

SEXUAL PREJUDICE AND LABOR MARKET OUTCOMES OF GAYS AND LESBIANS

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ABSTRACT

This paper presents results from a study of sexual prejudice and differentials in labor market outcomes due to sexual orientation. We use data from a nation-wide Swedish survey on public attitudes towards homosexuals and combine them with register data which includes information about e.g. marital status, sexual orientation, employment status and yearly earnings for the total population in Sweden. In line with our theoretical prediction, we find that the relative employment and relative earnings of gay males are negatively affected by prejudice against homosexuals. The relationship is less clear for lesbians. Our interpretation of this is that the labor market disadvantage for gay males often documented in previous research is, to at least some extent, driven by prejudices against them.

KEYWORDS

Sexual orientation, earnings, employment, sexual prejudice, discrimination

JEL Codes: J15, J71

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INTRODUCTION

Today there is a large literature on differentials in economic outcomes as a result of sexual orientation. Several studies have focused on earnings differentials due to sexual orientation and the results in these studies are remarkably consistent. Gay males earn less than heterosexual males while lesbians earn about the same, or even more, than heterosexual females.¹ The same pattern occurs also in studies regarding employment. Gay males have lower employment rates than heterosexual males while lesbians have been found to have higher employment rates than heterosexual females.²

The explanations for these patterns have been widely debated. One explanation is discrimination against homosexuals. In recent years, the literature exploring discrimination against gays and lesbians on the labor and housing markets has grown substantially.³ Two patterns emerge from these studies. First, there is more discrimination against gay men than against lesbians. Second, the magnitude of the discrimination varies greatly across countries. The magnitude of the discrimination is relatively smaller in the US and in some European countries, such as Sweden, than in other European countries.

A question that is closely related to discrimination against gays and lesbian people is that of public attitudes towards homosexuals. If differentials in economic outcomes due to sexual orientation are driven by discrimination, and if discrimination is caused by intolerance of homosexuals, we can expect such differentials to diminish if people become more tolerant of homosexuals.

The aim of this paper is to explore the extent to which employment and earnings differentials due to sexual orientation can be attributed to sexual prejudice in Sweden. Homosexuals in Sweden were allowed to enter into civil unions (*registrerat partnerskap*) in 1995. Homosexual individuals who do so have the same legal rights and obligations as married heterosexuals and individuals who enter civil union or marriage are registered by

¹ For studies from the US, see e.g. M. V. Lee Badgett (1995), Marieka M. Klawitter and Victor Flatt (1998), Sylvia A. Allegretto and Michelle M. Arthur (2001), M. V. Lee Badgett (2001), Suzanne H. Clain and Karen Leppel (2001), and Christopher S. Carpenter (2004, 2005). For a study from Australia, see Christopher S. Carpenter (2008). For studies from European countries, see G. Reza Arabsheibani, Alan Marin and Jonathan Wadsworth (2004, 2005) for the UK; Erik Plug and Peter Berkhout (2004) for the Netherlands; Nick Drydakis (2011) for Greece; Stephan Humbert (2012) for Germany and Ali M. Ahmed and Mats Hammarstedt (2010), and Ali M. Ahmed, Lina Andersson and Mats Hammarstedt (2011a, 2013a) for Sweden.

² See e.g. Edinaldo Tebaldi and Bruce Elmslie (2006), Karen Leppel (2009), and Heather Antecol and Michael D. Steinberger (2011) for studies from the US. For studies from European countries, see Ali M. Ahmed and Mats Hammarstedt (2010), and Ali M. Ahmed, Lina Andersson and Mats Hammarstedt (2013a) for Sweden.

³ For studies from the US, see e.g. Michelle R. Hebl, Jessica B. Foster, Laura M. Mannix, and John F. Dovidio (2002) and Nathanael Lauster and Adam Easterbrook (2011). For studies from European countries, see Doris Weichelbaumer (2003) for Austria, Nick Drydakis (2009, 2011) for Greece and Ali M. Ahmed and Mats Hammarstedt (2009) and Ali M. Ahmed, Lina Andersson and Mats Hammarstedt (2008, 2013b) for Sweden.

Statistics Sweden. We exploit this fact and combine register data from the LISA database at Statistics Sweden, which contains detailed information about demographic and human capital variables for all individuals living in Sweden in the year 2007, with information from a survey administered by the Swedish Institute for Public Health (Statens Folkhälsoinstitut) that documented public attitudes towards homosexuals in a nation-wide study conducted in 21 Swedish counties in the late 1990s (Swedish Institute for Public Health 2002). We do not have access to the full data of this survey. Instead, we exploit the result of the survey at the county level, giving us the share of individuals in each county that has an overall negative attitude towards homosexuals.

The LISA database at Statistics Sweden provides information on variables such as age, gender, educational attainment, number of children in the household, marital status and place of residence as well as on employment and annual earnings. *All* individuals who are living in Sweden are included in the database and our sample consists of all individuals in the database who are either married or living in civil unions. We follow Ali M. Ahmed and Mats Hammarstedt (2010) and Ali M. Ahmed, Lina Andersson and Mats Hammarstedt (2011a, 2013) and define homosexuals as individuals who are living in civil unions (*registrerat partnerskap*) in Sweden. Heterosexual individuals are defined as married individuals. We have access to data for *all* individuals living in civil unions and *all* married individuals in Sweden for the year 2007. Using this definition implies that some of the individuals that we classify as homo- or heterosexuals may be bisexual or have some other sexual identity. They are married or living in civil union but they have not addressed their preferred identity. Furthermore, we are not able to include individuals who are homosexual but not living in civil unions in our sample. Thus, we have access to a selected sample of all lesbian, gay, bi- and transsexual people.

In our empirical analysis we combine the information from register data with the information from the survey and investigate the extent to which sexual prejudice is correlated with the employment and the earnings gap due to sexual orientation previously documented in research from Sweden (e.g. Ali M Ahmed and Mats Hammarstedt 2010 and Ali M Ahmed, Lina Andersson and Mats Hammarstedt 2011a, 2013a). We arrive at the following conclusions: In line with previous research we find that gay males are at an employment as well as on an earnings disadvantage compared to heterosexual males while lesbians are doing relatively well compared to heterosexual females. When we turn our attention to the impact of public attitudes on employment and earnings differentials due to sexual orientation, we find that gay males are affected negatively by negative public attitudes towards homosexuals both

as regards relative employment and relative earnings. Lesbians are affected negatively by negative public attitudes towards homosexuals as regards employment propensities. Thus, the relative labor market disadvantage often documented for gay males can, to at least some extent, be explained by a prejudice against homosexuals.

CONCEPTUAL FRAMEWORK

In research on sexual orientation and labor market outcomes, gay men have been demonstrated to suffer from earnings disadvantages compared to heterosexual men. The research is mixed, however, when it comes to lesbians. Several explanations for these results have been put forward in the literature. Possible explanations may be found in differences between homosexuals and heterosexuals in preferences for household versus market work and in their representation in different types of occupations. Other explanations are based on the presence of discrimination.

Statistical discrimination is the problem of incomplete information where employers make use of group-level differences in order to determine the productivity of an individual employee (Edmund S. Phelps 1972). However, most explanations of sexual orientation discrimination are based on the theory of *taste for discrimination*. Gary S. Becker (1957) introduced this concept to explain labor market discrimination in the context of racial discrimination. This terminology has, however, become the typical way for economists to refer to the social concept of prejudice against certain groups of people. Gregory M. Herek (2000a) introduced the term *sexual prejudice* to refer to “all negative attitudes based on sexual orientation,” and a large body of research has shown the existence of sexual prejudices (e.g. Dinesh Bhugra 1987, Sheraz Ahmad and Dinesh Bhugra 2010 and Erik Plug, Dinand Webbink and Nicholas G. Martin 2011). In the context of sexual orientation discrimination, given these prejudices, the taste-based theory predicts that employers who have sexual prejudices may act on their bias against gay and lesbian people, and that this may lead to unequal treatment of these groups in the labor market.

At present several studies have utilized field experiments in order to quantify discrimination in the hiring process in different countries. These field experiments provide

clear evidence for discrimination in the recruitment process against both gay and lesbian applicants in the countries under study.⁴

In the present study we investigate if prejudices against gay and lesbian people can explain some of the labor market differentials that we have observed in the gay and lesbian literature by taking a different route. Our starting point here is that we know from research in social psychology that sexual prejudices exist. We argue that if employers have these prejudices, they may act on them to discriminate against gay men and lesbians, and this may be partly responsible for the disadvantages that occur because of their sexual orientation. We argue that employers with these prejudices are more likely to be found in geographical areas where the public attitude towards homosexuals is more hostile.

Nevertheless, even if we assume that employers do not have sexual prejudices and that hostile public attitudes towards homosexuals do not reflect those held by employers, employers may still act on the prejudices held by others. According to taste-based discrimination theory employers may discriminate against a group of workers not just because of their own prejudices, but also because of the prejudices held by their employees and customers.⁵ In the case of co-worker discrimination heterosexual workers have aversion to working with gay and lesbian workers and in the case of customer discrimination heterosexual customers have aversion of buying products produced or sold by gay and lesbian people. This aversion will in the end affect the earnings of gay and lesbian people as a result of employers counterbalancing for the non-pecuniary costs experienced by co-workers or costumers.

We therefore use a measure of public attitudes towards homosexuals in different regions of Sweden and examine whether there is a relationship between the relative employment and earnings of gay men and lesbians and public attitudes towards homosexuals. We hypothesize that greater public hostility towards homosexuals will reduce relative employment and relative earnings of gays and lesbians.

We acknowledge, however, that an observed relationship between public hostility to homosexuals and labor market disadvantages for gays and lesbians may not exclusively be evidence of sexual prejudices and taste-based discrimination. Alternatively, we may observe such relationship partly because of geographic mobility of the most productive gay and lesbian people. It is possible that gay and lesbian people who have higher earnings potential

⁴ See e.g. Michelle R. Hebl, Jessica B. Foster, Laura M. Mannix, and John F. Dovidio (2002) and András Tilcsik (2011) for field experiments from the US. See Barry D. Adam (1981) for a study from Canada; for Austria, see Doris Weichselbaumer (2003); for Greece, see Nick Drydakis (2009, 2011); for Sweden, see Ali M. Ahmed, Lina Andersson and Mats Hammarstedt (2013b).

⁵ See e.g. James F. Ragan and Carol Horton Tremblay 1988 for co-worker discrimination and Harry J. Holzer and Keith R. Ihlanfeldt 1998 for customer discrimination in the context of racial discrimination.

move from prejudiced geographical areas to tolerant areas where they believe homosexuals earn more. As a result, the most productive gay and lesbian workers with higher earnings potential may reside in tolerant areas with less labor market disadvantages whereas less productive gay and lesbian workers reside in prejudiced areas with higher labor market disadvantages. A relationship between negative public attitudes to homosexuals and labor market disadvantages may therefore reflect the effect of discrimination on the composition of high and low productive gay and lesbian people living in tolerant and prejudiced areas, respectively, rather than discrimination per se.

Another reason we may observe a relationship between public attitudes towards homosexuals and labor market outcomes is related to the social and behavioral norms regarding men's and women's roles in the family. Research has shown that there is a strong relationship between beliefs in traditional gender roles and negative attitudes towards gays and lesbians (e.g., Annie L. Cotton-Huston and Bradley M. Waite 2000, Bernard E. Whitley and Stefania Aegisdottir 2000 and Michael Horvath and Ann M. Ryan 2003). This implies that people with strong beliefs in traditional gender roles are also likely to have hostile attitudes against homosexuals. In other words, adherence to traditional gender roles is probably more widespread in geographical areas where attitudes against homosexuals are hostile. Married women are less likely to work and married men are more likely to work when traditional gender roles are more prevalent. Hence, in areas with strong beliefs in traditional gender roles women may work and earn less and men may work and earn more than in areas where traditional gender roles are less widespread. So, even if negative public attitudes towards homosexuals do not affect the earnings of gays and lesbian but traditional gender roles affect the earnings of men and women, we may still find a correlation between public attitudes of homosexuals and gay and lesbian labor market outcomes because of the strong relationship between beliefs in traditional gender roles and hostile attitudes to homosexuals.

Hence, our prediction that greater public hostility to homosexuals is related to lower relative employment and lower relative earnings of gays and lesbians may reflect sexual prejudices and tasted-based discrimination. However, this relationship may also stem from or be strengthened by the geographic mobility among homosexuals or traditional gender roles.

We believe that our prediction is more persuasive in the case of gay men than it is for lesbians. Thus, we believe that public attitudes towards homosexuals will explain the labor market gap of gay men but will be an irrelevant predictor of the labor market outcome of the lesbians. We have several reasons to believe this. First, the evidence on labor market differentials shows that lesbians do not suffer from a penalty. Instead, some studies even

observe that lesbians enjoy an employment as well as an earnings premium. One could, however, argue that in regions where attitudes towards homosexuals are more hostile, the lesbian premium would be diminished.

Yet, another reason to believe that hostile public attitudes towards homosexuals will affect the earnings only of gay men is the finding of a “gay glass ceiling.” A few studies have shown that gay men are hindered from reaching high-earning and top-ranked positions on the labor market (e.g. Ali M. Ahmed, Lina Andersson and Mats Hammarstedt 2011b; Jeff Frank 2006). This disadvantage is comparable to the glass ceiling often observed for women in relation to men. However, no such disadvantage is evident for lesbians in relation to heterosexual women.

A third reason for believing that prejudices are more relevant in the case of gay men is that findings in social psychology consistently show that there is greater hostility to gay men than to lesbians, especially among heterosexual men. Mary E. Kite and Bernard E. Whitley (1996) showed in their meta-analysis that heterosexual men tended to express more negative and hostile attitudes towards gay men than towards lesbians. Gregory M. Herek (2000b) documented similar results where heterosexuals’ attitudes towards gay men differed from their attitudes towards lesbians. His results were driven by the fact that heterosexual men were consistently more hostile to gay men than they were towards lesbians. Gregory M. Herek (2002) found that the personal reactions of heterosexuals to gay men were more negative than they were to lesbians. He also found that heterosexuals were more likely to perceive gay men but not lesbians as mentally ill and as child molesters. Further, he found that heterosexuals tended to support adoption rights for lesbians but not for gay men.

A last reason for why our hypothesis is more compelling for gay men than for lesbians is that the measure of attitude we use in this study is based on attitudes toward male and female “homosexuals”. Gregory M. Herek (2000b) has argued that when people are asked about “homosexuals” they are likely to equate this term exclusively with gay men. Thus, since research on attitudes towards gay men and lesbians show differences in public opinion, and since it is likely that the term “homosexuals” is limited to gay men, we would expect a stronger relationship between the measure of attitudes and the employment and earnings differential among men than among women.

DATA, THE SURVEY AND DESCRIPTIVE STATISTICS

We combine data from two sources. Information about demographic and human capital variables for *all* homosexual individuals living in civil unions and *all* married heterosexual individuals between 25 and 64 years of age in Sweden for the year 2007 is obtained from the LISA database at Statistics Sweden.⁶ The information from the LISA database is then combined with information from a survey conducted by the Swedish Institute for Public Health (Statens Folkhälsoinstitut) in order to explore and document public attitudes towards homosexuality and homosexuals in different counties in Sweden in 1999.

The LISA database

The LISA database at Statistics Sweden contains information about demographic and labor market variables for the total population living in Sweden. Our data contains *all* homosexual individuals who are living in civil unions and *all* married heterosexual individuals between 25 and 64 years of age in Sweden in the year 2007. In total our data contain 2 163,104 individuals of whom 3,915 are homosexuals. 1,972 of the homosexuals are males while 1,943 of the homosexuals are females. Among the heterosexuals, 1 043,141 are males and 1 116,048 are females. In our analysis of employment we include all individuals in the age span 25 to 64 years of age. In our analysis of earnings we only include those with positive yearly earnings which reduces our working sample to 1 890,653 individuals of whom 3,413 are homosexuals and 1 887,240 are heterosexuals. Among the homosexual individuals included in this sample, 1,661 are males and 1,752 are females. The corresponding figures among heterosexuals are 938,141 males and 949,099 females.

We define being employed in 2007 as being registered as either wage-employed or self-employed by Statistics Sweden in November 2007. Yearly earnings are defined as yearly income from wage-employment and self-employment in 2007.⁷ Besides this information, we also have information about human capital variables such as age and educational attainment as well as on the occurrence of children in the household, whether an individual was born in Sweden or not, whether there is a dual earner in the household and in which branch of

⁶ The retirement age in Sweden is flexible between 61 and 67 years of age.

⁷ The definition implies that individuals with positive yearly earnings are registered as unemployed if they were not employed in November 2007.

business individuals are employed. Finally, we also have information about the individual's municipality of residence.

The survey

The survey that we make use of was conducted by the Swedish Institute for Public Health (Statens Folkhälsoinstitut) in order to explore and document public attitudes towards homosexuality and homosexuals in Sweden in 1999. Almost 10,000 respondents between the ages of 16 to 79 were approached with the help of a postal survey. The respondents were asked several questions about their socio-economic background, on their own sexual orientation and, of course, about their attitudes towards homosexuals and homosexuality. The results were presented in the report *Föreställningar – vanföreställningar. Allmänhetens attityder till homosexualitet (Conceptions – misconceptions. Public attitudes towards homosexuality)* released in 2002.

In this paper we pay attention to one specific question: “*What is your opinion about homosexuals?*” The respondents were requested to rank their answer on a scale from 1 to 7 where the answer 1 implied “*Completely bad*” and the answer 7 implied “*Completely good.*” The answers from this question were processed by the Swedish Institute for Public Health and respondents who considered homosexuality mostly or completely bad, were perceived as having a negative attitude towards homosexuals.

Results on attitudes towards homosexuals were presented at the county level for Sweden's 21 counties.⁸ The share of individuals with a negative attitude towards homosexuals amounted to about 27 per cent. The share of individuals with a negative attitude towards homosexuals in different counties in Sweden is presented in Table A1 in the Appendix, with the average employment and earnings gap between homo- and heterosexuals in the different counties. Table A1 also contains information about educational attainment among gays and lesbians in different counties. The variation in public attitudes among the counties, in combination with the variation in the employment and earnings gap between gay and heterosexual males and between lesbians and heterosexual females allows us to explore the extent to which the employment and earnings gap due to sexual orientation is correlated with public attitudes towards homosexuals in Sweden.

⁸ We exclude the county of Gotland from the analysis, since the report states that the result for the attitude measure from this county is unreliable due to the small number of respondents.

Descriptive statistics

Table 1 presents some descriptive statistics. It emerges that homosexuals, on average, are younger than heterosexuals. They also have, on average, a higher educational attainment. The table documents that the employment rate is lower among gay males than among heterosexual males while the opposite occurs for lesbian females in comparison with heterosexual females. Note again that we define employment as being registered as employed in November 2007. This implies that an individual may have had positive yearly earnings during 2007 but still be registered as unemployed. Table 1 also documents the often observed fact that gay males are at an earnings disadvantage compared to heterosexual males while lesbians earn more than heterosexual females; the unadjusted earnings gap between gay males and heterosexual males is about 9 per cent while lesbians earn about 10 per cent more than heterosexual females.

Table 1. Descriptive statistics of homo- and heterosexuals aged 25-64 in 2007

	(1) Gay males	(2) Heterosexual males	(3) Lesbian females	(4) Heterosexual females
Age	45.84 (9.72)	48.53 (10.21)	40.56 (9.37)	47.41 (10.59)
Years of schooling	13.20 (2.47)	12.19 (2.67)	13.53 (2.26)	12.43 (2.53)
Children in the household	0.03 (0.16)	0.65 (0.48)	0.38 (0.48)	0.61 (0.49)
Immigrant background	0.28 (0.45)	0.17 (0.38)	0.15 (0.35)	0.18 (0.39)
Dual earner	0.83 (0.38)	0.85 (0.35)	0.90 (0.30)	0.86 (0.35)
<i>Business line</i>				
Agriculture	0.01 (0.07)	0.03 (0.16)	0.01 ^{a)} (0.10)	0.01 ^{a)} (0.09)
Manufacturing	0.06 (0.25)	0.22 (0.41)	0.08 ^{a)} (0.27)	0.08 ^{a)} (0.26)
Construction	0.01 (0.09)	0.10 (0.29)	0.01 ^{a)} (0.11)	0.01 ^{a)} (0.10)
Retail trade and services	0.43 (0.50)	0.39 (0.49)	0.34 (0.47)	0.27 (0.44)
Health care	0.18 (0.39)	0.05 (0.21)	0.22 (0.41)	0.25 (0.43)
Public administration	0.06 (0.24)	0.05 (0.22)	0.09 (0.28)	0.06 (0.24)
Other	0.25 (0.43)	0.17 (0.38)	0.25 (0.43)	0.33 (0.47)
Employed	0.80 (0.40)	0.87 (0.33)	0.85 (0.36)	0.80 (0.40)
Annual earnings > 0	0.84 (0.36)	0.90 (0.30)	0.90 (0.30)	0.85 (0.36)
Annual labour earnings (SEK hundreds, > 0)	331,900 (215,800)	362,700 (292,800)	269,000 (156,200)	244,100 (143,400)
Observations	1,972	1,043,141	1,943	1,116,048

Note: The statistic for yearly labor earnings is obtained using a sample of individuals with positive yearly earnings. Employment is defined as being registered as wage-employed or self-employed in November 2007.

^{a)} The differences in means between lesbian and heterosexual females are not statistically significant. All other differences in means between gay and heterosexual males and lesbian and heterosexual females are statistically significant.

In Table 2 we turn our attention to public attitudes towards homosexuals and variations in the employment and earnings gap among different counties. On average, 27 per cent of the population in Sweden has a negative attitude towards homosexuals as measured by the survey presented above. This ranges from 17 per cent in the most tolerant county to 35 per cent in least tolerant.

There is also a large variation in the employment and earnings gap between homo- and heterosexuals in different counties. The relative employment of gay men ranges from a 36 per cent disadvantage compared to heterosexual males to a 14 per cent advantage while the corresponding gap for lesbians ranges from a 26 per cent disadvantage to a 13 per cent advantage. As regards earnings, the relative earnings of gay men ranges from a 11 per cent

earnings advantage compared to heterosexual males to a 25 per cent earnings disadvantage. The relative earnings of lesbians ranges from a 21 per cent earnings advantage to a 17 per cent earnings disadvantage.

Table 2. Attitudes towards homosexuals, unadjusted relative employment, unadjusted relative earnings for individuals aged 25-64 in 2007 in different Swedish counties

	Min	Max	County average
% with a negative attitude towards homosexuals	17.00	35.00	26.85
Gay vs. male heterosexual relative employment	0.64	1.14	0.92
Lesbian vs. female heterosexual relative employment	0.74	1.13	0.97
Gay vs. male heterosexual relative earnings	0.75	1.11	0.89
Lesbian vs. female heterosexual relative earnings	0.83	1.21	1.06

Note: Attitudes towards homosexuals in all Swedish counties are presented in Table A1 in the Appendix. Employment is defined as being registered as wage-employed or self-employed in November 2007. Earnings are defined as yearly earnings in 2007.

RESULTS

Empirical set-up

We estimate linear probability models of the propensity of being employed as well as traditional earnings equations by ordinary least squares (OLS). Our dependent variables are whether an individual is registered as employed or not and yearly earnings. All estimations are carried out for males and females separately.

We start by estimating the probability of being employed with the help of the following specification of a linear probability model:

$$\Pr(z_i=1) = \alpha_i + \beta_i X_i + \lambda_i \text{Attitudes} + \gamma_i \text{Homosexual}_i + \eta_i \text{Attitudes} * \text{Homosexual}_i + \varepsilon_i$$

As regards earnings, we estimate the following specification with the help of OLS:

$$\ln y_i = \alpha_i + \beta_i X_i + \lambda_i \text{Attitudes} + \gamma_i \text{Homosexual}_i + \eta_i \text{Attitudes} * \text{Homosexual}_i + \varepsilon_i$$

The variable z_i takes the value 1 if the individual was registered as employed in November 2007 while y_i denotes yearly earnings. The vector X_i contains human capital variables such as age and educational attainment as well as variables for children in the household, branch of

business, whether the person has an immigrant background or not and whether there is a dual earner in the household.⁹ Finally, the vector X_i also includes a dummy variable for each municipality in Sweden in order to capture municipality specific effects. The variable *Attitudes* is the share of individuals who reported a negative attitude towards homosexuals in the county in which the individual resides while the variable *Homosexual* takes the value 1 for gays and lesbians and 0 for heterosexuals. All variables are presented in Table A2 in the Appendix.

Two different specifications are estimated for males and females. In Specification 1 we include all variables in the vector X_i as well as the variables *Attitudes* and *Homosexual*. In Specification 2 we include all these variables as well as an interaction between *Attitudes* and *Homosexual* in order to explore how attitudes towards homosexuals affect relative employment and earnings.

When interpreting the results one must be aware of the fact that our results may be due to self-selection, since geographic mobility is not random. If homosexuals in Sweden with the highest employment and earnings capacity choose to settle in areas where they know homosexuals have relatively high earnings, and these places happens to be areas with less prejudice against homosexuals, only homosexuals with low employment and earnings capacity are left in areas that hold more prejudices against homosexuals. In such a case our results are not due to attitudes but instead driven by self-selection in geographic mobility. With our data there is no direct way to address this problem. However, the figures regarding relative employment and earnings and educational attainment among homosexuals presented in Table A2 indicate no strong correlation between educational attainment and the employment and earnings gap at the county level. Therefore, we argue that self-selection in geographic mobility not is a problem in this study.

Employment

The results from the estimations of the probability of being employed are presented in Table 3.¹⁰ The results from Specification 1, for males as well as for females, reveal that there is a relationship between attitudes towards homosexuals and the employment propensity. A one percentage point increase in the share of individuals with a negative attitude towards

⁹ The variables for branches of business are left out from the estimations of employment propensity since we do not have information about branch of business for individuals who are registered as unemployed.

¹⁰ The tables only present the results for the variables of interest. The complete estimation results are available from the authors upon request.

homosexuals within a county decreases the employment propensity by about 0.3 percentage points for males and by about 0.4 percentage points for females within that county. The results also reveal that gay males have an about 6 percentage point lower probability of being employed than heterosexual males while there is no statistically significant difference in the probability of being employed between lesbian females and heterosexual females.

Table 3: Linear probability estimates of the probability of being employed for males and females aged 25-64 years in 2007

	Males Specification 1	Specification 2	Females Specification 1	Specification 2
Attitudes	-0.0027* (0.0017)	-0.0027* (0.0017)	-0.0041*** (0.0009)	-0.0041*** (0.0009)
Homosexual	-0.0573*** (0.0084)	0.0918** (0.0363)	0.0068 (0.0078)	0.1195*** (0.0333)
HomosexualxAttitudes		-0.0067*** (0.0016)		-0.0048*** (0.0014)
Observations	1 045,113	1 045,113	1 117,991	1 117,991
Adjusted R ²	0.153	0.153	0.169	0.169

Standard errors in parentheses

All regressions include municipality fixed effects and controls for age, age squared, schooling, schooling squared, children in the household, dual earner, and immigrant background. Robust standard errors.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Looking at the interaction between *Attitudes* and *Homosexual* in Specification 2, table 3 reveals that it is negative and statistically significant for males as well as for females. A one percentage point increase in the share of individuals with a negative attitude towards homosexuals widens the employment gap between gay males and heterosexual males by about 0.7 percentage points. For females the results show that a one percentage point increase in the share of individuals with a negative attitude towards homosexuals lowers relative employment for lesbian females by about 0.5 percentage points.¹¹

Earnings

The results for earnings are presented in Table 4. Looking at Specification 1 for males we find that gay males earn about 17 per cent less than heterosexual males.¹² This result is well in line with what has been found in previous Swedish research by Ahmed and Hammarstedt (2010) and Ahmed, Andersson and Hammarstedt (2011a, 2012). Specification 1 also indicates a

¹¹ In order check the sensitivity of the results we also estimated all specifications using data from the year 2003. All patterns remained the same.

¹² Yearly earnings are in logarithmic form and the earnings differential between gay males and heterosexual males are given by $e^{-0.186} - 1 = -0.170$.

relationship between attitudes towards homosexuals and average earnings at the county level. The estimates reveal that a one percentage point increase in the share of individuals who report a negative attitude towards homosexuals in a county is associated with a 1.6 per cent decrease in average earnings among males within that county.

Table 4: OLS earnings equation for males and females aged 25-64 years in 2007

	Males		Females	
	Specification 1	Specification 2	Specification 1	Specification 2
Attitudes	-0.0164*** (0.0021)	-0.0164*** (0.0021)	-0.0126*** (0.0021)	-0.0126*** (0.0021)
Homosexual	-0.1860*** (0.0193)	0.1206 (0.0839)	0.0061 (0.0194)	0.1342 (0.0882)
HomosexualxAttitudes		-0.0139*** (0.0037)		-0.0055 (0.0037)
Observations	939,802	939,802	950,851	950,851
Adjusted R^2	0.157	0.157	0.119	0.119

Standard errors in parentheses

All regressions include municipality fixed effects and controls for age, age squared, schooling, schooling squared, children in the household, immigrant background, dual earner, and business line.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

We find that the interaction term between *Attitudes* and *Homosexual* is negative and statistically significant. A one percentage point increase in the share of individuals who report a negative attitude towards homosexuals increases the earnings gap between gay males and heterosexual males by about 1.4 per cent. This corresponds to a 0.3 percentage point increase in the earnings gap between gay males and heterosexual males. Thus, negative attitudes towards homosexuals have a negative impact on gay relative earnings.

Turning to females, in line with previous research, we find no statistically significant earnings differential between lesbians and heterosexual females in Specification 1. As for males there is a relationship between average earnings and attitudes towards homosexuals at the county level. A one percentage point increase in the share of individuals who report a negative attitude towards homosexuals is associated with about 1.3 per cent average lower earnings. In Specification 2 we find no relationship between attitudes towards homosexuals and relative earnings for lesbians. Thus, lesbian earnings are not affected negatively by prejudice against homosexuals.¹³

¹³ In order check the sensitivity of the results we also estimated all specifications using data from the year 2003. All patterns remained the same.

CONCLUSIONS

Studies from several countries around the world have documented labor market differentials due to sexual orientation. However, less is known about the explanations for these differentials. One plausible explanation is that employment and earnings of gays and lesbians are affected negatively by discrimination, but while researchers have been able to document discrimination against homosexuals in the hiring process little is known about sexual prejudice and the employment and earnings of gays and lesbians.

In this paper we have used data from a study on public attitudes towards homosexuals in different Swedish counties and studied the relationship between such attitudes and relative employment and earnings for gay males and lesbians for the year 2007. Like in previous research, we find that gay males are at a disadvantage relative to male heterosexuals with respect to employment as well as earnings while no such differential is found between lesbians and heterosexual females. Our results reveal that relative employment and earnings for gay males are negatively affected by negative public attitudes towards homosexuals. A one percentage point increase in the share of individuals with a negative attitude towards homosexuals increases the employment gap between gay males and heterosexual males by about 0.7 percentage points and the earnings gap between gay males and heterosexual males by somewhat less than 1.4 per cent, which corresponds to about 0.3 percentage points. For lesbians these relationships are weaker. The results indicate that public attitudes towards homosexuals have a negative impact on lesbian relative employment while no such effect is found for lesbian relative earnings.

We take this to mean that discrimination against gay males exists not only in the hiring process but also in their employment and their earnings. For females the interpretation is different. Discrimination against lesbians has been documented in the hiring process in different countries while very small earnings differentials due to sexual orientation have been found between lesbians and heterosexual females. Our results further underline the fact that discrimination against lesbians is prevalent in employment.

Our results provide us with new information about the puzzle of labor market outcomes as a result of sexual orientation. Gay males are at a disadvantage compared to heterosexual males in hiring, earnings, and promotion. Much of the evidence shows that these disadvantages are to at least some extent driven by discrimination. This calls for additional research in new areas such as discrimination against gay and lesbian employees and disparities in workplace satisfaction due to sexual orientation.

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APPENDIX

Table A1. Attitudes towards homosexuals and homo-heterosexual average employment and earnings gap and homosexual schooling in Swedish counties 2007.

County	Negative Attitudes	Gay males/ heterosexuals		Lesbian females/ heterosexuals		Years of schooling	
		Employment	Earnings	Employment	Earnings	Gays	Lesbians
Stockholm	17	0.97	0.83	1.12	1.02	13.45	13.73
Uppsala	22	0.93	1.00	1.06	1.16	13.70	14.26
Södermanland	25	0.86	0.79	1.11	1.21	12.69	12.72
Östergötland	30	0.91	0.85	0.97	1.03	13.09	12.99
Jönköping	31	0.88	0.85	0.87	1.16	12.90	12.20
Kronoberg	35	0.70	0.82	1.10	1.14	12.82	13.92
Kalmar	34	0.97	1.10	0.76	0.83	13.43	13.31
Blekinge	33	0.66	0.74	0.87	0.88	11.00	12.70
Skåne	28	0.75	0.80	1.03	1.06	12.91	13.64
Halland	26	0.89	0.80	0.94	1.07	12.80	12.36
Västra Götaland	26	0.97	0.90	1.09	1.11	13.22	13.63
Västmanland	29	0.93	0.68	1.01	1.03	11.90	12.88
Örebro	29	0.93	0.79	1.07	1.08	12.24	13.47
Västmanland	25	0.95	0.76	1.02	0.92	11.78	12.67
Dalarna	25	1.04	0.89	0.91	1.23	12.75	12.67
Gävleborg	22	1.10	0.87	0.96	1.12	13.20	12.56
Västernorrland	29	0.89	0.93	1.09	1.02	12.67	13.47
Jämtland	19	0.96	0.91	0.95	1.00	11.83	13.22
Västerbotten	24	1.13	0.95	0.91	0.99	13.57	13.62
Norrbottn	28	0.94	0.95	0.85	1.07	12.86	12.53
County average	26.85	0.92	0.86	0.98	1.06	13.20	13.53

Table A2. Dependent and explanatory variables used in the earnings and employment equations.

<i>Dependent variable:</i>	<i>Explanation:</i>
z_i	1 if the individual was registered as wage-employed or self-employed in November 2007. 0 otherwise
y_i	The individual's yearly earnings from wage-employment and/or self-employment in hundreds of SEK (in logarithmic form)
<i>Independent variables included in X:</i>	
Age	The individual's age in years
Schooling	The individual's educational attainment measured by years of schooling
Children in the household	1 Children younger than 18 years of age in the household 0 other
Immigrant background	1 Foreign-born 0 other
Dual earner	1 if the spouse/partner in the household has labor earnings > 0 0 other
Agriculture	1 if the individual was employed in agriculture 0 other
Manufacturing	1 if the individual was employed in manufacturing 0 other
Construction	1 if the individual was employed in construction 0 other
Retail trade and service	1 if the individual was employed in retail or services 0 other
Health care	1 if the individual was employed in health care 0 other
Public administration	1 if the individual was employed in public administration 0 other
<i>Other variables</i>	
Attitudes	Share of individuals who reported a negative attitude towards homosexuals in the county in which the individual resides
Homosexual	1 Gay / Lesbian 0 Heterosexual

Note: All specifications also include dummy variables for Sweden's 290 municipalities in order to capture municipality specific effects.