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Sexual prejudice and labor market outcomes of gays and lesbians



Abstract

This paper presents results from a study of sexual prejudice and the labor market gap due to sexual orientation. We use data from a nation-wide Swedish survey on public attitudes towards homosexuals and combine them with register data. 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 to, at least, some extent is driven by prejudices against them.

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1 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 (e.g. Badgett 1995, Klawitter and Flatt 1998, Allegretto and Arthur 2001, Badgett 2001, Clain and Leppel 2001, and Carpenter 2004, 2005 for studies from the US; for a study from Australia, see Carpenter 2008; for studies from European countries, see Arabsheibani, Marin and Wadsworth 2004, 2005 for the UK; Plug and Berkhout 2004 for the Netherlands; Drydakis 2011 for Greece and Ahmed and Hammarstedt 2010, and Ahmed, Andersson and Hammarstedt 2011a, 2012 for Sweden). 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 (e.g. Tebaldi and Elmslie 2006, Leppel 2009 and Antecol and Steinberger 2012 for studies from the US; for studies from European countries, see Ahmed and Hammarstedt 2010, and Ahmed, Andersson and Hammarstedt 2012 for studies from Sweden)

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 (e.g. Hebl, Foster, Mannix, and Dovidio 2002 and Lauster and Easterbrook 2011 for studies from the US; Weichelbaumer 2003 for Austria, Drydakis 2009, 2011 for Greece and Ahmed and Hammarstedt 2009 and Ahmed, Andersson and Hammarstedt 2008, 2013 for Sweden). 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 extent of discrimination is relatively less 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.

This paper explores the extent to which employment and earnings differentials due to sexual orientation can be attributed to sexual prejudice. Different surveys have documented that public attitudes towards homosexuals vary by country (e.g. Smith 2011). There are also good reasons to believe that different countries have different public attitudes towards homosexuals. In this paper we explore the survey administered by the Swedish Institute for Public Health (Statens Folkhälsoinstitut) that documented public attitudes towards homosexuals in 21 Swedish counties in the late 1990s (Swedish

Institute for Public Health 2002).¹ We measure sexual prejudice with the help of the results from this 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. Ahmed and Hammarstedt 2010 and Ahmed, Andersson and Hammarstedt 2011, 2012).

We combine register data obtained from Statistics Sweden for the year 2003 with information from the survey on public attitudes towards homosexuals conducted by the Swedish Institute for Public Health in 21 Swedish counties in 1999. The database at Statistics Sweden provides information on variables such as age, gender, educational attainment and number of children in the household as well as on employment and annual earnings. We follow Ahmed and Hammarstedt (2010) and Ahmed, Andersson and Hammarstedt (2011a, 2012) and define homosexuals as individuals who are living in civil unions (*registrerat partnerskap*) in Sweden. We have access to data for *all* individuals living in civil unions in Sweden for the year 2003. Homosexuals in Sweden were allowed to enter into civil unions in 1995. Homosexual individuals who do so have the same legal rights and obligations as married heterosexuals. All individuals who enter civil unions are registered by Statistics Sweden. The comparison group is a sample of married heterosexual individuals.

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 in comparison with heterosexual females. When we turn our attention to the impact of public attitudes on employment and earnings differentials due to sexual orientation, we find a negative relationship between relative employment and public attitudes towards homosexuals as well as between relative earnings and public attitudes towards homosexuals for gay males. Lesbians are affected negatively by 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.

The remainder of the paper is as follows. Section 2 presents the conceptual framework. Our data, the survey of attitudes towards homosexuals and descriptive statistics are presented in Section 3. The results are presented in Section 4. Section 5 offers conclusions.

¹ Sweden consists of 21 counties and the study was nation-wide. Unfortunately we do not have access to the full data of this survey. 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.

2 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 homo- and heterosexuals in preferences for household versus market work and in their representation in different types of occupations. Other explanations cite 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 (Phelps 1972). However, most explanations of sexual orientation discrimination are based on the theory of *taste for discrimination*. The present study focuses exclusively on taste-based discrimination and investigates whether prejudices can explain some of the earnings differences that we observe in the literature. 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. 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. Ahmad and Bhugra 2010, Bhugra 1987 and Plug, Webbink and 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 (e.g. Hebl, Foster, Mannix and Dovidio 2002 and Tilcsik 2011 for studies from the US; for a study from Canada, see Adam 1981; for Austria, see Weichselbaumer 2003; for Greece, see Drydakis 2009, 2011; for Sweden, see Ahmed, Andersson and Hammarstedt 2013). These field experiments provide clear evidence for discrimination against both gay and lesbians applicants in the countries under study. It is, however, important to highlight that the experimental research only provides evidence of discrimination in the first stage of the hiring process. Such research shows that discrimination exists in the labor market but it does not really say anything about whether the employment and the earnings gap found between gay men and heterosexual men is caused by discrimination. Further, the pattern of results differs between the experimental literature and the literature on employment and earnings differentials with regard to lesbians. While research on employment and earnings differentials shows no disadvantages for lesbians as compared to heterosexual women, the experimental research consistently provides evidence of discrimination against lesbians in the recruitment process. Drawing conclusions regarding employment

and earnings differentials based on insights from the experimental literature may, therefore, be misleading.

In the present study we investigate if taste-based discrimination 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; therefore we use a measure of public attitudes towards homosexuals in different regions of Sweden as a proxy for employers' attitudes towards gays and lesbians. We then examine whether there is a relationship between the employment and earnings of gay men and lesbians and public attitudes towards homosexuals. We hypothesize that greater public hostility to homosexuals will reduce relative employment and relative earnings of gays and lesbians.

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. Ahmed, Andersson and Hammarstedt 2011b; Frank 2006). This disadvantage is comparable to the glass ceiling 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. Kite and Whitley (1996) showed in their meta-analysis that heterosexual men tended to express more negative and hostile attitudes towards gay men than towards lesbians. 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. Herek (2002) also 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.” 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.

3 DATA, THE SURVEY AND DESCRIPTIVE STATISTICS

3.1 Data

We use data from the LISA database at Statistics Sweden. Our data contains all homosexual individuals between 25 and 64 years of age who were living in civil unions in Sweden by the year 2003 and a randomly selected comparison group of married heterosexual individuals in the same age span. In total our data are drawn from 5,264 individuals between the ages of 25 and 64, of whom 2,614 are homosexuals. 1,558 of the homosexuals are males while 1,056 of the homosexuals are females. Among the heterosexuals, 1,326 are males and 1,324 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 reduce our working sample to 4,504 individuals of whom 2,231 are homosexuals and 2,273 are heterosexuals. Among the homosexual individuals included in the sample, 1,312 are males and 919 are females. The corresponding figures among heterosexuals are 1,186 males and 1,087 females.

Besides information on sexual orientation, our data contain information about employment and yearly earnings for the year 2003. Being employed is defined as being registered as either wage-employed or self-employed by Statistics Sweden in November 2003. Yearly earnings are defined as yearly income from wage-employment and self-employment in 2003. 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 and whether an individual was born in Sweden.

3.2 The survey

The survey that we make use of in this paper 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 country level for Sweden's 21 counties.² 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. 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.

3.3 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. 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. On the one hand, the unadjusted earnings

² In our analysis we exclude the county of Gotland since the report states that the result for the attitude measure from this county is unreliable due to the small number of respondents.

gap between gay males and heterosexual males is about 10 per cent. Lesbians, on the other hand, earn about 11 per cent more than heterosexual females.

Table 1. Descriptive statistics for gay males and lesbians (25-64 years of age) for the year 2003.

	Males		Females	
	Gay males	Heterosexual males	Lesbians	Heterosexual females
Average age	44.9	48.5	40.7	46.6
Years of schooling	12.9	11.8	13.2	12.2
Percentage with children in the household	0.5	48.9	24.2	50.8
Percentage who are employed	75.9	83.6	78.1	74.8
Average yearly earnings (in SEK)	274,300	304,300	216,500	194,300

In Table 2 we turn our attention to public attitudes towards homosexuals and variations in the 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 an 80 per cent disadvantage compared to heterosexual males to a 6 per cent advantage while the corresponding gap for lesbians ranges from a 53 per cent disadvantage to a 35 per cent advantage. As regards earnings, the relative earnings of gay men ranges from a 5 per cent earnings advantage compared to heterosexual males to a 52 per cent earnings disadvantage. Among lesbians the variation is even larger. The relative earnings of lesbians range from a 54 per cent earnings advantage to a 53 per cent earnings disadvantage.

Table 2. Attitude towards homosexuals, unadjusted relative employment and unadjusted relative earnings for gay males and lesbians (25–64 years of age) in different counties in Sweden.

	Min.	Max.	Country average
Percentage with a negative attitude towards homosexuals ^{*)}	17	35	27
Gay vs. male heterosexual relative employment	0.194	1.061	0.908
Lesbian vs. female heterosexual relative employment	0.465	1.357	1.044
Gay vs. male heterosexual relative earnings	0.484	1.052	0.901
Lesbian vs. female heterosexual relative earnings	0.465	1.542	1.114

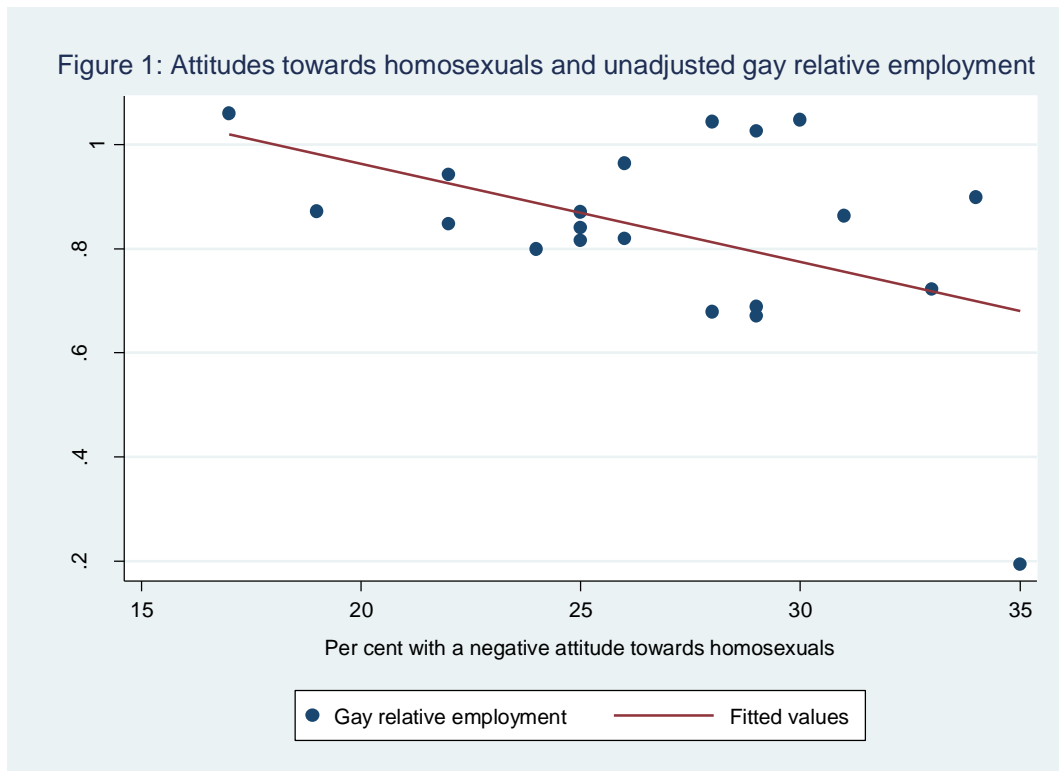
*) Attitudes towards homosexuals in all Swedish counties are presented in Table A1 in the Appendix.

Our main interest is, however, the extent to which there is a correlation between attitudes and the employment and earnings gap due to sexual orientation. Therefore, we regress public attitude measures for the 20 counties, obtained from Table A1 in the Appendix, on relative employment and relative earnings for gays and lesbians in each county. The relationship between relative employment for gay males and public attitudes towards homosexuals is highlighted in Figure 1. The estimated relationship between public attitudes towards homosexuals and the relative employment for gay males is given by:

$$\text{Gay relative employment} = 1.340 - 0.019 * \text{Attitude towards homosexuals} \quad R^2 = 0.212$$

(0.000) (0.041)

where p-values are reported in parentheses. Our estimate reveals that 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 1.9 percentage points. The relationship is, as shown by the p-values, statistically significant at the 5 per cent level.



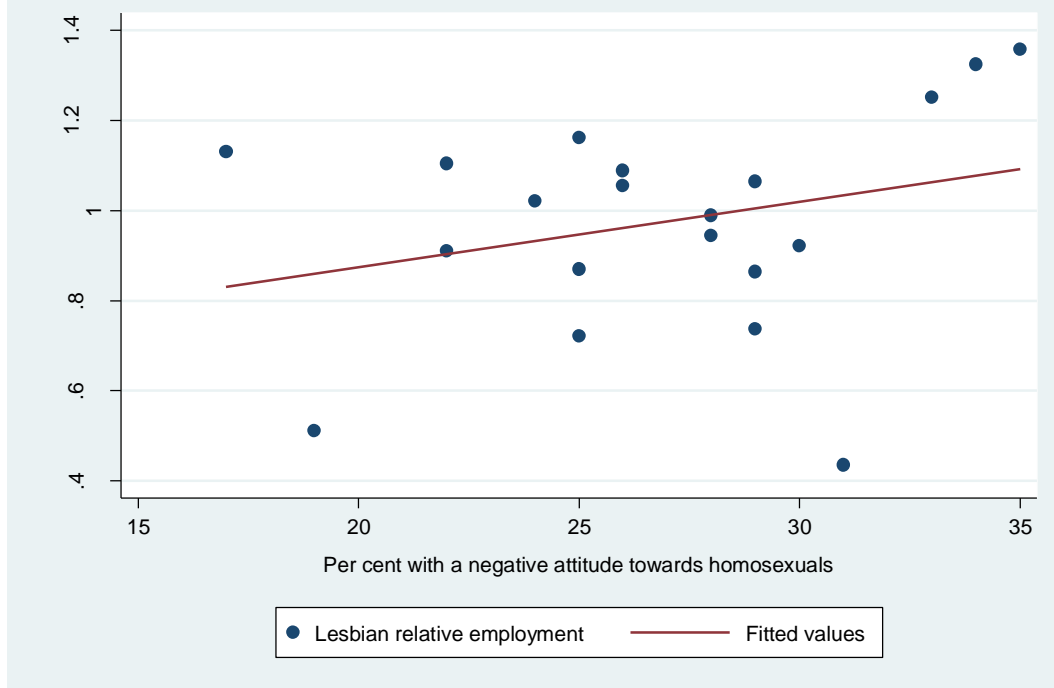
The corresponding relationship for lesbians is highlighted in Figure 2. The estimation for females turns out as follows (with p-values within parentheses):

$$\text{Lesbian relative employment} = 0.585 + 0.014 * \text{Attitude towards homosexuals} \quad R^2 = 0.080$$

(0.079) (0.226)

Thus, there is no statistically significant relationship between public attitudes towards homosexuals and relative employment for lesbians.

Figure 2: Attitudes towards homosexuals and unadjusted lesbian relative employment

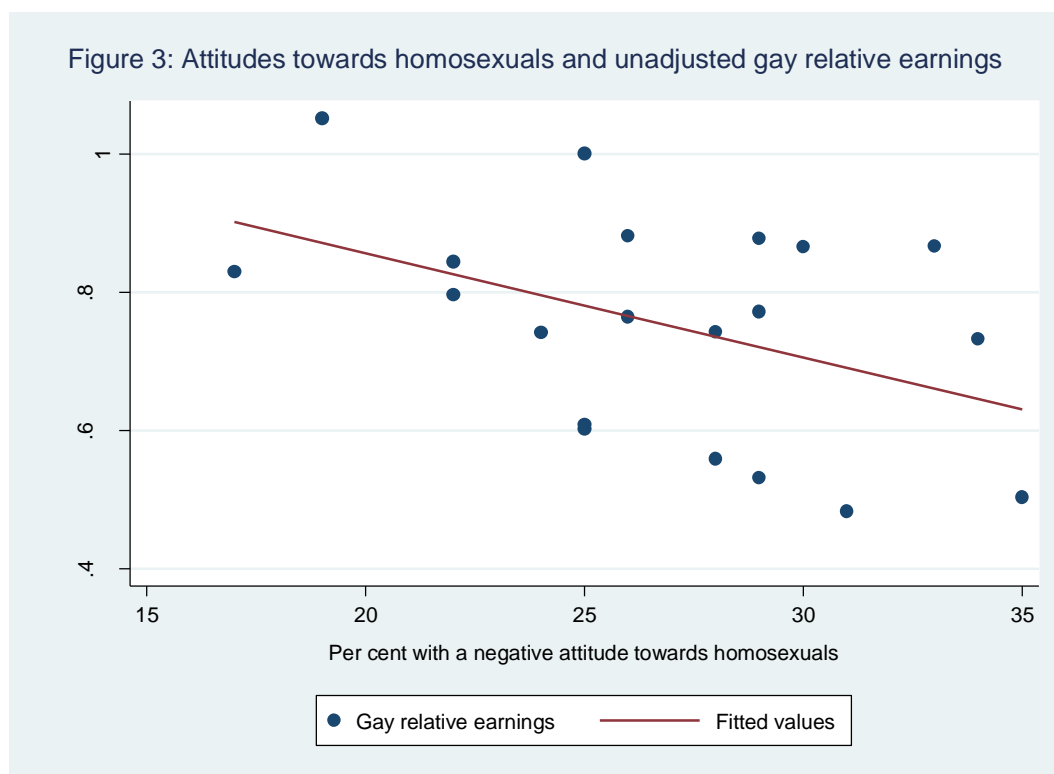


We now turn our attention to earnings. The relationship between relative earnings and public attitudes for gay males is highlighted in Figure 3 and estimated as (p-values within parentheses):

$$\text{Gay relative earnings} = 1.157 - 0.015 * \text{Attitude towards homosexuals} \quad R^2 = 0.196$$

(0.000) (0.050)

Our estimate reveals that a one percentage point increase in the share of individuals with a negative attitude towards homosexuals increases the earnings gap between gay males and heterosexual males by about 1.5 percentage points. The relationship is, just as regards employment, statistically significant at the 5 per cent level. Thus, negative attitudes towards homosexuals seem to have a negative impact on the relative earnings of gay males.



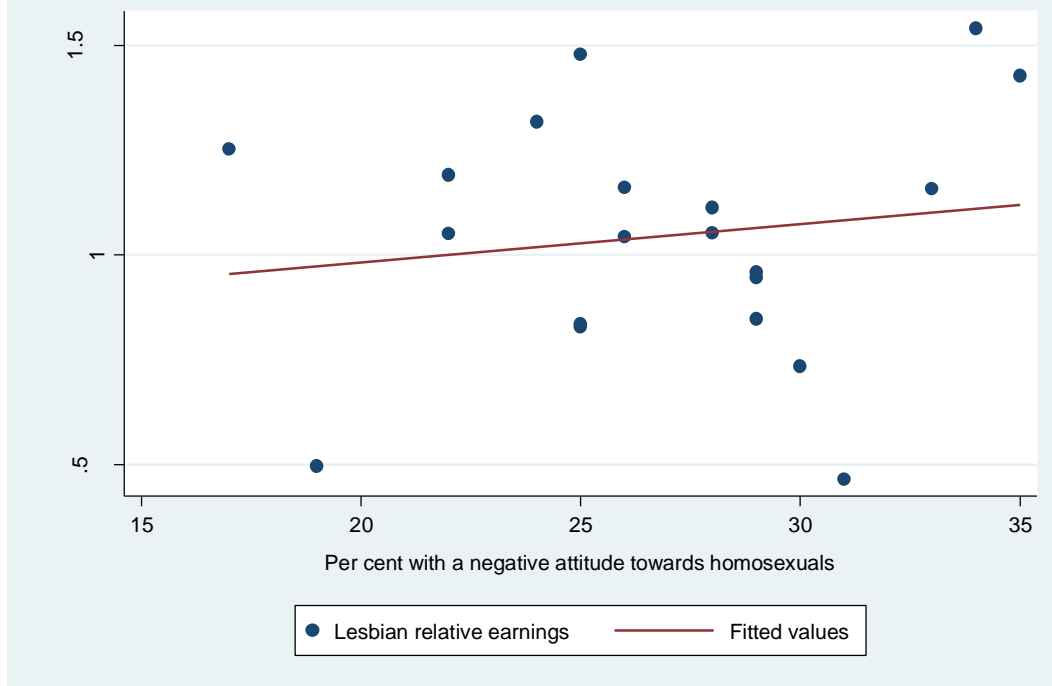
The corresponding relationship for lesbian earnings is shown in Figure 4. The estimation for females turns out as follows (with p-values within parentheses):

$$\text{Lesbian relative earnings} = 0.799 + 0.009 * \text{Attitude towards homosexuals} \quad R^2 = 0.022$$

(0.057) (0.534)

Thus, there is no statistically significant relationship between public attitudes towards homosexuals and relative earnings for lesbians. Against this, we can state that the figures and relationships in our raw data are in line with results from previous research as well with our theoretical predictions. Gay males are at an employment and earnings disadvantage to heterosexual males while the opposite occurs for lesbians in relation to heterosexual females. Even more interesting, an increase in the share of individuals with a negative attitude towards homosexuals has a negative impact on relative employment and earnings for gay males but not for lesbians.

Figure 4: Attitudes towards homosexuals and unadjusted lesbian relative earnings



4 RESULTS

4.1 Empirical set-up

We estimate probit equations of the probability 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. Our probit specification is as follows:

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

As regards earnings we estimate the following equation 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 2003 while y_i measures 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 and whether the person has an immigrant background or not. 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 capture how attitudes towards homosexuals affect their relative earnings.³

4.2 Employment

The results from the estimations of the probability of being employed are presented in Table 3. 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 homosexuals within a county decreases the employment propensity with about 0.5 percentage points for males as well as for females within that county.

The results also reveal that gay males have an about 11 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.

³ Standard errors are clustered on the county level since all individuals within a county have the same measure on the variable *Attitudes*.

Table 3. Probit estimates (marginal effects) of the probability of being employed for males and females in 2003 (25-64 years of age, clustered standard errors within parentheses).

Marginal effect	Males		Females	
	Specification 1	Specification 2	Specification 1	Specification 2
Age	0.057*** (0.005)	0.056*** (0.005)	0.062*** (0.009)	0.061*** (0.009)
Age squared	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Schooling	0.014*** (0.003)	0.014*** (0.003)	0.036*** (0.003)	0.036*** (0.003)
Children in the household	0.001 (0.020)	0.002 (0.021)	0.012 (0.014)	0.012 (0.014)
Immigrant background	-0.244*** (0.021)	-0.241*** (0.021)	-0.224*** (0.025)	-0.222*** (0.025)
Attitudes	-0.006** (0.003)	0.001 (0.002)	-0.004* (0.002)	-0.001 (0.002)
Homosexual	-0.110*** (0.042)	0.175** (0.076)	-0.031 (0.035)	0.125 (0.144)
Attitudes * Homosexual		-0.012*** (0.004)		-0.007* (0.003)
-2 log likelihood	2,582	2,565	2,287	2,283
Number of observations	2,884	2,884	2,380	2,380

***) Statistically significant at the 1-per cent level. **) Statistically significant at the 5-per cent level.

*) Statistically significant at the 10-per cent level.

Looking at the interaction between *Attitudes* and *Homosexual* in Specification 2 we find that this 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 with about 1.2 percentage points. For females the results reveal that a one percentage point increase in the share of individuals with a negative attitude towards homosexuals increases the employment gap between lesbian females and heterosexual females with about 0.7 percentage points.

4.3 Earnings

The results for earnings are presented in Table 4. Looking at Specification 1 for males we find that gay males earn about 30 per cent less than heterosexual males.⁴ 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 relationship between attitude 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

⁴ Annual earnings are in logarithmic form and the earnings differential between gay males and heterosexual males are given by $e^{-0.353} - 1 = -0.297$.

in a county is associated with a 1.8 per cent decrease in average earnings within that county.

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 1.9 per cent. This corresponds to a 0.7 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.

Table 4. OLS earnings equation for males and females in 2003 (25-64 years of age, clustered standard errors within parentheses).

Coefficient	Males		Females	
	Specification 1	Specification 2	Specification 1	Specification 2
Constant	4.038*** (0.268)	3.805*** (0.206)	3.431*** (0.520)	3.335*** (0.510)
Age	0.141*** (0.014)	0.140*** (0.014)	0.118*** (0.023)	0.117*** (0.023)
Age squared	-0.001*** (0.000)	-0.002*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Schooling	0.094*** (0.011)	0.095*** (0.011)	0.105*** (0.007)	0.106*** (0.008)
Children in the household	-0.082* (0.039)	-0.079* (0.038)	-0.130** (0.056)	-0.131** (0.055)
Immigrant background	-0.390*** (0.052)	-0.389*** (0.053)	-0.249** (0.095)	-0.247** (0.096)
Attitudes	-0.018*** (0.005)	-0.008* (0.004)	-0.009* (0.005)	-0.004 (0.005)
Homosexual	-0.353*** (0.066)	0.079 (0.174)	-0.058 (0.048)	0.150 (0.162)
Attitudes * Homosexual		-0.019* (0.009)		-0.008 (0.007)
R ²	0.097	0.098	0.079	0.079
Number of observations	2,498	2,498	2,006	2,006

***) Statistically significant at the 1-per cent level. **) Statistically significant at the 5-per cent level.

*) Statistically significant at the 10-per cent level.

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 percentage point increase in the share of individuals who report a negative attitude towards homosexuals is associated with about one per cent average lower earnings.

In Specification 2 we find no relationship between attitude towards homosexuals and relative earnings for lesbians. Thus, lesbian earnings are not affected negatively by prejudice against homosexuals.

5 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. 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 with between 1 and 2 percentage points and earnings gap between gay males and heterosexual males with about 1.5 and 2 per cent, which corresponds to about 1 percentage points. For lesbians these relationships are much 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 have been found between lesbians and heterosexual females. Our results underline what has been found in previous research, namely that discrimination against lesbians is prevalent in employment while the earnings of lesbians not is affected negatively by discrimination.

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.

References

Adam, Barry D. (1981) Stigma and employability: Discrimination by sex and sexual orientation in the Ontario legal profession, *Canadian Review of Sociology and Anthropology* 18: 216–221.

Ahmad, Sheraz and Dinesh Bhugra. (2010) Homophobia: An updated review of the literature, *Sexual and Relationship Therapy* 25: 447–455.

Ahmed, Ali M. and Mats Hammarstedt (2009). Detecting discrimination against homosexuals: Evidence from a field experiment on the Internet, *Economica* 76: 588–597.

Ahmed, Ali M. and Mats Hammarstedt. (2010) Sexual orientation and earnings: A register data-based approach to identify homosexuals, *Journal of Population Economics* 23: 835–849.

Ahmed, Ali M., Lina Andersson and Mats Hammarstedt (2008). Are lesbians discriminated against in the rental housing market: A correspondence testing experiment, *Journal of Housing Economics* 17: 234–238.

Ahmed, Ali M. Lina Andersson and Mats Hammarstedt (2011a). Inter- and intra-household earnings differentials among homosexual and heterosexual couples, *British Journal of Industrial Relations* 49: s258–s278.

Ahmed, Ali M. Lina Andersson and Mats Hammarstedt (2011b). Sexual orientation and occupational rank, *Economics Bulletin* 31: 2422–2433.

Ahmed, Ali M., Lina Andersson and Mats Hammarstedt (2012). Sexual orientation and full-time monthly earnings, by public and private sector: Evidence from Swedish register data, *Review of Economics of the Household*: forthcoming.

Ahmed, Ali M., Lina Andersson and Mats Hammarstedt (2013). Are gay men and lesbians discriminated against in the hiring process?, *Southern Economic Journal*: forthcoming.

Allegretto, Sylvia A. and Michelle M. Arthur (2001). An empirical analysis of homosexual/heterosexual male earnings differentials: Unmarried or unequal?, *Industrial and Labor Relations Review* 54: 631–646.

Antecol, Heather and Michael D. Steinberger (2011). Labor supply differences between married heterosexual women and partnered lesbians: A semi-parametric decomposition approach, *Economic Inquiry*, forthcoming.

- Arabsheibani, G. Reza, Alan Marin and Jonathan Wadsworth (2004). In the pink: Homosexual-heterosexual wage differentials in the UK, *International Journal of Manpower* 25: 343–354.
- Arabsheibani, G. Reza, Alan Marin and Jonathan Wadsworth (2005). Gay pay in the UK, *Economica* 72: 333–347.
- Badgett, M.V. Lee (1995). The wage effects of sexual orientation discrimination, *Industrial and Labor Relations Review* 48: 726–739.
- Badgett, M.V. Lee (2001). *Money, Myths, and Change: The Economic Lives of Lesbians and Gay Men*. University of Chicago Press. Chicago.
- Becker, Gary S. (1957). *The Economics of Discrimination*. University of Chicago Press. Chicago.
- Bhugra, Dinesh (1987). Homophobia: A review of the literature, *Sexual and Marital Therapy* 2: 169–177.
- Carpenter, Christopher S. (2004). New evidence on gay and lesbian household income, *Contemporary Economic Policy* 22: 78–94.
- Carpenter, Christopher S. (2005). Self-reported sexual orientation and earnings: Evidence from California, *Industrial and Labor Relations Review* 58: 258–273.
- Carpenter, Christopher S. (2008). Sexual orientation, income, and non-pecuniary economic outcomes: new evidence from young lesbians in Australia, *Review of Economics of the Household* 6: 391–408.
- Clain, Suzanne H. and Karen Leppel (2001). An investigation into sexual orientation discrimination as an explanation for wage differences, *Applied Economics* 33: 37–47.
- Drydakis, Nick. (2009). Sexual orientation discrimination in the labour market, *Labour Economics* 16: 364–372.
- Drydakis, Nick. (2011). Women’s sexual orientation and labor market outcomes in Greece, *Feminist Economics* 17: 89–117.
- Frank, Jeff. (2006). Gay glass ceilings, *Economica* 73: 485–508.
- Hebl, Michelle R., Jessica B. Foster, Laura M. Mannix and John F. Dovidio (2002). Formal and interpersonal discrimination: A field study of bias toward homosexual applicants, *Personality and Social Psychology Bulletin* 28: 815–825.

- Herek, Gregory M. (2000a). The psychology of sexual prejudice, *Current Directions in Psychological Science* 9: 19–22.
- Herek, Gregory M. (2000b). Sexual prejudice and gender: Do heterosexuals' attitudes toward lesbians and gay men differ?, *Journal of Social Issues* 56: 251–266.
- Herek, Gregory M. (2002). Gender gaps and public opinion about lesbians and gay men, *Public Opinion Quarterly* 66: 40–66.
- Kite, Mary E. and Bernard E. Whitley. (1996). Sex differences in attitudes toward homosexual persons, behaviors, and civil rights: A meta-analysis, *Personality and Social Psychology Bulletin* 22: 336–353.
- Klawitter, Marieka M. and Victor Flatt (1998). The effects of state and local antidiscrimination policies for gay men and lesbians, *Journal of Policy Analysis and Management* 17: 658–686.
- Lauster, Nathanael and Adam Easterbrook (2011). No room for new families? A field experiment measuring racial discrimination against same-sex couples and single parents, *Social Problems* 58: 389–409.
- Leppel, Karen. (2009). Labour force status and sexual orientation, *Economica* 76: 197-207.
- Phelps, Edmund S. (1972). The statistical theory of racism and sexism, *American Economic Review* 62: 659–661.
- Plug, Erik and Peter Berkhout. (2004). Effects of sexual preferences on earnings in the Netherlands, *Journal of Population Economics* 17: 117–131.
- Plug, Erik, Dinand Webbink & Nicholas G. Martin (2011). Sexual orientation, prejudice and segregation. *IZA Discussion Paper*, 5772.
- Smith, Tom W. (2011). Cross-national differences in attitudes towards homosexuality, *GSS Cross-national Report*: 31.
- Swedish Institute for Public Health (2002). *Föreställningar – vanföreställningar. Allmänhetens attityder till homosexualitet. (Conceptions – misconceptions. Public attitudes towards homosexuality)*. Kristianstad Boktryckeri. Kristianstad.
- Tebaldi, Edinaldo and Bruce Elmslie (2006). Sexual orientation and labour supply, *Applied Economics* 38 : 549–562.

Tilcsik, András (2011). Discrimination against openly gay men in the United States, *American Journal of Sociology* 117: 586–626.

Weichselbaumer, Doris (2003). Sexual orientation discrimination and hiring, *Labour Economics* 10: 629–642.

Appendices

Table A1. Attitudes towards homosexuals and homo-heterosexual average employment and earnings gap in Swedish counties 2003.

County	Per cent with a negative attitude	Gay males/ heterosexuals		Lesbian females/ heterosexuals	
		Employment	Earnings	Employment	Earnings
Stockholm	17	1.061	0.830	1.130	1.253
Uppsala	22	0.848	0.845	1.104	1.051
Södermanland	25	0.816	0.609	1.162	1.479
Östergötland	30	1.048	0.866	0.922	0.735
Jönköping	31	0.864	0.484	0.436	0.465
Kronoberg	35	0.194	0.504	1.357	1.428
Kalmar	34	0.900	0.733	1.325	1.542
Blekinge	33	0.722	0.867	1.250	1.158
Skåne	28	0.679	0.560	0.944	1.053
Halland	26	0.820	0.765	1.089	1.044
Västra Götaland	26	0.965	0.882	1.055	1.161
Värmland	29	1.026	0.772	0.865	0.959
Örebro	29	0.671	0.532	1.065	0.947
Västmanland	25	0.871	0.602	0.871	0.836
Dalarna	25	0.841	1.001	0.722	0.828
Gävleborg	22	0.943	0.796	0.910	1.191
Västernorrland	29	0.689	0.878	0.737	0.848
Jämtland	19	0.873	1.052	0.512	0.496
Västerbotten	24	0.800	0.742	1.021	1.318
Norrbottn	28	1.045	0.743	0.989	1.114
Country average	27	0.908	0.901	1.044	1.114

Table A2. Dependent and explanatory variables used in the earnings functions.

<i>Dependent variable:</i>	<i>Explanation:</i>
z_i	1 if the individual was registered as wage-employed or self-employed in November 2003. 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 below 18 years of age in the household 0 other
Immigrant background	1 Foreign-born

<i>Other variables</i>	0 other
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
