

Sexual orientation and earnings: new evidence from the UK

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Abstract

Most prior work on sexual orientation and labour market earnings has relied either on individual-level surveys with small samples of sexual minorities or has used large samples of same-sex couples. We use a large individual-level dataset that allows us to measure both constructs. We replicate the well-documented lesbian advantage and gay male penalty in couples-based comparisons but show that these effects are absent in similarly specified models of non-partnered workers. This suggests both that couples-based samples overstate the true earnings differences attributable to a minority sexual orientation and that household specialisation plays an important role in the lesbian earnings advantage. Finally, we discuss how the effects reconcile with theories of specialisation and discrimination.

Keywords: earnings, sexual orientation, discrimination, labour market

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1. Introduction

There is a growing literature in labour economics that examines the difference in earnings between sexual minorities and heterosexuals using population representative datasets. To identify sexual minorities, researchers have used either: (i) individual-level data with self-reports of a gay, lesbian or bisexual orientation (Carpenter 2005, 2008a; Plug and Berkhout 2004, and others) or same-sex sexual behaviour (Badgett 1995, Black et al. 2003, and others); or (ii) couples-based data where sexual orientation is inferred through same-sex living arrangements and the identification of relationships between individual members of the household (Allegretto and Arthur 2001, Arabsheibani et al. 2004, Antecol et al. 2008, and others). ¹

Two stylised facts have emerged from couples-based investigations:

- men in cohabiting same-sex couples earn significantly less than men in different-sex relationships
- women in cohabiting same-sex couples earn significantly more than women in different-sex relationships.

In contrast, studies with individual-level sexual orientation information generally (but not always) display smaller or insignificant earnings differences.

Because sexual minorities are only a small part of the overall population, the literature has struggled with a trade-off between representativeness and sample size. Couples-based datasets such as population censuses in Canada, the United States and the United Kingdom yield very large samples of same-sex couples but do not identify the sexual identity of non-partnered individuals.

In contrast, datasets with individual-level information on sexual orientation or sexual behaviour (for example, the General Social Survey or the National Health and Nutrition Examination Survey) have generally been much smaller in size, yielding very small numbers of sexual minorities.

The few studies with individual-level information on sexual orientation and reasonably large samples of sexual minorities have been limited to single states (for example, Carpenter 2005), limited to young adults (for example, Plug and Berkhout 2004, Sabia 2014), or lacked information on labour market earnings (Carpenter 2008a). As a result, it has been difficult to know whether differences in estimated earnings effects of a minority sexual orientation in different studies are due to differences in the samples, populations or outcomes. Relatedly, it has been difficult to disentangle alternative theories underlying sexual orientation-based differences in labour market outcomes (for example, specialisation versus discrimination). We overcome

¹ The limitations of these alternative methods for identifying sexual orientation in large datasets have been discussed at length elsewhere (see, for example, Carpenter and Gates 2008).

² Klawitter's (2015) meta-analysis of studies on this topic published between 1995 and 2012 showed that the sample size of sexual minorities and the measure of sexual orientation (couple-status versus sexual identity or sexual behaviour) were both significantly related to the estimated earnings difference associated with a minority sexual orientation.

these challenges by using confidential versions of the 2012-2014 UK Integrated Household Surveys (IHS), to which high quality labour market earnings data from the country's annual population survey have been linked.

These data allow us to identify large samples of sexual minority individuals – over 2,500 self-identified lesbians, gay men and bisexuals (LGB) – through responses to a direct question about sexual orientation. Our sample is considerably larger than other studies using individual-level sexual orientation information in the United Kingdom (Uhrig 2015 and Bryson 2014, described below), and indeed ours is the first population representative dataset with information on both sexual orientation and earnings for a large sample of adults from a single country. Moreover, our IHS data permit us to identify not only individual-level sexual orientation but also same-sex partnerships. This means we can directly test for how measurement of sexual orientation (that is, individual-level self-reports versus same-sex partnerships) is related to differences in earnings between sexual minorities and heterosexuals. It also allows us to comment more directly on the possible explanations for earnings differentials. For example, the returns to specialisation within the household should accrue to partnered rather than single individuals. In contrast, there is no clear prediction from economic theory on why partnered or non-partnered sexual minorities should suffer greater or lesser discrimination (though it could be that sexual orientation for partnered sexual minorities is more observable to employers, an issue we discuss below).

We show that having data on both partnered and non-partnered sexual minorities is substantively important. After controlling for observable determinants of earnings (such as education, location and family structure), we find a positive and statistically significant earnings differential for partnered lesbians compared with partnered heterosexual women but no earnings differential for non-partnered lesbians compared with similarly situated non-partnered heterosexual women. We find a negative and marginally significant earnings penalty for partnered gay men compared with partnered heterosexual men but no earnings differential for non-partnered gay men compared with similarly situated non-partnered heterosexual men. Taking together the overall population of both partnered and non-partnered individuals, we find that the earnings difference associated with a gay sexual orientation for men is near zero, while the associated population-based earnings difference among women associated with a lesbian orientation is a premium of about 5.5 per cent and is statistically significant.

The different results found for partnered and non-partnered sexual minorities, compared with heterosexuals of the same partnership status, are consistent with models of specialisation within the household. Traditional heterosexual households specialise in market and non-market work, with disproportionate market activity done by the male partner. Even if same sex partnerships have the same degree of specialisation, it will not be associated with gender. Everything else including degree of specialisation being equal, the average partnered gay male (lesbian) will earn less (more) than the average partnered heterosexual male (female). This effect does not hold when comparing single gay men and lesbians with single heterosexuals, since there is no household specialisation. In addition to comparing partnered and non-partnered sexual minorities, we establish several other interesting facts about the sub-groups experiencing differences in earnings depending on sexual orientation.

The lesbian earnings advantage is driven by women without a university degree and by women who live outside of London, not by a metropolitan elite. There is a significant gay male earnings penalty in samples of older men (45-64 year olds), consistent with possible historical

discrimination against gay men. We also find that bisexual men are estimated to earn significantly less than otherwise similar heterosexual men in the private sector but not in the public sector.

The paper is organised as follows: section 2 reviews the relevant literature on sexual orientation-based differences in earnings. Section 3 describes the special licence of the UK IHS data and the estimation framework. Section 4 presents the results and section 5 offers a discussion and concludes.

2. Literature review

Our study contributes to the literature on sexual orientation and earnings among adults that uses population-representative datasets to identify sexual minorities. Badgett (1995) pioneered studies on this topic by identifying sexual minorities using information on reports of same-sex sexual behaviour in the General Social Survey (GSS), finding a significant gay male earnings penalty and a lesbian earnings advantage. Several follow-up studies found broadly similar results using behaviour-based measures in the GSS and other data (Black et al. 2003; Blandford 2003; Carpenter 2007a).

There is less consistency in results across studies using datasets that identify sexual minorities through direct questions about sexual orientation identity (as opposed to same-sex sexual behaviour). Carpenter (2008a) examined data from a large health survey in Canada and found that gay men had significantly lower personal incomes than otherwise similar heterosexual men, while lesbians had significantly higher personal incomes than heterosexual women. Carpenter (2005) studied adults in California and found no evidence of significant earnings differentials for gay men or lesbians. Uhrig (2015) used data from the UK Household Longitudinal Study (UKHLS) collected in 2011-12 and found a statistically significant bisexual male earnings penalty of about 12 per cent and a statistically significant lesbian earnings premium of about 12 per cent, with no earnings differences experienced by gay men or bisexual women. Bryson (2014) used data from the United Kingdom's 2011 Workplace and Employment Relations Study (WERS) and found that bisexual men earn significantly less than similarly situated heterosexual men, while gay men and lesbians did not in general earn different wages than heterosexuals.

To gain larger sample sizes, much recent work on this topic has used data from population censuses or administrative register data that identify sexual minorities through same-sex couples. This work was pioneered by a series of papers that used the 1990 Decennial Census to study same-sex unmarried partner couples in the United States (Black et al. 2000, Klawitter and Flatt 1998, Allegretto and Arthur 2001). Klawitter and Flatt (1998) and Allegretto and Arthur (2001)

³ We do not review here correspondence studies that consistently show evidence of hiring discrimination against sexual minorities. For the United States, Tilscik (2011) found strong evidence of discrimination against fictitious applicants who appeared to be gay. Similar experiments in other countries have also returned evidence of differential treatment against lesbians in Austria (Weichselbaumer, 2003); against gay men in Greece (Drydakis, 2009); and against gay men and lesbians in Sweden (Ahmed et al., 2013). For tractability, we also restrict attention here to studies of prime age adults similar to the sample we study here. A handful of studies have examined data on college students or young adults. Plug and Berkhout (2004) studied young people in the Netherlands and found very small earnings differences associated with a gay or lesbian orientation. Carpenter (2008b) examined young women in Australia and found that young lesbians had significantly lower personal incomes than similarly situated young heterosexual women. Sabia (2014, 2015) studied young adults in the United States from the National Longitudinal Study of Adolescent Health (Add Health) and found that young gay men earned significantly less than young heterosexual men and that this difference could not be explained by numerous controls for family and individuallevel heterogeneity. In contrast, young lesbians did not earn significantly different wages than otherwise similar young heterosexual women in the young adult sample. Finally, although we focus only on studies using large samples of data from representative surveys, it is worth noting that one study provides evidence on sexual orientation and salary among UK academics. Frank (2006) finds no evidence that gay or lesbian academics in the United Kingdom experience salary differences compared with otherwise similar heterosexual academics, although he does find differences in promotions.

both found that men in same-sex couples in the 1990 census earned significantly less than similarly qualified men in different-sex couples. Clain and Leppel (2001) used data from the 1990 US census to show that women in same-sex partnerships earned significantly more than women in different-sex partnerships. Jepsen (2007) and Antecol et al. (2008) both used the 2000 US census to further explore couples-based wage gaps. Jepsen (2007) found a significant lesbian premium with evidence that this premium was not driven by household specialisation. Antecol et al. (2008) found a lesbian premium and gay male penalty with evidence that the premium might be due to human capital differences while the penalty might be due to discrimination.

International studies have also examined sexual orientation-based differences in earnings using couples datasets. Arabsheibani et al. (2004, 2005) used the UK Labour Force Survey and found a couples-based gay male penalty and lesbian premium, while Ahmed and Hammarstedt (2010) used Swedish register data to identify couples who had formalised their relationship with the government and found a gay male earnings penalty.

Studies that infer sexuality from partnership are important since they tend to have much larger sample sizes than the existing individual-level samples in the literature. However, this work begs the question of whether partnered sexual minorities are representative of the overall sexual minority population.

Carpenter (2008a) had a sufficiently large Canadian dataset to provide a first answer to that question. That study found much larger differences in partner-based comparisons of total personal income versus population-based comparisons. However, total personal income may be misleading since it includes significant government transfer income. Transfers based on marital status or the presence of children in the household are likely to be correlated with sexual orientation. In the current study we have data on labour market earnings and provide the first country-level study of sexual orientation and labour market earnings for a large population-representative sample of adults using large samples of sexual minority individuals.

3. Data description and empirical approach

Our data come from a special licence of confidential versions of the 2012-14 UK Integrated Household Survey (IHS) with Annual Population Survey (APS) earnings variables linked to the individual records. The IHS is a large, representative household survey of UK residents similar to the March Current Population Survey in the United States. Approximately 350,000 individuals are sampled in each wave of the IHS.

For our purposes, the key feature of these data is that the IHS asked respondents a direct question about their sexual orientation. Most studies in the literature on sexual orientation and earnings have relied on indirect methods for identifying sexual minorities, such as same-sex sexual behaviour (as in some public health surveys) or, more commonly, the presence of a cohabiting same-sex partner (such as the UKLFS as used in Arabsheibani et al. 2005, 2004).

Since people who do not have sex can still identify as sexual minorities, and since non-partnered sexual minorities may have different outcomes than cohabiting partnered sexual minorities, our individual-level data on self-reported sexual orientation are preferred as a more comprehensive sample of the overall population of LGB individuals. Importantly, we also have information on which of the self-reported sexual minority individuals are in partnerships.

The IHS contains both a telephone and a face-to-face survey mode. In the telephone mode, respondents age 16 and older are told: "I will now read out a list of terms people sometimes use to describe how they think of themselves. (INTERVIEWER: read list to end without pausing. Note that 'Heterosexual or Straight' is one option; 'Gay or Lesbian' is one option.) 1. Heterosexual or Straight, 2. Gay or Lesbian, 3. Bisexual, 4. Other (Spontaneous Don't know/Refusal). As I read the list again please say 'yes' when you hear the option that best describes how you think of yourself. (INTERVIEWER: Pause briefly after each option during second reading)." In the face-to-face interviews, participants age 16 and older were shown a card that had the terms printed next to a number (such as "27. Heterosexual/Straight"). Individuals were then asked "Which of the options on this card best describes how you think of yourself? Please just read out the number next to the description." Notably, sexual minorities did not have to verbalise the words "gay", "lesbian", or "bisexual" to indicate their sexual orientation in either the telephone or face-to-face survey modes, which presumably reduced potential stigma.⁴ Approximately 1.4-1.7 per cent of individuals 16 and older self-identified as gay, lesbian or bisexual in each wave of the IHS, which is similar to other large population-based surveys in the United Kingdom, United States and Canada (Joloza et al. 2010).

Individuals are asked about their employment status as well as their gross weekly pay before deductions.⁵ In addition to the critical questions on sexual orientation and earnings, the IHS

⁴ In our empirical models below we include a dummy variable for interviews that were conducted face-to-face. The sexual orientation question was not asked in cases of "proxy" interviews where a different member of the household provided the information. Forty-four per cent of interviews were conducted either by proxy or for respondents under the age of 16. We exclude these observations without sexual orientation information.

⁵ In results not reported but available upon request, our main results are robust to excluding a small number of observations (less than a 10th of 1 per cent of the full sample) with earnings less than £20 and more than £7,500 per week.

includes standard demographic characteristics such as sex, age, race/ethnicity, educational attainment, partnership/marital status, and the presence of children in the household. We restrict attention to individuals aged 25 and older to focus on individuals most likely to have completed their education.⁶

We first estimate the relationship between sexual orientation and employment by estimating linear probability models separately by sex and partnership status.⁷ These models take the form:

(1) EMPLOYED_i =
$$\alpha + \beta_1 X_i + \beta_2 (GAY/LESBIAN)_i + \beta_3 (BISEXUAL)_i + \varepsilon_i$$

where EMPLOYED is an indicator variable for being employed or full-time employed, depending on the model. X is a vector of demographic and job variables that (depending on the model) include: age and its square; education dummies (degree levels, higher education qualification below degree level, A-levels, O-levels; race dummies (white, black, Asian, mixed race, other race); location dummies (London, England excluding London, Scotland, Northern Ireland); and dummy variables for the presence of children in the household (any child <5, any child aged 5 or older). Note that in this model the relevant excluded category for sexual orientation is composed of individuals who report a heterosexual orientation. In all models we separately include dummy variables for people who reported "other" to the sexual orientation question, who refused to provide a response, or who reported "don't know" (although we do not report the coefficients in the results tables). We also include in all models a dummy variable for interviews performed face-to-face. The error term ε is assumed to be well behaved, and we estimate standard errors robust to heteroscedasticity.

To assess the relationship between sexual orientation and earnings we estimate earnings models separately for males and females and for partnered and non-partnered individuals, among the sample of full-time workers. These models take the form:

(2) LOG EARNINGS_i = $\alpha + \beta_1 X_i + \beta_2 (GAY/LESBIAN)_i + \beta_3 (BISEXUAL)_i + \epsilon_i$ where all variables are as described above.⁹

⁶ In results not reported but available upon request, we found that lowering our minimum age in the sample to 18 does not meaningfully change the results.

⁷ Partnership is based on a dummy variable indicating the person is in any type of partnership (marriage, registered civil union or a cohabiting partnership not officially recognised by the government).

⁸ Table A1 in the appendix reports demographic characteristics for individuals who did not provide a valid response to the sexual orientation question.

⁹ We also estimated models where we included job characteristics (a private sector dummy, establishment size dummies, industry dummies and occupation dummies), although a challenge in doing so is that these variables may be channels through which labour market discrimination operates, and thus it does not make sense to control for them in an attempt to distinguish discrimination from specialisation. Prior work has demonstrated strong evidence of occupational sorting by sexual orientation (Antecol et al. 2008).

4. Results

4.1 Descriptive statistics

Table 1 presents descriptive statistics for demographic and employment characteristics from the IHS data broken down by self-reported sexual orientation and gender. ¹⁰ Self-identified gay men and bisexual men (compared with heterosexual men) are significantly more likely to have a university degree, less likely to be partnered, less likely to have children in the household, and more likely to live in London. Gay men (but not bisexual men) are less likely to belong to a racial/ethnic minority and more likely to live in England (rather than Wales, Scotland or Northern Ireland). In the raw data, gay men have significantly higher average weekly earnings than heterosexual men, while bisexual men have significantly lower average weekly earnings. There is no significant differential in full-time employment between heterosexual men, gay men and bisexual men.

Self-identified lesbians (compared with heterosexual women) are significantly more likely to have a university degree, less likely to belong to a racial/ethnic minority, less likely to have children in the household, and more likely to live in England and specifically in London. Notably, the partnership and presence of children differences between lesbians and heterosexual women are substantially smaller than those between gay men and heterosexual men. In the raw data, lesbians are significantly more likely to be full-time workers and have higher average weekly earnings than heterosexual women. Bisexual women are significantly more likely than heterosexual women to have a university degree, more likely to be partnered, and more likely to be full-time workers. ¹¹

4.2 Full-time employment

In Table 2 we examine the relationship between individual characteristics – including sexual orientation – and full-time employment (the likelihood of any employment is examined in Appendix Table 2) for men (columns 1 and 2) and women (columns 3 and 4). We estimate models separately for the full sample in the top panel (combining partnered and non-partnered

¹⁰ We use the subsample of the IHS for which we have earnings information.

¹¹ It is worth noting that our estimates of the proportion of self-identified sexual minorities who report being partnered are independently interesting contributions to the literature since very few datasets have had information on sexual orientation at the individual level, particularly on a large national scale. Table 1 shows that a larger proportion of lesbians reports being partnered compared with gay men (69 per cent of lesbians versus nearly 50 per cent of gay men). These patterns – that the lesbian partnership rate is very similar to the partnership rate of heterosexual women and that the gay male partnership rate is substantially lower than the partnership rate of heterosexual men – were also found for adults in California (Carpenter and Gates 2008). Black et al. (2007) find a similar pattern using data from the GSS that identify sexual minorities from responses about same-sex sexual behaviour. Our data also suggest that bisexual men have partnership rates (51.7 per cent) that are more similar to those of gay men than to those of heterosexual men, while those of bisexual women (73.4 per cent) are slightly higher than those of either lesbians or heterosexual women.

¹² Full-time workers are defined as employees working more than 30 paid hours per week (or 25 or more for the teaching professions).

people and including a control for being in a partnership), for non-partnered individuals in the middle panel, and for partnered individuals in the bottom panel. Each column shows coefficients on the gay/lesbian and bisexual indicator variables; the odd numbered columns report estimates from models that only control for sexual orientation, while the even numbered columns add all the individual demographic characteristics (including residential location and presence of children). In column 2 of Table 2 we find that gay (bisexual) men are 4.5 (11.9) percentage points less likely to be working full time than otherwise similar heterosexual men. Notably, this difference for gay men is driven by the partnered sample. Partnered gay men are 6.1 percentage points less likely to be working full time than otherwise similar partnered heterosexual men. In contrast, the difference for bisexual men is driven primarily in the non-partnered sample, where non-partnered bisexual men are 11.7 percentage points less likely to be working full time than otherwise similar non-partnered heterosexual men. These patterns are qualitatively identical for the analyses of the likelihood of any employment in Appendix Table 2.

The results for women in column 4 of Table 2 for full-time employment show that lesbians are 8.2 percentage points more likely to be working full time than otherwise similar heterosexual women, while bisexual women are 5.4 percentage points less likely to be working full time. As with gay males, the lesbian difference in full-time employment (although of opposite sign to that for gay males) is predominantly driven by the partnered sample. Partnered lesbians are 15.4 percentage points more likely to be working full time than similar partnered heterosexual women. What differs for lesbians compared with gay males is that the differential reverses when we look at the likelihood that lesbians have any employment (as opposed to full-time employment) in the sample of partnered women after controlling for observables (see Appendix Table 2). This arises since heterosexual women in partnerships are more likely than lesbians to engage in part-time work.

These results are consistent with the model of specialisation in traditional heterosexual partnerships. Partially, this may be the result of a substantially lower likelihood of children in the household for both gay men and lesbians, compared with their heterosexual counterparts (Table 1). This may reduce the need for partnered gay men to work full time in the same way as partnered heterosexual men. Conversely, lesbians on average have fewer childcare responsibilities than heterosexual women and can remain in full-time employment. (Black et al. 2007)

4.3 Earnings

Table 3 presents estimates of the association between minority sexual orientation and earnings among full-time workers. We focus on full-time workers to be consistent with most of the prior literature; we consider all workers in Table 4. The format of Table 3 follows Table 2 in that the top panel shows results for the full sample (combining partnered and non-partnered people and including a control for being in a partnership), the middle panel examines non-partnered individuals, and the bottom panel examines partnered individuals. Columns 1 and 2 present results for men, while columns 3 and 4 present results for women; the odd numbered columns include only the sexual orientation variables and year dummies, while the even numbered columns add all the demographic and family characteristics.

The results in Table 3 are striking. For all comparisons without controls for demographic characteristics in columns 1 and 3, we find that gay men and lesbians earn significantly more than heterosexual men and women, a finding that was previewed in Table 1. More importantly, once we control for education, age and other characteristics in columns 2 and 4, we find important differences by partnership status. In the bottom panel of columns 2 and 4 comparing only partnered sexual minorities to otherwise similar partnered heterosexuals who are full-time workers – as is common in most of the prior literature – we find the usual pattern that partnered gay men earn significantly less than otherwise similar partnered heterosexual men, while partnered lesbians earn significantly more than otherwise similar partnered heterosexual women. In contrast, the middle panel of columns 2 and 4 for non-partnered individuals returns much smaller coefficients on the gay/lesbian indicator variables that are not statistically significant. The results for the full sample in the top panel of columns 2 and 4 confirm that the overall earnings effects of a gay or lesbian orientation are smaller than those implied by the partnerbased comparisons, and only the estimate for lesbians is statistically significant in the combined sample. We also find a bisexual male earnings penalty relative to similarly situated heterosexual men that is approximately equal in partnered and non-partnered comparisons; in contrast, there is no earnings difference for bisexual women compared with otherwise similar heterosexual women, except for a marginally significant bisexual female earnings penalty among nonpartnered individuals.¹³

In Tables 4a/4b and 5a/5b we report the sexual orientation coefficients in log earnings regressions for various subsamples, following the baseline specification in columns 2 and 4 of Table 3 for males and females, respectively. In addition to the estimates of the fully saturated model for full-time workers (reprinted in column 1 of Tables 4a/4b and 5a/5b for comparison purposes), we show results for samples that include all workers (including part-time workers) in column 2 of Tables 4a/4b. These models also include a control for being a full-time worker. For men, adding part-time workers makes the negative gay male earnings effect become statistically significant, primarily due to an increase in the estimated negative earnings effect of a gay orientation for non-partnered men when part-time workers are added to the model. For women, the original patterns in column 4 of Table 3 remain, although the magnitudes on the lesbian coefficient are much larger.

These earnings results shed light on the differential results in the literature when the sample is the full population of self-identified sexual minorities compared with samples that only identify those sexual minority individuals who are in partnerships. By having a large sample with both individual-level self-identification and partnership status, our results directly confirm that the significant earnings differentials are predominantly observed in partner-based samples.

Appendix Table 3 reports the values of all the coefficients in the fully saturated model (columns 2 and 4 in Table 3). Appendix Tables 4 and 5 (for men and women, respectively) show that these same basic patterns are robust to controlling additionally for sector of employment, establishment size and industry of employment (either alone or in combination). Occupation controls do matter in one instance, however, namely that the lesbian premium for non-partnered individuals only obtains after accounting for unrestricted occupation controls; including controls for establishment size, private sector, and industry dummies alone or in combination does *not* return a significant lesbian premium in the non-partnered sample. This confirms prior work that occupational sorting is important for understanding sexual orientation-based differences in labour market outcomes (Plug et al. 2014).

4.3.1 Additional earnings effects

Columns 3 and 4 of Tables 4a/4b examine earnings differences when separating the sample by residence in London. Prior work has found this to be an important feature for understanding the earnings of gay men (Arabsheibani et al. 2004). While there are many differences between London and the rest of the United Kingdom, one of the most salient in this context is that there is likely to be less discrimination on the basis of sexual orientation in London. Table 1 indicated London is a disproportionately popular residence choice for gay and bisexual men and lesbian and bisexual women. We find in column 3 of Table 4a that the estimated coefficient on the gay male indicator is positive in sign (suggesting a gay male premium in London), although it is not statistically significant. In contrast, we estimate in column 4 that gay men outside of London experience a significant wage penalty, and again this penalty is larger in partner-based samples. For bisexual men we estimate sizeable earnings penalties both inside and outside of London, though the bisexual male coefficients are not statistically different from each other in the London versus non-London comparisons. These London-based patterns for men are interesting, as one could imagine that gay men would earn significantly less in London to compensate them for the city's more progressive attitudes. Instead, it appears that gay men with higher unobservable attributes may choose to move to London or alternatively there is less of a taste for discrimination in London 14

For women in Table 4b we also find an intriguing difference when we stratify by residence in London. Specifically, we find that the entire lesbian earnings advantage experienced by lesbians is found outside of London, with much smaller and statistically insignificant lesbian coefficients in London. Moreover, the London lesbian differential is the exact opposite of the finding for gay men (who are estimated to do systematically better than their heterosexual male counterparts only inside London). We find no strong difference in bisexual female earnings differences by residence inside or outside of London.

Columns 5 and 6 of Tables 4a/4b examine earnings effects of a minority sexual orientation for full-time workers separately by employment in public versus private sector. This margin is potentially interesting since one might expect there to be stronger antidiscrimination protections in the public sector. In the United Kingdom, the public sector has a "positive duty" to address discrimination which goes beyond the relatively passive requirement upon the private sector not to discriminate. Despite this, we find no meaningful differences in earnings effects of a gay sexual orientation for men in Table 4a by sector of employment. There is, however, some indirect evidence from columns 5 and 6 of Table 4a about possible discrimination against bisexual men: while bisexual men suffer an extremely large and statistically significant earnings penalty in the private sector, the estimated penalty in the public sector is small and insignificant.

¹⁴ The disproportionately high representation of gay men and lesbians in London could also be related to their lower likelihood of having children in the household in a way that interacts strongly with differential returns to household specialisation for sexual minorities compared with heterosexuals. Black et al. (2002) argue that the spatial distribution of gay and lesbian couples into disproportionately expensive, high-amenity locations reflects their differential consumption of non-child goods.

¹⁵ Prior work on UK data that is different from what we use here shows that lesbians earn relatively higher wages when working for employers with explicit antidiscrimination protections compared with those without (Bryson 2014).

We acknowledge that the presence of a bisexual male earnings penalty and the absence of a gay male earnings penalty is puzzling and on the face of it is difficult to reconcile with simple theories of discrimination. For women, we estimate a larger lesbian premium for public sector workers, although the estimate for the public sector sample is not statistically distinguishable from the insignificant lesbian coefficient in the private sector sample in column 5 of the top row of Table 4b.

Tables 5a and 5b present further results by demographic group, and the format of these tables follows that of Tables 4a/4b (including the fact that we reprint the full sample estimates in column 1). Columns 2 and 3 of Tables 5a/5b present results for full-time workers aged 25-45 and 46-65, respectively; columns 4 and 5 present results for full-time workers with at least some university education versus those without any university education.

Results in Table 5a for men return evidence that older gay men experience an earnings penalty relative to similarly situated older heterosexual men. For women in Table 5b we document that the lesbian earnings premium is much larger and stronger in the sample of women without any university education. This is interesting since it has been hypothesised that highly educated sexual minorities might be more able to avoid some of the negative earnings effects of discrimination in the labour market; the fact that the lesbian advantage is observed in the relatively lower educated sample is less consistent with a simple taste-based discrimination explanation.

4.3.2 Effects by head of household status

Our argument on specialisation and the lesbian (gay male) earnings premium (penalty) was based on the gendered nature of heterosexual household specialisation. It would hold if lesbian and gay male households specialised to the same degree as heterosexual households. However, if there are diminishing returns to market specialisation, then if an average lesbian or gay male household specialises less (more) than an average heterosexual household, the premium would be increased (reduced) or the penalty would be decreased (increased). Of course, it is of interest in its own right as to whether specialisation in lesbian or gay partnerships is less than in traditional heterosexual households.

We use information in the IHS to determine whether an individual in a partnership is a "household head" or "not a household head". ¹⁶ If gay men and lesbians in partnerships specialise

¹⁶ The IHS data include a measure for "household reference person" (HRP). The Office of National Statistics defines the HRP as "the person who is the main owner, renter or in some other way responsible for the accommodation, and who has the highest income (and in some circumstances who has the highest income and is oldest). The rationale for this definition is that the main householder is the person who exerts the most influence on the household's living patterns and circumstances." This variable indicated that 44.4 per cent of partnered heterosexual women were the HRP in their household. We are sceptical that this proportion accurately describes the conceptual construct we are interested in, and the HRP also has the problem that it defines household head status using earnings explicitly (and our outcome of interest is earnings). For these reasons, we chose to define an alternative version of "household head" in the following way: first, if one member of the partnership was a full-time worker and the other member was not a full-time worker, the full-time worker was coded as the household head. Second, if both members of the household were full-time workers, we coded as household head the person in the couple who was older. Third, if both members of the couple were full-time workers and were the same age, we used the "first person listed in the record" as the household head. This approach returned 28.3 per cent of partnered heterosexual women as "household heads".

less than similarly situated heterosexuals in partnerships, we would expect that the gay male penalty and the lesbian premium would be relatively evenly distributed between sexual minorities who are household heads and sexual minorities who are not household heads.

We test this hypothesis with the following model estimated separately by sex:

 $(3) \qquad LOG\;EARNINGS_{i} = \alpha + \beta_{1}X_{i} + \beta_{2}(Gay/Lesbian\;and\;Household\;Head)_{i} + \beta_{3}(Gay/Lesbian\;and\;Household\;Head)_{i} + \beta_{4}(Gay/Lesbian\;and\;Household\;Head)_{i} + \beta_{5}(Gay/Lesbian\;and\;Household\;Head)_{i} + \beta_{5}(Gay/Lesbian\;and\;Head)_{i} + \beta_{5}(Gay/Lesbian\;and\;And)_{i} + \beta_{5}(Gay/Lesbian\;and\;A$

Not Household Head)_i + ε_i

where the sample consists of all partnered individuals in full-time work. Note that we also included dummies for the other sexual orientation categories ("bisexual", "other", and "don't know"), but we do not report their coefficients. The main comparison group is *all* heterosexual individuals, as we did not want to compare primary earner lesbians to primary earner heterosexuals for the concern that partnered heterosexual women who are household heads are likely to be extremely positively selected, and thus the comparison between household head heterosexual women and household head lesbians would be difficult to interpret. Thus, we compare lesbian household heads and lesbians who are not household heads to all partnered heterosexual women, the large majority of whom are secondary earners (and recall the entire sample is conditioned on full-time work). Similarly, we compare gay male household heads and gay males who are not household heads with all partnered heterosexual men.

The results are presented in Table 6 and provide some notable support in favour of household specialisation underlying the lesbian premium relative to heterosexual women in the sample of partnered individuals. To see this, note that in column 2 of Table 6 we estimate that partnered lesbians who are household heads earn significantly more than similarly situated partnered heterosexual women by about 7 per cent. Partnered lesbians who are not household heads do not earn significantly more than similarly situated partnered heterosexual women, although the point estimate also indicates a sizeable premium. Importantly, we cannot reject that the coefficients on "lesbian, household head" and "lesbian, not household head" are equal. This is consistent with the idea that lesbian households specialise less than heterosexual households.

For gay men, we observe quite a different pattern from that of lesbians. Specifically, the results in column 1 of Table 6 indicate that the earnings penalty experienced by partnered gay men compared with partnered heterosexual men accrues exclusively to the person in the partnership who is *not* the household head. Unlike the results for lesbians, we can reject equality of the coefficients between "gay, household head" and "gay, not household head". This result provides support for the hypothesis that gay male households have significant levels of specialisation. Since specialisation in heterosexual households is often ascribed in large part to child-raising

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¹⁷ The sample sizes in Table 6 are smaller than those for the earnings analyses presented in the main paper by approximately 10,000 observations (approximately 6,000 men and 4,000 women). This is because there are many observations in the IHS where we observe earnings and work information for one member of the partnership but not the other member. Since our household head definition requires us to observe this information for both members of the couple, we necessarily drop these observations.

responsibilities, this is a surprising result given the small percentage of gay male households with young children.

4.3.3 Oaxaca Blinder decompositions

Finally, we investigate Oaxaca Blinder decompositions following Arabsheibani et al. (2005). 18 Table 7 reports the mean predictions by group differences for the baseline specification. We estimate models separately by partnership status for comparisons of lesbian and gay men with their associated heterosexual counterparts, although due to space considerations (and because partnership differences were not that important for the earlier results on the bisexual wage gap) we do not present results separately by partnership status for comparisons of bisexuals with heterosexuals. The top row shows differences between partnered gay men and partnered heterosexual men, the second row shows differences between non-partnered gay men and nonpartnered heterosexual men, the third row shows differences between bisexual men and heterosexual men, the fourth row shows differences between partnered lesbians and partnered heterosexual women, the fifth row shows differences between non-partnered lesbians and nonpartnered heterosexual women, and the bottom row shows differences between bisexual women and heterosexual women. Within each row we show the raw (unadjusted) wage gap between the two groups in column 1; the amount of the gap that can be accounted for by different endowments or characteristics in column 2; the amount of the gap that can be accounted for by different returns to characteristics or "coefficients" in column 3; and the interaction in column 4.

For gay men compared with heterosexual men, recall that we did not find strong evidence of differences in average wages, with a limited negative effect comparing partnered men. In any case, the estimates in the top two rows of Table 7 indicate that the majority of any wage difference between gay men and heterosexual men – both in comparisons of partnered people and non-partnered people – can be attributed to different endowments, not different returns. Turning to comparisons between bisexual men and heterosexual men in the third row – where we found much larger earnings differences – the decomposition indicates that the vast majority of the earnings advantage experienced by heterosexual men can be attributed to their higher returns to characteristics, not their differential endowment of skills. ¹⁹

Turning to the comparison of partnered lesbians with partnered heterosexual women in the fourth row of Table 7, we find that the lesbian earnings advantage documented in the sample of partnered people is approximately equally attributable to different endowments and different returns. The same is true but to a lesser extent for comparisons of non-partnered lesbians with

¹⁸ We use the method described in Jann (2008).

¹⁹ Note that the wage gap in column 1 reports the mean predictions by groups without covariates, and a negative sign indicates that the non-heterosexual group experiences a premium in the raw unadjusted means compared with the heterosexual group. This is why there are negative signs on the wage gap in rows 1 and 2: partnered and non-partnered gay men earn *more* than partnered and non-partnered heterosexual men, respectively. Comparisons of their characteristics would predict that the partnered and non-partnered gay men would earn even more than the partnered and non-partnered heterosexual men based solely on characteristics since, for example, the gay men have higher education levels than the heterosexual men. This is why the coefficients on the characteristics in rows 1 and 2 are both even larger and negative than the raw wage gap. For the bisexual men the raw wage gap in column 1 is positive, meaning that the bisexual men earn much less than the heterosexual men in unadjusted comparisons.

non-partnered heterosexual women in the fifth row of Table 7 where we find a somewhat greater explanatory role for characteristics relative to returns. Both of these cases contrast with the decomposition results for partnered and non-partnered gay men compared with partnered and non-partnered heterosexual men where we found that the mean gap was attributable much more to differential endowments compared with very little role for differential returns to endowments. Lastly, for the comparison of bisexual women and heterosexual women in the bottom row of Table 7, we find that all the earnings advantage for heterosexual women is due to differential returns to endowments as opposed to differential endowments, which is similar to the findings for bisexual men compared with heterosexual men in the third row.

²⁰ Again, note that for partnered and non-partnered lesbians compared to partnered and non-partnered heterosexual women, both raw wage gap estimates are negative, indicating that the lesbians earn more than the heterosexual women in unadjusted comparisons. As with the gay men, the coefficient on the characteristics is negative, suggesting that the partnered and non-partnered lesbians would earn even more than the partnered and non-partnered heterosexual women based solely on characteristics since, for example, lesbians have higher education levels than heterosexual women.

5. Conclusion

The main objective in this paper was to try to shed light on the somewhat contrasting results in the literature on sexual orientation and earnings for full population samples and those that only include partnered individuals. The latter studies have had the advantage of being much larger samples drawn from census data and other sources. But there has been a question as to how representative partnered individuals are over the whole lesbian and gay population. We have used what is to our knowledge the first countrywide dataset with both partnership status and self-identified sexual orientation combined with high-quality data on labour market earnings.

Of the population in full-time work (adopted as our main sample to be consistent with the bulk of the existing literature), we found a significant negative sexual orientation-based earnings coefficient for partnered gay men compared with partnered heterosexual men, and a significant positive coefficient for partnered lesbians compared with partnered heterosexual women. There is no significant effect for non-partnered gay men or lesbians compared with non-partnered heterosexual men and women. The positive partnered lesbian effect is sufficiently strong that the lesbian coefficient on earnings remains significantly positive over the whole population sample. This does not hold for the negative earnings coefficient for gay men. Our results therefore are consistent with the literature: using partnered sexual minorities tends to show stronger effects than for those studies using the whole population of partnered and non-partnered individuals.

We have argued that these basic results are consistent with specialisation. Traditional heterosexual partners typically involve gendered specialisation, with the man more engaged in market activities than the woman, particularly given the higher prevalence of children among heterosexual couples. Other things equal, the average partnered heterosexual man will be more focused on market activities than the average gay man. By the same argument, the average partnered lesbian will be more focused on market activities than the average partnered heterosexual woman. And these differences should not accrue to non-partnered individuals. All of these specialisation-based predictions hold in our data. Our findings that the lesbian premium among partnered individuals accrues approximately equally to lesbians who are household heads and lesbians who are not household heads also support the idea that there is less specialisation in a lesbian household.

An alternative hypothesis for why partnered lesbians may have an observed earnings premium not shared by non-partnered lesbians is that there is a high partnership selectivity effect. Partnered individuals may be selected as the more productive individuals, and the unobserved heterogeneity that facilitates forming a partnership may also be useful in the workplace. Moreover, this may vary by sexual orientation. We see from the descriptive data in Table 1, however, that lesbians are just as likely to be in a partnership as heterosexual women are. They are, however, more likely to be in full-time work. In this case, if the underlying selectivity effect is the same for both heterosexual and lesbian women, then the lesbian earnings differential among partnered women in full-time work should be less than the associated differential among non-partnered women in full-time work, since the average partnered lesbian in full-time work will have less favourable unobserved heterogeneity than the average partnered heterosexual

woman. Since this is contrary to what we find, this casts doubt on the selectivity explanation for the lesbian premium for partnered women.²¹

While comparative specialisation within the household is our preferred explanation for most of our results, there is some limited evidence for the presence of discrimination as an explanatory factor. Our results show that it is older gay men and partnered gay men who earn less than comparable heterosexual men. It is likely that the lack of a heterosexual marriage becomes more of a signal of sexual minority status as an individual gets older (Carpenter 2007, Frank 2007). Partnered gay men may also be more observable as being gay than non-partnered counterparts. They may have photos of a same-sex partner or list their same-sex partner as a beneficiary, for example. If there is discrimination against gay men, these more observable individuals may bear a greater penalty. Further, the gay male penalty only occurs outside London, where there is likely to be a stronger taste for discrimination. Lastly, the bisexual male penalty only occurs in the private sector and not the public sector where there are greater protections against discrimination. ²³

However, there is also evidence against the discrimination hypothesis in both the male and female comparisons. Among the full sample of partnered and non-partnered men, the presence of a large bisexual male penalty coupled with the absence of a gay male penalty is difficult to square with simple theories of taste-based discrimination. Similarly, among the full sample of women we observed that lesbians earn more than heterosexual women and that the premium occurs in samples of lower educated women and women outside of London – both places where we would normally expect greater discrimination if it existed. Also, the premium occurs among partnered and not non-partnered lesbians, and the same argument as with gay men suggests that these individuals will be more observable and therefore more subject to any discrimination.

Taken together, then, our unique samples of partnered and non-partnered sexual minorities and high quality data on earnings provide novel evidence supporting a role for specialisation in explaining sexual orientation-based differences in labour market earnings, with less evidence for selectivity and at best limited and mixed support for discrimination. As more large-scale social science datasets add individual-level information on sexual orientation, future work in other

²¹ In results not reported but available upon request we also found very little evidence of positive selection into partnership on the basis of education for gay men and lesbians, in contrast to prior results for gay men and lesbians in the United States (Carpenter and Gates, 2008).

²² Notably, there are other non-discrimination-based explanations for the gay male earnings penalty accruing to older men. For example, there could be wealth effects for gay men associated with their much lower likelihood of raising children. In results not reported but available upon request we found that the significantly lower likelihood of full-time employment experienced by gay men in Table 2 is driven primarily by significantly lower full-time employment rates of older (that is, 45 to 64-year-old) gay men compared with similarly situated older heterosexual men. In contrast, employment rates for 25 to 44-year-old gay men were not significantly different to those for similar heterosexual men. That the employment gap for gay men only is observed for the older sample suggests that wealth effects on earnings may be important even in the absence of any labour market discrimination.

²³ We also note that for both bisexual men and bisexual women, Table 7 indicates that the raw earnings penalty arises due to lower returns to bisexual individuals' characteristics rather than lower endowments for bisexual individuals. This pattern is quite consistent with discrimination against bisexual individuals, and indeed it is possible that there are different levels and patterns of discrimination against bisexual individuals compared with gay men and lesbians.

countries and contexts can continue to inform our understanding of how a minority sexual orientation shapes economic outcomes.

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Table 1: Descriptive characteristics – demographics (among those with earnings information)

2012-14 UK Integrated Household Surveys

Variables	Heterosexual men	Bisexual men	Gay men	Heterosexual women	Bisexual women	Lesbians
Age	44.91 (10.63)	43.63 (11.30)	41.95 (9.80)	44.23 (10.26)	41.45 (10.18)	40.78 (9.36)
Highest education level:						
University degree	0.308 (0.462)	0.409 (0.493) ^A	0.470 (0.499) ^A	0.307 (0.461)	0.427 (0.495) ^B	0.440 (0.497) ^B
Some higher education	0.118 (0.322)	0.119 (0.325)	0.121 (0.327)	0.131 (0.337)	0.103 (0.304)	0.139 (0.347)
A ('advanced') level	0.255 (0.436)	0.165 (0.372) ^A	0.202 (0.401) ^A	0.194 (0.395)	0.166 (0.372)	0.179 (0.383)
O ('ordinary') level	0.210 (0.407)	0.165 (0.372)	0.158 (0.365) ^A	0.278 (0.448)	0.252 (0.435)	0.194 (0.396) ^B
White	0.905 (0.293)	0.795 (0.405) ^A	0.952 (0.215) ^A	0.928 (0.258)	0.911 (0.284)	0.963 (0.189) ^B
Partnered	0.737 (0.440)	0.517 (0.501) ^A	0.497 (0.500) ^A	0.665 (0.472)	0.734 (0.442) ^B	0.690 (0.463)
Any Child <16	0.278 (0.448)	0.182 (0.387) ^A	0.012 (0.110) ^A	0.340 (0.474)	0.305 (0.461)	0.129 (0.335) ^B
England	0.744 (0.436)	0.744 (0.437)	0.829 (0.377) ^A	0.730 (0.444)	0.800 (0.401) ^B	0.789 (0.408) ^B
London	0.087 (0.282)	0.210 (0.409) ^A	0.226 (0.419) ^A	0.079 (0.270)	0.163 (0.370) ^B	0.113 (0.317) ^B
N. Ireland & Wales & Scotland	0.256 (0.436)	0.256 (0.437)	0.171 (0.377) ^A	0.270 (0.444)	0.200 (0.401) ^B	0.211 (0.408) ^B
Avg. Weekly Earnings	639.00 (515.30)	527.5 (316.30) ^A	677.10 (814.70) ^A	396.00 (411.80)	409.30 (278.40)	515.20 (310.10) ^B
Full-time worker	0.917 (0.275)	0.903 (0.296)	0.903 (0.296)	0.564 (0.496)	0.615 (0.487) ^B	0.807 (0.395) ^B
Sample Size	73318	176	1220	94810	429	839

Note: Weighted means (standard deviations). Not reported (but included in the models) there are 7,020 men and 7,469 women who, when asked about sexual orientation, responded 'other', 'don't know' or who refused a response. A The superscript letter A means statistically significant difference (P < 0.05) between the groups of gay men and bisexual men in contrast to the heterosexual men. B The superscript letter B means statistically significant difference (P < 0.05) between the groups of lesbians and bisexual women in contrast to the heterosexual women.

Table 2: Sexual orientation and full-time employment

UK IHS 2012-14, adults aged 25+

	M	ales	Females		
Controls for →	(1) Sexual orientation + year dummies	(2) + demographic characteristics (age, race, education, any kids, residence) + year dummies	(3) Sexual orientation + year dummies	(4) + demographic characteristics (age, race, education, any kids, residence) + year dummies	
Full sample		***	***	***	
Gay/Lesbian	0.020 (0.013)	-0.045 (0.012)	0.230 (0.017)	0.082 (0.017)	
Bisexual	-0.107 (0.034)	-0.119 (0.032)	-0.022 (0.021)	-0.054 (0.020)	
R-squared	0.001	0.164	0.003	0.161	
N	121206	121206	175285	175285	
Non-partnered					
Gay/Lesbian	0.092 (0.019)	-0.008 (0.018)	0.099*** (0.032)	-0.052 [*] (0.031)	
Bisexual	-0.069 (0.046)	-0.117 (0.043)	-0.056 (0.039)	-0.146 (0.035)	
R-squared	0.003	0.171	0.002	0.202	
N	39508	39508	62650	62650	
Partnered Gay/Lesbian	0.025 (0.018)	-0.061 (0.016)	0.300 (0.020)	0.154 (0.019)	
Bisexual	-0.029 (0.047)	-0.029 (0.047)	-0.004 (0.025)	-0.014 (0.023)	
R-squared	0.001	0.178	0.004	0.149	
N	81698	81698	112635	112635	

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Specific controls in columns 2 and 4 include: a dummy variable for being interviewed face-to-face; age and its square; dummy variables for degree levels, higher education (HE qualification below degree level), A-levels, O-levels; race/ethnicity dummies (white, black, Asian, mixed race, other race); location dummies (London, England, Scotland, and Northern Ireland); the presence of children (any child <5 & any child ≥5) in the household; and year dummies. Columns 2 and 4 in the top panel also include a control for being in any kind of partnership.

Table 3: Sexual orientation and log earnings, full-time workers

UK IHS 2012-14, adults aged 25+

	Ma	ales	Females		
	(1)	(2)	(3)	(4)	
Controls for →	Sexual orientation + year	+ demographic	Sexual orientation + year	+ demographic	
	dummies	characteristics (age, race,	dummies	characteristics (age, race,	
		education, any kids,		education, any kids,	
		residence) + year dummies		residence) + year dummies	
All					
Gay/Lesbian	0.061***	-0.027	0.124***	0.054***	
-	(0.021)	(0.019)	(0.024)	(0.021)	
Bisexual	-0.134**	-0.149 ^{***}	0.004	-0.036	
	(0.053)	(0.044)	(0.035)	(0.032)	
R-squared	0.001	0.198	0.001	0.231	
N	75017	75017	59221	59221	
Non-partnered					
Gay/Lesbian	0.126***	-0.006	0.115**	0.029	
	(0.027)	(0.025)	(0.047)	(0.037)	
Bisexual	-0.038	-0.110	0.013	-0.097 [*]	
	(0.082)	(0.068)	(0.053)	(0.050)	
R-squared	0.007	0.189	0.003	0.247	
N	19905	19905	22385	22385	
Partnered					
Gay/Lesbian	0.062*	-0.050 [*]	0.124***	0.067***	
	(0.032)	(0.028)	(0.028)	(0.025)	
Bisexual	-0.164**	-0.189***	-0.002	-0.009	
	(0.066)	(0.057)	(0.044)	(0.040)	
R-squared	0.001	0.191	0.002	0.224	
N	55112	55112	36836	36836	

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Specific controls in columns 2 and 4 include: a dummy variable for being interviewed face-to-face; age and its square; dummy variables for degree levels, higher education (HE qualification below degree level), A-levels, O-levels; race/ethnicity dummies (white, black, Asian, mixed race, other race); location dummies (London, England, Scotland, and Northern Ireland); the presence of children (any child <5 & any child ≥5) in the household; and year dummies. Columns 2 and 4 in the top panel also include a control for being in any kind of partnership.

Table 4a: Sexual orientation and log earnings, various subsamples, males

UK IHS 2012-14, adults aged 25+

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline: full-time workers (Table 3, Column 2)	All workers	London residents, full-time workers	Non-London residents, full-time workers	Private sector full- time workers	Public sector full- time workers
All males	Column 2)			WOINCIO		
Gay	-0.027 (0.019)	-0.041 (0.021)	0.051 (0.039)	-0.070*** (0.020)	-0.022 (0.024)	-0.030 (0.027)
Bisexual	-0.149 (0.044)	-0.185 ^{***} (0.062)	-0.190 (0.076)	-0.126** (0.054)	-0.174*** (0.051)	-0.017 (0.079)
R-squared N	0.198 75017	0.182 81734	0.179 6793	0.191 68224	0.199 58539	0.199 16459
Non-partnered males						
Gay	-0.006 (0.025)	-0.035 (0.028)	0.057 (0.050)	-0.041 (0.027)	0.011 (0.030)	-0.026 (0.041)
Bisexual	-0.110 (0.068)	-0.134 (0.084)	-0.166 (0.130)	-0.095 (0.080)	-0.122 [*] (0.074)	-0.029 (0.112)
R-squared	0.189	0.175	0.169	0.176	0.188	0.198
N	19905	21910	2237	17668	15804	4089
Partnered males						
Gay	-0.050 [*] (0.028)	-0.049 (0.031)	0.049 (0.062)	-0.094 (0.029)	-0.059 (0.037)	-0.013 (0.036)
Bisexual	-0.189 (0.057)	-0.242 ^{***} (0.091)	-0.220 (0.100)	-0.168 (0.072)	-0.235 ^{**} (0.068)	-0.023 (0.100)
R-squared N	0.191 55112	0.174 59824	0.187 4556	0.183 50556	0.193 42735	0.194 12370

Table 4b: Sexual orientation and log earnings, various subsamples, females

UK IHS 2012-14, adults aged 25+

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline: full-	All workers	London residents,	Non-London	Private sector full-	Public sector full-
	time workers		full-time workers	residents, full-time	time workers	time workers
	(Table 3, Column			workers		
	4)					
All females	***	***		***		**
Lesbian	0.054***	0.135***	0.014	0.063***	0.044	0.067
	(0.021)	(0.028)	(0.071)	(0.020)	(0.028)	(0.030)
Bisexual	-0.036	-0.062	-0.059	-0.030	-0.048	-0.020
	(0.032)	(0.039)	(0.064)	(0.037)	(0.044)	(0.041)
R-squared	0.231	0.224	0.180	0.219	0.211	0.243
N	59221	103547	5753	53468	33695	25521
Non-partnered						
females						
Lesbian	0.029	-0.014	-0.000	0.036	0.008	0.063
	(0.037)	(0.064)	(0.092)	(0.040)	(0.051)	(0.055)
Bisexual	-0.097 [°]	0.146 ^{**}	-0.119 [°]	-0.094 [*]	-0.087	-0.120
	(0.050)	(0.060)	(0.132)	(0.054)	(0.059)	(0.084)
R-squared	0.247	0.279	0.185	0.233	0.221	0.273
N	22385	34792	2749	19636	13259	9122
Partnered females						
Lesbian	0.067***	0.199***	0.036	0.075***	0.064^{*}	0.072**
	(0.025)	(0.029)	(0.098)	(0.024)	(0.034)	(0.036)
Bisexual	-0.009 [°]	-0.040 [°]	-0.029 [°]	-0.003	-0.027	`0.011 [′]
	(0.040)	(0.049)	(0.073)	(0.048)	(0.060)	(0.045)
R-squared	0.224	0.203	0.190	0.212	0.208	0.230
N	36836	68755	3004	33832	20436	16399

Table 5a: Sexual orientation and log earnings, by demographics, males

UK IHS 2012-14, adults aged 25+

	(1)	(2)	(3)	(4)	(5)
	Baseline: full-time workers (Table 3, Column 2)	25-45 year olds, full- time workers	46-65 year olds, full- time workers	Education greater than A-levels, full-time workers	Education A-levels or less, full-time workers
All males					
Gay	-0.027 (0.019)	0.001 (0.023)	-0.092*** (0.032)	-0.029 (0.024)	-0.021 (0.029)
Bisexual	-0.149*** (0.044)	-0.161*** (0.055)	-0.124 [*] (0.070)	-0.195*** (0.057)	-0.138 [*] (0.074)
R-squared N	0.198 75017	0.214 39069	0.177 35948	0.111 32640	0.087 38656
Non-partnered males					
Gay	-0.006 (0.025)	0.007 (0.031)	-0.041 (0.039)	-0.023 (0.033)	0.039 (0.036)
Bisexual	-0.110 (0.068)	-0.094 (0.089)	-0.114 (0.088)	-0.159 [*] (0.089)	-0.126 (0.115)
R-squared N	0.189 19905	0.206 10814	0.173 9091	0.108 8219	0.073 10457
Partnered males					
Gay	-0.050 [*] (0.028)	-0.011 (0.033)	-0.134 ^{***} (0.050)	-0.035 (0.036)	-0.084 [*] (0.047)
Bisexual	-0.189 (0.057)	-0.221 (0.066)	-0.121 (0.105)	-0.227 (0.075)	-0.159 (0.093)
R-squared	0.191	0.210	0.167	0.101	0.080
N	55112	28255	26857	24421	28199

Table 5b: Sexual orientation and log earnings, by demographics, females

UK IHS 2012-14, Adults age 25+

	(1)	(2)	(3)	(4)	(5)
	Baseline: full-time	25-45 year olds, full-	46-65 year olds, full-	Education greater than	Education A-levels or
	workers (Table 3,	time workers	time workers	A-levels, full-time	less, full-time workers
	Column 4)			workers	
All females	***		*		***
Lesbian	0.054***	0.030	0.079*	0.028	0.100***
	(0.021)	(0.022)	(0.048)	(0.026)	(0.034)
Bisexual	-0.036	-0.030	-0.045	-0.075**	0.004
	(0.032)	(0.036)	(0.065)	(0.037)	(0.058)
R-squared	0.231	0.227	0.250	0.125	0.046
N	59221	31775	27446	29779	27158
Non-partnered					
females			**		
Lesbian	0.029	-0.024	0.136	0.016	0.062
	(0.037)	(0.045)	(0.066)	(0.050)	(0.053)
Bisexual	-0.097 [*]	-0.073	-0.142	-0.155 ^{**}	0.049
	(0.050)	(0.050)	(0.128)	(0.066)	(0.062)
R-squared	0.247	0.249	0.260	0.131	0.073
N	22385	11160	11225	10663	10642
Partnered females					
Lesbian	0.067***	0.057**	0.056	0.037	0.119***
	(0.025)	(0.025)	(0.062)	(0.031)	(0.044)
Bisexual	-0.009	-0.013	0.000	-0.027	-0.004
	(0.040)	(0.048)	(0.073)	(0.042)	(0.072)
R-squared	0.224	0.217	0.248	0.125	0.035
N .	36836	20615	16221	19116	16516

Table 6: Sexual orientation and log earnings, by household head status for sexual minorities

Sample is partnered full-time workers

Specification is Table 3, columns 2 and 4

UK IHS 2012-14, adults aged 25+

	(1)	(2)
	Men	Women
Gay/Lesbian & Household Head	0.002 (0.034)	0.071 (0.031)
Gay/Lesbian & Not Household Head	-0.141 (0.045)	0.057 (0.039)
R-squared N	0.187 48688	0.225 32862

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Controls include: a dummy variable for being interviewed face-to-face; age and its square; dummy variables for degree levels, higher education (HE qualification below degree level), A-levels, O-levels; race/ethnicity dummies (white, black, Asian, mixed race, other race); location dummies (London, England, Scotland, and Northern Ireland); the presence of children (any child ≤5 & any child ≥5) in the household; and year dummies.

Table 7: Oaxaca decompositionsBaseline specification, with demographic controls
UK IHS 2012-14, adults aged 25+

(1)	(2)	(3)	(4)
Wage gap	Characteristics	Coefficients	Interaction
-0.124	-0.254	0.010	0.120
(0.061)	(0.104)	(0.053)	(0.100)
-0.064	-0.125	0.038	0.023
(0.045)	(0.034)	(0.040)	(0.028)
0.181	0.048	0.232	-0.099
			(0.071)
, ,	,	, ,	, ,
-0.128	-0.057	-0.048	-0.023
	(0.050)		(0.046)
(5:5:1)	(0.000)	(51555)	(51515)
-0.085	-0.091	-0.043	0.049
		(0.061)	(0.053)
,/	, - /	, - /	, ,
0.052	-0.006	0.081	-0.023
(0.057)	(0.045)	(0.046)	(0.031)
	-0.124 (0.061) -0.064 (0.045) 0.181 (0.089) -0.128 (0.044) -0.085 (0.081)	Wage gap Characteristics -0.124 (0.061) -0.254 (0.104) -0.064 (0.045) -0.125 (0.034) 0.181 (0.089) 0.048 (0.083) -0.128 (0.044) -0.057 (0.044) -0.057 (0.044) (0.050) -0.085 (0.081) -0.091 (0.074) 0.052 -0.006	Wage gap Characteristics Coefficients -0.124 -0.254 0.010 (0.061) (0.104) (0.053) -0.064 -0.125 0.038 (0.045) (0.034) (0.040) 0.181 0.048 0.232 (0.089) (0.083) (0.078) -0.128 -0.057 -0.048 (0.044) (0.050) (0.039) -0.085 -0.091 -0.043 (0.081) (0.074) (0.061) 0.052 -0.006 0.081

Note: For details on control variables, see notes to Table 3.

Appendix

Table A1: Descriptive characteristics – demographics (among those with earnings information)

2012-14 UK Integrated Household Surveys

Variables	DK/Refuse/Other response to sexual orientation question, males	DK/Refuse/Other response to sexual orientation question, females
Age	44.05 (10.40)	43.70 (10.36)
Degree level	0.319 (0.466)	0.317 (0.465)
Higher ed.	0.114 (0.318)	0.127 (0.333)
A level	0.231 (0.421)	0.181 (0.385)
O level	0.215 (0.411)	0.271 (0.444)
White	0.892 (0.310)	0.904 (0.294)
Partnered	0.721 (0.449)	0.647 (0.478)
Any Child <16	0.296 (0.456)	0.305 (0.461)
England	0.749 (0.434)	0.747 (0.435)
London	0.111 (0.314)	0.111 (0.314)
N. Ireland & Wales & Scotland	0.251 (0.434)	0.253 (0.435)
Avg. Weekly Earnings	662.70 (806.20)	422.20 (312.70)
Full-time worker	0.925 (0.264)	0.640 (0.480)
Sample Size	7,020	7,469

Note: Weighted means (standard deviations).

Table A2: Sexual orientation and any employment

UK IHS 2012-14, adults aged 25+

	Ma	ales	Females		
	(1)	(2)	(3)	(4)	
Controls for →	Sexual orientation + year	+ demographic	Sexual orientation + year	+ demographic	
	dummies	characteristics (age, race,	dummies	characteristics (age, race,	
		education, any kids,		education, any kids,	
		residence) + year dummies		residence) + year dummies	
All					
Gay/Lesbian	0.026***	-0.026 ^{**}	0.085***	-0.028 [*]	
	(0.012)	(0.011) -0.114***	(0.015)	(0.015)	
Bisexual	-0.103***	-0.114***	-0.071***	-0.078***	
	(0.032)	(0.030)	(0.022)	(0.020)	
R-squared	0.001	0.153	0.001	0.155	
N	121206	121206	175285	175285	
Non-partnered					
Gay/Lesbian	0.107***	0.014	0.013	-0.098***	
	(0.017)	(0.016)	(0.031 <u>)</u> -0.125	(0.030)	
Bisexual	-0.078 [*]	-0.124		-0.180 ^{***}	
	(0.045)	(0.042)	(0.040)	(0.035)	
R-squared	0.003	0.171	0.002	0.169	
N	39508	39508	62650	62650	
Partnered					
Gay/Lesbian	0.022	-0.043***	0.122***	0.005	
•	(0.016)	(0.015)	(0.016)	(0.015)	
Bisexual	-0.003	-0.010	-0.047 [*]	-0.032	
	(0.040)	(0.037)	(0.026)	(0.024)	
R-squared	0.001	0.157	0.001	0.156	
N	81698	81698	112635	112635	

See notes to Table 3.

Table A3: Expanded set of coefficient estimates, fully saturated model

(that is, columns 2 and 4 of Table 3) - UK Integrated Household Surveys 2012-14

,	(1)	(2)	(3)	(4)
	Non-partnered	Partnered males	Non-partnered	Partnered
	males	r artificieu filales	females	females
Gay	-0.006	-0.050 [*]	0.029	0.067***
	(0.025)	(0.028)	(0.037)	(0.025)
Bisexual	-0.110	-0.189***	-0.097 [*]	-0.009
	(0.068)	(0.057)	(0.050)	(0.040)
Other	-0.049	-0.015	-0.053	0.015
	(0.063)	(0.049)	(0.063)	(0.060)
Refused	0.043**	0.033**	0.026	0.017
	(0.020)	(0.016)	(0.017)	(0.018)
S.O. Nonresponse	-0.155***	-0.010	-0.090***	0.006
	(0.045)	(0.012)	(0.031)	(0.018)
Age	0.069	0.068	0.051	0.059
	(0.004)	(0.002)	(0.003)	(0.003)
Age-squared	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Degree Level	0.561***	0.606***	0.708***	0.665***
	(0.016)	(0.010)	(0.020)	(0.017)
Higher Ed.	0.391***	0.403***	0.454***	0.366***
	(0.019)	(0.012)	(0.021)	(0.018)
A Level	0.250***	0.283***	0.291***	0.209***
	(0.016)	(0.010)	(0.021)	(0.017)
O Level	0.099***	0.144***	0.170***	0.114***
	(0.016)	(0.011)	(0.020)	(0.017)
Face to Face	-0.010	-0.035***	-0.009	-0.028***
	(0.010)	(0.006)	(0.009)	(0.007)
Ethnicity	Yes	Yes	Yes	Yes
Location	Yes	Yes	Yes	Yes
Family	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	19905	55112	22385	36836
R^2	0.189	0.191	0.247	0.224
See notes to Table 3				

See notes to Table 3.

Table A4: Sexual orientation and log earnings, sensitivity to job controls - UK IHS 2012-14, adults aged 25+ in full-time employment, males

	(1)	(2)	(3)	(4)	(5)	(6)
Controls for →	Sexual	Sexual	Sexual	Sexual	Sexual	(all but occ. cont.)
	orientation only +	orientation only +	orientation only +	orientation only +	orientation only +	Sexual orientation
	basic + family	basic + family +	basic + family +	basic + family +	basic + family +	only + basic + family
	(i.e., baseline	only private	only	only industry	only occupation	+ private sector +
	specification)	sector cont.	establishment size cont.	<u>cont.</u>	<u>cont.</u>	<u>establishment size +</u> <u>industry controls</u>
All males			SIZE COIIC.			industry controls
Gay	-0.027	-0.024	-0.028	-0.009	-0.017	-0.008
	(0.019)	(0.019)	(0.018)	(0.018)	(0.018)	(0.018)
Bisexual	-0.149***	-0.150***	-0.145***	-0.141***	-0.147***	-0.138***
	(0.032)	(0.044)	(0.044)	(0.043)	(0.041)	(0.043)
R-squared	0.198	0.199	0.217	0.220	0.257	0.238
N .	75017	75017	75017	75017	75017	75017
Non-partnered males						
Gay	-0.006	-0.004	-0.010	0.011	-0.000	0.009
	(0.025)	(0.025)	(0.025)	(0.024)	(0.023)	(0.024)
Bisexual	-0.110	-0.112 [*]	-0.099	-0.096	-0.117 [*]	-0.089
	(0.068)	(0.068)	(0.067)	(0.065)	(0.063)	(0.065)
R-squared	0.189	0.189	0.207	0.215	0.254	0.230
N	19905	19905	19905	19905	19905	19905
Partnered males						
Gay	-0.050*	-0.047*	-0.047*	-0.031	-0.038	-0.026
	(0.028)	(0.028)	(0.027)	(0.028)	(0.027)	(0.027)
Bisexual	-0.189***	-0.186***	-0.191***	0.184***	-0.176***	-0.184***
	(0.057)	(0.058)	(0.057)	(0.057)	(0.053)	(0.057)
R-squared	0.191	0.192	0.212	0.212	0.249	0.232
N	55112	55112	55112	55112	55112	55112

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Specific controls in column 1 include: a dummy variable for being interviewed face-to-face; age and its square; dummy variables for degree levels, higher education (HE qualification below degree level), A-levels, O-levels; race/ethnicity dummies (white, black, Asian, mixed race, other race); and year dummies; location dummies (London, England, Scotland, and Northern Ireland) and the presence of children (any child ≤5 & any child ≥5) in the household. Specific controls in column 2 include: a private sector dummy. Specific controls in column 3 include: 7 establishment size dummies (1-10, 11-19, 20-24, 25-49, 50-249, 250-499, >500). Specific controls in column 4 include: 8 industry dummies (energy/water, manufacturing, construction, hotels/restaurants, transportation/communication, banking/finance, education/health, other services). Specific controls in column 5 include: 8 occupation dummies (manager/director/senior officials, professional occupations, associate professional/technical occupations, administrative and secretarial occupations, skilled trades occupations, caring/leisure/other service occupations, customer service and sales occupations, elementary occupations). Models in the top panel also include a control for being in any kind of partnership.

Table A5: Sexual orientation and log earnings, sensitivity to job controls

UK IHS 2012-14, adults aged 25+ in full-time employment, females

	(1)	(2)	(3)	(4)	(5)	(6)							
Controls for →	Sexual orientation only + basic + family (i.e., baseline	Sexual orientation only + basic + family + only private	Sexual orientation only + basic + family + only	Sexual orientation only + basic + family + only industry	Sexual orientation only + basic + family + only	(all but occ. cont.) Sexual orientation only + basic + family + private							
								specification)	sector cont.	establishment	cont.	occupation cont.	sector +
										size cont.			<u>establishment size</u> + industry controls
							All females						
Lesbian	0.054***	0.053**	0.048**	0.056***	0.079***	0.050**							
	(0.021)	(0.021)	(0.020)	(0.020)	(0.019)	(0.020)							
Bisexual	-0.036	-0.035	-0.030	-0.033	-0.028	-0.026							
	(0.032)	(0.032)	(0.032)	(0.032)	(0.029)	(0.032)							
R-squared	0.231	0.232	0.259	0.259	0.369	0.285							
N	59221	59221	59221	59221	59221	59221							
Non-partnered females													
Lesbian	0.028	0.028	0.029	0.038	0.074**	0.038							
	(0.037)	(0.037)	(0.036)	(0.036)	(0.033)	(0.035)							
Bisexual	-0.096 [*]	-0.092 [*]	-0.077	-0.112 ^{**}	-0.078 [*]	-0.086 [*]							
	(0.050)	(0.050)	(0.051)	(0.047)	(0.045)	(0.049)							
R-squared	0.247	0.248	0.275	0.280	0.383	0.306							
N	22385	22385	22385	22385	22385	22385							
Partnered females													
Lesbian	0.068***	0.066***	0.058**	0.068***	0.083***	0.058**							
	(0.025)	(0.025)	(0.025)	(0.025)	(0.023)	(0.025)							
Bisexual	-0.009	-0.010	-0.010	0.000	-0.008	-0.001							
	(0.041)	(0.041)	(0.041)	(0.040)	(0.037)	(0.040)							
R-squared	0.223	0.224	0.251	0.248	0.362	0.274							
N	36836	36836	36836	36836	36836	36836							

See notes to Table A4.