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Decomposing the barriers to equal pay: examining differential predictors of the gender pay gap by socio-economic group

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Our article examines different predictors of the gender pay gap at the mean and for different income groups. Using the United Kingdom Household Panel Survey (UKHLS), we provide a detailed analysis of the effects of individual work histories, with up to 40 years of retrospective data examined alongside other key indicators. Work histories provide a powerful means of measuring the long-term effects of reduced labour force attachment on pay for women and for men. We find that gendered differentials in work-history account for 29% of the gender pay gap at the mean and that the effects of women's reduced attachment vary by income group. We find men to earn a higher wage penalty to part-time work-histories than women, and find no evidence of a penalty to part-time work more generally in poor households. We conclude that gender equalisation policies need to reflect divergent needs by income group.

Key words: Gender pay gap, Sex-segregation, Work-history, Working-time.
JEL: B54, E24, J31

1. Introduction

Women, more often than not, continue to assume dual roles as workers and unpaid carers (Folbre, 2008), and the associated difficulties they face in the reconciliation of these roles continue to explain a significant portion of pay differentials between women and men (Budig and England, 2001; Blau and Kahn, 2017; Kleven *et al.*, 2019a). As many have noted, women work fewer hours, with less continuity,

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and, in almost all OECD countries, earn less (OECD, 2018). Though women have made considerable gains in their economic outcomes (e.g. Goldin, 2014; Blau and Kahn, 2017), notable disparities remain, with many scholars orienting themselves to identifying the barriers that account for this 'stalled revolution' (England and Li, 2006; England, 2010; Rubery and Grimshaw, 2015; Sullivan *et al.*, 2018). Key factors include ongoing difficulties in the reconciliation of motherhood with paid work (e.g. Goldin, 2014; Kleven *et al.*, 2019b) alongside unresolved tensions between gender and class inequalities (Rubery, 2019). Here, different political coalitions of interest, with competing policy agendas, are said to operate at different points of the earnings distribution (*ibid.*, p. 1788) with detrimental effects on progressive change. Our article, therefore, examines different predictors of the UK gender pay gap (GPG) at the mean and for different income groups to discern possible variation, and/or incongruence, in policy need. The UK presents a useful test case for heterogeneity in predictors of and solutions to the GPG given its higher-than-average unadjusted GPG (Leythienne and Ronkowski, 2018, p. 21) and its higher-than-average earnings inequality (Goos *et al.*, 2009) with conflicting policy agendas between groups more likely under such conditions. Key feminist theories that examine the mechanisms behind gendered pay inequalities inform our analysis. We examine Acker's description of the workplace as a 'gendered organisation' exploitatively structured around an ideal male worker norm which serves to peripheralise (female) worker-carers from positions of value within the firm (Acker, 1990; Williams, 2000; Kelly *et al.*, 2010). This theoretical reasoning echoes Goldin's call for the removal of the costs associated with enhanced flexibility at work (Goldin, 2014). In this paper, we provide evidence of the costs on pay of work-life reconciliation through analyses of retrospective work-histories, which detail gendered variance in working-time and unpaid labour force attachment. Our findings also engage with devaluation theory (e.g. England, 1992; England and Li, 2006; Magnusson, 2009), which asserts that women are culturally regarded to be inferior to men, and that the types of jobs they do, the skills they hold and consequentially the wages they receive are devalued by association. The cultural devaluation of women is primarily examined through analyses of both occupational sex-segregation and through assessments of the proportion of the GPG due to respondent sex[1]. We investigate the utility of devaluation theory whilst also recognising that a significant, and rising, portion of female 'devaluation' is expressed in penalties to motherhood. Motherhood has also been found to be predictive of significant changes in female labour force participation alongside preferences for specific types of job and sectoral characteristics, which might support its unique demands on female supply (Kleven *et al.*, 2019a). Estimates are provided at the mean and for two sub-groups on the right- and left-hand side of the distribution of earnings. We do this to determine whether different predictors of earnings inequality hold sway at different points of the earnings distribution, allowing us to examine how conflicting policy agendas might act as barriers to earnings equality between women and men.

[1] The UKHLS collects indictors on respondent's sex via interviewer coding. Respondent's sex has been collected in this manner since the first wave of the survey and mimics the data collection protocols of the panel which preceded it, the British Household Panel Survey which began in 1991. We repeat the original and current labelling of the variable here for precision and continuity.

2. Literature

2.1. Sex-segregation in time availability and labour force attachment

Sex-segregation in labour force attachment and working-time is understood to be remarkably rigid, with reduced female supply the norm in most countries (OECD, 2018). Women's reduced supply is thought to reflect; ongoing incompatibilities between workplace structures and (female) workers needs for work-life reconciliation (e.g. Acker, 1990; Williams *et al.*, 2013), as well as the cultural and political structures which reinforce male breadwinning and female care-giving. Below, we outline key findings relating to the role of reduced attachment on the gender pay gap.

Women have reduced supply as it is women who bear the costs of biological reproduction, alongside the delivery of the majority share of unpaid care work. This is reflected in the penalty for motherhood (e.g. Cooke, 2014; Kleven *et al.*, 2019b). Indeed, Kleven *et al.* (2019a), using a dynamic measure of the effect of children on pay, note that almost all gendered pay inequalities are due to the penalty to motherhood, and that the penalty is persistent and increasing across cohorts. Motherhood is penalised in the workplace due to: the demands it places on women's time availability; the ideological re-orientation to care work it may imply (Gangl and Ziefle, 2015) and due to a process of 'normative discrimination'. Here, experimental research has shown employers to discriminate against mothers in recommendations for promotion and pay (Benard and Correll, 2010), with research also pointing to variance in discriminatory pay practice by socio-economic position. For instance, England *et al.* (2016) find that the penalty for care work is higher amongst mothers in high-status positions.

Beyond the provision of part-time work, few workplaces afford workers work-life reconciliation policies (OECD, 2017) with employees' pursuit of work-life balance often seen as an indicator of reduced work ethic (Blair-Loy and Wharton, 2002). Workers with care responsibilities, who are unable to provide their labour unconstrained and who, therefore, cannot meet the requirements of the ideal worker, become peripheralised from full participation in paid work (e.g. Williams, 2000). Indeed, research has found negative evaluations of workers who pursue workplace flexibility and some have found women to be penalised to a greater extent than men (Munsch, 2016). Women are, therefore, thought to be at a particular disadvantage as their ability to mould themselves into the ideal worker norm is dependent on their willingness and capacity to avoid and/or outsource biological reproduction and home production. Women who are unable/unwilling to outsource/avoid these unpaid productive activities will continue to remain at a competitive disadvantage to (male) workers who can avoid them either as a result of their biology (male contributions to biological reproduction are comparatively short-lived[2]) or as a result of gendered norms (which continue to prescribe the majority of unpaid home production and care work to women, e.g. Kan *et al.*, 2011). While some suggest that gendered differentials in supply can be corrected through enhanced work-family reconciliation policies, including paid and unpaid parental leave, others suggest that these policies may have, themselves, acted to maintain reduced female supply (Pettit and Hook, 2009) with pernicious effects on women's earnings.

[2] Mothers carry and gestate a foetus for 40 weeks and give birth. There are known long-term health effects attributed to the physical and psychological traumas surrounding childbirth and postpartum healing (e.g. Neiger, 2017). Only women can breastfeed their children and even if they predominantly bottle feed, there are significant wage penalties associated with both (Rippeyoung and Noonan, 2012).

Indeed, Leuze and Strauß (2016) find higher hourly pay gaps in Germany for occupations with high concentrations of part-time work, and Matteazzi *et al.* (2018) attribute a large portion of the gender pay gap in 11 European countries to women's shorter working-hours. Women's inability to work very long hours is identified as a cause of the *widening* gender pay gap amongst higher earners in the US (Cha and Weeden, 2014), with extreme long-hour 24/7 availability out of reach of women with any care/domestic responsibilities.

While gender pay gap research has found clear associations between women's reduced supply and their pay, what is less well known is the cumulative effects of a *lifetime* of reduced attachment in its different forms, on pay. This is important as we can expect reduced attachment to manifest in different ways for different groups, and we can also expect differential penalties to different forms of detachment. Some research has examined the effects of historic labour force attachment, e.g. England *et al.* (2016) control for the number of hours spent in paid work for each person-year of the survey (*ibid.*, p.1170) and Boll *et al.* (2017) use German employee history data to access up to 30 years of information on labour force attachment on pay. Kim (2022) examined the cumulative effect of the gender pay gap in the UK context. However, these studies do not examine the full range of forms of attachment which we propose here.

2.2 Sex-segregation in occupations

Women's lower pay is frequently attributed to the sex-segregation of occupations, that is occupations which are systematically male- or female-dominated (e.g. England, 1992; England *et al.*, 2002; Magnusson, 2009; Perales, 2013; Leuze and Strauß, 2016 and also see; Bishu and Alkadry, 2017, for a systematic review). Occupations become female-dominated partially due to women's pursuit of jobs that cater to their need for 'work-life balance', with 'work-life balance' the compensating differential to their lower pay. In this way, the sex-segregation of occupations is tightly bound to women worker-carer's inability to provide their labour unconstrained, and thereby, their reduced supply.

Research confirms that occupations with higher concentrations of women tend to have lower pay (Perales, 2013; Leuze and Strauß, 2016), lower prestige (Magnusson, 2009; García-Mainar *et al.*, 2016) and fewer opportunities for promotion (Budig, 2002). Female-dominated industries are also less likely to be regulated, and when they are, the quality of regulation is often lower (Rubery and Fagan, 1995). While compensating differentials are noted as a key mechanism behind these inferior conditions, others note variations in the financial returns to the job-specific skills associated with these occupational groups. For this reason, some have sought to determine the relative predictive power of sex-segregated occupations on wages once other key human capital characteristics associated with pay rates are controlled for. For instance, using the full panel sequence of the British Household Panel Survey, Perales (2013) finds sex-segregated occupations to account for between 14% and 42% of the gender pay gap, depending on the model specified. Similarly, Polavieja (2008) attributes all the association between occupational segregation and pay to variations in skill specificities by occupational group.

Gendered norms are also thought to direct women to these sex-appropriate 'occupational enclaves' (England, 1992), and here devaluation theory asserts that it is the cultural devaluation of women, and their work, rather than their job-specific skill sets, that accounts for the lower pay associated with female-dominated occupations (England, 1992; England *et al.*, 2002; Magnusson, 2009; Perales, 2013). Some have found evidence of gendered preferences in women's pursuit and acceptance of lower-paid positions (e.g. Bender *et al.*, 2005) and for sex-segregated jobs, which often provide greater work-life reconciliation (García-Mainar *et al.*, 2016). Others, still, have highlighted the role of collective agreements and market regulation in the association between segregation and the pay gap: female-dominated industries are often less regulated, while regulation, union coverage, and collective agreements can protect women, to a degree, from the effects of both undervaluation and discrimination (Rubery and Fagan, 1995; Peetz, 2015). These protective effects depend on the level of earnings, type of wage setting, and industry (Schäfer and Gottschall, 2015) but appear to benefit women with less human capital and at the lower end of the wage distribution in particular (Black *et al.*, 1999).

As more women enter high-profile 'male' occupational groups (England, 2010), the sex-composition of occupations has begun to change (Magnusson, 2009; Fortin *et al.*, 2017). Some now find mixed-sex occupations to have the highest prestige rankings (Magnusson, 2009; García-Mainar *et al.*, 2016), and non-linear relationships between sex-segregation and wages have also been established (Perales, 2013, p.607). While these non-linearities reveal the progressive entry of women to higher-paid "male" occupations, men have been understandably reluctant to enter women's low-paid and low-skill employment (England and Li, 2006). Alongside these cultural shifts in women's entry to high-profile positions, there has been a dramatic change in workers' access to well-paid positions, particularly on the left-hand side of the distribution (Salvatori, 2018). These findings underscore the need to test for variation in the predictors of the gender pay gap by income group, as we can reasonably expect different predictors of pay, and different policy requirements, at different points of the wage distribution as others have noted (e.g. Kee, 2006). So, while female representation in 'top earning positions' (e.g. Fortin *et al.*, 2017) is one important means of decreasing the gender pay gap, we have no reason to expect it to solve the low pay of female workers on the left-hand side of the distribution. Moreover, the previous logic of benchmarking women's pay to that of men is weakened, as more men enter lower-paid positions.

In summary, the literature presents three areas of concern to which we respond. First, we examine the long-term effects of reduced labour force attachment on pay using uniquely detailed work-histories and here we test the ongoing relevance of Acker's 'gendered' organisation, which posits that women's inability to assume ideal worker norms of full-time continuous employment peripheralises their (labour market) position. Here, we expect a pay penalty to women's inability to assume ideal worker norms. Second, we engage with the body of work which tests devaluation theory's central hypothesis that female sex-segregated occupations are associated with lower pay. Here, we offer new insights by showing the extent to which sex-segregation remains predictive in models which also include detailed work-histories, allowing us to discern the relative importance of each. This is worthwhile as we can expect work-histories to be tightly bound to sex-segregation, with intermittent attachment presented as a means of worker-care reconciliation and so likely to be strongly associated with sex-segregated occupations. Finally, we test the impact of sex-segregated occupations alongside variance in work histories by income group to determine whether there are different policy needs at different points of the wage distribution. This allows us to determine whether competing policy agendas may be acting to uphold pay inequalities

(Rubery, 2019), with a gender-integrated class analysis increasingly important given rising income inequalities between households and within sex groups.

3. Data and operationalisation

We use wave 7 of the UK Household Panel Survey (UKHLS) 2015/2016, the largest longitudinal survey of the UK general population (University of Essex, 2023), that contains high-quality information on respondent income (Fisher *et al.*, 2019), as well as detailed work-histories. We generate our measure of hourly pay using the following strategies. We use all available sources of information on respondent pay and include overtime payments and annual bonuses in our assessment of hourly pay. We develop a hierarchy of data quality to determine which data point to use in instances of inconsistent information. In instances of missing data, complementary data points on income are used to fill gaps. Our dependent variable includes annual bonuses, given the ongoing role of performance pay in pay equity (Heywood and Parent, 2017). We omitted outliers above and below the 99.5th and 0.5th percentile, as well as those working less than 5 hours per week.[3]

We empirically test theories of the ideal worker, alongside the expectation that women may be penalised for their reduced labour force attachment, through the inclusion of detailed measures of cumulative work-history. These continuous indicators capture six different forms of labour force status using the UKHLS retrospective calendar data files from waves 1 and 5, which we merged with respondent information in wave 7. Each variable identifies the number of months spent in each of the following labour force categories: full-time work (>=35 hours a week), part-time work (< 35 hours a week), unemployment, sick leave, parental leave and family care work, and the measures range from 0 to 480 months (with some respondents providing 40 years of retrospective data). The most common work-histories of full and part-time employment are modelled in both linear and curvilinear form to ensure that anticipated non-linearities in returns are correctly captured, with pay differentials between very short and very long periods in employment often noted (e.g. Boll *et al.*, 2017). This allows us to more easily interpret the linear effect of work history when quadratic terms are included in the model as controls. Here, we extend previous analyses by offering measures of time spent on parental leave and unpaid care work, allowing us to engage in debates on the potential economic trade-offs associated with leave provision.

We empirically test devaluation theory in several ways. First, we test the theory, which posits that women earn less, as they are the devalued sex, through our nested estimation sequence. If women earn less, because of their devalued status as women, we should not be able to 'explain away' the female pay penalty through increasingly complex models which better capture the mechanisms behind women's lower pay. We argue, as others have using a similar methodological strategy, that the remaining pay penalties associated with being female, from a model with full controls, can be taken to reflect both sex discrimination and other unmeasured factors associated with sex in unknown

[3] We exclude the top and bottom 0.5 per cent of earners to avoid skewed point estimates at the mean. We drop those working with less than five hours a week as they often do not have full information on key covariates of interest for our multivariate analyses. A more detailed account of the steps taken to ensure rigour in our measure of hourly pay can be found in our online statistical appendix.

proportions (e.g. Cassells *et al.*, 2009). Second, we test whether sex-segregated occupations retain a pay penalty after key human capital variables are controlled for, including historic labour force attachment. Finally, we provide a disaggregated assessment of 'residual error' in our decomposition analysis, with simulation decomposition explicitly measuring differences in pay by sex, which the more commonly used Kitagawa-Oaxaca-Blinder does not provide. The two-term Oaxaca-Blinder decomposition is increasingly being renamed the Kitagawa-Oaxaca-Blinder (KOB) decomposition method in belated recognition of Kitagawa's contribution to this methodological innovation (Nieuwenhuis *et al.*, 2020). Our measure of sex-segregation distinguishes between occupational groups with female majority and male majority concentrations, using three-digit Standard Occupational Classification codes. Given evidence that the GPG is lower in more integrated occupations (e.g. Perales, 2013), our variable distinguishes between occupations that are sex-integrated (with similar proportions of male or female co-workers) from those which are either majority female (with 70% or more co-workers female) or majority male (with 70% or more co-workers male).

In addition to our two key covariates, our full wage equations also control for educational level, given the differential returns to educational attainment, with a distinction made between four categories: no qualifications, secondary level qualifications (GCSE or equivalent), upper secondary qualifications, and those with tertiary degrees. We control for job tenure with pay increments associated with longer periods in post (e.g. Polavieja, 2008). Contract type is introduced as a control, with atypical contract workers often earning a pay penalty (e.g. Perales, 2013). Dichotomous indicators for the receipt of overtime payments, as well as bonus payments, are included as indicators of preferential payment systems for different categories of workers (e.g. Cha and Weeden, 2014; Heywood and Parent, 2017). We distinguish between firms with less than 49, 50 to 199, and those with more than 200 employees. We test whether public sector employment and trade union membership continue to provide additional protections against unequal treatment for workers and discrimination (e.g. Fortin *et al.*, 2017). We distinguish between 16 different industrial sectors using the ONS 2007 criterion, as well as 12 regions. Finally, in addition to our key control, the biological sex of respondents, we also control for ethnicity (distinguishing between those who are black or minority ethnic or not) as well as the presence of children in the household, identifying the number of children aged between 0–4 years and 5–15 years in the household. We do not control for age in our models, as the cumulative work-life history variables are collinear with age.

Analytically, we decompose the GPG at the mean, as well as those in working-poor and more wealthy households. Here, we adopt the widely used household-level thresholds of financial poverty, e.g. Ravallion (2016). The working-poor are defined as those living in households with equivalised income < 60% of median earned income (£1,335 or less), the standard cut-off in poverty research. In our sample, this poverty threshold is equal to the bottom 12% of households. We apply a similar cut-off on the right-hand side, also looking at households with equivalised income above 160% of median earned household income (£3,616 or higher). The data are weighted by the relevant cross-sectional weights, which correct for differences between the achieved and the desired sample as a result of non-response. The application of cross-sectional weights ensures that the sample is statistically representative of the population (Lynn and Kaminska, 2014). Once selecting on non-missing values for our analysis we have a sample N of 10,219 respondents.

4. Method

We examine differentials in the predictors of pay inequality between women and men through both weighted ordinary least squares regression and decomposition techniques. We apply simulation decomposition as it provides a direct measure of the effect of sex on the gender pay gap. While the frequently used Kitagawa-Oaxaca-Blinder (KOB) technique offers insights into the differential effects of both observed characteristics and the returns to those characteristics, the residual error is captured by the difference in the constant terms of each sex-specific wage equation. The residual error in KOB thus accounts for the portion of the pay gap not captured by either male- or female-specific characteristic or coefficient effects and is derived from models that do not provide a direct measure of the differential return to pay by sex (Eq. 1, below). The decomposition shown in Eq. 1 is found in Blinder (1973, p. 438). The unobserved residual error in KOB is sometimes called the unexplained pay gap, and also the 'female residual' as it is assumed that it captures the effect of sex as an unexplained part of the model.

$$ln\ y_m - ln\ y_f = (\beta_{0\mathrm{m}} - \beta_{0\mathrm{f}}) + \sum(\bar{\mathrm{X}}_\mathrm{m} - \bar{\mathrm{X}}_\mathrm{f})\beta_\mathrm{m} + \sum(\beta_\mathrm{m} - \beta_\mathrm{f})\bar{\mathrm{X}}_\mathrm{f} \tag{1}$$

Rather than providing estimates of pay separately by sex, simulation decomposition assumes integrated labour markets and specifies a pooled model by sex. Here, the gender pay gap is calculated as the average difference between male and female characteristics as a function of an undifferentiated slope (Eq. 2).

$$ln\ y_m - ln\ y_f = \sum(\bar{\mathrm{X}}_\mathrm{m} - \bar{\mathrm{X}}_\mathrm{f})\beta_{\mathrm{overall}} + (\mathrm{Sex})\beta_{\mathrm{overall}} + (\varepsilon_\mathrm{m} - \varepsilon_\mathrm{f}) \tag{2}$$

This strategy allows us to include sex as a measured covariate, and here we conceptualise sex as a 'measured residual' in reference to KOB's *unmeasured* 'female residual'. Unlike KOB, however, simulation permits us to distinguish sex as an observed and measured component of pay differentials from other forms of *unobserved* residual error $(\varepsilon_\mathrm{m} - \varepsilon_\mathrm{f})$. While KOB and simulation decomposition provide different approaches to measuring and conceptualising the unexplained/residual components of the gender pay gap, tests of the different point estimates of both methods show similar results for other key determinants of the pay gap. We provide these analyses (in online Table A4 and A5) alongside a more detailed outline of simulation decomposition in the online statistical appendix. We also provide the syntax used to generate our simulation decomposition via the Open Science Framework (https://osf.io/s5r78) for others within the academic community who may be interested in the application of simulation decomposition techniques. This code is compatible with the latest versions of Stata software and also supports replication of our results.

5. Findings

Figure 1 presents point estimates of hourly pay at different points of the wage distribution separately for the male and female sample; the figure confirms that the greatest inequalities in earnings occur on the right-hand side of the distribution and that the floor on wages significantly suppresses gendered earnings inequalities for lower earners. The gender pay gap, which in aggregate statistics is traditionally presented at the mean, is notably skewed to the right, and we find that more than a third of women earn wages higher than the male median of £13.47 an hour. Further summary statistics

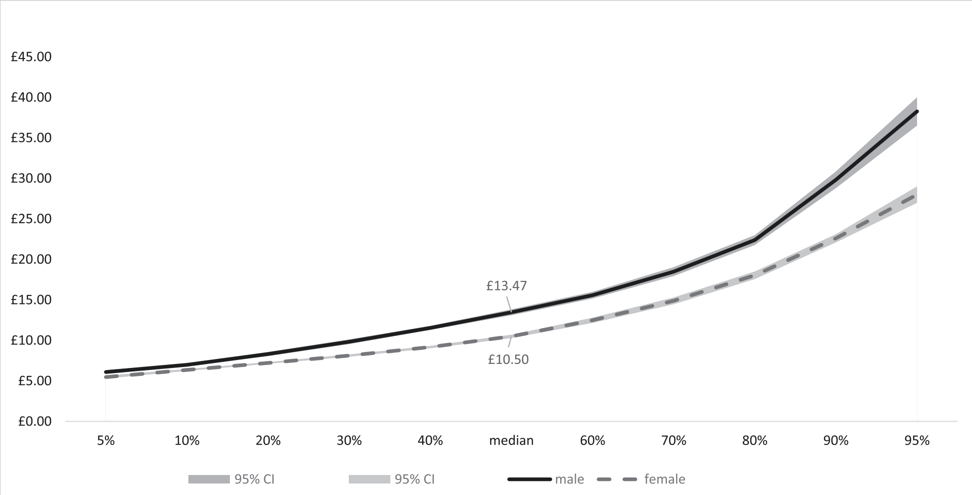

Fig. 1. *Point estimates of gross hourly pay across the distribution of wages, by sex.*

Note: *Figure 1 presents point estimates of the gross hourly pay at different points of the distribution of earnings with 95% confidence intervals, separately for women and for men, UKHLS 2015/16.*

are presented in Table 1, with full information on all variables used in the analysis provided in online appendix Table A1. There is a GPG of 20% at the mean, a GPG of 4% amongst the working-poor, and a GPG of 25% amongst wealthy households. The working-poor earn about half of what those at the mean earn, while the hourly earnings of those classed as wealthy are almost double the earnings at the mean. There are also important differences in the work-histories of women and men by income group. On average, men have 20 years of full-time work history, whilst women have 14 years, representing a sizable six-year differential. Proportionally, men have been in full-time employment for 93% of their cumulative work-histories, compared to 62% for women, with the shortfall accounted for by women's disproportionate engagement in part-time employment and in unpaid family-care work. Here, it is also worth noting that men, still, do not engage in unpaid care work; we find men, on average, to have had less than 3 weeks of unpaid care work in their work-histories, and they also had negligible incidence of parental leave. These proportional and absolute differences are notably different by income group. Compared to women in wealthy households, women in poor households spend 22% less time in full-time work and 10% more time in unpaid family care work. Compared to men in wealthy households, men in poor households spend 13% less of their time in full-time work, with unemployment and part-time work making up most of the shortfall. These differential work-histories, between women and men and by income group are tested as predictors of the gender pay gap in what follows.

5.1 Regression estimates

Table 2 presents pay penalties for women in a series of nested models with the expectation that the penalty will decrease as additional controls are added to the model. Model 1 shows the effect of sex, without any controls, with the coefficient the equivalent

Table 1. *Key descriptive statistics by household and sex*

	All households (*N* = 10,219)				Poor households (*N* = 1546)				Wealthy households (*N* = 1859)			
	Men		Women		Men		Women		Men		Women	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Gross hourly real pay	£16.66	(11.171)	£13.21	(8.805)	£8.22	(3.038)	£7.90	(3.561)	£29.27	(16.039)	£21.94	(13.422)
Gender pay gap	20.7 %				3.9%				25.0%			
Cumulative work history in years												
Full-time years	19.994	(11.819)	13.919	(10.665)	17.127	(12.252)	11.049	(9.777)	21.245	(10.998)	15.775	(10.485)
Full-time years squared	555.342	(522.298)	307.399	(398.088)	457.396	(505.731)	221.639	(345.472)	586.492	(493.136)	357.529	(399.690)
Part-time years	0.672	(2.353)	5.287	(7.171)	1.222	(2.959)	6.421	(6.978)	0.512	(2.527)	4.270	(6.874)
Part-time years squared	6.620	(49.937)	79.351	(174.914)	11.067	(42.609)	91.948	(180.790)	7.394	(71.708)	64.945	(158.463)
Unpaid family care years	0.047	(0.657)	2.052	(4.335)	0.069	(0.490)	3.583	(5.551)	0.006	(0.060)	1.205	(3.168)
Parental Leave years	0.009	(0.119)	0.699	(1.846)	0.005	(0.022)	0.708	(1.794)	0.010	(0.175)	0.611	(1.903)
Unemployment years	0.706	(2.212)	0.446	(1.787)	1.901	(4.404)	0.858	(2.327)	0.297	(1.003)	0.288	(1.600)
Illness years	0.094	(0.974)	0.086	(0.934)	0.198	(1.234)	0.095	(0.875)	0.005	(0.063)	0.040	(0.551)
Key work indicators												
Occupational sex-segregation												
Majority female Occupation (> 70% female)	0.099	(0.283)	0.410	(0.492)	0.103	(0.291)	0.403	(0.481)	0.063	(0.230)	0.282	(0.452)

Table 1. *Continued*

	All households (*N* = 10,219)				Poor households (*N* = 1546)				Wealthy households (*N* = 1859)			
	Men		Women		Men		Women		Men		Women	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
Integrated occupation (30% < male < 70%)	0.525	(0.473)	0.536	(0.499)	0.484	(0.478)	0.549	(0.488)	0.680	(0.441)	0.670	(0.473)
Majority male occupation (>70% male)	0.376	(0.459)	0.053	(0.225)	0.413	(0.471)	0.048	(0.209)	0.256	(0.413)	0.048	(0.215)
Public sector	0.249	(0.410)	0.460	(0.499)	0.196	(0.380)	0.332	(0.461)	0.267	(0.418)	0.531	(0.502)
Union member	0.258	(0.414)	0.306	(0.461)	0.154	(0.346)	0.181	(0.377)	0.246	(0.408)	0.376	(0.487)
Bonus receipt	0.355	(0.453)	0.225	(0.418)	0.277	(0.428)	0.159	(0.359)	0.458	(0.471)	0.259	(0.441)
Education												
No qualification	0.026	(0.150)	0.030	(0.171)	0.070	(0.245)	0.071	(0.252)	0.005	(0.064)	0.013	(0.115)
GCSE/equivalent	0.268	(0.420)	0.261	(0.439)	0.456	(0.476)	0.398	(0.480)	0.102	(0.286)	0.124	(0.331)
A-level	0.237	(0.403)	0.196	(0.397)	0.225	(0.400)	0.254	(0.427)	0.164	(0.351)	0.116	(0.322)
Degree or higher	0.469	(0.473)	0.513	(0.500)	0.248	(0.413)	0.276	(0.438)	0.729	(0.420)	0.747	(0.437)
Presence of children												
Children aged 0–4	0.169	(0.355)	0.144	(0.351)	0.251	(0.415)	0.152	(0.351)	0.117	(0.304)	0.113	(0.318)
Children aged 5–15	0.320	(0.442)	0.342	(0.474)	0.482	(0.478)	0.457	(0.488)	0.212	(0.387)	0.203	(0.404)

Note: Partial results presented. Full specification includes ethnic minority group, region, industrial sector, firm size, tenure in current job, and contract type (available in Table A1 in the online statistical appendix). The cut-off points are defined as below 60% of median household income for poor, and above 160% for wealthy households. Cross-sectional weight applied.

Source: UKHLS 2015/16.

Table 2. *Wage regressions, at the mean*

	M1	M2	M3	M4	M5
Female	-0.203***	−−0.084***	−0.190***	−0.087***	−0.102***
	(0.014)	(0.015)	(0.016)	(0.014)	(0.018)
Cumulative work history in Years					
Full-time years		0.039***		0.024***	0.023***
		(0.002)		(0.001)	(0.001)
Full-time years squared		−0.001***		−0.000***	−0.000***
		(0.000)		(0.000)	(0.000)
Part-time years		−0.027***		−0.013***	−0.035***
		(0.003)		(0.002)	(0.006)
Part-time years squared		0.001***		0.001***	0.002***
		(0.000)		(0.000)	(0.000)
Unpaid family care years		−0.023***		−0.007***	−0.008***
		(0.002)		(0.002)	(0.002)
Parental Leave years		0.008*		0.010***	0.009**
		(0.004)		(0.003)	(0.003)
Unemployment years		−0.031***		−0.011***	−0.010***
		(0.004)		(0.003)	(0.003)
Illness years		−0.025***		−0.010*	−0.011*
		(0.005)		(0.005)	(0.005)
Key work indicators					
Majority female occupation (> 70% female)			−0.201***	−0.224***	−0.225***
			(0.015)	(0.013)	(0.013)
Majority male occupation (> 70% male)			−0.153***	−0.109***	−0.111***
			(0.019)	(0.015)	(0.015)
Public sector				0.075***	0.074***
				(0.016)	(0.016)
Union member				0.080***	0.041*
				(0.011)	(0.018)
Bonus receipt				0.095***	0.125***
				(0.013)	(0.019)
Part-time yrs * female					0.026***
					(0.007)
Part-time yrs sq * female					−0.001***
					(0.000)
In Union * female					0.071**
					(0.022)
Bonus receipt * female					−0.067**
					(0.023)
Constant	2.628***	2.345***	2.705***	1.790***	1.809***
	(0.011)	(0.020)	(0.015)	(0.046)	(0.046)
R^2	0.031	0.149	0.056	0.461	0.464
Observations	10219	10219	10219	10219	10219

Notes: Partial models presented. Full models are available in Table A2 in the online statistical appendix. Full models also control for: educational level, region, industrial sector, firm size (reference category: below GCSE, South West, SIC15: other services, micro firms (1–9 employees), respectively), presence of young children between 0–4yrs and 5–15yrs in the household, ethnic minority group, tenure in current job, and contract type. Cross-sectional weights applied. Standard errors are in parentheses. Significance levels: †$p < 0.10$, *$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: UKHLS 2015/16.

of the GPG presented in Table 1. Models 2 and 3 present the effects of our two key covariates in separate models with the sex of respondents as the only additional control. We confirm work-history to be highly predictive of earnings and find full-time work experience to earn a premium, while most other forms of attachment earn a penalty. While human capital theories might attribute pay differentials in work history to variation in accrued job-specific skills, with the assertion that those with full-time work histories will have accrued the most job-specific skills, it is noteworthy that there is a *penalty* to part-time work history in its linear form, though there are very small premia to very short or long periods spent in part-time employment (as can be deduced from the differential effect of the quadratic function of part-time work history). This finding is perhaps more in line with theories of the gendered organisation, which suggest that failure to adhere to the ideal worker norm of full-time and continuous work will be penalised. It is also worth noting that the penalty for part-time work history is similar in size to the penalties for unpaid family care and for years spent in unemployment and ill health. Substantively, we find that a one-year increase in full-time work history *increases* pay by 4% an hour, and a one-year increase in part-time work history *decreases* pay by 3% an hour. Here, it is also interesting to note the differential returns to care work within and outside official parental leave structures. Those who spend time out of paid work within the legal infrastructure of parental leave, earn a slight premium, whilst those who spend time out of paid work, engaging in a similar activity but without legal protection, earn a penalty of 2% per year spent in unpaid family care. This finding may reflect unmeasured differentials between those who can afford to spend extended periods on parental leave compared to those who cannot. The inclusion of work history decreases the pay gap by more than half, to 8%, compared to the mean of 20% (as shown in Table 1 and model 1). Model 3 reveals that occupational segregation accounts for a smaller proportion of variance in the model, reducing the pay penalty to 19% compared to 8% in model 2, though a more direct comparison would measure historical exposure to occupational segregation, which, unfortunately, we are unable to provide. We find penalties to both female- and male-dominated occupations. Model 4 presents the estimates of our full model for our key covariates of interest (Table A2 in the online statistical appendix presents the model in its entirety). It establishes women to earn a pay penalty relative to men of 9%, alongside a paid premium to employment in the public sector, trade union membership, and bonus receipt. We also note that the main effects of both work-histories and sex-segregated occupations remain, in a model with multiple controls. Model 5 presents interaction terms between sex and key controls, to test for differential effects. Our most noteworthy finding is that the penalty for part-time work is disproportionately borne by men. We find that one year of part-time work reduced men's pay by 3.5% and women's pay by 0.9% (i.e. $\beta = -0.035 + 0.026 = -0.009$, Table 2). There are also differential effects of union membership and bonus receipt by sex. The inclusion of key interactions by sex also increases the pay penalty to being female to 10% [$\beta = -0.102$(SE 0.018), model 5 in Table 2]. Here, however, it is important to note that our measure of being female is now a residual category, given our inclusion of interaction terms by sex.

Table 3 presents our full model with, and without, interaction terms, for our poor and wealthy households to determine whether different political coalitions of interest, with competing policy agendas, may be motivated by different explananda of pay inequalities by socio-economic group (also shown in Table A2 and A5). We confirm a

Table 3. *Wage regression models for poor and wealthy sub-samples, full model (model 4) and with interactions (model 5)*

	M4	M5	M4	M5
	Poor Households		Wealthy Households	
Female	−0.068*	−0.126**	−0.112***	−0.124**
	(0.035)	(0.042)	(0.032)	(0.047)
Cumulative work history in years				
Full-time years	0.013***	0.012***	0.025***	0.025***
	(0.003)	(0.003)	(0.004)	(0.004)
Full-time years squared	−0.000***	−0.000***	−0.000***	−0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Part-time years	0.006	−0.006	−0.013*	−0.026
	(0.004)	(0.017)	(0.006)	(0.016)
Part-time years squared	−0.000	−0.000	0.001**	0.002**
	(0.000)	(0.001)	(0.000)	(0.000)
Unpaid family care years	0.001	0.001	−0.012	−0.012
	(0.002)	(0.002)	(0.008)	(0.008)
Parental Leave years	0.019***	0.018***	0.002	0.001
	(0.005)	(0.005)	(0.007)	(0.007)
Unemployment years	0.002	0.002	−0.005	−0.004
	(0.003)	(0.002)	(0.010)	(0.009)
Illness years	−0.009	−0.006	−0.030*	−0.033*
	(0.010)	(0.009)	(0.014)	(0.015)
Key Work Indicators				
Majority Female Occupation (> 70% female)	−0.019	−0.018	−0.345***	−0.349***
	(0.028)	(0.028)	(0.034)	(0.034)
Majority Male Occupation (> 70% male)	−0.057	−0.067*	−0.135***	−0.136***
	(0.033)	(0.033)	(0.039)	(0.039)
Public Sector	0.068*	0.066*	−0.031	−0.033
	(0.031)	(0.031)	(0.040)	(0.039)
Union member	0.081**	0.047	0.060*	0.013
	(0.028)	(0.051)	(0.030)	(0.045)
Bonus receipt	−0.039	−0.078	0.110***	0.124**
	(0.040)	(0.062)	(0.032)	(0.043)
Part-time yrs*Female		0.016		0.018
		(0.018)		(0.017)
Part-time yrs sq*Female		−0.000		−0.001
		(0.001)		(0.001)
In Union*Female		0.050		0.079
		(0.059)		(0.052)
Bonus Receipt*Female		0.070		−0.040
		(0.059)		(0.058)
Constant	1.710***	1.749***	2.208***	2.222***
	(0.080)	(0.081)	(0.195)	(0.193)
R^2	0.232	0.237	0.408	0.411
Observations	1546	1546	1859	1859

Notes: Partial models presented. Full models are available in Table A2 in the online statistical appendix. Full models also control for: educational level, region, industrial sector, firm size (Reference category: Below GCSE, South West, SIC15: Other services, Micro firms (1–9 employees), respectively), presence of young children between 0–4 yrs and 5–15yrs in the household, ethnic minority group, tenure in current job, and contract type. Cross-sectional weights applied. Standard errors are in parentheses. Significance levels: †$p < 0.10$, *$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: UKHLS 2015/16.

tendency noted by others, and suggested in Figure 1, that the GPG is smaller on the left-hand side of the distribution, that is, in poor households. In some ways, this is to be expected, with less variance in pay among lower-paid groups. We find occupational segregation does not predict lower pay in poor households, nor does part-time work history. Moreover, none of our key interactions are significant in either our poor or wealthy sub-samples. On this basis, and as a result of the now altered interpretation of our residual measure of 'being female', with the penalty to being female in Model 5 now reflective of women with no part-time work histories, women who are not members of trade unions and women who have not earned bonus payments, we present our decomposition analysis without interactions.

5.2 Decomposition estimates

Table 4 presents the unadjusted gender pay gap, alongside the measured constituents of pay differentials between women and men using simulation decomposition. The analysis controls for the same variables as used in our full wage regression (model 4) and the full results are available in the online statistical appendix Table A3. Results are presented at the mean, and for each of our two income groups. At the mean, and in a full model with multiple controls, the largest driver of the gender pay gap concerns workers' cumulative work-histories. Differentials between women and men in historical labour force attachment account for 29% of the pay gap and powerfully reflect the implications of women's reduced attachment for pay as a result of ongoing incompatibilities between the social and economic spheres of production. The differential returns to full-time work histories account for 18.6% of all drivers of the GPG. The direction of this effect, as well as its contributing factor, remains sizable for our poor and wealthy sub-groups, and here we find a shared need by socio-economic group to equalise men's and women's full-time work histories. The policy conclusions are different, though, when we turn our attention to the effect of part-time work history. At the mean, we find that part-time work histories account for 8% of the pay gap and this finding holds for wealthy households, though with a smaller effect size of 2%. Here, the policy advice would be to discourage part-time work for women (and to encourage it for men) if equal pay is the desired outcome. Yet, in poor households, we found no significant effect of part-time work histories on pay (Table 3, model 4). Moreover, sensitivity analyses found men to earn a pay penalty for part-time work-histories and women to earn a premium, though these tests were not statistically significant (Table A2 model 5 in the online statistical appendix). This allows us to offer the following tentative claim, that part-time work histories appear relatively more beneficial for women's pay in poor households (with women earning a premium of on average 1% (i.e. $\beta = -0.006 + 0.016 = 0.010$, Table 3) though this effect is not significant in our wage regression estimates. Yet, for our decomposition analysis our models do suggest that the pay gap would be 88% higher if women's part-time work histories were similar to men's in poor households. This finding, whilst weakly evidenced in our own analyses, is bolstered by the findings of others who have observed declines in job quality for male part-time workers in the UK (Warren and Lyonette, 2020).

Women's work-histories of unpaid care work also drive the gender pay gap at the mean, accounting for 7% of the drivers of the pay gap and 5% of drivers in wealthy households. Once more, in poor households, the effect operates in the opposite direction.

Table 4. *Simulation decomposition of the gender pay gap at the mean (all) and by household type (Model 4)*

Overall	All		Poor Households		Wealthy Households	
Mean hourly pay—Men (a)	2.630		2.031		3.221	
Mean hourly pay—Women (b)	2.426		1.999		2.933	
Difference [GPG = (a—b) = (c + d)]	0.204		0.032		0.288	
Measured Differences, excluding Female (c)	0.116		-0.034		0.174	
Measured Female 'Residual' (d)	0.088	43.3%	0.066	206.5%	0.114	39.7%
	ΔXβ	% Contributor	ΔXβ	% Contributor	ΔXβ	% Contributor
Cumulative Work History in Years	*0.059*	*29.0%*	*-0.020*	*-63.5%*	*0.055*	*19.2%*
Full-time	*0.038*	*18.6%*	*0.023*	*72.2%*	*0.037*	*12.9%*
Full-time years	0.144	70.8%	0.073	227.6%	0.136	47.1%
Full-time years squared	-0.106	-52.2%	-0.050	-155.4%	-0.098	-34.2%
Part-time	*0.016*	*8.0%*	*-0.028*	*-88.5%*	*0.005*	*1.6%*
Part-time years	0.060	29.4%	-0.028	-88.8%	0.048	16.7%
Part-time years squared	-0.044	-21.4%	0.000	0.3%	-0.043	-15.0%
Unpaid family care years	0.014	7.0%	-0.003	-10.5%	0.014	4.7%
Parental Leave years	-0.007	-3.2%	-0.013	-40.2%	-0.001	-0.4%
Unemployment years	-0.003	-1.4%	0.002	6.3%	-0.000	-0.0%
Illness years	-0.000	-0.0%	-0.001	-3.0%	0.001	0.4%
Key Work Indicators	.		.		.	
Occupational sex-segregation	*0.034*	*16.8%*	*-0.016*	*-51.5%*	*0.047*	*16.2%*
Majority Female Occupation (> 70% female)	0.070	34.2%	0.005	14.8%	0.075	26.1%
Majority Male Occupation (> 70% male)	-0.035	-17.4%	-0.021	-66.3%	-0.028	-9.9%
Public Sector	-0.016	-7.7%	-0.009	-26.7%	0.007	2.6%
Union member	-0.004	-1.9%	-0.002	-7.2%	-0.008	-2.8%
Bonus receipt	0.012	6.0%	-0.004	-13.6%	0.021	7.4%

Notes: Partial models presented; more detailed models are available in table A3 in the online statistical appendix. Full models also control for: educational level, industrial sector, region, firm size, tenure in current job, non-linearities in full-time and part-time work-experience, contract type, number of young children between 0-4yrs and 5-15yrs in the household and ethnic minority group.

Source: UKHLS 2015/16.

We examined the devaluation hypothesis through assessments of the effects of sex-segregation on pay and by identifying the proportion of the GPG attributable to differential returns to the female sex. In a model with full controls, and highly detailed measures of work history, sex-segregation remains the third biggest driver of the pay gap at the mean, accounting for 17% of the gender pay gap (Table 4). Yet, here we find penalties to both male- and female-dominated occupations, and indeed, the penalties to male-dominated occupations decrease the GPG. This effect varies in size, with the penalty to male-dominated occupations particularly high in poor households. We chose simulation decomposition as it allowed us to offer *measured* effects of sex on the gender pay gap, while the standard KOB decomposition relegates the effect of sex to its unobserved residual. We find that being female, measured using respondents' sex, accounts for 43% of the GPG at the mean (Table 4). The pay penalty for being female is considerable given that the measured effect is found in a model that simultaneously controls for; six continuous measures of historical labour force attachment, educational level, industrial sector, region, firm size, tenure in current job, contract type, occupational sex-segregation, an ethnic minority group and the presence and number of children aged less than 15 years in the home. This pay penalty is likely to reflect both discriminatory pay practices as well as any remaining unmeasured attributes associated with being female, including unmeasured cultural norms and behaviours. The negative effect of being female on earnings is consistently negative in poor and wealthy households, though the effect is dramatically large in poor households. Indeed, it is the single biggest driver of pay inequality between women and men in poor households accounting for 207% of women's lower pay (note that the contributors towards the gender pay gap can be either positive or negative, so values greater than 100 per cent are possible). Here, the gender pay gap would be to women's advantage, that is, women would earn more than men in poor households, if they were not in receipt of such a large pay penalty simply for being women. On this point, it seems worthwhile to state that women have been found to readily accept lower-paid work in pursuit of work-life balance or other compensating differentials in employment, while men are less likely to do so (e.g. Bender *et al.*, 2005). So, it may be that some of the pay penalty for being female may reflect a tacit agreement by women to accept their lower pay given unmeasured features of their working conditions, which afford greater work-life balance.

Finally, while the main drivers of the pay gap at the mean were generally shared for rich, but not poor households, we find the inverse regarding the factors that *protect* against the gender pay gap. Here, we find a tendency for women in poor households to benefit disproportionately from: paid parental leave, public sector employment, and union membership than is the case for women in wealthy households, with the protective effects of regulation and union coverage also found to depend on the level of earnings by others (Schäfer and Gottschall, 2015). To conclude, tests of variation in the predictors of the gender pay gap at the top and the bottom of the distribution underscore the extent to which policy solutions to unequal pay need to be targeted to household type. Women in poor households were found to benefit the most from more regulated employment, though at the same time, they also experienced the highest rates of discriminatory pay.

6. Discussion and conclusion

We note a long-standing concern that incompatibilities between the economic and social spheres of production risk marginalising women from equal participation in paid employment, and that this marginalisation continues to explain the GPG. Women spend more time in social production as they bear the full weight of biological reproduction and are, socially, allocated responsibility for unpaid care work. They are consequentially disadvantaged in a wage system that penalises reduced labour force attachment. Institutions peripheralise women who cannot assume the ideal worker norm of full and continuous employment (e.g. Acker, 1990). Indeed, women's care work has been found to be one of the primary sources of gendered inequalities in pay (e.g. Kleven *et al.,* 2019a, 2019b). Markets have also been accused of, illogically, penalising temporal flexibility primarily at the expense of women (e.g. Goldin, 2014). While the field offers many sophisticated analyses of the GPG, few have examined one of the more precise representations of the ongoing incompatibilities between the spheres of economic and social reproduction: workers' cumulative work-histories. Our cumulative work-histories index allowed us to test the effects of up to 40 years of retrospective data for a sample of over 10,000 respondents on pay differentials by sex. The index identified the proportion of a person's working life spent in, or out, of paid work allowing for a powerful measure of historical behaviour, and historical incompatibilities of the economic and social spheres of production on pay. We found work-histories to be one of the biggest predictors of pay inequalities between women and men. Women were found to earn less than men as they have less overall full-time work experience and more experience in part-time employment and unpaid care work. Specifically, we found that if women's work-histories, in terms of working-hours and unpaid care work, were the same as men's (and vice versa), the pay gap could be reduced by 29% at the mean. While the empirical evidence at the mean suggests that policy should continue to facilitate both women's pursuit of full-time continuous employment and men's engagement in reduced-hour employment and unpaid care work, we also found that this strategy would be particularly problematic for poor households. In poor households, both women and men had reduced full-time work histories when compared to those of their sex-class at the mean and in wealthy households; however, within households, women always had shorter full-time histories. Yet, we also found the penalty to part-time work history to be disproportionately borne by men. Women, comparatively, had much lower penalties to part-time work-histories, and in poor households we found no penalty for part-time work-history. The finding underscores the extent to which men are penalised for gender non-conforming forms of labour force attachment. It also shows why households may be incentivised to maintain traditional forms of household specialisation, which might further serve to maintain pay inequalities including penalties for motherhood (Kleven *et al.,* 2019a). It appears clear, therefore, that on the left-hand side of the distribution, policies of gender equality cannot be decoupled from policies to improve job quality for both men and women. If they are decoupled, women's gains are likely to come on the back of men's losses and here, the aim for parity in outcome risks pushing all household members into further poverty risk. Similar concerns are raised by Rubery and Grimshaw (2015), who note that there is a risk of 'levelling down' pay rates for specific socio-economic groups.

We found male involvement in unpaid care work to be extremely low, and while others have also found that men tend to be highly resistant to parental leave (Kaufman, 2018), the sheer size of the differential we find is noteworthy. Men had an average work history of less than 3 weeks of unpaid care work in their entire lifetimes, while women had an average of more than two years of unpaid care work. It appears safe to suggest that policies that have sought to encourage male take-up of care work have had a very small impact, at an aggregate level, and will continue to face significant barriers given current norms surrounding male labour force attachment and the known penalties to transgressions of these norms (Bittman *et al.*, 2003).

Devaluation theory asserts that women are culturally inferior to men and that this cultural devaluation translates into a pay penalty for female-typical employment. While we found support for devaluation theory with 34 per cent of the pay gap due to the pay penalty to female-dominated occupations, we also found pay penalties to male-dominated occupations, which directly contradicts devaluation theory's central premise.

Discriminatory pay is rarely examined as a central mechanism of the gender pay gap, which has led some to call for a reconceptualisation of the traditional human capital model (Lips, 2013). We assess it here and suggest its comparative absence from discussions of the GPG is reinforced by decomposition measures which do not allow researchers to disentangle unmeasured pay penalties from measured differentials in pay by sex. We therefore applied a decomposition technique that provides an observed measure of differential pay by sex offering a clearer proxy of 'discriminatory' pay practice than standard measures. In a model with detailed and extensive controls we established that the gender pay gap, at the mean, would be 43% smaller if women did not earn a pay penalty for being female. We also found considerable variation in this penalty by income group, with women in poor households in receipt of an extremely high penalty. This finding is of considerable importance as, as far as we have been able to establish, there have been no similar assessments of 'discriminatory' pay by income group. Moreover, research on perceived pay discrimination finds the opposite, that it is those in the higher socio-economic groups who are more likely to report concerns about discriminatory pay (Andersson and Harnois, 2020). While a portion of this pay penalty may be due to unmeasured compensating differentials in working-conditions pursued by women (e.g. Bender *et al.*, 2005), it is not reasonable to suggest that all of the penalty we find is attributable to unmeasured differentials. Furthermore, we suggest that the portion of the penalty for being female that could be attributable to unmeasured preferences for reduced attachment is likely to be very small, particularly as we would expect them to be correlated with retrospective work-histories instead.

Overall, our findings confirm that pay inequalities are rooted in labour market structures that systematically disadvantage those who are unable to provide their labour unconstrained. We found the GPG to be primarily attributable to women's reduced labour market attachment, alongside potentially discriminatory pay, with our measured female residual accounting for 43% of the GPG at the mean. We found that attempts to encourage men to accept a greater share of unpaid care work are problematised by men being found to earn higher penalties for part-time work histories than women. This suggests that while we do need a facilitation of flexibilities in forms of working, which, crucially, should not be treated as a compensating differential to justify lower pay (e.g. Goldin, 2014), we also need to recognise that men may be disproportionately policed for reduced attachment and that the pay penalties to reduced attachment may be harder to accomodate for poorer households. We also found a gender-integrated class analysis to be necessary, as, while it was women who had shorter full-time work histories, at the mean and in poor and more wealthy households, men in poor households also had noticeably lower full-time work histories than men in other income groups. Additionally, it was women in poor households who benefitted disproportionately from regulated employment structures, with their employment in the public sector, their access to paid parental leave as well as their union membership, decreasing their pay gap, relative to men. These findings call into question the utility of relative measures of the pay gap for lower-earning groups given widening income inequalities as well as pre-existing peripheralisation of those in secondary labour markets (e.g. Doeringer and Piore, 1971). They also underscore the need for an 'integrated policy' to respond to the complexities of market segmentation, which extend beyond the peripheralisation of social reproduction, and require an assessment of how multiple laws and policies interact to maintain segmentation (Deakin, 2013).

We conclude with the suggestion that future pay gap equalisation policies need to be mindful of the wider context of rising absolute income inequalities within sex groups, with some women now well established amongst the higher skilled (e.g. Rubery and Rafferty, 2013) and many men now working for very low rates of pay (e.g. Cribb *et al.*, 2022). Indeed, in poor households, we found men's pay to be so low that we had a substantively small gender pay gap of 4%. Increasingly, efforts to close the gender pay gap need to be more strongly tied to an agenda of good quality employment for all, targeted at the declines in job quality for those on the left-hand side of the distribution. This is crucial, as calls for pay equity, which are illustrated by dynamics at the right-hand side of the distribution, e.g. insufficient women in high-powered positions, do not serve, and also risk alienating, those in households where both partners earn similarly low wages. In the context of rising political populism, there are risks to gender equalisation policies should political capital be gained by pitting the losses of lower-earning men against the gains of higher-earning women.

Supplementary data

Supplementary data is available at *Cambridge Journal of Economics* online.

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