology
Lecturer	Liverpool University	RG1B	Engineering & technology
Lecturer	Heriot-Watt University	Other grades	Engineering & technology
Lecturer	Heriot-Watt University	Other grades	Engineering & technology
Lecturer	Glasgow University	RG1B	Engineering & technology
Lecturer	Strathclyde University	RG II	Engineering & technology
Lecturer	Glasgow University	RG1A	Engineering & technology
Lecturer	Leicester University	RG1B	Engineering & technology
Lecturer	Newcastle University	RG1B	Engineering & technology
Lecturer	Glasgow University	RG1B	Engineering & technology
Lecturer	York University	RG II	Engineering & technology
Open Learning Development Officer	Heriot-Watt University	RG1A	Engineering & technology
Project Engineer	SP Technology Ltd	RG1B	Engineering & technology
Project Officer	Leeds University	RG1B	Engineering & technology
R & D Engineer	Fingro UDI Ltd	RG1B	Engineering & technology
Research Engineer	National Grid Company plc	RG1B	Engineering & technology
Research Fellow	Glasgow University	RG1B	Engineering & technology
Research Staff Member	IBM Corporation	RG1B	Engineering & technology
Scientist	Pantmerox Ltd	RG1B	Engineering & technology
Senior Executive	Scottish Executive	RG1B	Engineering & technology
Senior HCI Specialist	NCR	RG II	Engineering & technology

Senior Methodologist	Office for National Statistics	RG1B	Engineering & technology
Senior Researcher	TRL	RG1B	Engineering & technology
Senior Software Developer	Intelligent Finance	RG1B	Engineering & technology
Senior Web Developer	AU Hotels Ltd	RG II	Engineering & technology
Sensory Scientist	Food Science Australia	Other grades	Engineering & technology
Software Engineer	Matorda	Other grades	Engineering & technology
Software Engineer	Pisys Ltd	Other grades	Engineering & technology
Software Engineer	Hewlet Packard	RG1B	Engineering & technology
Staff Engineer	PES	Other grades	Engineering & technology
Survey Data Analyst	Medical Research Council	RG1B	Engineering & technology
University Business Advisor	Lanarkshire Technology & Innovation	RG1A	Engineering & technology
Water/ Waste Water Civil Engineer	Cuthbertson Maunsell Ltd	RG1B	Engineering & technology
Web Manager	City of York Council	RG1B	Engineering & technology
Administrative Assistant	New South Wales University, Australia	Other grades	Medical science
Administrator	Brook Street Limited	RG1A	Medical science
Assistant Trainer	Greig Middleton plc	RG1B	Medical science
Cancer Audit Manager	Tayside University Hospital Trust	Other grades	Medical science
Cardiac Rehabilitation Sister	NHS	Other grades	Medical science
Clinical Development Nurse	Borders General Hospital	RG1B	Medical science
Clinical Exercise Physiologist	Charing Cross Hospital	RG1A	Medical science
Clinical Scientist	Lothian University Hospitals NHS Trust	RG1A	Medical science
Computer Programmer	Scottish Life Insurance Company	RG1B	Medical science
Consultant Psychiatrist	Tayside Primary Care Trust	Other grades	Medical science

Co-ordinator of Clinical Research	Mt Sinai Hospital Toronto	RG II	Medical science
Director	Cypex Ltd	RG1A	Medical science
Director of a consultancy	Expresson Biosystems Ltd	RG II	Medical science
Drug Surveillance Officer	Eli Lilly & Co Ltd (via agency)	RG1B	Medical science
Financial Adviser	Rowanbank Financial Consultants	RG1B	Medical science
Freelance Writer	Self-employed	RG II	Medical science
Freelance Writer	Self-employed	RG1B	Medical science
Health Services Researcher	Medical Research Council	RG1B	Medical science
Higher Scientific Officer	Medical Research Council	RG1B	Medical science
Lecturer	Edinburgh University	Other grades	Medical science
Lecturer	Bristol University	RG II	Medical science
Lecturer	Edinburgh University	RG1B	Medical science
Lecturer	London School of Hygiene & Tropical Medicine	Other grades	Medical science
Lecturer	Glasgow University	RG1B	Medical science
Lecturer	Coventry University	RG1B	Medical science
Lecturer	Queen Margaret University	Other grades	Medical science
Lecturer	Aberdeen University	RG1B	Medical science
Lecturer	Nottingham University	Other grades	Medical science
Lecturer	Stirling University	RG1B	Medical science
Lecturer	Glasgow University	Other grades	Medical science
Lecturer	Aberdeen University	Other grades	Medical science
Nursing Sister	Greater Glasgow Health Board	Other grades	Medical science
Occupational Hygienist	Institute of Occupational Medicine	RG1B	Medical science

Principal Research Fellow	Carnegie Mellon University, USA	RG1B	Medical science
Programme Manager	Scottish Intercollegiate Guidelines Network	RG1B	Medical science
Project Manager	Rowett Research Services	Other grades	Medical science
Public Health Officer	Tayside Health Board	RG1A	Medical science
Research & Development Officer	SCPMDE	Other grades	Medical science
Research Associate (PDRA)	Cardiff University	RG1A	Medical science
Research Associate (PDRA)	UMIST	RG1B	Medical science
Research Fellow	Norwegian National Institute of Public Health	RG1B	Medical science
Research Fellow	Aberdeen University	RG1B	Medical science
Research Scientist	Quintiles	RG1B	Medical science
Research Scientist	Quintiles	Other grades	Medical science
Scientist	Smithkline Beecham Pharmaceuticals	RG II	Medical science
Senior Embryologist	Aberdeen University	RG1B	Medical science
Specialist Registrar	Grampian University Hospitals NHS Trust	Other grades	Medical science
Specialist Registrar	Grampian University Hospitals NHS Trust	Other grades	Medical science
Specialist Registrar	Grampian Health Board	Other grades	Medical science
Specialist Registrar	West Glasgow Hospitals NHS Trust	Other grades	Medical science
Specialist Registrar	Tayside University Hospital Trust	Other grades	Medical science
Specialist Registrar	St James Hospital	Other grades	Medical science
Specialist Registrar	Tayside University Hospital Trust	Other grades	Medical science
Specialist Registrar	Fife Health Board	Other grades	Medical science
Specialist Registrar	Lothian University Hospitals NHS Trust	Other grades	Medical science
Study Director	Inveresk Research	RG1B	Medical science

Study Site Co-ordinator	Kendle University	RG1B	Medical science
Technical & Customer Services	New England Biolabs (UK) Ltd	RG1B	Medical science
Trainee Clinical Psychologist	Tees & NE Yorkshire NHS Trust	Other grades	Medical science
Trainee Clinical Psychologist	Greater Glasgow Primary Care NHS Trust	RG1B	Medical science
Trainee Community Nurse Specialist	Grampian Primary Care Trust	RG1B	Medical science
Application Engineer	Ansoft Corp	RG1A	Science
Application Scientist	Genetic Research Instrumentation	RG1B	Science
Business Analyst	Quadstone Ltd	RG II	Science
Business Development Officer	NCIMB Ltd	RG1B	Science
Business Development Officer	Aberdeen University	RG1B	Science
Business Manager	Meridan Productivity Ltd	RG1B	Science
Business Programme Co-ordinator	Glasgow Science Centre	RG1A	Science
C & IT Staff Development Regional Co-ordinator	Scottish Higher Education Funding Council	RG1B	Science
Clinical Scientist	Common Services Agency	RG1A	Science
Clinical Scientist	Royal Liverpool University Hospital	RG1B	Science
Clinical Scientist (Training)	Tayside Health Board	RG1A	Science
Company Director	Cypex Ltd	RG1B	Science
Company Secretary	J Duncan Management Systems Ltd	RG1B	Science
Consultant	Self-employed	Other grades	Science
Course Manager	Edinburgh University	RG II	Science
Decommissioning Health Physicist	Glasgow University	RG1B	Science
Development Officer	Surrey University	RG1B	Science
Development Webmaster	ISD Scotland	RG1B	Science

Director	Expresson Biosystems Ltd	RG1B	Science
Director	Edinburgh University	Other grades	Science
Environment Consultant	Self-employed	RG1A	Science
Environmental Biologist	Scottish Executive	Other grades	Science
Environmental Consultant	Thirdwave Scotland Ltd	RG1B	Science
Environmental Scientist	Ironside Farrar Ltd	RG1B	Science
Finfish Research Officer	Seafish Industrial Authority	RG1B	Science
Geologist/ Geophysicist	Scott Pickford	RG1B	Science
Graduate IT Software Engineer	BAE Systems	RG1B	Science
Graduate Scientist	Jeremy Benn Associates	RG1A	Science
Helpdesk Advisor	Dundee University	RG1B	Science
Higher Scientific Officer	Scottish Office	RG1B	Science
Information Worker	Renfrewshire Council	RG1B	Science
Investigator	Smithkline Beecham	RG1B	Science
Investment Analyst	Hymans Robertson	RG1B	Science
Invigilator	Edinburgh University	RG II	Science
IT & Operations Manager	New England Biolabs (UK) Ltd	RG1B	Science
IT Systems Support Officer	Glasgow University	RG1B	Science
Laboratory Manager	Q-One Biotech Ltd,Glasgow	RG1B	Science
Lecturer	Lancaster University	RG1B	Science
Lecturer	Tulane University, USA	RG1B	Science
Lecturer	Memorial University of Newfoundland, Canada	RG1B	Science
Lecturer	Durham University	RG1B	Science

Lecturer	University College, Northampton	RG II	Science
Lecturer	Imperial Cancer Research Fund	Other grades	Science
Lecturer	Glasgow University	Other grades	Science
Lecturer	Alberta University, Canada	RG1B	Science
Lecturer	Oxford University	RG1B	Science
Lecturer	Glasgow University	RG II	Science
Lecturer	Bristol University	Other grades	Science
Lecturer	Edinburgh University	Other grades	Science
Lecturer	California University, USA	RG1B	Science
Lecturer	Kings College, London	RG1B	Science
Lecturer	Zurich University	RG1B	Science
Lecturer	Brigham Young University, USA	RG1B	Science
Lecturer	Heriot-Watt University	RG II	Science
Lecturer	Sheffield University	Other grades	Science
Lecturer	Warwick University	RG1B	Science
Lecturer	Bradford University	RG1B	Science
Lecturer	Birmingham University	RG1B	Science
Lecturer	Birmingham University	Other grades	Science
Lecturer	Aberdeen University	RG1B	Science
Lecturer	Aberdeen University	RG1A	Science
Lecturer	St Andrews University	RG II	Science
Lecturer	Robert Gordon University	RG1A	Science
Lecturer	Aberdeen University	RG1A	Science

Lecturer	Aberdeen University	Other grades	Science
Lecturer	Edinburgh University	RG1B	Science
Lecturer	Glasgow University	RG1B	Science
Lecturer	Surrey University	RG1B	Science
Lecturer	York University	RG1B	Science
Lecturer	St Andrews University	Other grades	Science
Lecturer	Paisley University	RG1B	Science
Lecturer	Keele University	RG1B	Science
Lecturer	Glasgow University	RG II	Science
Lecturer	Caledonian University	Other grades	Science
Manager - Geochemistry	Robertson Research International	RG1B	Science
Medical Writer	Adis International	RG1B	Science
Native Tongue Teacher in Norway	Halden Commune	RG1A	Science
Networking Coordinator	Center for Human Ecology	RG1B	Science
Operational Quality Officer	Glaxo Wellcome	RG1B	Science
Primary School Teacher	Glasgow City Council	RG1B	Science
Principle Scientific Officer	Huddersfield University	RG1B	Science
Process Analyst	BNPPARIBAS	RG1B	Science
Project Executive (Biotechnology)	Scottish Enterprise	RG1B	Science
Project Manager	Paisley University	RG1B	Science
QA Manager	Propharma Ltd	RG1A	Science
Reader	St Andrews University	RG1B	Science
Register Assistant	Scottish Executive	RG1A	Science

Regulatory Information Manager	United Distillers & Vintners	RG1A	Science
Research Assistant	Marie Curie Research Institute	RG1B	Science
Research assistant	Aberdeen University	RG1A	Science
Research Associate (PDRA)	Durham University	Other grades	Science
Research Associate (PDRA)	Birmingham University	RG1B	Science
Research Associate (PDRA)	Leeds University	RG1A	Science
Research Fellow	Wales University, Cardiff	RG1B	Science
Research Fellow	Birmingham University	RG1B	Science
Research Fellow	Liverpool University	Other grades	Science
Research Fellow	McGill University, Canada	RG1B	Science
Research Programme Manager	Kilmartin House Trust	RG1B	Science
Research Scientist	Medical Research Council	RG II	Science
Research Scientist	PPL Therapeutics	RG1B	Science
Research Scientist	Ultrafine Chemicals	RG1B	Science
Research Support	Medical Research Council	RG1B	Science
Research Technician	Nottingham University	RG1B	Science
Researcher	Institute for Basic Psychiatric Research,Arhus,Denmark	RG1B	Science
Researcher	CNRS	RG1A	Science
Review of Consents Officer	English Nature	RG1B	Science
Rural Economic Partnership Co-ordinator	Scottish Stirling Council	RG1A	Science
Scalp Biologist	Unilever plc	RG1B	Science
Scientist	EISAI London Research Lab's	RG1B	Science
Senior Engineer	GSI Lamronics	RG1B	Science

Senior Engineer	Montel Polyolefins	RG1B	Science
Senior Research Fellow	Durham University	RG1B	Science
Senior Research Officer	Scottish Executive	RG1B	Science
Senior Scientific Officer	St Andrews University	RG II	Science
Senior Scientific Officer	FRS Marine Laboratory Aberdeen	RG1B	Science
Senior Scientific Officer	Imperial Cancer Research Fund	RG1B	Science
Senior Scientist	GeoForschungsZentrum,Potsdam,Germany	RG1B	Science
Senior Scientist	Marconi	RG1B	Science
Senior Software Engineer	BAE Systems	RG1B	Science
Senior Specialist	Freelight Systems Ltd	RG1A	Science
Senior Technical Officer TGE	Edinburgh University	RG1A	Science
Software Developer	Oxford Software	RG1A	Science
Software Engineer	Clinical Systems	Other grades	Science
Specialist Inspector	Health & Safety Executive	RG1B	Science
Speech Scientist	20/20 Speech Ltd	RG1A	Science
System Engineer	EDS (Electronic Data Systems)	RG1B	Science
Systems Developer	Standard Life	RG1A	Science
Technical Writer	Labsystems	RG1B	Science
Technology Broker	Heriot-Watt University	RG1B	Science
Trainee Clinical Psychologist	Lothian Primary Health Care Trust	RG1B	Science
Unit Manager	Aberdeen University	RG1B	Science
Vacation Employee	Imperial Cancer Research Fund	RG1B	Science
Web Editor/ Developer	Robert Gordon University	Other grades	Science

Director of Research	Sunnybrook & Women's College Health Science Centre, Canada	RG II	Social science & Humanities
Evaluator	ASH (Scotland)	RG1B	Social science & Humanities
Lecturer	Napier University	Other grades	Social science & Humanities
Lecturer	Edinburgh University	RG1A	Social science & Humanities
Lecturer	Manchester University	RG II	Social science & Humanities
Lecturer	Edge Hill CHE	RG1B	Social science & Humanities
Lecturer	York University	RG1B	Social science & Humanities
Lecturer	Strathclyde University	RG II	Social science & Humanities
Lecturer	Southampton University	RG1B	Social science & Humanities
Lecturer	Hertfordshire University	RG1B	Social science & Humanities
Lecturer	Wales University, Cardiff	RG1B	Social science & Humanities
Lecturer	Robert Gordon University	Other grades	Social science & Humanities
Lecturer	Abertay University	RG1A	Social science & Humanities
Lecturer	Glasgow University	RG II	Social science & Humanities
Lecturer	Glasgow University	RG II	Social science & Humanities
Lecturer	Stirling University	Other grades	Social science & Humanities
Marine Archaeologist	Self-employed	RG1A	Social science & Humanities
Market Research Officer	Manchester University	RG1A	Social science & Humanities
Non-clinical Scientist	Medical Research Council	Other grades	Social science & Humanities
Pharmacist (psychiatric)	Greater Glasgow Primary Care NHS Trust	RG1A	Social science & Humanities
Practice Manager	DRS Young Gilmour & Paloon	RG1B	Social science & Humanities
Project Executive	Scottish Enterprise	RG1B	Social science & Humanities
Reader	Brunel University	Other grades	Social science & Humanities

Research Assistant	Manchester University	RG1A	Social science & Humanities
Research Fellow	London Business School	RG1B	Social science & Humanities
Research Fellow	Glasgow University	Other grades	Social science & Humanities
Research Manager	Scottish Human Services	Other grades	Social science & Humanities
Research Officer	National Institute for Economic and Social Research	RG1B	Social science & Humanities
Researcher	Royal Edinburgh Hospital	RG II	Social science & Humanities
Senior Research Fellow	Robert Gordon University	Other grades	Social science & Humanities
Supply Teacher	West Dunbartonshire Council	RG1B	Social science & Humanities
Survey Manager	Medical Research Council	RG1B	Social science & Humanities
Systems Developer	Bausch & Lomb	Other grades	Social science & Humanities
Technical Assistant	Strathclyde University	RG1A	Social science & Humanities
Training Officer	Renfrewshire Council	RG1B	Social science & Humanities
Translator/ interpreter	Self-employed	RG1B	Social science & Humanities
TRI Development Manager	Napier University	RG1B	Social science & Humanities
Writer	Self-employed	RG1B	Social science & Humanities
Air Traffic Services Assistant	National Air Traffic Services	Other grades	Not stated
Applications Engineer	Howden Compressors Ltd	RG1A	Not stated
Education Manager	SCPMDE	Other grades	Not stated
Graduate Trainee Surveyor	Insignia Rickard Ellis	Other grades	Not stated
Lecturer	Abertay University	RG1B	Not stated
Lecturer	Durham University	RG1A	Not stated
Lecturer	Florida State University, USA	RG1B	Not stated
Lecturer	Wales University, Swansea	Other grades	Not stated

Lecturer	Queens University, Belfast	Other grades	Not stated
Lecturer	Dundee University	Other grades	Not stated
Lecturer	Paisley University	RG1B	Not stated
Lecturer	Stirling University	RG1B	Not stated
Lecturer	Glasgow University	Other grades	Not stated
Practice Counsellor	LHCC	Other grades	Not stated
Public Health Researcher	Lothian Health	RG1B	Not stated
Reader	Robert Gordon University	Other grades	Not stated
Research Mathematician	Concept Systems Ltd	Other grades	Not stated
Research Officer	Children in Scotland	RG1B	Not stated
Senior Manager	SACRO	Other grades	Not stated
Services Manager	Edinburgh University	Other grades	Not stated
Software Designer	Open University	RG1B	Not stated
Specialist Registrar	North Glasgow NHS Trust	Other grades	Not stated
Translator	Self-employed	RG1B	Not stated
Web Developer	Parity Solutions	RG1B	Not stated

Note: Job title and employer are shown only where both were provided. A number of temporary jobs involving various employers have all been excluded.

Annex C

Nationality of contract research staff in Scottish universities

	Frequency	Percent
ALBANIAN	1	.1
ALGERIAN	3	.2
AMERICAN	8	.4
AUSTRALIAN	16	.9
BANGLADESHI	1	.1
BASQUE	1	.1
BELGIAN	2	.1
BELGIAN/CANADIAN	1	.1
BOSNIAN,EX-YUGOSLAVIAN	1	.1
BRAZILIAN	3	.2
BRITISH	1165	63.8
BRITISH (ENGLISH)	1	.1
BRITISH (SCOTTISH)	3	.2
BRITISH / AUSTRALIAN	1	.1
BRITISH / IRAQI	1	.1
BRITISH / AMERICAN	3	.2
BRITISH / AUSTRALIAN	4	.2
BRITISH / CANADIAN	2	.1
BRITISH / IRISH	1	.1
BRITISH / ITALIAN	1	.1
BRITISH / NEW ZEALAND	6	.4
BRITISH / SCOTTISH	2	.1
BULGARIAN	1	.1
CAMEROONIAN	1	.1
CANADIAN / UK	1	.1
CANADIAN	13	.7
CHINESE	41	2.2
CITIZEN OF SINGAPORE	1	.1
COLUMBIAN	1	.1
DANISH	4	.2
DUTCH	18	1.0
EGYPTIAN	1	.1
ENGLISH	21	1.1
EUROPEAN	2	.1
FRENCH	31	1.7
GERMAN	44	2.5
GREEK	9	.5
GREEK / US	1	.1
GREEK / BRITISH	1	.1
HUNGARIAN	3	.2
HUNGARIAN / GERMAN	1	.1
INDIAN	2	.1
INDONESIAN	1	.1
IRANIAN	2	.1
IRISH	42	2.3
IRISH / CANADIAN	1	.1
ISRAEL	1	.1
ITALIAN	7	.4
JAPANESE	3	.2
LIBYAN	1	.1
MALAWIAN	1	.1
MALAYSIAN	1	.1
MEXICAN	2	.1
MOROCCAN	1	.1
NETHERLANDS	1	.1
NEW ZEALAND	4	.2

NEW ZEALAND / BRITISH	2	.1
NORWEGIAN	5	.3
PAKISTANI	1	.1
POLISH	2	.1
PORTUGUESE	4	.2
PEOPLES REPUBLIC OF CHINA	4	.2
ROMANIAN	1	.1
RUSSIAN	7	.4
SCOTTISH	176	9.8
SCOTTISH / BRITISH	2	.2
SCOTTISH / IRISH	1	.1
SINGAPOREAN	1	.1
SLOVAK	2	.1
SOUTH AFRICAN	4	.3
SPANISH	9	.5
SRI LANKAN	4	.2
SWEDISH	1	.1
SWISS	2	.1
TAIWANESE	1	.1
TUNISIAN	1	.1
TURKISH	1	.1
UK (SCOTTISH)	2	.1
USA-/ BRITISH	1	.1
USA	22	1.2
UZBEKISTAN	1	.1
VENEZUELAN	1	.1
WELSH	3	.2
NOT STATED	37	2.1
TOTAL	1827	100.0

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