Sexual Orientation and Job Satisfaction: Survey-Based Evidence from Sweden

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Abstract

We present results from a unique nationwide survey conducted in Sweden on sexual orientation and job satisfaction. Our results show that gay men are more likely to be very satisfied with their job than heterosexual men, both in general and with different aspects of the job. In contrast, lesbians appear less satisfied with their job in general and with promotion prospects than heterosexual women. Among women, we find no differences in the probability of being very satisfied with the job by sexual orientation. However, the issue of sexual orientation and job satisfaction is complex since gay men, despite that they more often are very satisfied with the job, like lesbians find their job more mentally straining than heterosexuals. We conclude that gay men and lesbians are facing other stressors at work than heterosexuals do. We also conclude that the worker's own expectations about the job and possibilities to fulfill career plans may be possible driving forces to our results. Previous research has documented discrimination against gay males and lesbians in hiring. Our results underline that measures to prevent discrimination in hiring is not enough to create an equal working life for homosexuals and heterosexuals. Measures within the workplace are also needed.

Keywords Job satisfaction · Sexual orientation · Discrimination · Gender · Earnings

JEL J28 · J15 · J71

Introduction

There is a large body of literature on differences in labour market outcomes due to sexual orientation. Most of the research focuses on earnings and typically shows that

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gay males earn less than heterosexual males and that lesbians earn about the same or more than heterosexual females.¹ Many studies also document that gay males and lesbians are discriminated against in hiring (Adam 1981; Hebl et al. 2002; Weichselbaumer 2003, 2004; Drydakis 2009, 2011; Ahmed et al. 2013a). There is also survey-based evidence that points at discrimination and harassment due to sexual orientation in the workplace. For example, in a review of US studies, Badgett et al. (2007) find that between 15 and 43% of surveyed lesbian, gay, and bisexual (LGB) individuals reported workplace discrimination. A large-scale EU LGBT survey shows that about 20% of the lesbian, gay, bisexual, and transgender respondents in the EU felt discriminated against at work, with national rates ranging from 11% for Denmark to 30% for Cyprus (European Union Agency for Fundamental Rights 2013). Despite this, less attention has been paid to the extent to which sexual orientation affects subjective well-being at work (i.e., job satisfaction).

From a more general perspective, job satisfaction is important as a measure of individual well-being and thus in showing how welfare is distributed across groups and individuals (Clark 1996). In addition, previous research has shown that job satisfaction is related to worker behaviour. For example, Freeman (1978) and Green (2010) find that low job satisfaction is associated with increased job mobility (i.e., quitting a job) while Drago and Wooden (1992) identify a negative correlation with absenteeism. Other research suggests that greater job satisfaction is associated with higher productivity (e.g., Judge et al. 2001; Patterson et al. 2004). In that sense, studying job satisfaction adds to our knowledge of worker behaviour (Clark 1996).

The empirical evidence on job satisfaction and sexual orientation is small, but growing, and rather mixed. Using an Australian sample of young women, Carpenter (2008b) finds that lesbians are less satisfied with their job than heterosexual females. Drydakis (2012) studies differences in three dimensions of job satisfaction among males in Greece: satisfaction with total pay, promotion prospects, and respect from one's supervisor. The results show that gay males are less satisfied than heterosexual males with all three of these job facets. In a related study, Drydakis (2015) uses a random sample of households in Athens that also enables a comparison by gender and between gay males and lesbians who have disclosed their sexual identity at work and those who have not. In line with the previous study, he finds that gay males and lesbians are less satisfied than heterosexuals with all three dimensions of the job. They are also less satisfied with the job in general. The results suggest that disclosure increases job satisfaction; gay males and lesbians who are open about their sexual identity at work have a higher level of job satisfaction than those who are not. Leppel (2014) provides evidence on differences in job satisfaction for both gays and lesbians using Canadian data and studies differences by marital status. She finds that both unmarried gay men and unmarried lesbians are less satisfied with the job than their heterosexual counterparts, whereas no such difference is found among people who are married. In contrast, using US data, Leppel and Clain (2015) find no difference in job satisfaction by sexual orientation among unmarried males and females. Results reveal,

¹ This pattern has been documented in different countries and remained stable over time. See Badgett (1995, 2001), Klawitter and Flatt (1998), Allegretto and Arthur (2001), Clain and Leppel (2001), and Carpenter (2005) for studies from the US; Carpenter (2008a) for a study from Canada; Arabsheibani et al. (2004, 2005) for studies from the UK; Plug and Berkhout (2004) for a study from the Netherlands; Ahmed and Hammarstedt (2010), Ahmed et al. (2011a, 2013b) and Hammarstedt et al. (2015) for studies from Sweden.

however, that both married gay men and lesbians are less satisfied with their job than their heterosexual counterparts, and that married lesbians have lower job satisfaction than unmarried lesbians.

In this paper we explore the extent to which job satisfaction differs by sexual orientation in Sweden. For this purpose, we combine unique survey data with high-quality register data from Statistics Sweden. The survey was conducted in 2016 to obtain data about workers' job satisfaction. The survey was sent to a random sample of employees aged 25–64 who were resident in Sweden in 2016. Sexual orientation was identified using register data on civil status. In 1995 gay males and lesbians in Sweden were granted the right to enter registered partnership, and since 2009 they also have the right to marry in the Church of Sweden. Using this information we define gay males/lesbians as males/females who in 2016 were in a registered partnership or married to a person of the same sex. We define heterosexuals as individuals who are married to a person of the opposite sex.

In the survey respondents were asked about the extent to which they were satisfied with their job in general but also with the pay, promotion prospects, relation to their immediate supervisor, and relation to their nearest colleagues. Respondents were also asked if their job was mentally straining and if the job was stressful. In addition, respondents were asked about their general and mental health and number of working hours in an average week. The survey thus provides rich and varied information about employees' subjective well-being at work. From the LISA database at Statistics Sweden, we collect information about respondents' age, birth region, educational attainment, region of residence, and job characteristics (firm size, sector of employment and business line) for 2016.

The paper contributes to the literature in several ways. First, this is a nationwide study of both gay men and lesbians. Further, the study is based on a larger sample than those used in previous work. A further advantage of our study is that the rich information about satisfaction with various aspects of their job allows us to explore differences in job satisfaction by sexual orientation along several dimensions for both genders. As pointed out by Skalli et al. (2008), overall job satisfaction reflects various features of an individuals' job. Finally, our study is conducted in Sweden, a country where attitudes towards homosexuals tend to be more positive than in most other countries.²

We have to acknowledge some limitations with our study. We define homosexuals as individuals who are married to, or registered partner to, a person of the same sex. This information is obtained from public registers at Statistics Sweden and has its limitations. First, using this definition rather than a self-reported measure of sexual orientation implies that we might mix bisexuals with homosexuals. Further, the use of this definition implies that our results are only representative for individuals who are married. However, information from public registers is the best measure of sexual orientation we can use in absence of a self-reported measure.

Our results reveal a complex pattern. We find that gay men, on average, are more likely to be very satisfied with their job, both in general and with different aspects of their job, than heterosexual men. In contrast, for lesbians we find no statistically

² The European Union Agency for Fundamental Rights (2013) shows that Sweden is one of the most tolerant countries of homosexuals in Europe.

significant differences in the probability of being very satisfied with their job compared to heterosexual females. Instead lesbians are less with their job in general and also with their wages and promotion prospects. Further, both gay men and lesbians are more likely than heterosexuals to perceive their job as mentally straining. An important conclusion from our study is that there are differences between gay men and lesbians as regards job satisfaction, and that the worker's own expectations about the job and possibilities to fulfill career plans may be possible driving forces behind the results that we observe.

The remainder of this paper is organised as follows: Section 2 explains why we can expect job satisfaction to vary with sexual orientation. In Section 3 we present the survey; descriptive statistics are presented in Section 4. The empirical strategy is presented in Section 5 and Section 6 presents the results. Finally, a discussion and conclusions are presented in Section 7.

Why Should We Expect Job Satisfaction to Vary with Sexual Orientation?

We can put up different hypotheses regarding differences in job satisfaction due to sexual orientation. First, such differences may be due to the existence of sexual prejudice and discrimination. There is a large body of research, particularly in social psychology, that offers evidence of sexual prejudice in a variety of contexts (Ahmad and Bhugra 2010; Bhugra 1987). When sexual prejudices are put into action they result in discrimination based on sexual orientation, which may decrease job satisfaction among gays and lesbians. A number of studies have documented discrimination in hiring against gays and lesbians (Adam 1981; Hebl et al. 2002; Weichselbaumer 2003, 2004; Drydakis 2009, 2011; Ahmed et al. 2013a), and there is also survey-based evidence suggesting that there is discrimination based on sexual orientation in the workplace (Badgett et al. 2007). If this is the case, we may expect lower job satisfaction among gay men and lesbians than among heterosexuals. In addition, research in social psychology shows that the attitudes against gay men are much more hostile than are attitudes against lesbians (Herek 2002; Kite and Whitley 1996). As a results, we may also expect job satisfaction to differ also between gay males and lesbians.

Further, according to Locke's range-of-affect theory, a worker's satisfaction with any facet of the job, such as pay and prospects for advancement, depends on the value placed on that facet (*facet importance*) and the extent to which the amount of a particular job facet that the worker desires differs from the perceived or actual amount (the *have-want discrepancy*) (Locke 1976, 1984; McFarlin et al. 1995).³ The higher value the worker places on a particular job facet, the stronger the affective reaction to that facet is expected to be. The reaction can range from extreme dissatisfaction to extreme satisfaction. The affective reaction is also expected to be stronger, the greater the gap between current job situation and what the worker wants and desires in the job. For example, if a worker places a high value on earnings but earnings are below the worker's expectations, his/her reported job satisfaction is predicted to be low.

³ Deardorff and Stafford (1976) formalized the idea of jobs having different facets into an equilibrium model.

The value placed on different facets of the job may be of importance for differences in job satisfaction between gay men, lesbians and heterosexuals. Research shows that gay men are at an earnings disadvantage compared to heterosexual males. Given that gay men expect to earn the same as heterosexual males and given that earnings are important for job satisfaction, this suggests that gay males may report lower job satisfaction than heterosexual males due to a higher discrepancy between what they have and what they want in a job. In contrast, lesbians are at an earnings advantage, suggesting that because of their higher earnings and possibly brighter promotion prospects, they may report higher job satisfaction than heterosexual females.⁴

Differences in expectations may also result in differences in job satisfaction between the groups. The existence of sexual orientation discrimination may decrease the expectation that gay men and lesbians have of various job characteristics. Studies of gender and job satisfaction have shown that women report higher job satisfaction than men despite lower earnings and fewer chances of promotion. This may be because women have reached a better position on the labour market than they have expected (Clark 1997; Sousa-Poza and Souza-Posa 2003; Bender et al. 2005; Gazioglu and Tansel 2006). Similar mechanisms might be at work regarding sexual orientation. Low expectations may lead gay men and lesbians to report higher job satisfaction than heterosexuals. However, previous research argues that lesbians are more career-oriented and less focused on family and children than heterosexual females (Peplau and Fingerhut 2004; Baert 2014). If so, this may lead to lesbians having higher expectations for wages and promotion than heterosexual females. If discrimination keep lesbians from fulfilling their career plans, this may lead to lesbians reporting lower job satisfaction than heterosexual females.

Closely related to the earnings differentials are labour supply differentials. Research shows that there are differences in labour supply due to sexual orientation (Tebaldi and Elmslie 2006; Klawitter 2011; Martell 2014; Martell and Roncolato 2016; Dilmaghani 2018). Working many hours may reduce job satisfaction, and we may expect that differences in job satisfaction between gay males, lesbians and heterosexuals may arise due to differences in their number of hours worked.

Another factor of importance for differences in job satisfaction due to sexual orientation can be found in the existence of family friendly work practices, such as parental leave and provision for childcare (Heywood et al. 2007; Green and Heywood 2011). Such work practices have increased during recent decades and can be expected to be positively related to job satisfaction (Saltzstein et al. 2011). Since heterosexuals more often have children than gay men and lesbians, such family friendly practices can be expected to increase job satisfaction more for heterosexuals than for gay males and lesbians. Furthermore, lesbians are more likely to have children than gay men (Aldén et al. 2015). Thus, we can expect the existence of family friendly work practices to result in differences in job satisfaction by sexual orientation but also between males and females.

Research shows that gays and lesbians tend to sort into unprejudiced occupations (i.e., they anticipate workplace discrimination in some occupations and therefore avoid

⁴ Ahmed et al. (2011b) have shown that lesbians are over-represented in occupations demanding high education and management positions in Sweden.

them).⁵ This sorting is particularly strong for gay and lesbian workers who have disclosed their sexual identities (Plug et al. 2014). In addition, Ahmed et al. (2013a) find that gay men are discriminated against in male-dominated occupations and lesbians are discriminated against in female-dominated occupations, and that discrimination was less prevalent in the public sector than in the private sector. This suggests that gay and lesbian workers who work in more tolerant workplaces are likely to report a higher job satisfaction than gay and lesbian workers in less tolerant ones.

To sum up, we have reason to expect that job satisfaction varies by sexual orientation. We may also expect the impact of the relationship between job satisfaction and sexual orientation to differ by gender and by occupation. However, whether gay men and lesbians can be expected to report higher or lower job satisfaction than heterosexuals cannot be determined a priori since different mechanisms work in different directions. One may hypothesise that gay men and lesbians have lower job satisfaction than heterosexuals due to certain circumstances, but the opposite may as well occur due to other circumstances. In the end it is an empirical question.

The Survey

In order to obtain data on workers' job satisfaction, we conducted a survey administered by Statistics Sweden between March and May 2016. We identified the individual's sexual orientation by using information about civil status available in Swedish register data. Since 1995, gay males and lesbians in Sweden have had the right to enter registered partnership and since 2009 they have the right to marry in the Church of Sweden. Using this information, we define lesbians/gay males as individuals who in 2016 either were in a registered partnership or married to a person of the same sex. Correspondingly, we define heterosexuals as individuals who are married to a person of the opposite sex.⁶ The population for the survey comprised all individuals, aged 25–65, who were married or a registered partner and resident in Sweden in 2016, and who were registered as wage-employed in November in 2014. We use information on labour market activity in 2014, since this was the most recent data available at Statistics Sweden at the time of the survey.

From this population, we drew a stratified random sample. More specifically, the population was stratified on gender, the partner's/spouse's gender, and whether or not the partner/spouse was in the survey population. The purpose of the latter stratification was to avoid including both partners/spouses in a couple in the survey sample. For the couples where both partners/spouses were in the population we used the following procedure: First the couples were randomly drawn from the population and then one partner/spouse in each couple was randomly selected from those couples. This implies that among gay males, lesbians, heterosexual males, and heterosexual females we created two strata: a) individuals whose spouse/partner was included in the population and b) individuals whose spouse/partner was not included in the population. Thus, in total eight (4×2) strata were created. The total sample size was 5000 individuals: four

⁵ For a discussion about job satisfaction and gender segregation, see i.e. Bender et al. (2005).

⁶ The data does not enable an identification of lesbians and gay males who are cohabiting or single. See Ahmed and Hammarstedt (2010) for a further discussion of this definition.

groups – gay males, lesbians, heterosexual males, and heterosexual females – of 1250 members.⁷

In the survey, the respondents were asked about the extent to which they were satisfied with various aspects of their job. On a five-point scale, ranging from *very satisfied* to *very dissatisfied*, they were asked to rank their job satisfaction, their satisfaction with their earnings, prospects for promotion, relationship to their immediate manager, and their satisfaction with the relationship with their nearest colleagues. They were also asked if they perceived their job as mentally straining (yes or no) or stressful (yes or no). In addition, we asked the respondents to rank their general health on a five-point scale from *very good* to *very poor*. To get information about the respondents' mental health we asked if they during the last 12 months had experienced fatigue, sleeping problems, anxiety or depression. Here, they could answer that they had had *serious problems*, *some problems* or *no problems*. Finally, we asked about number of working hours per week.⁸

For all strata the response rate was a relatively high average of 55.4%. For gay males it was 61.9%, 54.8% for lesbians, 49.0% for heterosexual males, and 55.8% for heterosexual females. We excluded individuals who have missing values or ambiguous answers to the survey questions. This reduced the sample to 2493 individuals: 703 gay males, 626 lesbians, 549 heterosexual males, and 626 heterosexual females.

To the survey data, we link high-quality register data from Statistics Sweden for the year 2014. From this data source we obtained information about individual and job characteristics, including educational attainment, country of birth (on a regional level), region of residence in Sweden, labour earnings, sector of employment, business line, and number of employees at the workplace. Access to these variables, in addition to those from the survey, enables us to consider many factors that may influence individual job satisfaction apart from sexual orientation.

Table 6 in the Appendix compares respondents with non-respondents, and individuals included in the total sample by gender, age, earnings, and region of residence (columns 1–3). This information was provided by Statistics Sweden. Based on register data we have also produced the corresponding information for the population from which the sample was drawn (column 4). Overall, there are no striking differences among the different groups, except that non-respondents are slightly more likely to be young and low-income earners. Table 7 in the Appendix presents descriptive statistics for the total population of the control variables, used in the empirical analysis, which could be obtained from register data. A comparison with the corresponding statistics for respondents presented in Table 1 reveals no striking differences. Thus, the respondents to the survey appear to be representative for the total population.

Descriptive Statistics

Table 1 presents descriptive statistics for the individuals in the survey. From the table it emerges that gay men and lesbians on average are somewhat younger than heterosexual

⁷ We selected the sample size based on a power calculation. Given a 5 percentage point difference in the probability of being very satisfied with the job based on sexual orientation, a sample of 434 individuals in each groups is required to estimate a statistically significant difference of 5 percentage points at the 5-per cent level with a statistical power of 80%. This corresponds to a response rate in each group of about 35%.

⁸ The survey is available from the authors upon request.

Table 1 Descriptive statistics of demographic, health, and job characteristics

	Heterosexual males	Gay males	Heterosexual females	Lesbian females
Age	50.7	48.6***	49.5	44.1***
<i>Education</i>				
Primary school	0.110	0.057**	0.045	0.026*
Secondary school	0.370	0.317**	0.358	0.260***
University	0.520	0.626***	0.597	0.714***
Born outside Sweden	0.145	0.204***	0.151	0.112**
Metropolitan area	0.410	0.713***	0.378	0.563***
<i>General health</i>				
Very bad	0.005	0.004	0.002	0.016***
Bad	0.035	0.034	0.067	0.069
Neither good nor bad	0.116	0.105	0.098	0.120
Good	0.576	0.495***	0.537	0.542
Very good	0.267	0.361***	0.297	0.254*
<i>Mental health</i>				
Fatigue	0.046	0.085***	0.136	0.177**
Sleeping problems	0.062	0.085	0.103	0.120
Anxiety	0.035	0.076***	0.080	0.134***
Depression	0.018	0.037**	0.030	0.061***
Weekly working hours	41.1	40.4	37.3	36.8
Annual earnings, SEK	486,800	450,700**	350,000	335,500
<i># of employees at workplace</i>				
0–9	0.134	0.124	0.102	0.098
10–19	0.116	0.104	0.122	0.140
20–49	0.199	0.142***	0.210	0.155**
50–249	0.297	0.306	0.356	0.320
>249	0.254	0.324***	0.210	0.286***
<i>Business line</i>				
Manufacturing	0.250	0.037***	0.061	0.054
Construction	0.087	0.013***	0.011	0.016
Trade	0.100	0.096	0.100	0.081
Information and communication	0.058	0.061	0.026	0.042
Transport and warehousing	0.075	0.062	0.023	0.029
Finance, insurance, business services	0.097	0.095	0.084	0.059*
Public administration	0.067	0.044*	0.033	0.050
Law, business, and technology	0.058	0.099***	0.108	0.144*
Education	0.079	0.108*	0.236	0.184**
Health care and social services	0.064	0.225***	0.256	0.247
Services	0.018	0.051***	0.027	0.043
Other	0.047	0.108***	0.035	0.051
Public sector	0.276	0.449***	0.579	0.591
Observations	549	703	615	626

The statistics are weighted and adjusted for sampling design using Stata svy commands. ***, **, and * indicate statistical significance of difference by sexual orientation within gender at the 1-, 5-, and 10% level

males and females. Heterosexual men have about 8% higher yearly income than gay men; the income difference between heterosexual women and lesbians is around 4% but statistically insignificant. Furthermore, the share with university education is higher among gay men and lesbians than among heterosexuals. This is consistent with findings in previous studies by Ahmed and Hammarstedt (2010) and Ahmed et al. 2011a, b, 2013b).

Turning to health-related variables, more than 36% of gay men answered that their general health was very good. The corresponding share among heterosexual men was slightly less than 27%. Among lesbians somewhat more than 25% answered that their general health was very good, while this share amounted to about 30% among heterosexual females. Almost 9% of the lesbians answered that their general health was bad or very bad. This could be compared to around 7% among heterosexual women. Among gay men and heterosexual men this share amounted to around 4%.

More women than men reported problems with mental health. In addition, in line with previous researchs gay males and lesbians appear to suffer from mental issues to a larger extent than heterosexuals (e.g., Meyer 2003; Chakraborty et al. 2011; Bränström 2017). Over 17% of the lesbians suffered from fatigue while the corresponding share among heterosexual females was slightly more than 13%. Among gay men somewhat over 8% suffered from fatigue while the corresponding share among heterosexual men was somewhat less than 5%.

Among lesbians 12% reported sleeping problems while the corresponding share among heterosexual women was over 10%. Almost 9% of the gay men suffered from sleeping problems while less than 7% of the heterosexual men answered that they suffered from sleeping problems.

Slightly more than 13% of the lesbians answered that they had anxiety problems, while about 8% of the heterosexual women did. Among heterosexual men less than 4% reported anxiety problems while the corresponding share among gay men was almost 8%. Finally, more than 6% of the lesbians reported having depression, which is about twice as large share than the share in the other groups.

It is also worth noting that the number of weekly working hours were highest among heterosexual and gay men. Heterosexual females reported that they worked slightly more than lesbian females. Finally, almost 60% of the women were working in the public sector. Among gay men around 45% were working in the public sector and 28% of the heterosexual men were working in that sector.

Descriptive statistics regarding variables measuring job satisfaction are presented in Table 2. The first variable presented is the answer to the question *How satisfied are you with your job?* Approximately 31% of gay men answered that they were very satisfied with their job; the corresponding share among heterosexual men was about 26%. Around 30% of the lesbians were very satisfied with their job and the comparable share among heterosexual women was a bit over 27%. However, this difference is not statistically significant. Furthermore, 43% of the lesbians reported that they were satisfied with their job while the corresponding share among heterosexual females was 51%. Around 14% of the lesbians – a rather large percentage – reported being dissatisfied or very dissatisfied with their job, compared to less than 10% of heterosexual women.

Turning to the question *How satisfied are you with your wage?* it emerges that 16% of the gay men and 12% of the heterosexual men are very satisfied. Among lesbians,

Table 2 Descriptive statistics of job satisfaction measures

	Heterosexual males	Gay males	Heterosexual females	Lesbian females
<i>Job satisfaction</i>				
Very dissatisfied	0.021	0.033	0.017	0.042***
Dissatisfied	0.065	0.089	0.077	0.100
Neither satisfied nor dissatisfied	0.164	0.117**	0.125	0.121
Satisfied	0.494	0.453	0.510	0.433***
Very satisfied	0.257	0.307**	0.271	0.303
<i>Satisfaction with wages</i>				
Very dissatisfied	0.042	0.058	0.059	0.069
Dissatisfied	0.149	0.126	0.168	0.209*
Neither satisfied nor dissatisfied	0.242	0.191**	0.244	0.183***
Satisfied	0.451	0.464	0.413	0.407
Very satisfied	0.116	0.161**	0.116	0.131
<i>Satisfaction with promotion prospects</i>				
Very dissatisfied	0.047	0.064	0.037	0.087***
Dissatisfied	0.138	0.145	0.125	0.169**
Neither satisfied nor dissatisfied	0.419	0.358**	0.423	0.355**
Satisfied	0.297	0.287	0.288	0.251
Very satisfied	0.100	0.146**	0.128	0.137
<i>Satisfaction with nearest manager</i>				
Very dissatisfied	0.058	0.070	0.057	0.075
Dissatisfied	0.107	0.100	0.111	0.113
Neither satisfied nor dissatisfied	0.165	0.132	0.141	0.130
Satisfied	0.358	0.327	0.367	0.332
Very satisfied	0.312	0.371**	0.324	0.350
<i>Satisfaction with nearest colleagues</i>				
Very dissatisfied	0.004	0.003	0.002	0.013**
Dissatisfied	0.015	0.030*	0.029	0.034
Neither satisfied nor dissatisfied	0.105	0.101	0.090	0.078
Satisfied	0.419	0.365*	0.391	0.342*
Very satisfied	0.457	0.500	0.488	0.533
Job mentally straining	0.685	0.775***	0.719	0.804***
Job stressful	0.861	0.913***	0.921	0.914
Observations	549	703	615	626

Due to that individuals do not have a manager or colleagues, the number of observations for satisfaction with nearest manager and colleagues is slightly lower. The statistics are weighted and adjusted for sampling design using Stata svy commands. ***, **, and * indicate statistical significance of difference by sexual orientation within gender at the 1-, 5-, and 10% level

13% were very satisfied and almost 12% of the heterosexual women were very satisfied. The difference is not statistically significant. As with job satisfaction, a relatively large share, 28%, of the lesbians are dissatisfied or very dissatisfied with their wage.

Among gay men, almost 15% answered that they were very satisfied with their promotion prospects. Only 10% of heterosexual men were. Among lesbians, nearly 14% claimed to be very satisfied. The difference between lesbians and heterosexual women was negligible. Almost 13% of the heterosexual women indicated that they were very satisfied with their chances of promotion. However, like before, a large share of lesbians were dissatisfied or very dissatisfied with their promotion prospects.

Gay men are more often very satisfied with their managers and with their colleagues than heterosexual men. More than 37% of the gay men answered that they were very satisfied with their manager. The corresponding figure among heterosexual men was almost 31%. Among women there are no statistically significant differences. More than 50% of the gay men and nearly 46% of heterosexual men answered that they were very satisfied with their colleagues. Furthermore, 53% of the lesbians and 49% of heterosexual women were very satisfied with their colleagues. These differences are not statistically significant.

Lastly, respondents were asked if their job was mentally straining or not and if they considered their job stressful. More than 80% of the lesbians answered that their job was mentally straining; among heterosexual women less than 72% considered their job mentally straining. Among gay men, about 77% considered their job mentally straining. The comparable share among heterosexual men was about 68%. Somewhat more than 91% of the lesbians considered their job stressful. The difference compared to heterosexual females is very small. About 91% of the gay men answered that their job was stressful while 86% of the heterosexual men answered that their job was stressful.

Empirical Specification

To identify and explore differences in job satisfaction between gay men and heterosexual men and lesbians and heterosexual women, we estimate two regression models. We start by estimating a set of OLS regressions using the following equation separately by gender:

$$Z_i = \alpha_0 + \alpha_1(\text{Gay/Lesbian})_i + \beta X_i + \varepsilon_i \quad (1)$$

The outcome variable, Z_i , measures satisfaction with the job, the wage, promotion prospects, immediate colleagues, and satisfaction with immediate boss. It ranges from 1 to 5 and takes the value 1 if the individual is very dissatisfied and 5 if the individual is very satisfied. By estimating ordinary least squares (OLS) regressions, we assume that the answers can be treated as cardinal. An alternative, often used in previous research (Carpenter 2008a, b; Drydakis 2012, 2015; Leppel 2014; Leppel and Clain 2015), is to estimate a non-linear model such as ordered probit or logit model, in which case the dependent variable is treated as ordinal. However, it has been shown that assuming that satisfaction answers are cardinally or ordinally comparable yields very similar results (Ferrer-i-Carbonell and Frijters 2004).

$(\text{Gay/Lesbian})_i$ is a dummy variable that equals 1 if the individual is a gay male or lesbian female, and 0 otherwise. X_i is a set of control variables and ε_i is the error term. We estimate three specifications. *Specification 1* includes the indicator for whether the individual is gay man/lesbian or not and shows the unconditional differences between

gay men and heterosexual men and lesbians and heterosexual women. *Specification 2* includes controls for individual characteristics that are exogenously given, i.e. age, age squared, and whether the individual is foreign born or not. *Specification 3* add controls for educational attainment (three levels) and region of residence in Sweden (metropolitan area). *Specification 3* also include controls for self-reported general and mental health and for job characteristics, (i.e., annual labour earnings, number of weekly working hours, number of co-workers, an indicator for if the individual is employed in the public sector, and controls for the business line in which the individual is employed). We estimate *Specification 2* since some of the variables included in *Specification 3*, such as mental health, may be endogenous and thus so called bad controls.

Second, we estimate a linear probability models (LPM) using the following equation:

$$\Pr(Y_i = 1) = \alpha_0 + \alpha_1(\text{Gay/Lesbian})_i + \beta X_i + \varepsilon_i \quad (2)$$

In this case the outcome variable, Y_i , takes the value 1 if the respondent has answered that he/she is *very satisfied* with the job, the wage, the promotion prospects, the immediate manager, and the nearest colleagues, and 0 otherwise. Thus, using this model we study differences by sexual orientation in being very satisfied with the different job facets. We also estimate linear probability models to explore differences in the extent to which the job is perceived as mentally straining or stressful. In these cases, the outcome variable takes the value 1 if the individual has answered that his/her job is mentally straining or stressful, and 0 otherwise. We estimate eq. (2) by gender using the three specifications described for eq. (1) above. In all estimations, we weight and adjust the results for sampling design using Stata svy commands.

Since previous research often makes use of an ordered probit model we have also, as a robustness check, estimated eq. (1) using an ordered probit model. In all essentials, we find very similar results (available upon request). As a sensitivity check we have also estimated eq. (2) with two alternative outcome variables. In the first case, the outcome variable takes the value 1 if the respondent has answered that he/she is *very satisfied or satisfied* with the job, the wage, the promotion prospects, the manager, and the colleagues, and 0 otherwise. In the second case, the outcome variable takes the value 1 if the respondent has answered that he/she is *very dissatisfied or dissatisfied* with the job, the wage, the promotion prospects, the manager, and the colleagues, and 0 otherwise. The results from these estimations are very much in line with the pattern in main estimations. They are not presented in the paper but are available from the authors upon request.

Results

Measures of Job Satisfaction

Tables 3 and 4 present the estimation results for the different measures of job satisfaction for males and females, respectively. If we begin with the OLS estimates for males in Table 3 columns 1–3 in panel A–E, there is no evidence that satisfaction with the job

Table 3 Linear probability and OLS estimates of different measures of job satisfaction, men

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	OLS	OLS	OLS	LPM	LPM	LPM
A. Job satisfaction						
Gay males	0.011 (0.056)	0.022 (0.057)	−0.016 (0.065)	0.050* (0.026)	0.058** (0.026)	0.025 (0.033)
Constant	3.905*** (0.040)	7.476*** (0.981)	5.723*** (1.384)	0.259*** (0.019)	1.840*** (0.571)	1.638** (0.719)
R-squared	0.000	0.019	0.223	0.000	0.019	0.128
B. Satisfaction with wage						
Gay males	0.088 (0.060)	0.095 (0.061)	0.128 (0.079)	0.042** (0.019)	0.042** (0.020)	0.008 (0.027)
Constant	3.451*** (0.043)	3.198*** (1.235)	−1.999 (1.774)	0.116*** (0.014)	−0.464 (0.375)	−1.705*** (0.576)
R-squared	0.000	0.015	0.218	0.000	0.006	0.132
C. Satisfaction with promotion prospects						
Gay males	0.024 (0.059)	0.025 (0.061)	−0.019 (0.073)	0.038** (0.019)	0.035* (0.019)	−0.001 (0.026)
Constant	3.278*** (0.042)	5.523*** (1.223)	1.848 (1.631)	0.105*** (0.013)	0.917** (0.428)	0.369 (0.501)
R-squared	0.000	0.016	0.213	0.000	0.026	0.107
D. Satisfaction with immediate manager						
Gay/Lesbian	0.076 (0.069)	0.089 (0.071)	0.111 (0.090)	0.059** (0.027)	0.061** (0.027)	0.049 (0.035)
Constant	3.755*** (0.051)	6.676*** (1.414)	6.323*** (1.987)	0.311*** (0.020)	1.577*** (0.584)	1.475* (0.810)
R-squared	0.000	0.014	0.136	0.000	0.018	0.127
E. Satisfaction with nearest colleagues						
Gay males	0.010 (0.044)	0.026 (0.045)	−0.003 (0.058)	0.037 (0.029)	0.050* (0.029)	0.033 (0.038)
Constant	4.314*** (0.032)	6.306*** (0.894)	6.554*** (1.291)	0.459*** (0.021)	1.872*** (0.602)	2.625*** (0.754)
R-squared	0.000	0.015	0.125	0.000	0.021	0.120
Observations	1252	1252	1252	1252	1252	1252
Age and foreign born	No	Yes	Yes	No	Yes	Yes
Demographic characteristics	No	No	Yes	No	No	Yes
Health characteristics	No	No	Yes	No	No	Yes
Job characteristics	No	No	Yes	No	No	Yes

The regressions are weighted and adjusted for sampling design using Stata svy commands. Demographic characteristics include controls for educational attainment and an indicator for living in a metropolitan area. Health characteristics include controls for general and mental health. Job characteristics include controls for annual labour earnings, number of weekly working hours, number of co-workers, business line, and an indicator for if the individual is employed in the public sector. The number of observations for the outcomes satisfaction with immediate boss and nearest colleagues is 1233 and 1246, respectively, due to that some do not have an immediate boss or immediate colleagues. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

in general and with various aspects of the job differ by sexual orientation. The estimates in column 2, including controls for age and origin, are consistently positive, but the differences are not statistically significant.⁹

However, if the turn to the probability of being very satisfied with the job in columns 4–6, the results suggest that gay males are more likely to be very satisfied with the job, but also with the wage, promotion prospects, immediate manager, and nearest colleagues. In column 5, where we include the exogenous controls for age and origin, the estimated difference ranges from roughly 4 to 6 percentage points. However, when we add controls for demographic, health, and job characteristics – out of which some may be endogenous – in column 6, the estimates become smaller and are no longer statistically significant. Thus, all in all the results suggest that gay males are more likely to be very satisfied with the different aspects of their job compared to heterosexual males. However, part of this differential may be explained by that gay males and heterosexuals have different demographic, health, and workplace characteristics.

Table 4 presents the corresponding estimation results for females. Columns 4–6 reveal only relatively small and statistically insignificant differences by sexual orientation in the probability of being very satisfied with different aspects of the job. However, the OLS estimates show that lesbians appear to have a lower satisfaction with the job in various dimensions. Columns 1 and 2 in panel A show that lesbians report a lower general job satisfaction than heterosexual females. However, the estimate is no longer statistically significant once we add the full set of controls in column 3.

The estimates in columns 1–3 in panel B indicate that lesbian women have a lower satisfaction with their wage than heterosexual women. However, the estimated difference is statistically significant only when we control for demographic, health, and job characteristics. Lesbian females are also less satisfied with their promotion prospects than heterosexual females (see columns 1–3 in panel C). This pattern remains also when controls are added. As regards satisfaction with their immediate managers and nearest colleagues, the estimates suggest that lesbians are less satisfied than heterosexual females but the differences are not statistically significant (see columns 1–3 in panel D and E).

To sum up, the estimates indicate that lesbian females are less satisfied with their job, generally but also with the wage and promotion prospects, than heterosexual females. As for males, part of this differential appear to be driven by that lesbians and heterosexual females may have different demographic, health, and workplace characteristics. However, there are no statistically significant differences in the probability of being very satisfied with various aspects of the job between lesbian and heterosexual females.

Job Mentally Straining or Stressful

Table 5 presents the linear probability estimates of reporting that the job is mentally straining or stressful. Columns 1 and 2 in panel A show that gay men have an about 8 percentage points higher probability of reporting that their job is mentally straining than heterosexual men. However, when we add the full set of controls in column 3, the difference between gay men and heterosexual men is no longer statistically significant.

⁹ The full set of results are available from the authors upon request.

Table 4 Linear probability and OLS estimates of different measures of job satisfaction, women

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	OLS	OLS	OLS	LPM	LPM	LPM
A. Job satisfaction						
Lesbian females	−0.095* (0.057)	−0.131** (0.062)	−0.053 (0.062)	0.031 (0.026)	0.011 (0.029)	0.026 (0.028)
Constant	3.947*** (0.037)	4.268*** (0.849)	2.982*** (1.012)	0.273*** (0.018)	0.260 (0.446)	0.510 (0.510)
R-squared	0.000	0.010	0.192	0.000	0.012	0.161
B. Satisfaction with wage						
Lesbian females	−0.043 (0.063)	−0.092 (0.069)	−0.142** (0.065)	0.010 (0.019)	−0.003 (0.022)	−0.024 (0.022)
Constant	3.366*** (0.044)	1.886* (1.058)	1.816 (1.193)	0.121*** (0.013)	−0.247 (0.340)	0.005 (0.372)
R-squared	0.000	0.014	0.173	0.000	0.010	0.130
C. Satisfaction with promotion prospects						
Lesbian females	−0.171*** (0.060)	−0.241*** (0.066)	−0.235*** (0.066)	0.007 (0.019)	−0.016 (0.023)	−0.011 (0.023)
Constant	3.345*** (0.040)	4.382*** (0.950)	2.238* (1.252)	0.128*** (0.014)	0.170 (0.324)	0.088 (0.441)
R-squared	0.000	0.012	0.100	0.000	0.014	0.079
D. Satisfaction with immediate manager						
Lesbian females	−0.022 (0.069)	−0.078 (0.074)	−0.088 (0.077)	0.024 (0.027)	0.014 (0.030)	0.004 (0.031)
Constant	3.792*** (0.048)	3.507*** (1.026)	5.085*** (1.375)	0.325*** (0.019)	−0.248 (0.446)	0.623 (0.557)
R-squared	0.000	0.008	0.085	0.000	0.007	0.092
E. Satisfaction with nearest colleagues						
Lesbian females	0.009 (0.047)	−0.033 (0.048)	−0.022 (0.051)	0.046 (0.028)	0.036 (0.031)	0.033 (0.033)
Constant	4.332*** (0.031)	4.009*** (0.710)	4.613*** (0.884)	0.486*** (0.020)	0.136 (0.491)	0.839 (0.605)
R-squared	0.000	0.015	0.139	0.000	0.015	0.148
Observations	1252	1252	1252	1252	1252	1252
Age and foreign born	No	Yes	Yes	No	Yes	Yes
Demographic characteristics	No	No	Yes	No	No	Yes
Health characteristics	No	No	Yes	No	No	Yes
Job characteristics	No	No	Yes	No	No	Yes

The regressions are weighted and adjusted for sampling design using Stata svy commands. Demographic characteristics include controls for educational attainment and an indicator for living in a metropolitan area. Health characteristics include controls for general and mental health. Job characteristics include controls for annual labour earnings, number of weekly working hours, number of co-workers, business line, and an indicator for if the individual is employed in the public sector. The number of observations for the outcomes satisfaction with immediate boss and nearest colleagues is 1230 and 1235, respectively, due to that some do not have an immediate boss or immediate colleagues. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5 Linear probability estimates of the probability of perceiving the job as mentally straining or stressful

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Men	Men	Men	Women	Women	Women
A. Job mentally straining						
Gay/Lesbian	0.085*** (0.025)	0.082*** (0.026)	0.034 (0.030)	0.087*** (0.024)	0.080*** (0.027)	0.084*** (0.027)
Constant	0.689*** (0.020)	−1.412** (0.577)	−1.703*** (0.622)	0.717*** (0.018)	0.560 (0.467)	−0.300 (0.580)
R-squared	0.000	0.034	0.158	0.000	0.029	0.152
B. Job stressful						
Gay/Lesbian	0.043** (0.018)	0.035* (0.018)	0.025 (0.024)	−0.006 (0.016)	−0.028* (0.015)	−0.033** (0.016)
Constant	0.864*** (0.015)	0.077 (0.407)	−0.182 (0.520)	0.919*** (0.011)	1.249*** (0.210)	0.743** (0.338)
R-squared	0.000	0.033	0.081	0.000	0.021	0.101
Observations	1252	1252	1252	1241	1241	1241
Age and foreign born	No	Yes	Yes	No	Yes	Yes
Demographic characteristics	No	No	Yes	No	No	Yes
Health characteristics	No	No	Yes	No	No	Yes
Job characteristics	No	No	Yes	No	No	Yes

The regressions are weighted and adjusted for sampling design using Stata svy commands. Demographic characteristics include controls for educational attainment and an indicator for living in a metropolitan area. Health characteristics include controls for general and mental health. Job characteristics include controls for annual labour earnings, number of weekly working hours, number of co-workers, business line, and an indicator for if the individual is employed in the public sector. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Among females, lesbians have a statistically significant higher probability of reporting that their job is mentally straining than heterosexual females do, in all specifications. The difference amounts to between 8 and 9 percentage points.

Column 1 in panel B in Table 5 reveals that gay men have a statistically significant higher probability than heterosexual men of reporting that their job is stressful. This differential is robust to adding controls for age and origin (see column 2). However, when we control for demographic, health, and job characteristics in column 3 there is no statistically significant difference between gay men and heterosexual men. In contrast, column 4 in Table 5 shows that there is no difference by sexual orientation in the probability of perceiving the job as stressful among women. However, when we add the exogenous controls (age and origin) and the full set of controls in columns 5 and 6, respectively, lesbian females are around 3 percentage points less likely to perceive the job stressful than heterosexual females.

Omitted Variable Bias

To estimate the causal effect of sexual orientation on job satisfaction we would ideally like to compare individuals who have the same level of productivity and the same

workplace characteristics and only differ in their sexual orientation. In the empirical analysis we used various observable variables to control for such differences. However, it may be the case that the control variables included in the analysis do not fully capture and are incomplete proxies of worker productivity and workplace characteristics. To address this potential problem and to test the robustness of our results to omitted variable bias, we use the strategy proposed by Oster (2019).

Oster's test of omitted variable bias involves computing bounding values for the treatment effect, which in this case is being gay male or lesbian. To compute the bounding values one uses information on both the coefficient and R-squared movements that arise when additional controls are added to the regression. The bounding values comprise 1) the estimated controlled coefficient from a controlled model, $\tilde{\beta}$, and 2) a bias-adjusted coefficient, β^* .

$\tilde{\beta}$ is the estimated coefficient for the treatment from a model that includes the observed control variables. β^* is a coefficient for the treatment that comes from a hypothetical estimated model that includes controls for both observable and unobservable variables. β^* can be calculated using the following formula:

$$\beta^* \approx \tilde{\beta} - \delta [\tilde{\beta} - \tilde{\beta}] \frac{R_{\max} - \tilde{R}}{\tilde{R} - R} \quad (3)$$

where β and R are the coefficient and R-squared, respectively, from a regression with the treatment only, and $\tilde{\beta}$ and $\tilde{R}$ are the coefficient and R-squared, respectively, from a regression with the treatment and the observed controls. δ is the coefficient of proportionality and measures the of the correlation between unobservable characteristics and the treatment relative to the observable characteristics. $R_{\max}$ is the overall R-squared of the hypothetical model controlling for both observables and unobservables. As proposed by Oster (2019) we assume that δ is equal to 1, i.e. that unobservable factors are as important as observable factors in explaining the outcome variable, and that $R_{\max} = 1.3\tilde{R}$, where $\tilde{R}$ is the R-squared value from the regression model including the treatment and the observed controls.

Oster (2019) argues that estimated treatment from the controlled regression can be considered as robust to omitted variable bias if the identified set, $[\tilde{\beta}, \beta^*]$, excludes zero. In addition, if the estimated coefficient does not move towards zero once observed controls are added, Oster (2019) also recommends investigating whether the bounds of the identified set are within the confidence interval of $\tilde{\beta}$. If this is the case, the estimate is considered as robust.

Oster (2019) further suggests calculating the value of δ that produces a zero treatment effect with $R_{\max} = 1.3\tilde{R}$. In this case, values of $\delta > 1$ indicate a robust result, since the unobservables then would have to be more important than the observed variables to produce a zero effect.

Tables 8 and 9 in Appendix A show the results from the robustness test for men and women, respectively. We have performed the test using both specification (2) and (3). Column (1) shows the estimated coefficient and R-squared from the model with the treatment only, i.e. β and R , and column (2) presents the estimated coefficient from the model with the treatment and observable controls, i.e. $\tilde{\beta}$ and $\tilde{R}$. Column (3) shows the

identified set for the treatment effect and column (4) indicates whether the identified set excludes zero. Column (5) reports whether the bias-adjusted coefficient, β^* , lies within the confidence interval of the estimated controlled effect and, finally, column (6) presents the δ -value needed to produce a zero treatment effect.

Generally, Tables 8 and 9 suggest that the estimated results, with few exceptions, are robust to omitted variables bias, both for men and women. In most cases Tables 8 and 9 reveal that the identified set excludes zero, that the bounding values of the treatment are within the confidence interval of $\tilde{\beta}$, and that the δ needed to produce a zero treatment effect is larger than one.

Heterogeneity Analysis

Previous research indicates that gay males and lesbian females have worse labour market outcomes than heterosexuals in the private sector and in non-metropolitan areas, suggesting that job satisfaction may also vary across these dimensions (e.g., Ahmed and Hammarstedt 2010; Ahmed et al. 2013a). When it comes to education, empirical evidence shows that job satisfaction is positively related to educational attainment; more education enables individuals to find jobs with characteristics that give a higher level of satisfaction (Fabra and Camisón 2009). Further, previous research also documents a link between a low job satisfaction and large firm size (Scherer 1976; Clark 1996). To explore whether job satisfaction by sexual orientation differs by sector of employment, educational attainment, area of residence, and number of employees in the workplace we have estimated equation 1 and 2 including an interaction between sexual orientation and the variable at hand. We do not present any estimates – available upon request – but we comment on the main results.

Starting with men the results reveal very few differences by sector of employment, educational attainment, area of residence, and number of employees at the workplace. There is some evidence that gay males are less satisfied with their immediate boss than heterosexual males if they have less than university education and live in metropolitan areas. Among the low educated, gay males are also more likely to perceive their job as mentally straining or stressful than heterosexual men, while there are no such differences for men with a university degree.

Among women, the results suggest that lesbian women who work in the private sector are more likely to be very satisfied with their job – in general and in terms of promotion prospects – than heterosexual women. We observe the opposite pattern among women in the public sector. The results also indicate that women with primary or secondary education are less likely to be satisfied with their job – in general and with the immediate manager – than heterosexual women. Among women with a university degree there are no such differences. Finally, we find that being employed in a workplace with less than ten employees appears to be associated with a lower job satisfaction among lesbian women than among heterosexual women, both in terms of satisfaction with their immediate boss and with promotion prospects.

Discussion and Conclusions

We present results from a survey on sexual orientation and job satisfaction conducted in Sweden. Our study is unique because it is nationwide and because we use a broad range

of measures to explore how job satisfaction varies with sexual orientation. It is worth noting that the results in our study are based on a larger sample than the results in previous research.

Results from previous research in this area in most cases indicates that both gay men and lesbians are less satisfied with their job than heterosexuals are. One striking difference between the results in our study and previous results is that gay men are more often very satisfied with their job and different aspects of the job than heterosexual men. In contrast, for lesbians we find – more in line with previous studies – lower levels of satisfaction with various aspects of the job compared to heterosexual women. Thus, our study reveals a considerable gender difference in job satisfaction.

That job satisfaction and sexual orientation is a complex question is also underlined by the fact that both gay men and lesbians to a larger extent than heterosexuals find their job mentally straining. Thus, even though gay males are more likely to be very satisfied with their job, they are also facing other straining circumstances than heterosexuals in their working life.

So what can we learn from these results? Previous research has shown that gay men are at a disadvantage on the labour market compared to heterosexual men. Gay men earn less, are discriminated against in hiring and are under-represented in managerial positions compared to heterosexual males (e.g., Ahmed and Hammarstedt 2010; Ahmed et al. 2011a, b, 2013a, b). Still, our results indicate that they are more likely to be very satisfied with their job and various aspects of the job than heterosexual males. For lesbians, the labour market situation is different. They earn about the same as heterosexual females and they are over-represented in managerial positions compared to heterosexual females. Nonetheless, they are less satisfied with their job and with their chances of promotion.

How can we explain these results? Maybe we have to turn our attention to the individuals' expectations of their working life. The existence of discrimination and sexual prejudice may lead to gay men having lower expectations of wages, promotion possibilities and treatment from managers and colleagues than heterosexual men. These low expectations may transform into greater job satisfaction among gay men, given that they perceive that have reached a better position than expected. A similar explanation has been used to explain that females, despite lower earnings and promotion prospects, report higher job satisfaction than males (Clark 1997; Sousa-Poza and Souza-Poza 2003; Gazioglu and Tansel 2006).

Turning to lesbians, they are less likely than heterosexual females to have children (e.g., Aldén et al. 2015). The literature has also posited that lesbians are more career-oriented than heterosexual females (Peplau and Fingerhut 2004). If so, this may lead to them having higher expectations of their job, their wages and on their promotion prospects. If prejudice and discrimination keep lesbians from reaching their expectations, this may result in diminished job satisfaction compared to heterosexual women. It may also be that lesbian females, as women in general, suffer from statistical discrimination based on their gender. However, there may be reason to suspect that this result is driven by sample selection bias. The finding that women have a higher job satisfaction than men is typically based on a comparison of married women and married men (Clark 1997; Souza-Poza and Souza-Poza 2003; Gazioglu and Tansel 2006). Carleton and Clain (2012) argue that married women who are active on the labour market, due to

traditional gender roles, are likely to be selected in terms of a taste for market and an expectation of high level of job satisfaction. Men's decision to work, on the other hand, is less likely to be affected by these factors. As a result, women who are not satisfied with their job may be more prone to quit their job to find something better whereas men tend to stay at an unsatisfying job. Indeed, Carleton and Clain (2012) find that sample selection related to the decision to work explain the higher job satisfaction of married women. If the heterosexual women in our sample are selected in a similar way while lesbian women are not, this could explain the lower job satisfaction of lesbian women. However, Green et al. (2016) show that the female job satisfaction gap, documented by Clark (1997) in the UK, has more or less disappeared over time, largely driven by a less favourable evaluation of job characteristics as more women have entered the labour market. This indicates that married women in more recent cohort are less likely to be a selected sample. In addition, in Sweden the employment rate and labour force participation rate of married women is high. Further, the test of omitted variable bias demonstrated that the results appear to be robust to such bias. All in all, this suggests that sample selection may not be a (severe) problem in this case.

Irrespective of the explanation behind the results, we can conclude that sexual orientation matters not only hiring, but also at the workplace. Thus, one policy implication is that measures to prevent discrimination in hiring is not enough to create an equal working life for homosexuals and heterosexuals. The fact that gay men and lesbians perceive their job as mentally straining to a larger extent than heterosexuals, and that lesbians are less satisfied with their job and promotion prospects than heterosexual females, underline that different measures to create an equal working life irrespective of sexual orientation are needed.

To sum up, our results have shown that in addition to the observed earnings differentials due to sexual orientation and discrimination in hiring, there are also differences in job satisfaction due to sexual orientation. The explanations behind this result deserve additional attention. So does the fact that our results are based on individuals who are married and therefore not necessarily representative for single and cohabitating individuals. The results from our survey add one additional part to the puzzle on sexual orientation and labour market outcomes, but at the same time they underline the fact that more research in this area is needed.

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Data Availability Statement The datasets generated during and/or analysed during the current study are not publicly available due to a confidentiality agreement with Statistics Sweden stating that the data can only be used in this project and by researchers active in the project. However, the data are available from upon reasonable request and with permission of Statistics Sweden.

Funding Information Open access funding provided by Linnaeus University.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Appendix

Table 6 Descriptive statistics of respondents, non-respondents, total sample, and total population

	Respondents	Non-respondents	Total sample	Total population
Female	50.1	50.2	50.2	52.6
Age				
25–29	2.2	3.8	2.9	3.8
30–34	6.0	11.9	8.7	9.1
35–39	13.0	17.4	15.0	12.9
40–44	15.2	20.9	17.7	15.7
45–49	16.3	16.3	16.3	16.0
50–54	17.4	13.7	15.7	16.0
55–59	15.7	9.2	12.8	13.9
60–64	14.0	6.8	10.8	13.0
Foreign born	15.7	22.9	18.9	19.0
<i>Annual labour earnings (SEK)</i>				
0–124,999	2.1	6.9	4.2	7.6
125,000–199,999	4.0	8.1	5.9	6.4
200,000–279,999	14.3	17.0	15.5	12.9
280,000–369,999	29.6	29.6	29.6	25.5
370,000–	50.0	38.3	44.8	47.6
Metropolitan area	30.4	28.4	29.5	35.1
Observations	2648	2135	4783	1,636,484

Statistics Sweden has produced and provided us with the statistics for the respondents and the total sample. Using register data from Statistics Sweden we have produced the corresponding descriptive statistics for the underlying population from which the sample was randomly drawn

Table 7 Descriptive statistics of the total population

	Heterosexual males	Gay males	Heterosexual females	Lesbian females
Age	47.3	46.1***	46.8	41.0***
<i>Education</i>				
Primary school	0.103	0.053***	0.060	0.033***
Secondary school	0.452	0.336***	0.394	0.298***
University	0.445	0.611***	0.546	0.669***
Born outside Sweden	0.192	0.207**	0.184	0.134***
Metropolitan area	0.352	0.612***	0.346	0.464***
Annual earnings, SEK	472,000	461,500**	336,200	342,100**
<i>Business line</i>				
Manufacturing	0.203	0.042***	0.063	0.053***
Construction	0.096	0.012***	0.013	0.016**
Trade	0.121	0.102***	0.088	0.069***
Information and communication	0.064	0.060***	0.025	0.039
Transport and warehousing	0.070	0.057***	0.018	0.034***
Finance, insurance, business services	0.093	0.102	0.082	0.075*
Public administration	0.062	0.059	0.044	0.047
Law, business, and technology	0.069	0.101***	0.086	0.118***
Education	0.067	0.111***	0.208	0.180***
Health care and social services	0.068	0.205***	0.298	0.267***
Services	0.018	0.045***	0.025	0.037***
Other	0.069	0.103***	0.049	0.063***
Public sector	24.2	41.1***	53.9	53.0
Observations	770,706	3001	857,837	4940

Using register data from Statistics Sweden we have produced descriptive statistics for the underlying population from which the sample was randomly drawn. The table presents the control variables included in the analysis that we were able to construct using the register data. ***, **, and * indicate statistical significance of difference by sexual orientation within gender at the 1-, 5-, and 10% level

Table 8 Test of unobservable selection bias, men

	Treatment variable	No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set [$\tilde{\beta}$, β^*]	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max}
A. Job satisfaction								
OLS (2)	Gay male	0.011 (0.056) [0.000]	0.022** (0.057) [0.019]	0.025	[0.022, 0.025]	Yes	Yes	-6.6
OLS (3)	Gay male	0.011 (0.056) [0.000]	-0.016 (0.065) [0.223]	0.290	[-0.016, -0.024]	Yes	Yes	-2.0
LPM (2)	Gay male	0.050* (0.026) [0.000]	0.058** (0.026) [0.019]	0.025	[0.058, 0.060]	Yes	Yes	-13.1
LPM (3)	Gay male	0.050* (0.026) [0.000]	0.025 (0.033) [0.128]	0.166	[0.025, 0.018]	Yes	Yes	3.4
B. Wage satisfaction								
OLS (2)	Gay male	0.088 (0.060) [0.000]	0.095 (0.061) [0.015]	0.020	[0.095, 0.097]	Yes	Yes	-26.4
OLS (3)	Gay male	0.088 (0.060) [0.000]	0.128 (0.079) [0.218]	0.283	[0.128, 0.141]	Yes	Yes	-10.2
LPM (2)	Gay male	0.042** (0.019) [0.000]	0.042** (0.020) [0.006]	0.008	[0.042, 0.042]	Yes	Yes	320.6
LPM (3)	Gay male	0.042** (0.019) [0.000]	0.008 (0.027) [0.132]	0.172	[0.008, -0.002]	No	-	0.8

Table 8 (continued)

	Treatment variable	No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set [$\tilde{\beta}$, β^*]	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max} interval
C. Satisfaction with promotion prospects								
OLS (2)	Gay male	0.024 (0.059) [0.000]	0.025 (0.061) [0.016]	0.098	[0.025, 0.026]	Yes	Yes	-5.8
OLS (3)	Gay male	0.024 (0.059) [0.000]	-0.014 (0.073) [0.218]	0.276	[-0.014, -0.032]	Yes	Yes	-1.5
LPM (2)	Gay male	0.038** (0.019) [0.000]	0.035* (0.019) [0.026]	0.034	[0.035, 0.035]	Yes	Yes	30.5
LPM (3)	Gay male	0.038** (0.019) [0.000]	-0.002 (0.026) [0.108]	0.139	[-0.002, -0.013]	Yes	-	-0.1
D. Satisfaction with immediate manager								
OLS (2)	Gay male	0.076 (0.069) [0.000]	0.089 (0.071) [0.014]	0.018	[0.089, 0.093]	Yes	Yes	-17.0
OLS (3)	Gay male	0.076 (0.069) [0.000]	0.108 (0.091) [0.136]	0.177	[0.108, 0.122]	Yes	Yes	-10.2
LPM (2)	Gay male	0.059** (0.027) [0.000]	0.061** (0.027) [0.018]	0.023	[0.061, 0.061]	Yes	Yes	-77.4
LPM (3)	Gay male	0.059** (0.027) [0.000]	0.049 (0.035) [0.127]	0.165	[0.049, 0.045]	Yes	Yes	-13.45

Table 8 (continued)

	Treatment variable	No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set [$\tilde{\beta}$, β^*]	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max} interval
E. Satisfaction with nearest colleagues								
OLS (2)	Gay male	0.010 (0.044) [0.000]	0.026 (0.045) [0.015]	0.019	[0.026, 0.030]	Yes	Yes	-5.1
OLS (3)	Gay male	0.010 (0.044) [0.000]	-0.000 (0.058) [0.128]	0.163	[-0.000, -0.0039]	No	–	-0.8
LPM (2)	Gay male	0.037 (0.029) [0.000]	0.050* (0.029) [0.021]	0.027	[0.050, 0.054]	Yes	Yes	-8.4
LPM (3)	Gay male	0.037 (0.029) [0.000]	0.034 (0.039) [0.120]	0.156	[0.034, 0.032]	Yes	Yes	25.2
F. Job mentally straining								
LPM (2)	Gay male	0.085*** (0.025) [0.000]	0.082*** (0.026) [0.034]	0.045	[0.082, 0.082]	Yes	Yes	70.2
LPM (3)	Gay male	0.085*** (0.025) [0.000]	0.034 (0.025) [0.158]	0.205	[0.034, 0.019]	Yes	Yes	2.2
G. Job stressful								
LPM (2)	Gay male	0.043*** (0.018) [0.000]	0.035* (0.018) [0.033]	0.043	[0.035, 0.033]	Yes	Yes	11.5
LPM (3)	Gay male	0.043*** (0.018)	0.025 (0.024)	0.106	[0.025, 0.019]	Yes	Yes	4.2

Table 8 (continued)

Treatment variable	No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set $[\tilde{\beta}, \beta^*]$	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max}
	[0.000]	[0.081]					

Following Oster (2019), the identified set is calculated assuming that the unobservables add as much to R^2 as the observables, i.e. $\delta = 1$, and $R_{max} = 1.3\tilde{R}$. Column (1) shows the estimated coefficient and R-squared from the model with the treatment only, i.e. $\tilde{\beta}$ and R . Column (2) presents the estimated coefficient from the model with the treatment and observable controls, i.e. β and R . Column (3) shows the identified set for the treatment effect. Column (4) indicates whether the identified set excludes zero. Column (5) reports whether the bias-adjusted coefficient lies within the confidence interval of the estimated controlled effect. Column (6) presents the δ -value needed to produce a zero treatment effect. The controlled models OLS (2) and LPM (2) include controls for age, age squared, and indicator for being foreign born. The controlled models OLS (3) and LPM (3) further includes the full set of controls (age, foreign born, demographic and job characteristics)

Table 9 Test of unobservable selection bias, women

Treatment variable		No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set [$\tilde{\beta}$, β^*]	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max}
A. Job satisfaction								
OLS (2)	Lesbian female	−0.095* (0.057) [0.000]	−0.131** (0.062) [0.010]	0.013	[−0.131, −0.142]	Yes	Yes	−3.9
		−0.095* (0.057) [0.000]	−0.053 (0.062) [0.192]	0.250	[−0.053, −0.040]	Yes	Yes	4.1
LPM (2)	Lesbian female	0.031 (0.026) [0.000]	0.011 (0.029) [0.012]	0.016	[0.011, 0.006]	Yes	Yes	2.0
		0.031 (0.026) [0.000]	0.026 (0.028) [0.161]	0.209	[0.026, 0.025]	Yes	Yes	19.0
B. Wage satisfaction								
OLS (2)	Lesbian female	−0.043 (0.063) [0.000]	−0.092 (0.069) [0.014]	0.019	[−0.092, −0.107]	Yes	Yes	−4.1
		−0.043 (0.063) [0.000]	−0.142** (0.065) [0.173]	0.225	[−0.142, −0.171]	Yes	Yes	−4.4
LPM (2)	Lesbian female	0.010 (0.019) [0.000]	−0.003 (0.022) [0.010]	0.014	[−0.003, −0.007]	Yes	Yes	−0.9
		0.010 (0.019) [0.000]	−0.024 (0.022) [0.130]	0.169	[−0.024, −0.034]	Yes	Yes	−2.3

Table 9 (continued)

	Treatment variable	No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set [$\tilde{\beta}$, β^*]	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max}
C. Satisfaction with promotion prospects								
OLS (2)	Lesbian female	-0.171*** (0.060) [0.000]	-0.241*** (0.066) [0.012]	0.016	[-0.241, -0.261]	Yes	Yes	-1.2
OLS (3)	Lesbian female	-0.171*** (0.060) [0.000]	-0.235*** (0.066) [0.100]	0.129	[-0.235, -0.254]	Yes	Yes	-8.4
LPM (2)	Lesbian female	0.007 (0.019) [0.000]	-0.016 (0.023) [0.014]	0.019	[-0.016, -0.022]	Yes	Yes	-2.0
LPM (3)	Lesbian female	0.007 (0.019) [0.000]	-0.011 (0.023) [0.079]	0.103	[-0.011, -0.016]	Yes	Yes	-1.9
D. Satisfaction with immediate manager								
OLS (2)	Lesbian female	-0.022 (0.069) [0.000]	-0.078 (0.074) [0.008]	0.010	[-0.078, -0.093]	Yes	Yes	-2.9
OLS (3)	Lesbian female	-0.022 (0.069) [0.000]	-0.088 (0.077) [0.085]	0.111	[-0.088, -0.107]	Yes	Yes	-4.2
LPM (2)	Lesbian female	0.024 (0.027) [0.000]	0.014 (0.030) [0.007]	0.009	[0.014, 0.010]	Yes	Yes	3.9
LPM (3)	Lesbian female	0.024 (0.027) [0.000]	0.004 (0.031) [0.092]	0.120	[0.004, -0.002]	No	–	0.6

Table 9 (continued)

	Treatment variable	No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set [$\tilde{\beta}$, β^*] [R ²]	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max}
E. Satisfaction with nearest colleagues								
OLS (2)	Lesbian female	0.009 (0.047) [0.000]	-0.033 (0.048) [0.008]	0.019	[-0.033, -0.044]	Yes	Yes	-2.3
OLS (3)	Lesbian female	0.009 (0.047) [0.000]	-0.022 (0.051) [0.139]	0.181	[-0.022, -0.031]	Yes	Yes	-2.3
LPM (2)	Lesbian female	0.046 (0.028) [0.000]	0.036 (0.031) [0.015]	0.019	[0.036, 0.033]	Yes	Yes	10.3
LPM (3)	Lesbian female	0.046 (0.028) [0.000]	0.033 (0.033) [0.148]	0.193	[0.033, 0.029]	Yes	Yes	8.1
F. Job mentally straining								
LPM (2)	Lesbian female	0.087*** (0.030) [0.000]	0.080*** (0.027) [0.029]	0.038	[0.080, 0.078]	Yes	Yes	20.8
LPM (3)	Lesbian female	0.087*** (0.030) [0.000]	0.084*** (0.027) [0.152]	0.198	[0.084, 0.083]	Yes	Yes	71.4
G. Job stressful								
LPM (2)	Lesbian female	-0.006 (0.016) [0.000]	-0.028* (0.015) [0.021]	0.027	[-0.028, -0.034]	Yes	Yes	-2.7
LPM (3)	Lesbian female	-0.006 (0.016)	-0.033* (0.016)	0.131	[-0.033, -0.040]	Yes	Yes	-3.6

Table 9 (continued)

Treatment variable	No controls (Std. error) [R ²]	With controls (Std. error) [R ²]	R _{max}	Identified set [$\tilde{\beta}$, β^*]	Exclude zero?	Within conf. interval	δ for $\beta = 0$, given R _{max}
	[0.000]	[0.101]					

Following Oster (2019), the identified set is calculated assuming that the unobservables add as much to R^2 as the observables, i.e. $\delta = 1$, and $R_{max} = 1.3\tilde{R}$. Column (1) shows the estimated coefficient and R-squared from the model with the treatment only, i.e. β and R . Column (2) presents the estimated coefficient from the model with the treatment and observable controls, i.e. $\tilde{\beta}$ and $\tilde{R}$. Column (3) shows the identified set for the treatment effect. Column (4) indicates whether the identified set excludes zero. Column (5) reports whether the bias-adjusted coefficient lies within the confidence interval of the estimated controlled effect. Column (6) presents the δ -value needed to produce a zero treatment effect. The controlled models OLS (2) and LPM (2) include controls for age, age squared, and indicator for being foreign born. The controlled models OLS (3) and LPM (3) further includes the full set of controls (age, foreign born, demographic and job characteristics)

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