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Merit Sticks to Men: Gender Pay Gaps and (In)equality at UK Russell Group Universities

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Abstract

Academic studies of gender pay gaps within higher education institutions have consistently found pay differences. However, theory on how organisation-level factors contribute to pay gaps is underdeveloped. Using a framework of relational inequalities and advanced quantitative analysis, this paper makes a case that gender pay gaps are based on organisation-level interpretations and associated management practices to reward ‘merit’ that perpetuate inequalities. Payroll data of academic staff within two UK Russell Group universities ($N=1,998$ and $1,789$) with seeming best-practice formal pay systems are analysed to determine causes of gender pay gaps. We find marked similarities between universities. Most of the variability is attributed to factors of job segregation and human capital, however we also delineate a set of demographic characteristics that, when combined, are highly rewarded without explanation. Based on our analysis of the recognition of ‘merit,’ we extend theoretical explanations of gender pay gap causes to incorporate organisation-level practices.

Keywords Gender pay gap · Merit · UK Russell Group · Academia · Discrimination · Relational inequalities

Introduction

The UK Higher Education (HE) sector has historically been male dominated, with evidence of horizontal and vertical segregation (Fagan & Teasdale, 2021). Job segregation by gender is also an international phenomenon (Macarie & Moldovan, 2015; Peng et al., 2017; Rabovsky & Lee, 2018). There is evidence for the closing of the HE gender gap internationally in recent decades (Baker, 2016) and an improvement in research outputs (Nielsen, 2016) and high-level jobs (Fritsch, 2015) for female academics. Inequalities persist, however. The causes of gender pay disparities are complex and multi-layered, but analysis of them in the higher education sector, and more generally, is theoretically and empirically incomplete. Smith (2009), for example, draws on self-report quantitative data to signal a significant gap between men and women academic staff in the UK between and within grades, and explores the implications, but not the

causes, of these gaps. Traditionally, theoretical frameworks that explain gender pay differences take investment in one’s own skills and productivity as the starting point (Becker, 1975). However, this is a limited view that assumes that skill supply and demand will be fairly rewarded according to the logics of the market. The role of the employer in this link is overlooked.

In the current study we respond to calls to ‘bring the firm back into the conceptualisation of inequalities’ (Tomaskovic-Devey & Avent-Holt, 2019, p. 7), drawing on how the relational and social construction of ‘merit’ may be connected to the power and status of workers to influence pay. Krefting (2003), for example, concludes that women faculty achievements have a lower salary pay-off, which refers to a slower time to tenure, slower time to promotion to full professor, and they earn less than men with comparable backgrounds and accomplishments. Additionally, a range of demographic (Hargens & Long, 2002), personal, and institutional factors (Howe-Walsh & Turnbull, 2016) have been linked to gender inequality, with the latter including an organisational perception of additional ‘merit’ attributed to men. Though informative, the reliance on qualitative data in these studies limits the generalisability of these findings. The current research rigorously examines ‘lower salary pay-offs’ within men’s and women’s faculty careers, and the potential for subjective and

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intangible ‘merit’ to be attached to certain bodies (Simpson & Kumra, 2016; Thornton, 2013).

Most publications on pay differences in HE draw conclusions from national or sectoral datasets meaning that they cannot illuminate patterns at the organisation level (i.e., Madrell et al., 2016). By and large, published pay data is usually aggregated, cloaking the role of organisation-level causes such as unequal promotion rates, unequal length of service, faculty specialisms, hours of engagement, types of contracts, the role of qualifications, and ultimately if and how organisational reward practices in relation to ‘merit’, sustain pay gaps. Using internal pay data at the individual employee level linked to personal employment history, we show that it is possible to account for the influence of these factors plus many others. Analysis can isolate the implications of each, building a picture of which characteristics and job patterns are most highly rewarded. These studies are rare due to the challenges of accessing comprehensive individual-level organisation data (for exceptions see Gonäs & Bergman, 2009; Travis et al., 2009). The current paper aims to enhance our understanding of causes of pay disparities in HE, criticising the effectiveness of organisation equality practice to challenge an institutionalised construction of ‘merit’ in two UK Russell Group universities.

The Russell Group is a catch-all term for 24 universities in the UK renowned for world-class research excellence and academic achievement (university league tables), including the Universities of Oxford and Cambridge (Russell Group, n.d.). We negotiated access to employee level data; it is not normally available. The paper addresses the following research questions: (1) Is there a gender pay gap at our case-study universities and what factors explain it? (2) What does our analysis reveal about how higher education pay allocation is influenced by perceived ‘merit’?

Determinants of Pay Gaps in Higher Education

Underlying causes of the inequality gap in a whole range of industries, and specifically in higher education, are hotly disputed. Human capital theorists (e.g., Becker, 1975) seek to explain disparities in terms of differences in skills and experience between different groups of workers (Jacobsen, 2003). Women and men are seen as making different choices around the accumulation and deployment of education and skills linked to perceptions of what will bring the greatest returns, given their family commitments (Toutkoushian et al., 2007; Uhly et al., 2017). They have different ways of managing the work-life interface (Xiaoni & Caudle, 2016), different plans for engagement with paid work over the life-course (Metcalf, 2009) and have less work continuity and labour market experience due to part-time employment

(Perna, 2005). Empirical evidence for the human capital approach specifically in relation to Higher Education comes from studies that account for human capital investment, performance measures, and type of university as explanators, and report gender pay gaps of 22% and 6.8% after controls inserted (Umbach, 2007).

Critics draw attention to the limitations of human capital theory, emphasising that preferences are underpinned by the gendered context of HE (Perna, 2005). Pay penalties in HE may emerge indirectly from the unequal effects of being segregated into types of institution, academic disciplines, contracts, and work roles that women are better able to manage alongside an uneven division of domestic work – but which have lower prestige and value. Cama et al. (2016) reported on a range of studies arguing that gender pay gaps cannot be explained by differences in individual, faculty, and institutional attributes, leaving open the possibility that there are organisational, cultural, and Human Resource (HR) effects. Gaps may also emerge because of discretionary pay practices which have the effect of disadvantaging groups in the way that ‘merit’ is constructed (Elvira & Graham, 2002). Typical of the UK HE sector, the two universities in our study formally abide by a framework of ‘meritocratic’ principles (Littler, 2018). Both deploy an objective reward system based on job evaluation plus a range of ‘best’ HR equality measures designed to overcome structural obstacles. We now discuss the potential of these measures to eliminate gender pay gaps, along with feminist critiques.

Recognising ‘Merit’ in Pay Structure Design in the UK’s HE Sector

Academic pay is determined within a market-based allocative system which seeks to reward individual effort, agency, and achievement. In theory, the design of the pay system is to produce standardised pay decisions, pegged to an objective scale, reducing flexibility and managerial discretion (Reskin, 2000). The establishment of a sector-wide joint negotiating committee in 2001 included the objective ‘to modernise pay arrangements with the specific aim of promoting equality, transparency and harmonisation to ensure equal pay is delivered for work of equal value’ (UCEA, 2008: 3 as cited in Perkins & White, 2010). Almost all UK institutions, including our research sites, implemented the framework. The assumption is those who are not highly rewarded are not disadvantaged by unjust or discriminatory organisational practices, but rather because of their lack of personal merit (Simpson & Kumra, 2016); being abilities, achievements and ‘deservingness’ (Thornton, 2013). There are links to be made here with post-feminist governance regimes (Lewis, 2017) where the structural inequalities foregrounded in second-wave feminism are said to have been overcome, meaning women’s experience is dictated by their

individual merit alone and feminist collective objection or action is redundant.

Critiques of Assumptions of ‘Merit’ in HE

There are limits to assumptions of the equality of ‘merit’ between genders. Scholars argue that a socially acceptable postfeminist subjectivity requires the simultaneous performance of both ‘ideal worker’ (Acker, 1990) masculinity in terms of ambition, drive, and active planning, but also femininity in terms of emotional nurturing behaviour (Hochschild, 1983) and personal appearance (Lewis, 2017). As men are not required to demonstrate such dual behaviours, it can be argued that standards of ‘merit’ are unequal. Simpson and Kumra (2016) and Simpson et al. (2020) observe how narratives of ‘merit’ and ‘deservingness’ intertwine and become a gendered issue – with deservingness relying on subjective evaluations based, in part, on personal values and normative expectations – which stands in contrast to merit, which is typically presented in the HE context as an objective, gender-neutral measure, based upon qualifications and the capacity of the individual to apply them to job-related tasks (Castilla, 2008, 2012; Castilla & Bernard, 2010; Simpson et al., 2020). Taken together, it is argued, merit fails to ‘stick’ to female bodies. Castilla and Bernard (2010) term this the ‘meritocracy paradox’: that systems that appear to reward skills and effort may involve processes that entrench discrimination. Understandings of ‘merit’ have been and continue to be determined by those at the highest levels of the organisational hierarchy – dominated by men, although there is some interest in the rise of women in positions of power (see Huffman, 2013), meaning that the benchmark for success is often based upon masculine traits and the male life-course. Simpson and Kumra (2016) add that such bias is largely hidden by the desire to see merit in fixed, universal terms (Sen, 2000) where it can assuage concerns about unequal allocations of power and authority and provide a discursive mechanism by which inequality is justified.

It follows that merit will also fail to stick to the bodies of other individuals who differ from the white, male, able-bodied ‘ideal worker,’ which has been found in other studies, including those that study the intersectional effects of gender alongside demographic factors such as ethnicity, class, family education history and disability on employment outcomes (Bowleg, 2008; Crew, 2020; Rickett & Morris, 2021; Śliwa & Johansson, 2014; Woodhams et al., 2015). Whilst an espoused meritocracy, the UK HE sector is responding to significant labour market pressures, which challenge attempts to ensure standard and transparent reward allocation. Government funding has been withdrawn, so the sector is in a period of rapid global reform. To compete for global talent, pressure is brought to bear to ensure that salaries are flexible. For example, in both case study universities,

following a selection panel, senior managers debate a salary point to offer based on perceived ‘deservingness’. The full grade range is available including ‘discretionary’ points in ‘exceptional’ circumstances. Pay offers are almost always negotiated (see Gamage et al., 2020), maybe with less motivation from female academics (Sarfaty et al., 2007). The agreed pay outcome is put to HR for approval and is rarely rejected. Enhanced pay increments can also be negotiated within-role as a retention payment. Subjective assessments of ‘merit’ have potential to undermine equitable outcomes.

Best Practice Equality and the ‘Merit’ Principle

It is recognised that women may be particularly constrained in demonstrating their ‘merit’ due to a range of factors such as additional responsibilities in the home domain, stereotyping and discrimination (Lewis & Simpson, 2010; Lips, 2013a, b). To give them full opportunity to develop, a raft of university initiatives has been introduced (Saltmarsh & Randell-Moon, 2015). In our two chosen universities, initiatives cover flexible hours of work and location (Rafnsdóttir & Heijstra, 2013) plus a variety of academic contract types, including part-time working, fixed-term working, and term-time working. To assist with social capital development, several women’s leadership and mentoring initiatives have been introduced (see Gallant, 2014). Both universities hold Athena Swan awards (Advance HE, n.d.), an external audit of good diversity practice. At least one department in each holds the highest gold level award. Compulsory training ensures equality and diversity compliance. The modern HE landscape is thus aligned with broader discussions of neoliberal feminism (Rottenberg, 2018) viewing the ideal neoliberal feminist subject as a ‘balanced woman’ (Rottenberg, 2014) who can manage a professional job role alongside intensive caring responsibilities. Neoliberal structures and cultures emphasise individual competition and merit and suggest the ‘ideal worker’ (Acker, 1990) is one unencumbered by responsibilities outside of work. Whilst our female academic subject might note the structures that disadvantage her as a woman (thus differentiating the neo-liberal subjectivity from the postfeminist one), she looks inwardly, guided by these workplace equality initiatives that focus on individual action and adaptation (around working hours and better ‘leaning in’ to organisational structures) to resolve the tension, rather than looking towards collective action to change underlying structures.

There is also criticism from gender scholars concerning interpretation of meritocratic principles within HE, arguing that activities that are seen to be meritorious are those on which men spend more time and have greater success. The highest valued activities when it comes to pay and progression in academia are entrepreneurial research activities (Priola, 2007; Thornton, 2013), including peer-reviewed

publications in high-ranking academic journals and citation figures. There is some evidence that men outperform women in these metrics (Monroe et al., 2008), but this is by no means universal (Nakhaie, 2007; Nielsen, 2016; Shauman & Xie, 2003). Female academics tend to spend more time on pastoral work, as they are expected to be nurturing and accommodating to student requests (El-Alayli et al., 2018) and undertake the bulk of administration and citizenship activities (Perna, 2005). Male academics engage in greater institutional mobility than women academics (Leemann, 2010), enabling networking and increased opportunities to collaborate (Loacker & Sliwa, 2015). Universities tend to be sites where patriarchal relations and gendered hierarchies of power flourish to the disadvantage of women (Bagilhole & Goode, 2001).

Policy Implications

There are significant policy implications in this area. The UK's Athena Swan, Gender Equality Charter Mark (Madrell et al., 2016) and Gender Pay Gap mandatory reporting initiatives are all shedding light on pay gaps at the employer level. These initiatives raise awareness of pay gaps and provide data that is useful in making sectoral comparisons. However, given that reported data is aggregated, there are limitations in their usefulness in illuminating comparative and potentially unfair reward practices at the employee level. Our analysis addresses that gap.

Method

Ethical approval was sought and obtained from the University of Exeter prior to the analysis of this data. Data is secondary in nature. Data is confidential and storage arrangements complied with General Data Protection Regulations.

Sample Characteristics

Tables 1 and 2 provide descriptive statistics for two Russell Group universities that comprised the analysis. The two universities are matched in their gender split being 43% and 44% female. Ethnic origin data is categorised into sixteen categories. Nationality data is given in 76 categories in one university and 54 in the other. To ensure viable categories for analytical purposes they were recategorized into White/BME and British/non-British dummy variables. In University 1, 85% of men and 89% of women identify as white. Sixty-six percent of men and 61% of women identify as British. University 2 is matched with corresponding figures of 90%, 89%, 70% and 63%, respectively. Disabled status is self-nominated at the point of recruitment or by updating the self-service HR administration platform. Disabled workers

comprise 4% of the workforce in both universities. Sex is given in binary format. Maternity leave taken in the past five years (yes/no) is a dummy variable for women only. The maternity leave variable cannot be added to a fully-fledged Oaxaca-Blinder decomposition as it is meaningfully defined for female academics only. It is not included in the main analyses reported. We add a note below explaining its effects entered in the regression equation.

Grade and seniority are denoted in five hierarchical bands (Associate Lecturer, Lecturer, Senior Lecturer, Reader and Professor, in order of seniority). In both universities, men are significantly more likely to be more senior in higher grades. Men have significantly longer length of service (LOS; 6.18 and 9.25 years for men, compared with 5.41 and 6.84 for women) and significantly more years in the HE sector (8.83 years compared with 8.07 for women) in University 1, but less in University 2 (11.58 years compared with 15.29). Most staff (75% and 92%) hold a doctorate as their highest-level qualification.

Measures

The dependent variable is salary. Individual payroll data was obtained for all academics employed by University 1 ($N = 1,998$) and University 2 ($N = 1,789$). Payroll data has greater reliability than self-reported pay (see Leslie et al., 2017) and greater validity for investigating the connection of employment histories to pay than aggregated data (van Wanrooy et al., 2013). Salary data is taken for a single month (Feb 2018 for University 1 and July 2018 for University 2). To protect the anonymity of the universities we obscure certain features including the organisation's location in the UK. Support staff are excluded.

The salary structure in both universities is a multi-grade single pay spine linked to tenure and grade and based on a Higher Education Role Analysis job evaluation exercise. Starting salary is based on qualifications, experience, perceived merit, and previous salary. Movement between grades is determined by promotion into a different role. Scheduled pay raises (so-called 'increments') are awarded annually (as of 1 August each year) until the job holder reaches the top of the normal grade range. Each grade, except Professor, then has four to five 'discretionary' points that can be used to recognise extra 'merit'. Professorial salaries are personally negotiated, subject to university-specific banding of pay. Starters and leavers have been removed from the dataset. Full-time equivalent (FTE) pay has been created to remove the effects of part-time working. Both universities award increments during maternity leave.

Salaries are attached to a common UK HE intuitions 51-point pay scale (UCU, 2022). There is considerable variation between universities in attaching grades to pay scale points, for example in one university a Reader grade

Table 1 Descriptive statistics: University 1

Variable	Pooled sample		Average for men	Average for women	<i>t</i> -test for gender differences
	<i>Average</i>	<i>Std. Dev</i>			
FTE salary	46,681.31	20,264.01	50,050.21	42,192.06	9.21***
Women	0.43	0.49	0.00	1.00	N/A
White	0.87	0.34	0.85	0.89	-2.44*
British	0.64	0.48	0.66	0.61	2.08*
Disabled	0.04	0.19	0.04	0.04	-0.14
Age (years)	41.50	9.83	41.98	40.86	2.57*
Length of service (years)	5.85	5.98	6.18	5.41	2.95**
# of years in HE sector	8.51	6.19	8.83	8.07	2.77**
Education level= A level/ HNC etc	0.00	0.04	0.00	0.00	-0.28
Education level= Bachelor's Degree	0.05	0.22	0.04	0.06	-1.96*
Education level= Masters	0.13	0.33	0.10	0.16	-4.05***
Education level= Doctorate	0.75	0.43	0.79	0.69	4.99***
Education level= Other	0.07	0.26	0.07	0.08	-1.37
Faculty = Engineering	0.21	0.41	0.29	0.09	11.70***
Faculty = Social sciences	0.15	0.35	0.13	0.16	-1.62
Faculty = Medicine	0.14	0.35	0.10	0.20	-6.38***
Faculty = Business	0.08	0.27	0.09	0.07	1.51
Faculty = Humanities and Arts	0.16	0.37	0.12	0.22	-5.48***
Faculty = Environment and Life sciences	0.26	0.44	0.26	0.25	0.36
Fixed-term contract	0.39	0.49	0.37	0.41	2.21*
Time-limited funding contract	0.02	0.13	0.01	0.03	-2.76**
Permanent contract	0.60	0.49	0.62	0.56	2.97**
Full-time	0.83	0.38	0.88	0.76	7.13***
Pay grade= Associate Lecturer	0.17	0.38	0.14	0.22	-4.82***
Pay grade= Lecturer	0.39	0.49	0.38	0.41	-1.44
Pay grade= Senior Lecturer	0.21	0.41	0.20	0.22	-1.30
Pay grade= Reader	0.09	0.28	0.10	0.07	2.08*
Pay grade= Professor	0.14	0.35	0.19	0.07	7.79***
Job family= Teaching and research	0.50	0.50	0.54	0.44	4.75***
Job family= Teaching only	0.14	0.35	0.12	0.16	-2.80**
Job family= Research only	0.36	0.48	0.34	0.40	-2.86**

FTE salary is full-time-equivalent annual base salary expressed in GBP. Female, White, British, and Disabled are indicator variables equal to 1 for employees who are female, white, British, and disabled, respectively, and zero otherwise. Education level are defined as between Level 4 and Level 8 on the EFQ framework. Each of academics is employed in one of six university faculties: Engineering, Social sciences, Medicine, Business, Humanities and Arts, or Environment and Life sciences. Their employment contracts can be of one of three types coded Fixed-term contract, Time-limited funding contract, and Permanent contract indicator variables, respectively. Full-time is the indicator variable equal 1 and 0 otherwise. Academics are five in pay grades: Research Assistant and Assistant Lecturer, Lecturer and Research Fellows, Senior Lecturer and Senior Research Fellows, Reader and Professor (coded as indicator variables). All academic posts are classified in three categories: Teaching and research, teaching only, or research only (again coded as indicator variables)

*** $p < .001$; ** $p < .01$; * $p < .05$

applicant might be appointed between scale point 45 (currently £52,559) and scale point 50 (currently £60,905) and in another, the Reader scale might sit between points 41 and 47. However, internally, a university will always (in theory) appoint staff in the same academic grade to the same range of scale points. University 2 has awarded their female professors a one-off salary uplift (mean of £3,435) following Essex University (BBC News, 2016). The uplift was applied

in Sept 2016 with reference to the mean of male professorial salaries in the discipline and taking account of length of service.

Analytic Strategy

To examine the first research question on the reasons for gender pay differences, we calculate simple mean gender

Table 2 Descriptive statistics: University 2

Variable	Pooled sample		Average for men	Average for women	<i>t</i> -test for gender differences
	<i>Average</i>	<i>Std. Dev</i>			
FTE salary	50,361.41	20,358.46	54,668.46	46,556.27	9.48***
Women	0.44	0.50	0.00	1.00	N/A
White	0.90	0.31	0.90	0.89	0.14
British	0.67	0.47	0.70	0.63	2.76**
Disabled	0.04	0.18	0.03	0.04	0.14
Age (years)	44.10	10.85	45.07	42.85	4.38***
Length of service (years)	8.20	8.31	9.25	6.84	6.39***
# of years in HE sector	13.18	65.95	11.58	15.29	1.00
Education level = A level/ HNC etc	0.00	N/A	0.00	0.00	N/A
Education level = Bachelor's Degree	0.00	0.02	N/A	0.00	N/A
Education level = Masters	0.03	0.18	0.03	0.05	2.26*
Education level = Doctorate	0.92	0.27	0.93	0.90	2.77**
Education level = Other	0.03	0.16	0.03	0.03	0.34
Faculty = Sciences	0.53	0.50	0.59	0.46	5.82***
Faculty = Social sciences	0.27	0.44	0.22	0.33	5.26***
Faculty = Humanities and Arts	0.20	0.40	0.19	0.21	1.32
Fixed-term contract	0.29	0.45	0.28	0.30	1.25
Permanent contract	0.71	0.45	0.72	0.70	1.25
Full-time	0.76	0.43	0.82	0.69	6.12***
Pay grade = Associate Lecturer	0.02	0.13	0.00	0.03	4.48***
Pay grade = Lecturer	0.30	0.46	0.26	0.34	3.52***
Pay grade = Senior Lecturer	0.28	0.45	0.26	0.31	2.09*
Pay grade = Reader	0.22	0.41	0.22	0.21	0.62
Pay grade = Professor	0.19	0.39	0.25	0.11	8.08***
Job family = Teaching and research	0.51	0.50	0.56	0.42	6.76***
Job family = Teaching only	0.16	0.37	0.13	0.20	3.96***
Job family = Research only	0.33	0.47	0.29	0.38	3.91***

FTE salary is full-time-equivalent annual base salary expressed in GBP. Female, White, British, and Disabled are indicator variables equal to 1 for employees who are female, white, British, and disabled, respectively, and zero otherwise. Education level are defined as between Level 4 and Level 8 on the EFQ framework. Each of academics is employed in one of three university faculties: Sciences, Social sciences, or Humanities and Arts. Their employment contracts can be of one of two types coded Fixed-term contract or Permanent contract indicator variables, respectively. Full-time is the indicator variable equal 1 and 0 otherwise. Academics are five in pay grades: Research Assistant and Assistant Lecturer, Lecturer and Research Fellows, Senior Lecturer and Senior Research Fellows, Reader and Professor (coded as indicator variables). All academic posts are classified in three categories: Teaching and research, Teaching only, or Research only (again coded as indicator variables)

*** $p < .001$; ** $p < .01$; * $p < .05$

differences in base pay rates. We then make use of regression analysis, which isolates gender pay differences if all other variables are held constant. This is, of course, hypothetical as men and women are rarely matched, so we use the Oaxaca-Blinder decomposition (OBD) technique (Blinder, 1973; Oaxaca, 1973). This technique identifies the extent to which pay gaps are due to the different 'endowments' of men and women. Endowments constitute differences between men and women that are meaningful within pay allocation; in other words, their simultaneous distribution across ranks of well-rewarded and less well-rewarded features. For ease of reporting, we have bundled these features into a) demographic (being age, gender, disability, ethnicity

and nationality), b) human capital (education, length of service, and length of service in HE), and finally c) segregation and job (faculty of employment, grade & seniority, type of contract, duration of contract, and whether FT or PT). This analytic technique examines which differences and in what proportion men's and women's 'endowments' create the gender pay gap.

To address the second research question, we further explore the outcomes of the OBD highlighting the different rates of financial return to endowments, known as 'coefficients' and 'interaction' elements. These elements reveal whether having the same feature, for example a doctorate, results in a differential financial return for men, vis a vis

women. Where, and if, this occurs, we consider this to be pay discrimination and indicative of an unbalanced institutionalised interpretation of salary-worthy ‘merit.’

Results

Research Question 1

The mean salary for men academics is £50,050 and £42,192 for women ($t=9.21$, $p < .001$, see Table 1) in University 1 and £54,668 and £46,556 in University 2 ($t=9.48$, $p < .001$, see Table 2). Despite differences between universities in pay

levels, gender pay differences are consistent. University 1 has a gender disparity of £8,308, or 15.7% and University 2 has £8,112 or 14.8%, favoring men. Table A1 (University 1) and A2 (University 2) in the online appendix provide mean pay based on demographic and job-related characteristics. Based on this initial analysis, we can only draw limited conclusions on ways that job, work, and personal characteristics underlie gender pay differences. To explore further, we first conduct regression analysis and then undertake Oaxaca-Blinder decomposition analyses (Jann, 2008).

Tables 3 and 4 give results of pooled and subsample regression analyses. Regression analysis is informative because it shows the effect on pay of a single characteristic

Table 3 Pooled sample and men and women subsamples regressions explaining annual base salaries (FTE equivalent in GBP): University 1

Variable	Pooled sample regression		Sub-sample regression (men only)		Sub-sample regression (women only)	
	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>
Female	-1069.55	-2.68**				
White	700.11	1.20	902.24	1.01	346.31	0.57
British	148.70	0.34	758.74	1.06	-597.58	-1.47
Disabled	-73.52	-0.08	-1448.07	-0.93	2123.10	2.22*
Age (years)	226.94	8.39***	288.15	6.58***	142.17	5.29***
Length of service (years)	-48.63	-1.05	-158.64	-2.36*	195.15	3.56***
# of years in HE sector	88.68	1.87	105.26	1.47	31.91	0.62
Education level=6	2959.66	0.73	2905.75	0.42	3372.45	0.90
Education level=7	1706.64	0.42	529.24	0.08	3409.48	0.92
Education level=8	2376.82	0.59	2110.65	0.31	3579.77	0.97
Education level=Other	1735.95	0.43	977.70	0.14	3343.96	0.89
Faculty = Social sciences	-1634.37	-2.44*	-1958.72	-1.97*	-999.08	-1.26
Faculty = Medicine	1333.32	1.97*	1676.53	1.52	1270.19	1.70
Faculty = Business	2071.55	2.59**	1856.69	1.60	2572.84	2.70**
Faculty = Humanities and Arts	-2542.75	-3.81***	-3139.77	-3.02**	-1932.01	-2.51*
Faculty = Life sciences	-263.50	-0.46	-784.89	-0.96	415.42	0.59
Time-limited funding contract	229.54	0.16	37.08	0.01	-554.13	-0.46
Permanent contract	1112.01	1.45	1787.95	1.47	596.73	0.78
Full-time	-121.42	-0.22	-168.08	-0.16	278.01	0.57
Pay grade=Lecturer	6623.64	11.11***	6395.51	6.24***	6873.55	12.60***
Pay grade=Senior Lecturer	13,528.65	16.82***	13,165.97	9.68***	13,555.60	18.07***
Pay grade=Reader	23,506.42	23.33***	23,136.50	14.39***	23,629.22	23.39***
Pay grade=Professor	51,466.49	51.45***	51,772.16	32.78***	48,382.55	45.38***
Job family = Teaching only	-2024.51	-2.83**	-2291.09	-2.02*	-1357.69	-1.90
Job family = Research only	-2274.66	-2.73**	-1798.08	-1.39	-2253.32	-2.66**
Intercept	20,499.27	4.80***	18,180.13	2.53*	21,041.37	5.29***
<i>N</i>	1854		1060		794	
<i>R</i> -squared	0.85		0.83		0.88	
<i>F</i> -test	$F(25,1828) = 406.07***$		$F(24,1035) = 212.62***$		$F(24,769) = 253.14***$	

The variables are defined in note to Table 1. Indicator variables for Education level 4 or 5, Engineering faculty, Fixed-term contract, pay grade: Research Assistant, and Teaching and research job family are omitted due to collinearity. These should therefore be considered baseline reference categories

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 4 Pooled sample and men and women subsamples regressions explaining annual base salaries (FTE equivalent in GBP): University 2

Variable	Pooled sample regression		Sub-sample regression (men only)		Sub-sample regression (women only)	
	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>
Female	-1271.77	3.34***				
White	497.76	0.81	1408.71	1.43	-584.22	1.01
British	216.32	0.52	260.24	0.38	452.22	1.19
Disabled	-988.18	0.99	-1785.25	1.13	-172.97	0.18
Age (years)	273.32	11.04***	370.33	8.79***	172.90	7.80***
Length of service (years)	-98.16	3.29***	-155.56	3.23**	19.21	0.57
# of years in HE sector	-0.46	0.17	-50.00	0.72	0.31	0.19
Education level=7	-2042.20	1.26	-3635.35	1.21	-1362.91	1.04
Education level=8	-1327.47	1.02	-2254.50	0.92	-1103.86	1.07
Education level=Other	-4140.72	1.99*	-4976.96	1.47	-4084.39	1.92
Faculty = Social sciences	-1534.90	3.50***	-1838.96	2.50*	-773.06	1.97*
Faculty = Humanities and Arts	-1998.42	3.97***	-3011.65	3.87***	-745.02	1.48
Permanent contract	2297.38	3.68***	2642.56	2.60**	2339.27	4.03***
Full-time	-1786.36	3.92***	-2209.93	2.84**	-1237.98	3.13**
Pay grade=Lecturer	7625.95	4.81***	4731.52	1.05	8828.80	7.51***
Pay grade=Senior Lecturer	13,815.40	8.82***	10,512.13	2.31*	15,127.24	13.08***
Pay grade=Reader	22,517.47	13.65***	18,993.66	4.08***	23,933.90	19.14***
Pay grade=Professor	47,960.81	27.63***	45,139.61	9.57***	46,708.52	33.59***
Job family=Teaching and research	3866.84	6.18***	4573.60	4.45***	3104.88	5.43***
Job family=Research only	1217.09	1.90	1629.65	1.48	918.09	1.64
Intercept	19,461.44	8.36***	19,201.88	3.53***	20,808.91	11.24***
<i>N</i>	1690		963		727	
<i>R</i> -squared	0.86		0.83		0.91	
<i>F</i> -test	$F(20,1669) = 502.25***$		$F(19,943) = 248.73***$		$F(19,707) = 392.90***$	

The variables are defined in note to Table 2. Indicator variables for Education level 6, Science faculty, Fixed-term contract, pay grade: Research Assistant, and Teaching=only job family are omitted due to collinearity. These should therefore be considered baseline reference categories

*** $p < .001$; ** $p < .01$; * $p < .05$

isolated from others. The pooled (men and women) sample shows that a significant proportion of pay is explained by factors of horizontal and vertical segregation (i.e., faculty and grade), however segregation is not the only effect. Experience at the university (University 2) and in the HE sector (University 1) is positively correlated with salary, as is age and job family at both universities. Education level is not a strong predictor of wage in this sector, except that in University 2 having an 'other' qualification creates a significant disadvantage of £4,140 per year. After inserting all controls, detriments of £1,070 and £1,272 for women are attached to gender.

The origins of the alarming and unexplainable pay difference can be explored first via subsample regression analysis. Regression analysis measures the differences between men and women in their pay as if all other characteristics are equal. Tables 3 and 4 show that employment factors are not equally rewarded, and not always in the expected direction. For example, in both universities,

men experience a penalty compared with women for being in a Humanities faculty (-£3,140 compared with -£1,932 in University 1 and -£3,012 compared with -£745 in University 2) with similar patterns in Social Science faculties. Similarly, men are paid less in every grade in University 2, when all other factors are accounted for, and in all except the Professorial grade in University 1. There is also a difference between how men and women are rewarded for length of service at both universities; men being rewarded for short service at both universities. Whilst this is an interesting analysis, it is hypothetical one because it assumes all characteristics other than gender are identical. But gender career differences are dynamic and interactional and regression analysis is imprecise as to whether and to what extent each difference contributes to the actual pay disparity between men and women. For this we turn to an OBD. What follows is an explanation of those findings.

Endowment Effects

Decomposing the pay gap shows consistency between universities. In total, as shown within Tables 5 and 6, a total of over 81% (£6,335.60) of the gender gap at University 1 and 79% (£6,554.21) at University 2 is attributable to gender differences in bundles of endowments: being demographic, human capital, and segregation/ job characteristics. In other words, most of the pay gap is explained by differences in the way that men and women engage with the jobs, roles, and disciplines that are linked to higher [or lower] pay. A further 12% (£904.51) in University 1 and 11.9% (£978.70) in University 2 per year is due to gender differences in coefficients – i.e. differences in the way these endowments attract reward. The remaining 7% (£563.62) and 8.6% (£706.42) is due to the interaction of

gender differences in coefficients and the strength of their effects.

More specifically, most of the pay gap in both universities pertains to job segregation. For example, although like-for-like women are paid more, for example, in a Reader role (as above), the fact that they are underrepresented in Reader and Professorial grades is key. If women academics were as likely to reach the Professor grade as men, the annual gender pay gap would shrink by £5,518.14 at University 1 and £6,825.93 in University 2. Additionally, women are over-represented in the low-paid research-only job family in University 1 and teaching-only job family in University 2, adding to the gender pay gap. Women are over-represented in the lowest-paying faculty (Faculty of Humanities) in University 1 and under-represented in the highest-paying faculty (Faculty of Social Sciences) in University 2. In University

Table 5 Oaxaca-Blinder decomposition of gender differences in annual base salaries (FTE equivalent in GBP): University 1

Variable	Endowment component		Coefficient component		Interaction component	
	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>
Demographic characteristics						
White	-12.91	-0.55	496.42	0.51	-20.73	-0.50
British	-24.71	-1.15	842.15	1.65	56.09	1.23
Disabled	-4.78	-0.25	-139.43	-1.85	8.04	0.25
Age (years)	185.91	2.54*	5939.98	2.84**	190.88	2.03*
Human capital characteristics						
Length of service (years)	159.00	2.29*	-1889.52	-4.04***	-288.25	-2.42*
# of years in HE sector	23.20	0.60	595.75	0.83	53.32	0.79
Education level = 6	-84.06	-0.84	-30.56	-0.06	11.63	0.06
Education level = 7	-188.30	-0.89	-449.81	-0.37	159.07	0.37
Education level = 8	353.71	0.95	-1023.20	-0.19	-145.16	-0.19
Education level = Other	-60.27	-0.77	-187.75	-0.30	42.65	0.30
Segregation and job characteristics						
Faculty = Social sciences	23.76	0.94	-152.29	-0.75	22.82	0.67
Faculty = Medicine	-134.53	-1.64	82.91	0.31	-43.04	-0.30
Faculty = Business	55.61	1.45	-48.71	-0.48	-15.48	-0.46
Faculty = Humanities	175.50	2.25*	-260.11	-0.93	109.71	0.92
Faculty = Life sciences	-0.27	-0.03	-309.90	-1.11	0.77	0.03
Time-limited funding contract	9.60	0.46	16.38	0.19	-10.25	-0.19
Permanent contract	45.19	0.76	657.12	0.83	90.20	0.80
Full-time	35.58	0.57	-337.66	-0.38	-57.09	-0.38
Pay grade = Lecturer	-176.47	-1.11	-196.27	-0.41	12.27	0.39
Pay grade = Senior Lecturer	-353.30	-1.36	-85.87	-0.25	10.15	0.25
Pay grade = Reader	592.16	1.88	-37.85	-0.26	-12.35	-0.26
Pay grade = Professor	5518.54	7.47***	243.33	1.73	386.62	1.73
Job family = Teaching and research	46.80	1.42	-142.24	-0.69	32.17	0.66
Job family = Research only	150.65	1.98*	182.90	0.29	-30.44	-0.29
Intercept			-2861.24	-0.35		
Total	6335.60	8.08***	904.51	2.15*	563.62	1.81

The variables are defined in note to Table 1. Baseline reference categories are the same as in Table 4

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 6 Oaxaca-Blinder decomposition of gender differences in annual base salaries (FTE equivalent in GBP): University 2

Variable	Endowment component		Coefficient component		Interaction component	
	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>	<i>Coeff</i>	<i>t</i>
Demographic characteristics						
White	0.18	0.02	1792.81	1.75	-0.63	-0.50
British	28.65	1.09	-121.00	-0.25	-12.16	1.23
Disabled	-0.21	-0.11	-53.22	-0.86	-2.02	0.25
Age (years)	385.74	3.77***	8577.29	4.16***	443.33	2.03*
Human capital characteristics						
Length of service (years)	45.44	0.57	-1278.25	-2.95**	-413.44	-2.67**
# of years in HE sector	-1.16	-0.18	-769.35	-0.71	186.50	0.58
Education level = 7	22.73	0.91	-96.89	-0.69	37.90	0.65
Education level = 8	-25.79	-0.93	-1060.4	-0.43	-26.90	-0.42
Education level = Other	-29.91	-1.13	-7.37	-0.22	-6.53	1.24
Segregation and job characteristics						
Faculty = Social Sciences	-90.9	1.85	-353.34	-1.28	125.33	1.24
Faculty = Humanities and Arts	16.24	0.88	-480.13	-2.41*	49.40	1.01
Permanent contract	59.03	1.13	221.94	0.26	7.65	0.25
Full-time	-156.43	-2.77**	-668.46	-1.11	-122.82	-1.09
Pay grade = Lecturer	-757.61	-3.45***	-1313.15	-0.88	351.60	0.86
Pay grade = Senior Lecturer	-566.54	-1.67	-1409.29	-0.98	172.84	0.85
Pay grade = Reader	176.12	0.36	-1107.65	-1.02	-36.35	-0.34
Pay grade = Professor	6825.93	7.70***	-181.28	-0.32	-229.30	-0.32
Job family = Teaching only	528.90	4.30***	628.30	1.25	250.18	1.23
Job family = Research only	-87.99	-1.53	266.22	0.57	-68.19	-0.57
Intercept			-1607.03	-0.28		
Total	6554.21	8.39***	978.70	1.68	706.42	1.40

The variables are defined in note to Table 2. Baseline reference categories are the same as in Table 6

*** $p < .001$; ** $p < .01$; * $p < .05$

2, women are over-represented in the lower-paying academic grades. Job segregation in seniority and faculty, then, explains over three-quarters of the gender discrepancy in pay in both universities (with Professoriate under-representation solely accounting for over 70%). Differences in demographic and human capital endowments also contribute to the gender disparity in pay. Since women academics are, on average, slightly younger and age has a strong positive association with pay, age constitutes another source of gender pay differences. Differences in LOS at University 1 (men have more service) also helps to explain their higher pay.

Research Question 2

We have seen that segregation (i.e., differences in ways that men and women engage in HE careers), accounts for the majority, but not all the pay difference. There are also uneven gender effects in the financial return to these features, which can be seen in the coefficient and interaction columns of Tables 5 and 6. For example, whilst women academics being younger and less likely to hold senior

academic positions contributed to the pay gap (as above), the coefficient component indicates that age and seniority have a higher return for equal endowments for men academics. Being older benefits men by £288.15 per year in University 1 and £370.33 in University 2, but women 'return' less than half (£142.17 and £170.90 per annum) of this for the exact same feature (i.e. being a year older). This unequal return to age accumulates year-on-year to contribute £5,939.98 / £8,577.29 in favour of men to the gender pay gap. Moreover, we know fewer women academics have reached the Professorial grade, however the coefficient column shows that women in University 1 reap a significantly smaller financial return after achieving it (explaining £243.33 of the gender pay gap) compared to their otherwise-equal male peers. In other words, there seems to be a 'double-whammy' discriminating effect for women: not only are they less likely to possess the characteristics associated with higher pay, even those who do so, are under-paid in comparison. University 2 appears to have staved off these effects, perhaps via their targeted salary uplift in 2016.

The effects of differences in coefficients pertaining to age and seniority are partly offset by gender differences in the effect of the length of service at both universities. Women benefit from longer tenure (reducing the pay gap by £1,889.52 / £1,278.25 pa). Whilst this might seem positive, it indicates that men, because they gain through age, but not length of service, benefit more from increased mobility. Men move more often, and this works to their financial benefit.

Differences in the financial return to demographic features are also important. At University 1, all else being equal, being British is lucrative for men academics but not women (explaining £842.15; more than 10% of the pay gap). At University 2, being white is a benefit for men only, returning an additional £1,792.81 per year into their pay packets. There is also a small, yet statistically significant, gender difference in the effects that disability has on pay in University 1, to the benefit of disabled women; and a larger advantage to women working in Humanities and the Arts in university 2 of £480.13 annually.

Interaction Effects

The aforementioned effects of age and length of service are further strengthened by the significant differences in the effects of interactions of coefficients and endowments in both datasets. For instance, the age interaction component is positive as the returns to age for men tend to be greater, while at the same time they have higher values attached to the age variable.

Discussion

This paper has analysed payroll data from two UK Russell Group universities with formal payment schemes, based on incremental pay scales and job evaluation. By controlling for human capital, job segregation, and demographic variables, our findings suggest flaws with the way that gender pay differences are regarded and being addressed in academic institutions. The findings help us understand how ‘merit’ is represented within the ostensibly ‘objectively determined’ pay scales of both universities. As we might anticipate, most ‘merit’ is attributed to seniority and length of service. However, these features are not equally rewarded between men and matched women. The seniority effect is disproportionately advantageous (in pay terms) when attached to men. Men are rewarded for mobility while women are rewarded for loyalty. And a significant proportion of our gender pay gap is linked to features that are not of direct relevance. Men are rewarded in one university for Britishness and the other for whiteness. There are small advantages for women, but these are less numerate and not as financially advantageous.

To elaborate, our findings pertaining to our first research question support previous observations around occupational segregation in explaining pay gaps, i.e., that through conformance to social role (Eagly, 1987), individual preference (Hakim, 2000) or discriminatory treatment (Lips, 2013a), women are under-represented in highly-paid academic roles (Doucet et al., 2012), and higher-paying grades (Ornstein et al., 2007) and over-represented in wage-depressed women-dense disciplines (Reskin & Roos, 2009). We show that women and men have different ‘endowments’ (i.e., men are more likely to be older and to be a Professor) that pay out to men’s advantage. Good equality practices such as those within the Athena Swan accreditation, will, if effective, decrease pay differences in relation to these factors. However, our analysis also shows in line with neo-liberal critiques that the benefit of investing in remedies like these will be limited because of organisation-level management practices.

Analysis pertaining to the second research question demonstrated that even if women were to become equally endowed, a significant proportion of the pay gap will be left untouched. Equally endowed women at University 1 earn less like-for-like in the Professorial grade. In both, they earn less each year for equal age. It could be argued that these variations stem from cohort-level differences in human capital, with older women accumulating less quality experience, even if their qualifications and length of service match, however prior literature argues that cohort effects are less significant than life-cycle effects, i.e. ageism in academia (Maguire, 1995). It could also be the case that the gender-specific returns to age might result from career breaks stemming from maternity leave periods, however when the maternity leave dummy is included in the regression model the main effect is not significant and other results are upheld. Additionally, length of service is most strongly rewarded if it is short and if the academic is male. Our overall finding is that women have a significant pay penalty, for reasons of segregation (which might also contain discriminatory influences that are hidden from our view), but most importantly because they do not have features in common with older white or British professors who frequently move universities.

There are two inferences here. The first inference in our findings is that pay judgements in academia are made based on an organisational-level understanding of ‘merit’ that ‘sticks’ to certain types of men’s bodies, specifically, white and British older Professors with a record of mobility. This finding supports previous work that shows how these features are of benefit to men. Results of ‘wisdom’ studies show that older men are more likely than older women to be regarded as cognitively ‘wise’ (Ardelt, 2009; Baltes et al., 1995), and that men, rather than women, inhabit the role of ‘Professor’, not ‘Teacher’, with ease (Miller & Chamberlin, 2000). Job mobility is lucrative for academics; however,

women feel the need to build and sustain a reputation with their employer to demonstrate competence (Blackaby et al., 2005; Booth et al., 2003) rather than moving jobs to demonstrate ambition. Women remain on the margins in academia trying to prove their skills whilst men strategize reputation (Krefting, 2003). Finally, intersectional ethnic academic women appear to be disproportionately disadvantaged by the combination of ethnicity and nationality and gender in comparison with ethnic men and white women (Eaton et al., 2020; McCall, 2005).

The second inference points to the failure of formalised payment systems in standardising starting and ongoing salary awards. It might be that women's actual or perceived inability to negotiate better salary packages into the discretionary grade points is the cause (Dittrich et al., 2014). It is well known that negotiation is a complex skill that is deeply ingrained in societal gender roles (Bowles & Babcock, 2013); women are less likely to be well-evaluated when they initiate negotiations (Bowles et al., 2005) and more likely to receive backlash (Amanatullah & Tinsley, 2013; Dannals et al., 2021; Rudman, 1998; Williams & Tiedens, 2016) which may serve to discourage them.

Limitations and Future Research Directions

There are limitations to the generalisability of our work. The paper is based on two cases with reputations for best-practice equality. Both are in the elite research-intensive group. Given the similarities between the two cases, it is highly likely that similar findings would be realised elsewhere in UK universities with a similar best practice-approach and use of standardised national pay and reward structures. However, higher pay gaps and greater wage dispersion has been found in research-intensive universities, so findings may differ in institutions that differently emphasise research output (Bailey et al., 2016; Mumford & Sechel, 2020). There are also limitations to validity of the data given that we do not have a full set of covariates on productivity/performance and how this might inform promotion and extra-ordinary decisions around base pay. Analysis of social class data, which was not available in this dataset, would add a valuable dimension of understanding for scholars interested in intersectional studies. To further strengthen our understanding of ways that organisations produce and reproduce unequal personifications of a 'meritorious' academic in future research projects, we encourage researchers to replicate our methodology in different universities and country contexts, comparing our outcomes with those achieved in organisations with different, and maybe less flexible, reward arrangements. We encourage studies that delve more deeply into the effects of intersecting identities on the causes of gender pay gaps for academics.

Practice Implications

Our findings have specific implications for human resource management professionals and senior leaders in HE and beyond, as they suggest flaws in the ways that gender pay differences are reproduced at the organisational level. In order to tackle the systemic problems highlighted in this paper, we recommend that alongside the typical package of positive action recruitment and promotion measures, such as mentoring (Cullen & Luna, 1993), changes are needed around how pay is structured and determined, as both appear to unfairly disadvantage women that are otherwise equally endowed. For example, we recommend the removal of 'discretionary' pay points that are typically used in circumstances where staff persistently self-proclaim their 'merit' to their managers, creating shorter pay scales which leave less room for managerial subjectivity to choose between pay points. We also recommend stronger guidance on the way that pay is set on appointment. A specific recommendation for University 1 is an immediate salary uplift of the type implemented at University 2. We also recommend positive action measures are extended to recognise the intersectional effects of gender with other disadvantaging personal characteristics such as nationality, ethnicity, and age. Our findings also have implications for academic women working/seeking work in UK HE institutions who may be unaware of their disadvantaged intersectional positioning, due to the principles of 'meritocratic ideology' underpinning existing structures and postfeminist/neoliberal feminist discourse. They are encouraged to explore collective forms of agency more akin to second-wave feminist action, such as vocal protest against pay disparities and engagement in trade union action.

Conclusion

Explanations of gender pay gaps are complex and multi-layered. In part, as previously identified in higher education, they result from differences in occupational segregation (Blau & Kahn, 2017), which is being tackled in many universities via established equality practice. Our findings, however, indicate additional contributors to pay gaps linked to intersecting features, for example increased age is less advantageous for women, and disability potentially less advantageous for men, and how organisation-level recognition of 'merit' sticks to certain bodies, enabled by specific and widespread reward practices. In conclusion we argue that pay structures premised on 'meritocracy', and initiatives that aim to level the playing field for academic women under the banner of 'best practice' reinforce postfeminist or neoliberal feminist sensibilities. Women academics, unknowingly complicit, look inwardly for the resolution of disadvantage whilst structures continue to discriminate against them.

However, our primary point here is that salary negotiation involves two parties and responsibility lies with those that carry institutional authority to recognise and reward to ensure that perceived ‘merit’ does not cloud judgement. We contend that our research raises awareness that the organisational space in which resource allocation takes place is influenced by socially defined relational power inequalities (Tomaskovic-Devey & Avent-Holt, 2019) that shape perceptions of ‘meritorious’ and ‘deserving’ features.

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Data Availability Data is held by each institution. We have a contract to publish with express agreement, but not to share data.

Code Availability STATA code available on request.

Declarations

Conflicts of interest We do not have conflicts of interest or competing interests to declare.

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