Pay Equity After the Equality Act 2010: Does Sexual Orientation Still Matter?

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NIESR Discussion Paper #432

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Abstract

Using nationally-representative linked employer-employee data for Britain I find bisexual men earn around 31% less per hour than heterosexual men, a differential that falls to 20% having controlled for demographic, job and workplace characteristics. The gap is apparent within workplaces and within detailed occupational classifications. There is no wage differential between gay and heterosexual men. Among women, on the other hand, there is no wage gap between bisexuals and heterosexuals. However, lesbians are paid nearly 30% less than heterosexual women, unless they are employed in a workplace with an equal opportunities policy which explicitly refers to sexual orientation, whereupon there is no wage gap. Although I find evidence consistent with workplace sorting by sexual orientation this does not affect the size of the sexual orientation wage gaps. Tests designed to identify the potential effects of employer taste-based discrimination, statistical discrimination and co-worker discrimination are inconclusive.

Key words: wages, pay, sexual orientation, discrimination, equal opportunities

JEL classification: J15; J33; J71

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I. Introduction

A large literature identifies a wage gap between men and women. Part of the gap can be explained by differences in men's and women's observable attributes, such as their human capital. Accounting for these differences narrows the gap but it persists and remains statistically significant. This unexplained part of the wage gap, apparent in the differential wage returns to a given set of attributes, is often interpreted as evidence of gender discrimination in the labour market. Wage penalties are also apparent among groups defined in terms of race, religion and age.[1] Recently analysts have extended this literature by investigating whether wages vary according to employees' sexual preferences.[2] The research is motivated by the possibility that lesbians, gays, bisexuals and transgender (LGBT) employees may be subject to labour market discrimination. However, unlike sex or colour, one's sexual orientation may not be immediately apparent to employers or to colleagues. Thus discrimination is only likely to occur when an employee "outs" him or herself, or is "outed", or if the employee's sexual orientation gradually becomes apparent to the employer or work colleagues with the passage of time.

Correspondence test studies use a simple experimental technique to identify whether there is hiring discrimination based on applicants' sexual orientation. The studies send job applications to real employers that are identical in all respects, apart from the fact that they signal differences in sexual orientation.[3] These studies reveal discrimination in hiring lesbians compared with otherwise identical heterosexual women. However, using wage decomposition techniques that are standard in the gender pay gap literature it appears lesbian women earn more than observationally equivalent heterosexual women. This positive wage return to being lesbian may be a selection effect arising from the greater difficulties lesbian women face in entering employment relative to heterosexual women, such that lesbian employees possess unobservable earnings enhancing attributes.

[1] For a recent review of this literature see Guryan and Charles (2013).
[2] Whereas the literature identifying the existence of sexual prejudice goes back at least as far as the 1980s (eg. Bhurga, 1987), the literature linking sexual orientation to wages begins in the mid-1990s with Badgett (1995).
[3] See, for example, Bertrand and Mullainathan (2004) in relation to race.

There is also evidence that gay men face hiring discrimination compared with observationally equivalent heterosexual men. However, although there is a positive raw wage differential associated with being gay, gay men tend to earn less than observationally equivalent heterosexual men. Identifying gay and lesbian employees through their same-sex partnerships using British *Labour Force Survey* data for the period 1996-2002 Wadsworth et al. (2005) also find a wage premium for lesbians relative to observationally equivalent women, but a wage penalty for gays relative to observationally equivalent heterosexual men. This leads the authors to suggest that gay men may benefit from the passage of anti-discrimination legislation in Britain. That legislation, which has now been in place in Britain for over a decade, was recently harmonised and replaced by the Equality Act 2010. Perhaps because of this increasing legislative focus on equal opportunities, the percentage of workplaces with equal opportunities written policies explicitly mentioning sexual orientation had risen from 69% in 2004 to 75% in 2011 (van Wanrooy et al., 2011: 116).

It is against this backdrop that I examine wage gaps by sexual orientation using nationally representative linked employer-employee data for 2011. The paper contributes to the literature in four ways. First, I believe this is the first paper to estimate the sexual orientation wage gap using linked employer-employee data: doing so allows me to identify the role of workplace sorting. To date, the literature on segregation by sexual orientation has been confined to occupational segregation (Plug et al., 2014; Antecol et al., 2008). Second, I control for features of the workplace employing workers. Failure to control for these workplace attributes may bias previous wage gap estimates. In particular, I am able to account for the wage effects associated with equality policies promoted under the legislation. Third, the paper is one of the first to distinguish between bisexuals and gays/lesbians, a distinction that proves important in understanding wage gaps based on sexual orientation.[4] Finally, it is the first paper to examine whether a wage gap persists in Britain following the passage of the new legislation intended to eliminate wage discrimination according to sexual orientation.

I find bisexual men earn around 31% less per hour than heterosexual employees, a differential that falls to 20% having controlled for demographic, job and workplace characteristics. The gap is apparent within workplaces and within detailed occupational classifications. There is no wage differential between gay and heterosexual men. Among women, on the other hand, there is no wage gap between bisexuals and heterosexuals. However, lesbians are paid nearly 30% less than heterosexual women, unless they are employed in a workplace with an equal opportunities policy which explicitly refers to sexual orientation, whereupon there is no wage gap. Although I find evidence consistent with workplace sorting by sexual orientation this does not affect the size of the sexual orientation wage gaps. Tests designed to identify the role played by employer taste-based discrimination, statistical discrimination and co-worker discrimination are inconclusive.

The paper is organised in the following way. Section II discusses the literature on wage differentials according to sexual orientation. Section III introduces the data. Section IV outlines the estimation strategy. Section V presents results and Section VI discusses the implications of the findings and draws some conclusions.

II. Wage Differentials and Sexual Orientation

In Becker's (1957) model of taste-based discrimination equally productive workers are treated differently due to the discriminatory tastes of employers, employees and customers. In the short-run these tastes, or prejudices, can result in labour market segregation where employers pay to avoid hiring those against whom they are prejudiced, or where those fearing discrimination sort into jobs offered by more tolerant employers. This, in turn, may result in earnings discrimination if the number of job seekers in the discriminated group exceeds the number of jobs offered by tolerant employers. If, in the long-run, competition drives out discriminating employers, discrimination may disappear (Arrow, 1973). However, discrimination will persist where market competition does not drive out the prejudiced employers, where bankrupt discriminators return to the market as discriminating employees (Charles and Guryan, 2008), or where any wage penalty

[4] I believe the first paper to make the distinction was Plug and Berkhout (2004). In data for the Netherlands they found no significant difference between the monthly or hourly earnings of bisexuals and heterosexuals,

actually reflects a compensating wage differential taken by those in the discriminated group in return for employer tolerance (Martell, 2012).[5]

Reviewing the empirical literature which tests for prejudice by comparing the earnings and occupational choices of gay, lesbian and heterosexual workers Plug et al. (2014: 125) conclude "evidence of this kind appears ambiguous (at best)". Most studies find gay men earn less than observationally equivalent heterosexual men, as Becker's taste-based discrimination model would predict. However, contrary to Becker's model, studies tend to find lesbians suffer no wage penalty relative to heterosexual women and, in many instances, receive a wage premium. Plug et al. (2014: 126) point to one exception, namely the study by Carpenter (2008) which found a wage penalty for young lesbians in Australia.

Although there is no comprehensive support for the taste-based model of discrimination from the studies examining links between sexual orientation and earnings, there is pretty compelling evidence from related studies. First, most of the evidence from correspondence test studies finds a lower call back rate for gays and lesbians relative to observationally identical heterosexuals.[6] There are some exceptions, such as Weichselbaumer's (2013) evidence that lesbians are discriminated against in Munich but not Berlin. The author attributes this difference to differences in ideology and values in the two cities.[7] Second, there is recent evidence that such attitudes mediate the relationship between sexual orientation and employment and earnings outcomes (Ahmed et al., 2013), a finding which is in keeping with taste-based discrimination. Third, Plug et

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either among women or men.

[5] Harris (2012) presents a similar model.

[6] For a review of the literature on correspondence tests in relation to sexual orientation see Weichselbaumer (2013).

[7] Correspondence test studies can not conclusively prove that employers are operating on the basis of prejudice. It may be, for example, that employers may expect the productive skills of employees to differ according to sexual orientation in which case lower call backs for gays and lesbians may reflect the sort of statistical discrimination generated by poor information on individuals. However, it is unclear what basis employers may have for making such a judgement. Statistical discrimination against women may be based on an employer suspicion that, due to childrearing responsibilities, they may have a lower attachment to the labour market than men, thus reducing their incentives to invest in productivity-enhancing human capital. However, it is hard to think of any potential rationale for statistical discrimination in the case of gay, lesbians or bisexuals relative to heterosexuals.

al. (2014) show that gays and lesbians behave in response to their perceptions regarding the incidence of prejudice by sorting themselves into occupations with more tolerant employers and co-workers - the sort of behaviour one might anticipate if taste-based discrimination was a reality in the labour market.

Perhaps the "ambiguity" in the existing empirical literature on wage gaps also reflects the difficulties analysts face in robustly isolating that part of the wage determination process that might be attributable to employees' sexual orientation. First, whereas gender and race are relatively easy from employers and co-workers to observe, sexual orientation is not. Labour market actors may only be aware of others' sexual orientation if an individual is "out" or "outed". Those who choose to "out" themselves in the labour market - or indeed to a survey agency - may be unrepresentative of all gays and lesbians, leading to biased estimates of the underlying relationship between sexual orientation and earnings. Second, whereas gender is a relatively straightforward concept allowing for simple categorisation of individuals, defining sexual orientation can be more difficult for the analyst, and even for the employee or respondent. The literature uses an array of definitions including self-reported identity (as used in this paper), same sex partnership, or sexual behaviours. These different definitions mean some may be classified as gay or lesbian or bisexual under one measure, but not others, making it harder to generalise about results from the literature. It is also rare for analysts to be able to distinguish between gay and bisexual employees. This is problematic because, as I show in this paper, there are substantial earnings differences between gays and bisexuals.

Third, studies identifying the effects of sexual orientation on earnings rely on comparisons between observationally equivalent homosexual and heterosexual individuals. Omitted variables bias arises in cases where the analyst lacks information which is correlated with sexual orientation and earnings. This might be the case, for example, with respect to individual labour productivity: usually studies condition on labour market experience and qualifications, but they lack detailed information about on-

the-job productivity.[8] The absence of employer covariates in many studies also means that wage differences attributed to sexual orientation may, in fact, be due to differences in the ambient wages offered to employees by different types of employer. I overcome this problem in this study by using linked employer-employee data and by comparing wages of employees *within* the same workplace. However, when controlling for employer and job features one needs to be cautious about conditioning on variables which are, themselves, the result of discrimination based on sexual orientation, a very real possibility in the light of the labour market segregation identified by Plug et al. (2014).

III. Data

I analyse linked employer-employee data from the Workplace Employment Relations Survey 2011 (WERS). Appropriately weighted, it is a nationally representative survey of workplaces with 5 or more employees covering all sectors of the economy except agriculture and mining (van Wanrooy et al., 2013). The analysis exploits two elements of the survey. The first is the management interview, conducted face-to-face with the most senior workplace manager responsible for employee relations. Interviews were conducted in 2,680 workplaces between March 2011 and June 2012 with a response rate of 46%. The second element is the survey of employees where a management interview was obtained. Self-completion questionnaires were distributed to a simple random sample of 25 employees (or all employees in workplaces with 10-24 employees) in the 2,170 workplaces where management permitted it. Of the 40,513 questionnaires distributed, 21,981 (54%) usable ones were returned.[9]

Our analyses are at the level of the employee. Employees' probability of selection for the survey is a product of the probability of their workplace being selected and the probability of the employee's own selection. To extrapolate from the analyses to the population from which the employees were drawn (namely employees in Britain in workplaces with 5 or more employees) analyses are weighted using the employee

[8] This is also true, of course, in most of the literature on the gender and other wage gaps. For an exception on migrants and wages see Bryson et al. (2014).

weights. The weighting scheme used compensates for sample non-response bias which was detected in the employee survey as well as stratification of the workplace sample (van Wanrooy et al., 2013: 212-213).

The dependent variable. The dependent variable is log gross hourly wages. The wage is based on employee responses to the question: "How much do you get paid for your job here, before tax and other deductions are taken out? *If your pay before tax changes from week to week because of overtime, or because you work different hours each week, think about what you earn on average.*" There is no explicit instruction to respondents as to whether to include performance payments and, since respondents may not have annual bonuses in mind when making the calculation, this earnings measure may understate earnings variance associated with performance pay. There are 14 earnings bands, ranging from 'less than £60 per week/£3120 per year' through to "£1051 or more per week/£54601 per year". To obtain a continuous measure of hourly earnings the normal procedure is to take the mid-point of the respondent's earnings band and divide this by continuous hours worked. The hours denominator used includes overtime hours.[10] The earnings band for the top-coded highest earners is closed by introducing an upper ceiling that is 1.5 times the lower band.

Sexual orientation: The employee self-completion questionnaire asks employees: "Which of the following options best describes how you think of yourself?...Heterosexual or straight; gay or lesbian; bisexual; other; prefer not to say". In the whole survey (N=21,981) 19, 741 employees identify themselves as "heterosexual or straight", 331 say they are "gay or lesbian"; 123 say they are "bisexual"; 80 say "other"; 803 tick "prefer not to say"; and 903 do not respond. Based on these figures, 93% of employees in workplaces with at least 5 employees were heterosexual in 2011; 1.5% were gay or lesbian; 0.6% were bisexual; 0.5% declared their sexuality as 'other'; 3.3% said "prefer not to say"; and 1% did not answer the question. So around 2% of the employee

[9] An additional 3,858 questionnaires were distributed at 247 workplaces where there were no employee questionnaires returned. I assume that these questionnaires were never distributed by the employer (van Wanrooy et al., 2013: 210) so they are not included in the figures in the text.

population in workplaces with 5 or more employees identify themselves as gay, lesbian or bisexual. This is similar to the proportion identified in the studies to which Wadsworth et al. (2005: 334) refer although, as they note, estimates differ according to the way sexual orientation is defined and the population in question.

The final estimation sample contains 18,635 heterosexuals, 312 gay/lesbians, 118 bisexuals, with the remaining 986 grouped as "other" (see Appendix Table 1).

IV. Estimation strategy

I run OLS models to isolate the independent association between sexual orientation and log hourly wages. First I present the raw correlation, then I establish how these correlations vary with the stepwise introduction of control variables, first demographic variables, then job and workplace characteristics, and finally a "full" model which incorporates detailed information on the nature of payment methods and job quality. These models are supplemented by workplace fixed effects models where workplace dummies replace the observable workplace characteristics to identify the association between sexual orientation and log hourly pay within the same workplace having accounted for unobservable fixed characteristics of the workplace.[11]

The estimating sub-sample is all employees with non-missing hourly wages having dropped 167 cases whose hourly wage was below £2 per hour or £200 per hour or more. Dummy variables are incorporated to identify cases with missing information on particular independent variables, thus retaining the sample size. The estimation sample for men and women combined is 20,051 employees located in 1,913 workplaces. Separate estimates are run for women (N=11,157) and men (N=8807) respectively.[12]

[10] The question asks: 'How many hours do you usually work each week, including any overtime or extra hours?'

[11] 279 of the 1,923 (14.5%) workplaces in the estimation sample contain at least one gay employee respondent; 117 (6.1%) contain at least one bisexual employee.

[12] The sex of the respondent is missing in 87 cases who are retained in the pooled model using a sex missing dummy variable.

Initially I present models which incorporate employees of all sexual orientations, namely heterosexuals, gays and lesbians, bisexuals and a group designated "Other" which includes those who state "other" in response to the survey question, those who tick "prefer not to say" and those who do not answer the question. Then I move on to models which compare gays/lesbians with heterosexuals having dropped bisexuals and "others", followed by models comparing bisexuals with heterosexuals having dropped gays/lesbians and "others".

Following OLS estimation, I run Oaxaca-Blinder decompositions to check for differences in returns to observable and unobserved characteristics by sexual orientation. In this exercise, I divide the wage gap between gays/lesbians (or bisexuals) and heterosexuals into a part that is explained by wage determinants (employee Xs) and a part that cannot be explained by these differences. Following Jann (2008) these decompositions are based on coefficients from a pooled model over both heterosexual and gay/lesbian (or bisexual) employees incorporating a dummy variable identifying sexual orientation.[13]

Throughout estimation accounts for complex sample design, that is, survey weighting which accounts for employees' probability of selection into the survey and compensates for sample non-response bias, as well as the clustering of employees into workplaces (which are the primary sampling unit) and the probability of a workplace being sampled, which is based on stratifying variables relating to establishment size and industry.[14]

V. Results

Table 1 presents log hourly earnings by sexual orientation and gender. The raw gap in log hourly earnings between men and women is larger than the wage gaps associated with sexual orientation. Among women log hourly earnings are quite similar by sexual orientation, so the figures do not confirm the frequent finding in the literature that lesbians earn more than heterosexual women. Wage variance is much greater among men with gays receiving the highest hourly wage, followed by heterosexuals. There is a big

[13] For more information on wage decomposition methods see Fortin et al. (2010).
[14] For more on the sampling and survey methodology for WERS see Van Wanrooy (2013).

gap between these groups and bisexuals. The "Other" grouping contains employees who said their sexual orientation was "other", those who ticked "prefer not to say" and those who did not answer the question. Among men this group earn a little more than bisexuals, while among women they earn a little less.

[INSERT TABLE 1]

Table 2 presents the models discussed in Section IV. The top panel summarises the results for the pooled sample of male and female employees. The most striking result is that bisexuals earn around 15% per hour less than heterosexuals, a differential that falls to around 11% with controls. This differential is pretty robust to the inclusion of demographic, job and workplace controls. The within-workplace differentials in Models (5) to (8) are of a similar magnitude. However, the middle and lower panels of Table 2 reveal the bisexual wage penalty is confined to men. Among men, the raw hourly wage differential between bisexuals and heterosexuals is 31% (Model (1)). It remains at a similar level controlling for demographic characteristics (Model (2)) but falls to 20% with the introduction of job and workplace controls (Model (3)), while the addition of further controls to capture job quality and methods of payment makes little further difference (Model (4)). The pattern of results is very similar in the fixed effects models, though the magnitude of the effects is a little smaller. Among women there is no wage penalty attached to bisexuality.

[INSERT TABLE 2]

There is no clear indication of a significant wage gap between gays and heterosexuals. In the pooled models in the top panel, gays are paid around 8% more than heterosexuals, a differential that is statistically significant at a 90% confidence level (Model (1)). But this differential becomes negative with the introduction of controls and, in our fullest model, the 5% wage penalty is statistically significant at a 95% confidence level. However, the effect is not apparent within workplaces. Furthermore, the gay/heterosexual wage gap never reaches statistical significance in the separate models for men and women.

Employees in the "Other" category earn significantly less than heterosexuals, an effect that is largely driven by differentials among female employees. The wage penalty is about 5%, but it is not statistically significant in all models.

[INSERT TABLE 3]

Table 3 decomposes the wage gap between bisexual and heterosexual male employees into a part which can be "explained" by observable characteristics and a part that remains "unexplained" by these differences, as is standard in the gender wage gap literature, for example. (The decomposition is run on models confined to heterosexuals and bisexuals having removed gay men and those in the "Other" category). An OLS log hourly earnings equation with only a dummy variable identifying bisexual employees reveals a wage penalty of 0.27 log points (31%) which is statistically significant at a 99% confidence level. Model 1, which controls for personal characteristics such as qualifications, accounts for none of the gap: all of it remains unexplained. Model 2 incorporates job and workplace characteristics. These account for .08 of the .27 log point differential, that is, around 32% of it. The detailed decomposition reveals that it is the job characteristics that soak up this part of the differential: the job traits are jointly statistically significant (t=2.07) whereas the workplace characteristics are not (t=0.51). Model 3 is the fullest model which also conditions on job quality measures and methods of payment. This model accounts for .09 of the .27 log point differential (36%), still leaving the bulk of the differential unexplained.[15] It is the addition of the performance pay variables that marginally increases the explanatory power of this model, as opposed to the job quality measures.

One must be cautious in attributing any remaining wage penalty to discrimination on grounds of sexual orientation. If one conditions on facets of the job or workplace that are themselves a product of discrimination on the grounds of sexual orientation, this will lead

[15] Running the same decomposition, but replacing the workplace characteristics with workplace fixed effects increases the percentage of the gap explained from 36% to 39%.

to an underestimate of the contribution of discrimination to the gap. For example, as noted earlier, the literature indicates gays and lesbians may sort into occupations and across employers according to their perceptions of how tolerant employers and their employees may be of diversity (Plug et al., 2014). Running linear probability models estimating the probability of being gay versus heterosexual, and bisexual versus heterosexual, I find the introduction of workplace fixed effects increases the percentage of the variance explained between five and ten-fold relative to models that incorporate demographic and job traits only.[16] Yet similarities between the size of the male bisexual wage penalty in the fixed effects models when compared to the OLS models suggests segregation by workplace was not an important factor: the penalty is just as apparent *within* workplaces. To explore the issue of occupational segregation further I reran all models replacing single-digit occupation with a three-digit occupational control. Results throughout were very similar: the wage penalty attached to bisexuality among men was equally apparent *within* detailed occupational categories.

Another part of the literature explores whether gays, lesbians and bisexuals migrate to large urban centres which are more diverse, have vibrant homosexual communities and may thus be more tolerant of homosexual and bisexual employees (Black et al., 2002). In the British context one might expect different outcomes for gay, lesbian and bisexual employees in London compared to elsewhere given its reputation as a diverse city which harbours relatively large gay, lesbian and bisexual communities. However, interactions between London and sexual orientation were not statistically significant in any of the models.

[16] For instance, the r-squared for models estimating being lesbian are around 0.05 with demographic and job controls but rise to 0.25 with the workplace fixed effects estimator. The equivalent happens when estimating the probability that a women declares herself bisexual (the r-squared rises from 0.03 to 0.33). Among men the gay model without workplace fixed effects accounts for 0.06 percent of the variance, rising to 0.34 with workplace fixed effects, while the r-squared for the model estimating the probability of being bisexual rises from 0.03 to 0.33. These models contained the following controls: religion, age, ethnicity, marital status, dependent children, disability, academic qualifications, union membership, occupation, tenure, permanent contract, public sector industry, region, occupation, size of establishment, single-establishment organization, female HR manager, equal opportunities policy mentioning sexual orientation, practices to monitoring sexual orientation in recruitment, training of employees in issues of diversity and equal opportunities, having a strategic plan mentioning employee diversity. These models are available on request.

For many years equal rights at work have been enshrined in legislation. Originally focused on gender and race issues the legislation has been extended in the last decade introducing protection against discrimination on grounds of sexual orientation and religion since 2003, and age since 2006. The Equality Act 2010 harmonised and replaced previous legislation "extending some rights and ensuring consistency in what employers need to do to make their workplaces a fair environment for all employees" (van Wanrooy et al., 2013: 116). As noted in the introduction, this may help explain the increasing proportion of workplaces in Britain with written equal opportunities policies which explicitly mention sexual orientation.

By 2011, four-fifths (81%) of employees in British workplaces with at least 5 employees were covered by an equal opportunities policy which explicitly mentioned sexual orientation (Table 4). Procedures to encourage LGBT applicants to apply for posts were much less common: they existed in workplaces accounting for one-fifth (21%) of all employees, nearly all of whom worked in workplaces with a written equal opportunities policy mentioning sexual orientation.

[INSERT TABLE 4]

To see whether these employer policies are related to the size of wage gaps between employees I interacted employees' sexual orientation with a variable identifying whether the workplace had a written equal opportunities policy mentioning sexual orientation, an application procedure mentioning sexual orientation, both or neither. One-fifth (21%) of employees were in workplaces with both; one-fifth (19%) were in workplaces with neither; the remaining three-fifths (61%) had an equal opportunities policy mentioning sexual orientation but no application procedure doing so.

The interactions between sexual orientation and equal opportunities policies relating specifically to sexual orientation were not significant among men. Nor were they significant in estimates comparing the earnings of heterosexual women and bisexuals. However, they are large and robustly estimated in models comparing the earnings of

lesbians and heterosexual women. The estimates presented in Table 5 are based on the sample of women who were either heterosexual or lesbian having excluded bisexuals and those in the "Other" category. As in the estimates for all women (Table 2, middle panel) there is no statistically significant average difference in the log hourly pay of lesbian and heterosexual women.[17] However, this average effect hides a fundamental difference in the size of the wage gap between lesbians and heterosexual women depending upon the employer's equal opportunities policy.

[INSERT TABLE 5]

The interaction between being lesbian and having an equal opportunities policy mentioning sexual orientation is positive and statistically significant. So too is the interaction of being lesbian with having both an equal opportunities policy and recruitment procedure mentioning sexual orientation.[18] The latter is a little larger than the former, consistent with the proposition that the more rigorous application of equal opportunities with respect to sexual orientation has a larger impact in countering wage discrimination against lesbians. The size of the interaction effect is such that it wipes out the underlying effect of being lesbian, so that in these workplaces there is no statistically significant difference between the log hourly earnings of lesbian and heterosexual women. These results are robust to model specification, as indicated by their size and statistical significance across all four models. The wage gap between lesbians and heterosexual women in the absence of such policies is apparent from the main effect in the first row of the table. The raw wage gap is -.27 log points (31%), falling only a little to .24 log points (27%) in the full model specification.

Of course, these conditional associations do not imply a causal linkage between the presence of equal opportunities policies and the absence of wage discrimination. The

[17] These results are available on request.

[18] One needs to be cautious when interpreting these results because the interaction cells contain fairly small numbers of observations. Of the 121 gay women in these models, 14 were in workplaces with no equal opportunities policy mentioning sexual orientation, 74 were in workplaces with such a policy but no recruitment procedure mentioning sexual orientation, while the remaining 33 were in workplaces with a policy and recruitment procedures mentioning sexual orientation.

presence of such policies may be correlated with unobservable features of the workplace (eg. good management) or the employees who sort into (out of) those workplaces, potentially confounding the effects I find. In an effort to distinguish between the effects of legislative requirements, on the one hand, and the effects of being a "good" or "tolerant" employer I added additional control variables. These included having a strategic plan in place that mentioned employee diversity, training employees in diversity and equal opportunities issues, and having a female HR manager. These had no effect on the size of the interactions between being lesbian and having an equal opportunities policy and a recruitment procedure mentioning sexual orientation. The fact that the association is robust to conditioning on a large number of observable features of the employees, their jobs, their workplaces, and other aspects of HR policy, suggests such policies may well have an impact on discrimination on grounds of sexual orientation, at least among women.

If co-worker discrimination plays a part in explaining the sexual orientation wage gaps identified above one might anticipate that employer training in "equal opportunities and diversity" might educate employees and increase their awareness of the potential for discrimination against gay and bisexual colleagues. However, the incorporation of a dummy variable capturing such training made no difference to the estimated wage gaps while interactions between being in a workplace with this training and employees' sexual orientation were not statistically significant.

It is likely that the wage gap I identify between heterosexuals and their gay, lesbian and bisexual employee colleagues is an underestimate of the likely wage gap attributable to sexual orientation. This is for two reasons. First, there is likely measurement error in our identification of employees' sexual orientation: I rely on self-reports based on a self-completion questionnaire. A fairly substantial proportion of employees say they would prefer not to say, quite a few also tick "Other" and a further group simply do not answer the question. Classical measurement error in our sexual orientation measure would

induce a downward bias in our estimates.[19] Second, the mechanisms by which a wage gap is likely to emerge between heterosexuals and gay, lesbian or bisexual individuals include discrimination on the part of employers and/or other employees, such as supervisors, which result in lower earnings than the employee might otherwise receive. This may be due to direct taste-based preferences for heterosexual employees, for example. These mechanisms assume that employees' sexual orientation is apparent to other parties. While group identity is usually straightforward in the case of gender or race, this is not the case with respect to sexual orientation. The assumption in the literature is that discrimination against homosexual or bisexual employees can only occur where the employee's sexual orientation is known to others, either because the employee has "come out" or "been outed" by others.

I have no information on this issue in our data. However, I do have employees' workplace tenure. Assuming that employees reveal more information about themselves to their employer and colleagues over time, either deliberately or inadvertently, one might assume that information about the sexual orientation of an employee improves over time. Thus, one might anticipate any discrimination against gays, lesbians or bisexuals to be more apparent with longer workplace tenure. To test for this I interacted sexual orientation with tenure, but the effects were not statistically significant.

Job tenure may also proxy the information an employer has about employees' labour productivity: the statistical discrimination which may occur in the absence of such information may dissipate with time as the employer receives information about each employee's productivity. The fact that there is no statistically significant interaction between sexual orientation and tenure is consistent with the absence of any statistical discrimination. An alternative explanation for the non-significant tenure effect is that employees who start to find themselves discriminated against on grounds of sexual orientation simply move on elsewhere.

[19] Of course, if preparedness to identify one's homosexual or bisexual orientation is either positively or negatively associated with earnings, as some have suggested, the bias may go in either direction. Weichselbaumer (2013: 5) suggests those who are confident in their interaction with an interviewer are more likely to out themselves to an interviewer leading to an upward bias of lesbian/gay wages.

VI. Conclusions

Using linked employer-employee data for Britain I find bisexual men earn around 31% less per hour than heterosexual employees, a differential that falls to 20% having controlled for demographic, job and workplace characteristics. The gap is apparent within workplaces and within detailed occupational classifications. There is no wage differential between gay and heterosexual men. Among women, on the other hand, there is no wage gap between bisexuals and heterosexuals. However, lesbians are paid nearly 30% less than heterosexual women, unless they are employed in a workplace with an equal opportunities policy which explicitly refers to sexual orientation, whereupon there is no wage gap. Although I find evidence consistent with workplace sorting by sexual orientation this does not affect the size of the sexual orientation wage gaps. Tests designed to identify the potential effects of employer taste-based discrimination, statistical discrimination and co-worker discrimination are all inconclusive.

These findings differ in a number of respects from those in the literature. First, this is one of the few studies to identify a wage penalty for lesbians compared to heterosexual women, albeit confined to workplaces lacking equal opportunities policies. The finding is consistent with Becker's framework (1957, 1968) in the sense that the presence of an equal opportunities policy increases the cost of workplace managers engaging in taste-based discrimination. An alternative interpretation is that the presence of these policies captures the otherwise unobservable tolerance of employers towards homosexual employees. However, the introduction of a dummy variable capturing the presence of a strategic plan which covers equal opportunities and diversity - something that is not required under the law and may therefore be correlated with being a more enlightened employer - had no effect on the size of the wage gap, suggesting the absence of a gap in the presence of legislated equal opportunities policies may well be attributable to the law's ability to increase the costs of discrimination. Either way, one should be cautious about the finding given the relatively small number of lesbians in our sample who are not exposed to equal opportunities policies mentioning sexual orientation.

Second, this is one of only two studies which distinguishes between gay and bisexual employees when investigating the link between sexual orientation and earnings. Unlike the other study by Plug and Berkhout (2004) I find a wage penalty for bisexuals compared with heterosexuals, one that persists even in the presence of employer equal opportunities policies explicitly mentioning sexual orientation. There is qualitative research indicating that the attitudes of both employers and employees towards bisexual employees lags behind the positive developments there have been with respect to perceptions of homosexual employees (Chamberlain and Valentine, 2009; Barker et al., 2012). Such attitudes may lie behind the wage gap I identify here. However, it is difficult to see why such attitudes result in a penalty among men, but not women.

Third, in contrast to much of the literature, I find no wage penalty for gay men relative to heterosexual men. Perhaps gay men are a group who have benefited from what appear to be changing attitudes towards homosexuality, both in the workplace and more broadly in society.[20] Certainly, Clark and Sevak (2013) give changing attitudes to homosexuality in the United States as a possible explanation for the disappearance of a wage penalty for gay men in the United States over the period 1988-2007. Theirs is one of the few studies that runs identical analyses for various survey years, thus permitting the authors to say something about trends over time with confidence. In contrast, this is a single cross-sectional study. However, I would caution against assuming that prejudice against gays and bisexuals is a thing of the past. Recent methodological research indicates that the propensity for survey respondents to provide socially acceptable answers means the magnitude of anti-gay sentiment is substantially underestimated in the United States (Coffman et al., 2013), a finding which suggests wage differentials based on sexual orientation may persist for many years to come in the United States and, perhaps, elsewhere.

Fourth, this study conditions on variables that do not normally appear in empirical investigations of wage differentials by sexual orientation. In particular, I use linked

employer-employee data which provide much richer information on the nature of the employer. However, in general, the wage penalty attached to bisexuality among men is not sensitive to the inclusion of these additional workplace variables, and is found within as well as across workplaces. Neither indicators of employer "tolerance" nor efforts to educate co-workers in diversity and equal opportunities appear to have any bearing on the gap, so it remains unclear what role - if any - employer taste-based discrimination and co-worker discrimination have in explaining the gap.

The same is true for the wage penalty for lesbians - with the exception of equal opportunities policies, of course. The implication is that wage penalties for homosexuals found in previous studies are unlikely to be driven by unobserved features of the workplace. It also seems that, at least in the case of Britain, workplace segregation is not related to the size of the sexual orientation wage gaps.

Finally, I run analyses which condition on job quality (job demands, job control and supportive management) in a way that is not normally done in the literature, but this has little effect on the size of the wage penalties I find, perhaps suggesting that those penalties do not arise as compensating wage differentials.

Future research would do well to investigate the sources of the wage gap between bisexual men and heterosexual men, and the gap between lesbian and heterosexual women. Progress is likely to require longitudinal linked employer-employee data with sufficient sample sizes for gay, lesbian and bisexual employees to make definitive statements about the extent and implications of wage gaps and their origins.

[20] The British Social Attitudes Survey has tracked this profound change in attitudes towards homosexuality over the last three decades in Britain. See http://www.bsa-30.natcen.ac.uk/read-the-report/personal-relationships/homosexuality.aspx

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Table 1: Mean Log Hourly Earnings, by Sexual Orientation and Gender

Sexual Orientation	All	Men	Women
Heterosexual	2.40 (.02)	2.51 (.02)	2.30 (.02)
Gay/Lesbian	2.48 (.05)	2.59 (.07)	2.29 (.06)
Bisexual	2.26 (.07)	2.24 (.11)	2.26 (.09)
Other	2.27 (.03)	2.35 (.05)	2.21 (.04)
All	2.40 (.02)	2.50 (.02)	2.29 (.02)
N	20,051	8,807	11,157

Notes:

1. Estimation sample which excludes those with hourly wages of £2 or less and £200 or more.

2. Standard errors in parentheses

Table 2: Log Hourly Wage Gaps Relative to Heterosexuals

Men and women pooled														
	M (1)		M (2)		M (3)		M (4)		M (5)		M (6)		M (7)		M (8)	
Gay	0.08	*	0		-0.04		-0.05	**	0.06		0.02		-0.02		-0.03	
	(1.65)		(0.02)		(-1.45)		(-1.97)		(1.45)		(0.51)		(-0.67)		(-1.09)	
Bisexual	-0.14	**	-0.11	*	-0.1	*	-0.1	**	-0.18	***	-0.13	**	-0.1	**	-0.11	**
	(-2.19)		(-1.85)		(-1.79)		(-1.97)		(-3.60)		(-2.37)		(-2.18)		(-2.39)	
Other	-0.13	***	-0.06	**	-0.04	*	-0.04	*	-0.02		0		0		0	
	(-4.13)		(-2.10)		(-1.75)		(-1.71)		(-0.78)		(0.18)		(0.04)		(0.05)	
r2	0		0.26		0.54		0.55		0.44		0.51		0.67		0.68	
Women														
Lesbian	-0.01		-0.02		-0.03		-0.04		0		0.01		-0.03		-0.05	
	(-0.15)		(-0.39)		(-0.78)		(-1.08)		(0.03)		(0.23)		(-0.72)		(-1.16)	
Bisexual	-0.04		0.02		-0.05		-0.06		-0.13		-0.08		-0.07		-0.08	
	(-0.42)		(0.33)		(-0.68)		(-0.86)		(-1.63)		(-0.99)		(-1.01)		(-1.19)	
Other	-0.09	**	-0.04		-0.05	*	-0.05	*	-0.07	**	-0.04		-0.04		-0.05	*
	(-2.16)		(-0.98)		(-1.73)		(-1.78)		(-2.16)		(-1.28)		(-1.60)		(-1.72)	
r2	0		0.23		0.5		0.51		0.48		0.53		0.66		0.67	
Men														
Gay	0.08		0.02		-0.03		-0.04		0.03		0.04		0		-0.01	
	(1.21)		(0.39)		(-0.81)		(-1.19)		(0.44)		(0.71)		(-0.10)		(-0.34)	
Bisexual	-0.27	**	-0.28	***	-0.18	***	-0.17	***	-0.22	***	-0.2	**	-0.15	**	-0.14	**
	(-2.55)		(-4.26)		(-2.89)		(-2.84)		(-2.66)		(-2.41)		(-2.25)		(-2.20)	
Other	-0.16	***	-0.07		-0.02		-0.02		0.02		0.06		0.04		0.04	
	(-3.35)		(-1.53)		(-0.55)		(-0.59)		(0.62)		(1.45)		(1.29)		(1.30)	
r2	0		0.26		0.6		0.62		0.52		0.58		0.77		0.78	

Notes:

(1) Reference category: heterosexuals

(2) Model (1): raw differentials. Model (2): demographic controls (female; religion (4 dummies); age (7 dummies); white; married or living as married; any dependent children; disability; academic qualifications (9 dummies); union member. Model (3): as Model (2) plus job and workplace controls: occupation (10 dummies); usual hours worked (6 dummies); workplace tenure (6 dummies); contract type (4 dummies); public sector; industry (13 dummies); number of employees; single establishment organisation; region (11 dummies). Model (4) as Model (3) plus job quality and pay method: additive scale for job control; additive scale for job demands; additive scale for supportive management; individual performance pay; group or team performance pay; workplace or organizational performance pay. Models (5)-(8) are the workplace fixed effects equivalents of Models (1)-(4). The workplace dummies replace workplace-level covariates.

(3) The job control scale is an additive scale ranging from zero (lowest control) to 15 (highest control). The scale is composed of responses to 5 questions asking employees how much influence they had over the tasks they do in their job, the pace at which they work, the order in which they carry out their tasks, and the time they start or finish their working day. The four-point response scale runs from "none" (zero) to "a great deal" (three). The job demands scale is an additive scale ranging from zero (lowest demands) to eight (highest demands). The scale is composed or responses to two questions asking employees how much they agreed with the statements "My job requires that I work very hard" and "I never seem to have enough time to get my work done". The five-point scale runs from "strongly disagree" (zero) to "strongly agree" (four). The additive scale for supportive management ranges from zero (lowest support) to twenty-four (highest support). The scale is composed of responses to 6 questions asking employees "Now thinking about the managers at this workplace, to what extent do you agree or disagree with the following. Managers here...can be relied upon to keep their promises; are sincere in attempting to understand employees' views; deal with employees honestly; understand about employees having to meet responsibilities outside work; encourage people to develop their skills; treat employees fairly". The five-point scale runs from "strongly disagree" (zero) to "strongly agree" (four).

(4) t-statistics in parentheses. *=significant at a 90% confidence interval; **=significant at a 95% confidence interval; ***=significant at a 99% confidence interval.

(5) Unweighted sample sizes are: Whole economy: 20,051; men: 8,807; women: 11,157.

Table 3: Oaxaca-Blinder Decomposition of the Bisexual-Heterosexual Log Hourly Wage Gap Among Men

Model	Explained	Unexplained	% unexplained
(1) Demographics	-.02 (0.19)	.28 (4.45)	106
(2) As (1) + job and workplace	.08 (0.74)	.18 (2.84)	68
(3) As (2) + job quality and pay methods	.09 (0.87)	.17 (2.80)	64

Notes:

(1) See Table 2 for sample and control variables

(2) t-statistics in parentheses

(3) Following Jann (2008) the decomposition is based on coefficients from a pooled model over both bisexual and heterosexual employees and incorporates a dummy variable identifying bisexual employees.

Table 4: Employee Coverage by Sexual Orientation Equal Opportunities Policies

	Monitors recruitment and selection by sexual orientation:		
Equal Opportunities Policy Mentioning Sex Orientation:	No	Yes	Total
No	19	<1	19
Yes	60	21	81
Total	79	21	100

Notes:

(1) Unweighted N=20,218 employees

(2) Cell percentages

(3) The workplace is deemed to have an equal opportunities policy mentioning sexual orientation where the manager responsible for human resources answers "yes" to the question "Does this workplace [or the organisation to which it belongs] have a formal written policy on equal opportunities or managing diversity?" *and* in response to the question "Does the policy explicitly mention equality of treatment or discrimination on any of the grounds listed on this card?" mentions "sexual orientation". The workplace is deemed to have a procedures for encouraging job applications from people of different sexual orientations if in response to the question "do you monitor recruitment and selection by any of the characteristics on this card?" answers "sexual orientation".

Table 5: Equal Opportunities Policies and The Lesbian Log Hourly Wage Gap

	M (1)		M (2)		M (3)		M (4)	
Gay	-0.27	**	-0.24	***	-0.20	***	-0.24	***
	(2.17)		(3.44)		(3.75)		(4.13)	
Sexual Orientation Policies (Ref.: None)								
Equal Ops Policy	0.15	***	0.1	***	0.05	**	0.04	**
	(4.34)		(3.60)		(2.31)		(2.15)	
Equal Ops and Application Procedure	0.32	***	0.19	***	0.08	***	0.08	***
	(7.68)		(5.40)		(3.10)		(3.26)	
GayXequal ops procedure	0.28	*	0.25	***	0.18	**	0.22	***
	(1.91)		(2.63)		(2.35)		(2.89)	
GayXequal ops and application procedure	0.34	**	0.26	***	0.23	***	0.27	***
	(2.36)		(3.18)		(2.99)		(3.35)	
r2	0.03		0.24		0.5		0.51	

Notes:

(1) Unweighted sample N=10,525

(2) The controls are as per Models (1)-(4) for women in Table 2.

(3) t-statistics are in parentheses. *=significant at a 90% confidence interval; **=significant at a 95% confidence interval; ***=significant at a 99% confidence interval.

Appendix Table 1: Sexual Orientation, unweighted number of observations

Sexual preference	Female: No	Female: Yes	Female: Missing	Total
Hetero	8,156	10,405	74	18,635
Gay or lesbian	190	120	2	312
Bisexual	51	65	2	118
Other	410	567	9	986
Total	8,807	11,157	87	20,051