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"Gender and LGB Pay Gaps in the National Health Service."

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Thank you for the opportunity to present our paper.

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There are a vast number of studies exploring gender pay gaps in the economics literature (Blau and Kahn, 2017). Studies that also address potential implications of LGBTQ+ status for pay gaps are more recent and considerably rarer (Badgett et al., 2021).

Using a rich new survey of National Health Service (NHS) employees in England, this article seeks to provide a more complete explanation of pay gaps by including information of gender, LGB identity, coupling status, and disclosure of sexual orientation.

To the best of our knowledge, this is the first study to include direct measures of both disclosure of LGB sexual orientation and coupling status, allowing for a more insightful interpretation of the mechanisms behind LGB pay gaps.

- Human Capital model - wages are expected to increase with measures related to investments made to increase the productivity of the individual, especially their formal education and on-the-job training (Becker, 1975; Mincer, 1974).

- If individuals expect to eventually become members of a household, they may also expect to specialize in different tasks within the household so as to maximize the combined utility of the household's members (Becker, 1985).

- For example, if women are expecting to spend time out of the labour market to raise children, they may invest less in formal labour market skills and/or choose to enter occupations that require less on-the-job training, thereby lowering their predicted earning capacity.

- Employers may also expect that women will be less attached to the labour market and have shorter job tenure. The outcome can become self-fulfilling if employers deny women hiring opportunities and/or training paths associated with longer tenure and higher pay.

- With such an observable physical characteristic as gender, it may be difficult for women to avoid lower pay outcomes. One way could be for women to engage in expensive formal education as a signal to employers that they intend to stay in the labour market to reap the returns of the investment (Spence, 1973).

- This signalling will be a higher risk investment for women than men if some employers simply have a taste for discrimination and deny women opportunities regardless of qualifications (Becker, 1957) and/or if employers still don't recognise the individual has different aspirations to their group average (Phelps, 1972; Arrow, 1973).

- The LGB may be making similar decisions regarding the allocation of market and non-market work within households. They may also be facing employers with a taste for discrimination (Badgett, 1996).

- However, identifying as LGB is a non-observable characteristic in the workplace unless the employee chooses to share this information.

- There is a small but influential literature on LGB versus heterosexual pay gaps based on analysis of survey respondents providing individual level information on their pay, co-habitation and sexual orientation.

- Unfortunately, such studies are often constrained by low numbers of LGB respondents.

- It is also very rare for the analyst to have information on disclosure of sexual orientation and the relative pay of employees.

- The relationship between pay and sexual orientation may not be exogenous. May gain further insight from decomposition analysis.

- In a seminal study, Badgett (1995) found that gay men (or lesbians) living in same-sex relationships earn less than do comparable heterosexuals in different sex partnerships.

- Subsequent meta-analysis (Klawitter 2015) suggests LGB pay gaps are consistent with predictions from behavioural models of household specialisation, with gay men being less labour market oriented than heterosexual (bread winning) males, and lesbian women being more labour market oriented than household secondary earner heterosexual women (Aksoy et al., 2018; Aksoy et al., 2019;). These pay gaps are diminishing in more recent studies, especially for gay compared to heterosexual men in the US (Jepsen and Jepsen, 2020).

- It is not possible, however, in these studies to separate out potential discrimination effects as they do not include information on whether sexual orientation is identifiable in the workplace.

Proxies for disclosure:

Arabsheibani, Marin and Wadsworth (2005) use information from the UK Labour Force Survey (LFS) comparing heterosexual cohabiting with same-sex cohabiting (no direct measure of sexual orientation). Find gay men earn more, but have lower returns especially compared to married heterosexual men.

Bridges and Mann (2019) use information from the UK LFS on same-sex ***legal*** partnership as an indicator of how open gay men or lesbians are in their workplaces, arguing that those who have made a legal commitment to their same-sex relationship are more likely to be open with their colleagues about their orientation. They find evidence that this form of disclosure is associated with lower pay and promotion for gay men (higher for lesbians) relative to male (female) heterosexuals.

With disclosure measure:

- In a very rare study, Plug and Berkhout (2008) combine information on earnings, sexual orientation, and disclosure to consider pay gaps. They use data on young Dutch males, two-years post college graduation, who work full-time, and are not self-employed.

- They find these gay men earn 3 to 4 lpp less pay than do the heterosexual males; they argue this pay gap is driven by undisclosed gay men concentrating in lower paid, less productive, occupations and earning some 5 to 9 lpp less than other men.

- Whilst Plug and Berkhout (2008, page 10) reject a positive discrimination option, they do report a positive pay return associated with disclosure of some 3 to 8 log percentage points.

Data:

- We created an online survey of NHS employees in England 2019; use data from employees working in NHS Trusts in England who are covered by the NHS Pay Review Board (NHSPRB). Full information of the surveying procedure and sample characteristics are provided in Einarsdóttir et al. (2020). The survey was supported and disseminated via NHS Employees and related LGB networks.

- The NHS is a particularly relevant workforce to survey as it is large enough to generate a suitable LGB sample for statistically meaningful analysis. The NHS employees included are all working in the health sector where they share a common employer, with well recognised working conditions, and pay set by the NHSPRB (which also means that there are no doctors or dentists in the sample).

Data:

- The NHS has a reputation for being an employer mindful of possible discrimination and with a varied (in terms of nationality, ethnicity, gender and/or sexual orientation) and highly unionised workforce (Einarsdóttir et al., 2020). These factors limit extrapolation of the findings outside of the NHS to other workforces in England.

- In total, have use 3,556 survey responses (from 212 Trusts) were completed; 440 LGB respondents.

Data:

- But the NHS Digital's headcount data from September 2018 suggests that the potential sample frame was 1.19 million (staff working in NHS Trusts in England), implying a response rate of less than 1% for the EES-NHS. Such a low response rate also raises obvious concerns that the sample does not reflect the population of NHS employees.

- Not a huge data set, good LGB representation, need to judge results accordingly.

Selected sample means.

	Male		Female	
	GB	**Heterosexual**	**LB**	**Heterosexual**
salary	17.71	17.23	16.03	16.46
natural log salary	2.80	2.77	2.72	2.73
disclosed	0.60		0.42	
age	***41.89***	***46.24***	***41.06***	***47.01***
ethnic minority	***0.10***	***0.16***	0.08	0.11
married	***0.27***	***0.57***	***0.30***	***0.53***
live in couples	***0.56***	***0.75***	***0.59***	***0.69***
observations	210	543	230	2573

The earnings function:

Following in the literature examining wage differentials developed by Becker (1975) and Mincer (1974), using semi-logarithmic wage equations, we estimate the earnings equation as:

$$W_{il} = X'_{il}\beta_l + \varepsilon_l,\ E(\varepsilon_l) = 0,\ l \in (a, b, p)$$

where W_i is the natural log of the average hourly wage, W, for individual i in group type l; X_i is a vector of explanatory variables and a constant; epsilon is a residual term; and a represents comparison group a; b the alternative comparison group b; or p the pooled group of a and b combined (Neumark, 1988). An indicator variable identifying group membership is also included in the pooled model.

The full model includes:

- education, job training, and work experience.
- demographic variables (gender, LGB identity, disclosure, having dependent children, marital status, ethnic identification, being foreign born, being disabled, being a carer, and age);
- occupation controls;
- job characteristics (working part-time, having a permanent contract, current job tenure, and being a trade union member);
- workplace characteristics (having an effective mentor, having supportive coworkers, a friend in the workplace, being happy with training opportunities, being able to use responsive working hours, often feeling under pressure, ability to maintain work-life balance, having a supportive supervisor, and being in a cooperative workplace); and
- Trust level controls (regional location, and Trust type).

The findings:

The main earnings function selected results:

Table 1. ***The Determinants of Log Earnings (OLS estimates).***

ln(salary)	(1) LGB	(2) Base	(3) Full model
(a) Full sample			
male	0.044***	0.040***	0.0389***
	(0.014)	(0.014)	(0.011)
LGB	-0.0001		
	(0.0193)		
no disclose & LGB		-0.061**	-0.049***
		(0.024)	(0.017)
disclose & LGB		0.061**	0.044**
		(0.026)	(0.017)
Adj. R-squared	0.001	0.005	0.618
Number observations	3556		

Standard errors in parentheses (clustered at Trust level). * p<0.10, ** p<0.05, *** p<0.01. In addition to the coefficients listed, the full model (column 3) includes additional explanatory and control variables as defined in section 2.

The decomposition:

The decomposition of the mean earnings gap is calculated as:

$$\overline{W}_a - \overline{W}_b = \{(\overline{X}_a - \overline{X}_b)\}'\hat{\beta} + \{(\overline{X}_a{}'(\hat{\beta}_a - \hat{\beta}) + \overline{X}_b{}'(\hat{\beta} - \hat{\beta}_b)\}$$

where overbar denotes the mean value; the first component $\{(\overline{X}_a - \overline{X}_b)\}'\hat{\beta}$ is often referred to as the endowment (or explained) component reflecting differences in the averages of the observed characteristics across the groups; the second component $\{(\overline{X}_a{}'(\hat{\beta}_a - \hat{\beta}) + \overline{X}_b{}'(\hat{\beta} - \hat{\beta}_b)\}$ is the remaining portion of the gap which is usually referred to as unexplained, capturing the sum of the differences in the returns to the two groups (Neumark 1988 and discussed further in Oaxaca and Ransom, 1994).

Table 2. ***Decompositions of the wage gaps, full model.***

	Wage gap (1)	**Explained** (2)	**Unexplained** (3)
(a) Males versus Females	-0.04402***	0.0067	-0.0508***
	(0.0156)	(0.0112)	(0.0123)
(b) Heterosexual vs LGB	-0.0132	0.0013	-0.01447
	(0.0195)	(0.0146)	(0.0132)
(c) Females Heterosexual vs LB	0.0187	0.0110	0.0077
	(0.0250)	(0.0191)	(0.0155)
(d) Males Heterosexual vs GB	-0.0258	0.0219	-0.0477**
	(0.0287)	(0.0226)	(0.0235)
(e) Non-Heterosexual (LGB) Disclosed vs Non-Disclosed	-0.1299***	-0.0285	-0.1014***
	(0.0319)	(0.0242)	(0.0253)
(f) Female Non-Heterosexual (LB) Disclosed vs Non-Disclosed	-0.0687	0.0189	-0.0875**
	(0.0432)	(0.0334)	(0.0379)
(g) Male Non-Heterosexual (GB) Disclosed vs Non-Disclosed	-0.1759***	-0.0684*	-0.1074***
	(0.0482)	(0.0398)	(0.0353)

The decomposition findings:

More than all the male pay premium is related to men having higher returns on their characteristics.

Not seeing a strong household specialisation story for either gender in the LGB results. [Also found no meaningful difference when considered different marriage status]

Do find that LGB who disclose their sexual identity in their workplace receive higher pay than the LGB who don't. Disclosure is associated with 13% more pay, with three quarters of this gap related to unexplained differences in returns to observable characteristics.

The decomposition findings cont.:

Especially strong for the male GB. Gay men who disclose have more characteristics associated with higher pay, as well as having higher returns on those endowments.

Some evidence the LB who disclose have less productive characteristics (but small and not significant), but also have considerably higher returns to those observable characteristics.

We are finding heterogeneity amongst the LGB related to the disclosure decision.

Some caveats:

- Data set, whilst a reasonable size is still small relative to the population it is drawn from. Doubts about it being representative.
- Focussing on a single employer, has some gains but also limits ability to extrapolate findings.
- Surveys were targeted towards the LGBT, led to a larger but unbalanced sample.

- Decomposition analysis helps to address link between productive characteristics and disclosure, but endogeneity concerns still remain between pay and disclosure. Haven't found a meaningful identifying variable for the disclosure decision.
- No intertemporal information, can't address causality between disclosure and pay. Also face inherent difficulties separating out discrimination and productivity differences using cross-sectional data

Takeaway finding:

- Our results suggest that the LGB who disclose their sexual identity in their NHS England workplaces receive higher returns on their characteristics (sometimes referred to as positive discrimination) relative to their closeted counterparts.

- Next project – to consider the determinants of sexual identity disclosure in the workplace.

The findings:

- We find men earn some 4% more than women, for both heterosexual and non-heterosexual employees. This result is robust across a range of specifications.

- No statistically significant pay gap is found between heterosexual and LGB employees, although results suggest offsetting effects for those who disclose their sexual orientation are masking pay gaps within this group relative to comparable heterosexuals.

- Individuals who disclose LGB orientation to their work colleagues receive some 5% higher wages than heterosexuals, whereas those who don't disclose face a similar sized wage penalty. This is true for both genders.