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Traversing the academic ladder as an early career researcher in earth and environmental sciences

Danielle Alderson¹, Lucy Clarke²*, Daniel Schillereff³, Emma Shuttleworth¹

¹Department of Geography, University of Manchester, Manchester, UK.
²The School of Natural and Social Sciences, University of Gloucestershire, Cheltenham, UK.
³Department of Geography, King’s College London, London, UK.

*Corresponding author: lclarke@glos.ac.uk

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This paper presents results of a survey of the experiences of Early Career Researchers in geomorphology, earth and environmental sciences. We find evidence of multi-directional pressures that have materially negative effects on life choices for all responses, as well as gendered differences to responses. The paper puts forward a set of recommendations under four themes: improving policies on parental leave and flexible working; formalising and improving mentorship; transparency on pay and promotion; more considerate recruitment procedures.
Abstract

There is growing concern in Higher Education around job security, work-life balance and inequalities, and early career academics must make difficult trade-offs and life choices. Ample literature confirms that women navigating academia face additional challenges. Few studies have sought to connect contractual circumstances, employment priorities and their impacts on the life choices of individual academics. We report results from a survey exploring the experiences of 48 Early Career Researchers traversing the academic ladder in geomorphology and earth/environmental science and contextualise these findings by drawing on personal experiences and wider literature. Overall, we find evidence of multi-directional pressures that have materially negative effects on life choices, including concern amongst men and women that academic employment is a barrier to living where and with whom one may want to. The scale of precarity amongst survey respondents is stark in terms of years on fixed-term contracts (maximum 10), individual contracts held (maximum 14) and number of different institutions (maximum 6). Overall, women respondents opted to spend fewer years on precarious contracts, which will amplify the leaky pipeline and gender gaps at more senior levels. We also find that women put somewhat more emphasis on job security when applying for academic posts. Perceived institutional prestige was a low priority for the majority of respondents. We also find notable divergences between career advice given by more senior colleagues and the priorities of those seeking guidance. Our results furthermore infer that men were generally more
satisfied by financial aspects of university employment. Drawing on input from survey respondents, we put forward a set of recommendations under four themes: improving policies on parental leave and flexible working; formalising and improving mentorship; transparency on pay and promotion; more considerate recruitment procedures. We believe these recommendations are within the scope of action by departments, laboratories and research groups.

**Keywords:** academia, academic progression, early career, geomorphology, women

1. **INTRODUCTION**

Grappling with uncertainty has seemingly become an essential criterion when choosing an academic occupation, especially during the early career stages. Concerns around precarity and working conditions in higher education have intensified prior to and through the COVID-19 pandemic (UCU, 2020; OECD, 2021). After earning a PhD, short-term contracts are commonplace, ostensibly to build experience and publication records to make oneself competitive for open-ended contracts. This is a function of a highly competitive and saturated job market (Etmanski et al., 2017). Furthermore, an increasing number of short-term teaching-focused positions are being advertised (certainly in the UK), as a response to growing student numbers in universities. This type of contract reduces research-related time, making it more difficult to align with the “publish or
perish” narrative (Forrester, 2021). A career path outside of academia is seen as less desirable by some, with doctorates finding it difficult to know how to market their skillsets (Powell, 2018).

Nerad and Cerny (1999) and Bazeley (2003) recommended universities take steps to create more stable working conditions to improve the experience of Early Career Researchers (ECR) almost 20 years ago. Whilst some improvements may have been made, work pressures continue to cause deep-rooted concern amongst ECRs (Woolston, 2019). Traversing an academic career undoubtedly brings benefits for some (e.g. living and working in different locations; flexibility and challenges in academic endeavour), for others this insecurity and transient employment can lead to stress, decline in mental wellbeing and difficulties with personal circumstances and making life decisions (Dorenkamp and Weiß, 2018; Ekine, 2018; Mudrak et al., 2018). A special issue on ‘ECRs and Changing working conditions in academia’ in the journal Higher Education Policy (Wöhrer, 2014) provides a number of in-depth articles on the general challenges that ECRs face, covering topics such as work-life balance, stability, mobility, supervision and publishing.

The term ECR is used widely in the literature and generally refers to a person at the beginning of their academic career, although there is no single definition. UK Research Councils and funding bodies as well as learned societies (such as the European Geosciences Union and American
Geophysical Union) tend to define an ECR in terms of length of time since completion of a doctorate, with a range extending from 3 to 10 years and the most common timescale being 5 years post-PhD. Extenuating circumstances that lengthens this period may be given to those who have taken a career break due to illness or parental/caregiving duties (Akram and Pflaeger Young, 2021). Length of employment is a common categorisation for ECR, but Laudel and Glaser (2008) consider time in employment an imprecise measure, since increasing casualisation has seen a growth in casual teaching only appointments or short-term research positions funded through grant money. Bazeley (2003) also found that academics who self-defined as ECR commonly did so on the basis that they lacked experience, competence and/or confidence to undertake independent projects or that they had not yet completed or only recently completed their PhD.

The challenges of being a woman in academia have also been widely discussed in the literature (Bono et al., 2019; Casad et al., 2020; Huang et al., 2020) and often intersect with other aspects of identity including racial diversity, sexuality, disability and class (Dowey et al., 2021). The tendency for women to leave academia prematurely is well-established (Gasser and Shaffer, 2014), sometimes described as the ‘leaky pipeline’. There are a multitude of factors at play (see Huang et al., 2020), including barriers to equal research recognition (Witteman et al., 2019) and promotion (Baker, 2010). Gender bias is also rife in the delivery of education in academia,
with ample literature highlighting that ECR women are perceived as less experienced and less of an authority on their subject matter, which is reflected in poorer student evaluation scores for women (e.g. Mengel et al., 2017).

Looking specifically at the earth and environmental sciences, the same challenges and benefits exist (Tooth and Viles, 2021). These fields have a historical masculine legacy and dominance (Bono et al., 2019), with science subjects often viewed as tough, competitive and impersonal. Marín-Spiotta et al. (2020) describe the gendered nature of the geosciences (mostly from a US perspective), notably highlighting a general lack of diversity and hostile environments faced by under-represented groups. Field and laboratory work, which are often critical components of an academic career in earth and environmental sciences, present specific challenges from a gendered perspective welcoming and normalising the able-bodied (Jokinen and Caretta, 2016; Greene et al., 2021).

In this paper, we aim to provide a balanced analysis of the experiences of early career academics who currently or have previously classified themselves as geomorphologists, environmental scientists and geoscientists, focusing on the post-PhD experience. For the purposes of this work, and drawing on the definitions of ECRs discussed above, we have defined an ECR as an individual within 10 years of being awarded their doctorate. This should encapsulate most existing classifications of ECRs and
ensure we capture those who may have taken extended periods of time out from their direct career development. Many of those working in, or closely with, academia will be familiar with personal or anecdotal evidence about career progression in this discipline, but there have been few studies of academic career experiences that integrate personal and external data to evaluate this in more detail. Drawing on a mixed-methods approach using textual and graphical analysis of survey data and our own personal experiences, we explore the challenges and merits of the academic career trajectory. Our specific objectives are:

- Identify the challenges and benefits of being an ECR with a focus on those working in environmental and geo-sciences;
- Evaluate the current situation faced by ECRs and explore the ways in which employment prospects and realities influence individuals’ life plans, goals and choices;
- Analyse to what extent and in which ways being a woman in the environmental and geosciences intensifies or exacerbates those challenges and opportunities;
- Put forward a set of recommendations for improvement, relevant and actionable by fellow earth and environmental scientists.

To provide context for the discussion, the authors must acknowledge their identity and personal experiences to recognise any unconscious bias. The authors are all white and cis-gender, identifying as three females and one male. They studied for undergraduate and postgraduate degrees (Master’s
and PhD) in the earth and environmental sciences fields at primarily UK institutions. Two of the authors are currently on temporary contracts and two are on permanent contracts. All authors have undertaken multiple temporary, short-term contracts post-PhD. In accordance with our ECR definition of 10 years post-PhD, three authors are classified as an ECR and the other no longer sits in this category. One author has a child, has experience of taking a period of parental leave during a fixed-term contract and at the time of writing is preparing to take another period of leave with a second child. The authors recognise that they have a specific set of privileges and experiences, which people with other intersectional identities may not. The survey data in this study should assist in providing a more balanced analysis of intersectionality, but it will be by no means exhaustive.

2. METHODOLOGY AND METHODS

We applied a dual approach to gather information about the thoughts, feelings and experiences that ECRs have regarding the benefits and challenges of continuing with a career in academia after earning a doctorate. We drew on our own experiences and supplemented this with an extended survey (approximately 30 minutes) which was designed by the authors and given ethical approval by King’s College London. The survey was posted on Microsoft Office Forms and advertised by the authors through their networks, including relevant Learned Societies, email lists and Twitter. The survey was open to earth and environmental scientists
who had completed their PhD in the last 10 years and then went on to be
employed in a substantive role at a university for some or all of those years (i.e., as a minimum held a contract for 6 months or longer, either fixed
term or permanent/open-ended). We encouraged participation from both
those who continued working in universities in any role (professional
services, research, teaching, technical, laboratory-based) after this initial
employment as well as those who have since left to pursue a career outside
of universities.

The survey consisted of 55 questions, comprising a mix of Likert-scale and
open-ended types that encouraged free-flowing comments. The survey
covered the following sections: background information, information about
the respondents’ academic career, their experiences of being an ECR, the
day-to-day job demands and expectations and the job application process.
A final section asked respondents to comment on the benefits and
challenges of being an ECR, and in particular how these impact women,
and to outline what actions they would recommend could be taken at an
‘immediately actionable level (i.e., as individuals, research groups,
departments)’ to better support women working in academia. The
questionnaire was structured with branching to enable additional and
targeted questions for those who have left academia for their reasons
behind the career change.
Quantitative analysis was performed on the Likert-scale questions and the open-ended questions were assessed for key trends using word clouds and coded using axial (thematic) coding as defined by Wicks (2012). For all questions the trends were evaluated across all responses and then disaggregated by gender and other key characteristics (i.e., career stage, country etc).

3. MAIN FINDINGS

3.1 Who and what is an ECR?

Given the variation in the definition of what constitutes an ECR we asked respondents whether they considered themselves to be an ECR within the timeframe that we set (i.e., 10 years from PhD award). 16.7% of respondents felt that they no longer classified themselves as an ECR; all of these were respondents from the UK, had completed their PhD over 5 years prior and 50% had since left academia. The most common definition of an ECR is 5 years employment post-PhD but of our respondents who were 5-6 years post-PhD 88.9% of this group still considered themselves as an ECR, with 50% of those with 7+ years of experience also self-identifying as ECR. Interestingly, all female respondents with 5-6 years post-PhD felt that they were still ECR, but half of those identifying as non-ECR in the 7+ years group of respondents were female. This highlights the complicated and individualistic nature of academic career progression, and aligns with the findings of Bazeley (2003) that personal experience and confidence is
important when self-defining career stage. As suggested by Bosanquet et al. (2016) when defining ECR it may be more appropriate to combine objective measures (such as doctoral candidature or completion, length of university employment, and/or research output) with subjective indicators to acknowledge the complex and conditional nature of entering academia.

3.2 General survey

We received 48 complete responses to the survey, comprising 32 women, 14 men and two who preferred not to say. Respondents show an even spread across years since completion (Table 1), with most falling in the age range 30-39. In terms of contractual status, 25 respondents hold a fixed-term contract and 13 have a secure, permanent post. We note a mixture of terminology is used across UK HE to denote “permanent” contracts; “open-ended” or “indefinite” are also common. Ten respondents now work outside academia but held at least one substantive university role since PhD completion.
Table 1. Survey respondent demographics

<table>
<thead>
<tr>
<th>Age range</th>
<th>Number of responses</th>
<th>Years</th>
<th>Number of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>6</td>
<td>1-2</td>
<td>11</td>
</tr>
<tr>
<td>30-39</td>
<td>39</td>
<td>3-4</td>
<td>14</td>
</tr>
<tr>
<td>40-49</td>
<td>2</td>
<td>5-6</td>
<td>9</td>
</tr>
<tr>
<td>50-59</td>
<td>1</td>
<td>7-8</td>
<td>6</td>
</tr>
<tr>
<td>60 or older</td>
<td>0</td>
<td>9-10</td>
<td>8</td>
</tr>
</tbody>
</table>

3.3 Contractual status

On average, respondents spend just under four years on fixed-term contracts (median = 3.5), often across multiple institutions (Table 2; Figure 1). This masks the reality that ECRs can spent up to ten years on numerous (max = 14) separate fixed-term contracts. All three metrics plotted in Figure 1 showed divergence between women and men, with women holding fewer contracts and for shorter periods of time in total. Wilcoxon tests show a significant difference (p < 0.05) between the number of years women and men spend as fixed-term employees (number of contracts and number of institutions are non-significant). These values will be influenced by respondents who have completed their PhDs more recently so we recalculated for respondents at least five years since PhD award. This confirms (p < 0.01) a tendency for men to spend more years than women on fixed-term contracts (Theall and Franklin, 2001). These findings infer that, overall, women are less keen on traversing an ECR pathway that is rooted in protracted precarity. There are many plausible reasons for this,
not least that – from our experience – moving is a non-trivial undertaking, especially when a life partner or family must be accommodated.

Figure 1. A summary of the contractual circumstances for survey respondents, disaggregated by gender. Because the values for ‘All’ will be influenced by respondents who have been awarded their PhDs recently, we recomputed each plot for respondents who are at least five years since PhD award.

To explore the prevalence of short-term contracts for ECRs in further detail, the responses were disaggregated based on the respondents’ time in academia (Table 2). Reported duration of short-term contracts varied from 7 months to 5 years, and even in the first couple of years of an academic career some ECRs had already held five short term contracts (Table 2). Those having had a longer academic career since their PhD had moved institutions more often and had spent a significant portion of their career on short-term contracts. Only 30% of respondents had stayed at the same institution, illustrating that moving is a necessity for the majority of ECRs.
Of those based in the UK, 35% moved to a different town or city to take up their first university post after their PhD award, 19% moved to a different country and only 14% moved institution but not their primary address. This compares to ECRs currently based in other countries (i.e., not currently working in the UK) where 42% moved to a different town or city post-PhD, 33% moved to a different country and none recorded having moved institutions without relocating. The respondents who had left academia corresponded with those holding the highest number of short-term contracts, highlighting the impact that job insecurity can have on retention rates of ECRs. The contractual status of our survey respondents re-affirms the scale of precarity amongst ECRs in UK Higher Education.

**Table 2.** Contractual circumstances for survey respondents disaggregated by time in academia.

<table>
<thead>
<tr>
<th>Time in academia</th>
<th>Number of fixed-term contracts held</th>
<th>Total number of years on fixed-term contracts</th>
<th>Number of different institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>1-2 years</td>
<td>2.5</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3-4 years</td>
<td>2.9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>5-6 years</td>
<td>6.1</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>7-8 years</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>9-10 years</td>
<td>5.3</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>
3.4 Experience of being an Early Career Researcher

ECRs consider their work at universities to be detrimental to many key life stages (Figure 2). Women and men considered their ECR roles to have made it particularly hard to live where they wanted to, to provide security for the future and start a family. Although each question received overall negative responses, there were some notable gender differentials. Women were notably more concerned by factors linked to their personal life, such as meeting and living with a partner, starting a family and living where they want to. Men were somewhat more positive than women about financial considerations, including salary, pensions and future security. It is important to consider the uneven gender distribution of respondents to this survey as a factor in this analysis, in addition to the notion that women are more likely to respond to surveys, especially on topics of particular concern (Smith, 2008). Nevertheless, the challenges posed by ECR employment are clear and seemingly of greater concern to women, which is mirrored by a wide literature (Bono et al., 2019; Webster and Caretta, 2019).
Figure 2. Responses to Likert-scale questions on life experiences as an Early Career Researcher (ECR). White numerals at the base of each bar denote the total number of responses to that question.

3.5 The job application process

The precarity of ECR employment leads to a tough balancing act between delivering outputs attractive to future employers and spending time completing job applications. From our experience, preparing and submitting each academic job application can take up to two days, plus more time to prepare for a presentation and interview, if short-listed. We wanted to explore what drives ECRs to apply for a particular position. Location of the target institution appears to be the priority for women and men (Figure 3), even ahead of contract length, type of role and potential to secure a permanent (open-ended) post. At the same time, 50% of women and even more men were essentially willing to apply for any academic position that
they were eligible for. Our data suggest that women prioritised potential job security more than men, with “length of contract” and “permanent/open-ended contract” being key considerations for around 50% of women compared to 25-30% of men.

Figure 3. Summary of respondents’ priorities when they last applied for a role at a university. Examples of ‘Type of contract’ include Teaching-focused, Research-focused, Teaching & Research or a technical role.

Most surprising to us was the unimportance of prestige (Figure 3). Perceived prestige is pervasive in academia: particular (groups of) institutions, publishing in specific journals, and securing large research grants seem to carry huge weight (Sutherland, 2017; Merga and Mason, 2021; Raja and Dunne, 2021). We interpret this as evidence that ECRs are putting more emphasis on work-life balance and that ECR priorities
continue to shift away from the established view of what constitutes and how to forge a successful career in academia, which usually involves judgement against a set of performative metrics (Sutherland, 2017). A follow-up question revealed more starkly the continued mismatch between ECR priorities and the career advice given by more senior colleagues. When asked whether they had received advice from a colleague on the impact of continuing to work at the same institution, 25 respondents indicated they had and 88% of this advice was negative (Table 3). Moving is difficult (Bono et al., 2019) yet there is a conflict with the perception in academia that you need to move institution or indeed country to develop a strong career (Teichler, 2015; Bono et al., 2019). This contradiction was further magnified by 41% of respondents believing that holding a fixed-term contract had or will positively influence the likelihood of securing a permanent post at the same institution, a view shared by the authors. Respondents also received predominantly (73%) negative advice when applying for roles that don’t fit this conventional view of ‘success’, including lectureships at non-Russell Group institutions\(^1\), technical or professional services roles or teaching-focused posts. Academia needs to move away sharply from notions that there is one pathway to success, usually idealised as being PhD → post-doctoral researcher → Lecturer (Teaching and Research), each post held at a highly ranked university. We encourage

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\(^1\) The Russell Group is an umbrella organisation in the UK that represents a collective of 24 ‘research-intensive, world-class universities’ [https://www.russellgroup.ac.uk/](https://www.russellgroup.ac.uk/)
colleagues to keep these findings in mind when providing career advice and sitting on recruitment panels.

### 3.6 Financial considerations as an ECR

Working at universities can require an array of financial outlays, including conference attendance, fieldwork campaigns and moving costs. Some of these costs may be covered by a grant, for example, but payment in advance and reclaiming through an institutional expenses process is almost always required. This can leave a colleague hundreds of pounds out of pocket for many weeks. Moving costs will inevitably be exacerbated by repeated relocations to take up multiple fixed-term contracts. One author, for example, held positions at four different UK institutions in different regions of the country within a six-year period. These financial considerations are viewed negatively by at least 50% of all respondents and especially (>75%) amongst women (Figure 4). Our previous data hints that men are generally more satisfied by salary and/or have fewer financial uncertainties (Figure 2). There are a number of potential explanations. This difference could reflect gendered views and realities around disposable income, wealth and savings (e.g. Weller and Tolson, 2020) and/or be a function of the known gender pay gap in UK Higher Education (UCEA, 2021). Equally, women may have stronger views that conventional norms in academia around finances, such as making hefty advance payments for conference or field expenses and protracted waits for reimbursement are unfair and/or unsustainable. We urge Principal Investigators, Heads of
Department and others holding line management roles to be continually aware of these concerns and, where it is necessary, colleagues in secure and usually more senior positions should take the bulk of the responsibility to pay up front and reclaim such costs. We also highlight here that more protracted fixed-term contractual circumstances creates an unwelcome feedback: ECRs will increasingly have to move to their next position with a life partner and/or family, which is more challenging and will probably increase their likelihood of ultimately leaving academia. This would worsen the leaky pipeline.

Figure 4. Percentage of respondents who hold “somewhat negative” or “extremely negative” views on a number of common financial considerations when working in academia.

3.7 Viewpoints on an academic career

Respondents were asked their viewpoints on pursuing an academic career as an ECR, incorporating both the positive and negative. The key words
associated with the main perceived benefits are shown in Figure 5A and these align with the axial coding themes for this question. The highest response rates were around freedom and independence (48%: 43% of these responses were from women) and the flexibility offered in an academic job (48%: 70% of these responses were from women). Interactions with colleagues came out as one of the key benefits (25%: 67% of these responses were from women), although interestingly this was also listed as one of the worst elements (15%: 43% of these responses were from women) with bullying and “old boys club” mentality listed as the reasons behind this; highlighting the importance of a supportive work environment for academics. The ability to continue learning and develop skills (21%: 70% of these responses were from women), to undertake research and do something beneficial (19%: 67% of these responses were from women) and the variety of tasks associated with an academic career (13%: 67% of these responses were from women), including teaching and mentoring (15%: 86% of these responses were from women), were all seen as benefits and lead to a stimulating and fulfilling career (17%: 13% of these responses were from women). The pay and benefits (19%: 33% of these responses were from women) and the opportunity to travel (15%: 86% of these responses were from women) were also highlighted. Women therefore seem to appreciate the flexibility, continued professional development and collegiate aspects of an academic career, as well as the opportunity to undertake a variety of tasks and to travel more than the male respondents.
Figure 5. Top 25 most common words when respondents were asked to list the “main benefits” (Panel A) and “worst element” (Panel B) of a career in academia.

In terms of the perceived worst aspects of an academic position the key words from the responses are shown in Figure 5B. The highest responses were all associated with aspects of employment; with the lack of job security and short-term contracts (63%: 67% of these responses were from women) the highest response, followed by expectations and pressure of the role (48%: 17% of these responses were from women), precarity around the lack of work-life balance, constant moving and inability to plan for the future (48%: 68% of these responses were from women), and
workload and working extra hours (40%; 68% of these responses were from women). The stress association with life as an ECR and pursuing an academic career and mental health and isolation aspects of the role were highlighted by 29% of respondents (39% of these responses were from women), as well as the stress associated with competition for jobs and funding (21%; 100% of these responses were from women). A variety of themes were highlighted by 15% of respondents, including flawed metrics of success (29% of these responses were from women), lack of support from the university (29% of these responses were from women) and the pay and benefits (86% of these responses were from women). Pay and benefits was therefore another factor that was seen as both a positive and negative of an academic career but the majority of those seeing it as a negative were women. Imposter syndrome was also seen as once of the worst elements of an academic career by 8% respondents (50% of these were women). Overall, there appears to be a gender split with regards to the negative aspects of an academic career; with women concerned about the job security, competitiveness and workload associated with these roles as well as the pay and benefits, while the male respondents commented more on the stress, pressure, level of institutional support and expectations of the role.
4. RECOMMENDATIONS

Drawing on the survey data and responses to an open-ended question asking about priority actions, alongside our own experiences, we put forward the following recommendations.

4.1 Improved parental leave and flexible working

Improving policies, attitudes and outcomes around parental leave and flexible working opportunities was the most common priority, emphasised by 25% of respondents. This is not a new concept. There is ample and long-standing evidence of a ‘motherhood penalty’ (Crabb and Ekberg, 2014), for example, the need to demonstrate “total commitment to work life” in an academic career can often be a barrier to part-time or flexible working (Cannizzo et al., 2019, p.261). UK universities have been proactive at updating policies in line with legislation, for example around shared parental leave (UCEA, 2016 cited in ECU 2018). Nevertheless, there is stark variance in parental leave conditions across different UK universities (Epifanio and Troeger, 2020) and ECRs continue to perceive university policies around parental leave and flexible working as being insufficient (Crabb and Ekberg, 2014). A research priority should be to explore the back-to-work experiences and longitudinal outcomes of academics who have taken parental leave under revised policies. This should encompass material outcomes, such as promotions, as well as feelings of inclusion and fit in academia (Probert, 2005) after a period of leave. Some recent
research (e.g., King et al., 2020) suggests the COVID-19 pandemic may open society’s eyes, especially men, to the demands of caring responsibilities that have traditionally been ‘invisible’ (Grummell et al., 2009). How this influences women’s experiences of an academic career should be monitored in the years ahead so that lessons can be learnt. We also reiterate the need to ensure relevant policies are in place that apply to colleagues on fixed-term contracts. In our experience, this manifests as advisors at an institution not knowing whether or how a particular policy applies to someone on a fixed-term contract, especially if the contract were to expire during the period of leave.

4.2 Formalising and improving mentorship

Many respondents called for better mentorship opportunities. What constitutes an academic mentor is complex (e.g. Sambunjak et al., 2010; Garmire, 2021) but a growing body of literature stresses that inadequate mentorship is a barrier to women progressing and thriving in an academic post (Gardiner et al., 2007; Cross et al., 2019; Cardel et al., 2020; Casad et al., 2020). Marín-Spiotta et al. (2020) similarly emphasise that peer-mentoring networks can improve intersectional support for under-represented groups. It is certainly our view that every ECR - and indeed all university employees - should have a nominated individual as a mentor. Anecdotally, this is not the case at all UK universities, and is an oversight that ought to be rapidly rectified. A formal mentor could be a line manager (e.g., Principle Investigator of a grant, Education Lead for teaching-focused
positions) but we see value in separating career advice from direct managerial oversight. What makes an effective mentor? Seniority or established research excellence doesn’t inherently do so. Indeed Principle Investigators as mentors may exacerbate power dynamics around co-authorship of publications and other grant outputs, for example. One respondent emphasised that having a mentor with a realistic sense of the current realities of navigating university employment as an ECR was a valued criterion. One author has a mentor from a different research domain and has found this to be extremely valuable. A survey respondent highlighted the importance of finding a mentor with similar views to your own on what constitutes an appropriate work/life balance, regardless of their respective genders. Alternatively, one may seek a mentor for navigating academia more generally or identify someone well-placed to support a specific process, such as a grant application to a particular funding stream. Many departments could implement better communication processes so ECRs can identify colleagues who may be well-informed on particular grant schemes, perhaps having served as a peer reviewer or sat on an awarding panel. Such information is rarely visible. Effective mentorship underpins a positive and productive university culture yet is rarely acknowledged in formal schemes. We are in favour of incorporating mentorship as a promotion criterion and creating dedicated awards schemes to recognise effective mentorship (e.g. Cardel et al., 2020). We also reiterate calls in the literature (e.g. Sambunjak et al., 2010; Garmire,
2021) that effective mentorship can be delivered through support networks and needn’t be restricted to mentor-mentee pairs.

4.3 Transparency and clarity on salaries and promotion routes

In the UK, organisations with more than 250 employees - which encompasses most universities - are required under recent legislation to report annually on their gender pay gap. This is reported as a mean or median, organisation-wide value. Granularity, for instance between or within departments, is not captured and indeed the measure is not designed to enable a member of staff holding a particular role to evaluate whether they are being paid the same salary as another colleague in an equivalent role. There was a clear wish amongst respondents for salary information to be more transparent. As well as identifying persistent concerns of gendered rewards and recruitment and improving work culture (Pierson et al., 2020), such transparency could empower women during salary negotiations (Gamage et al., 2020) and potentially aid in the retention of women in academia. Increasing effort is placed on diversifying recruitment, which is undoubtedly vital, but retention is arguably more problematic (e.g. Casad et al., 2020) and must be considered in order to increase the appeal of an institution to women seeking their next academic position.

There are also enduring concerns that, because academic promotion is weighted so heavily towards one’s research portfolio, gendered productivity harms women’s progress (Baker, 2010; Howe-Walsh and Turnbull, 2016).
Many steps for reform have been proposed in the literature (Schimanski and Alperin, 2018; Cardel et al., 2020); we add here the need for greater clarity on the invisible sides of promotion. As ECRs, we often wonder: because the executive panel has limited time to evaluate each application, which criterion/criteria are really prioritised by the panel? And to what extent does this magnify acknowledged barriers to women’s progression? Transparency would be welcomed.

There is another tension around academic progression that must be navigated carefully. On the one hand, survey respondents highlighted that men tend to hold more senior administrative roles in departments or faculties, creating another barrier to CV development and promotion. Conversely, there is ample experiential, anecdotal and published evidence that women - and other under-represented groups - make disproportionately high contributions to service activities in the name of ‘diverse committee membership’, leaving less time for research (e.g. Casad et al., 2020).

4.4 More considerate recruitment procedures

The lack of diversity across all axes amongst university employees (including but certainly not limited to gender, race or disability), especially in academic and management posts, reflects prolonged systemic inequalities in policies and practices in Higher Education (Dowey et al., 2021; Orupabo and Mangset, 2021). Some efforts to improve recruitment,
such as unconscious bias training, are a useful start but have limited evidence of material outcomes, and there are growing calls for more direct action (Cardel et al., 2020). The recommendations outlined above are intertwined here; for example, better mentorship could increase a candidate’s chance of success. Similarly, there is evidence that comprehensive policies around parental leave and (child) care is attractive to potential women applicants (Morgan et al., 2021). Survey respondents broadly emphasised two courses of more direct action. First, dedicated and ring-fenced recruitment streams, often termed ‘positive action’. In the UK, the law surrounding this approach is defined under the Equality Act 2010, which “permits employers to take positive action measures to improve equality for people who share a protected characteristic” (EHRC, 2011 p.159). We are aware of few instances of this approach at UK universities, anecdotally owing to concerns around the navigating positive action rather than positive discrimination, which is unlawful in the UK. The second prominent request was for (gendered) anonymity on job applications and/or references. Lastly, we urge departments and institutions to be considerate in their use of fixed-term contracts. We acknowledge that there are circumstances where fixed-term contracts are appropriate, but no one wins from a trajectory of ever-increasing precarity in academia. Policies should be devised that establish a minimum length for every contract and illustrate clearly the opportunities for job progression at the same institution. These policies should embed transparency and monitoring of contract types.
5. CONCLUSIONS

We collated survey data illustrating that the pressures of working in universities felt by all ECRs are intense and are perceived to have materially negative effects on core life pathways and opportunities. We observed gendered responses on a number of fundamental issues. We infer that women are more concerned than men by financial aspects, including salary, pension or house purchasing power, and ‘geographical choice’: living in a particular place with a particular person. The data also suggested that women prioritise job security, contract length and opportunities to secure a permanent post more than men. We do have to keep in mind that unbalanced gender responses (70% of respondents identify as women) may influence our data.

We also want to draw attention to the striking disparities between the ambitions and priorities of all ECRs and the career advice we receive. Surprisingly, ECRs in our survey do not consider perceived prestige of an institution to be a priority when applying for their next job. This is in stark contrast to persistent advice from more senior colleagues framed in precisely those terms: “working at a certain institution will have negative effects on career progression because of a perceived less prestigious status”. We urge more senior colleagues to acknowledge and reflect carefully on these findings.
An academic career continues to be enormously fulfilling for us as authors and for many colleagues. But traversing the ladder is becoming trickier and a number of factors are tipping the scales unfavourably. We have sought to draw from quantitative and qualitative data some actions and approaches that everyone in academia can take to strengthen support for and improve working conditions of ECRs.

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