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Effects of Sexual Preferences on Earnings in the Netherlands

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ABSTRACT

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A small literature suggests that bisexual and homosexual workers earn less than their heterosexual fellow workers and that a discriminating labor market is partly to blame. In this paper we examine whether sexual preferences affect earnings in the beginning of working careers in the Netherlands. We find (i) that young and highly educated gay male workers earn about 3 percent less than heterosexual men; (ii) that similarly qualified lesbian workers earn about 4 percent more than their heterosexual female coworkers; (iii) that in terms of earnings, bisexual workers are more comparable to heterosexual workers; and (iv) that among homosexual workers the gender gap is not observed. From this we conclude that the Dutch labor market does not discriminate on the basis of both sexual orientation and gender in entry level jobs.

JEL Classification: J15, J16, J71

Keywords: Earnings, sexual preferences, gender differences, discrimination

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1 Introduction

Discrimination in the labor market has generated a vast empirical literature to illustrate various theories on the nature of discrimination. Many of these studies on earnings differentials have been produced involving women, blacks, physically handicapped, the ugly and no doubt other groups too (Altonji and Blank, 1999; Baldwin and Johnson, 1994; Cain, 1986; Hamermesh and Biddle, 1994). Yet economists have been silent when it comes to sexual orientation.

There are a few exceptions. Some are exploratory studies ranging from wondering why economists skirted the sexual orientation debate to suggestions of research agendas (Klawitter, 1998; Kauffman, 1998; Patterson, 1998). Only three (sound) empirical studies have examined earnings effects of sexual orientation (Badgett, 1995; Klawitter and Flatt, 1998; Allegretto and Arthur, 2001). Their findings suggest that homosexual men earn on average 2 to 30 percent less than their heterosexual counterparts. For lesbian and heterosexual women they have similar findings, but observed earnings differentials are mostly insignificant.[1]

Two out of the three available studies seem to agree that discrimination is the dominating mechanism that explains these earnings differentials. This does not imply, however, that discrimination is the exclusive factor. Differences in earnings can be the result of differences in preferences and skills too. In fact, we believe that it is rather complicated to address the problem of discrimination in the context of sexual orientation. Two arguments apply.

The first argument has to do with the absence of accurate information. In most papers discrimination arguments are taken from the literature on race and gender differentials, and are directly projected on sexual orientation and its effect on wages. This is obviously too simple. Unlike race and gender which are both easily observable, the sexual orientation of employees is not generally an observable trait. If the workers' sexual orientation is known to econometricians but not to employers or coworkers, estimated effects of

[1] Allegretto and Arthur (2001) only looked at labor market outcomes of homosexual and heterosexual men. They found that cohabiting homosexuals earned about 2 percent less than unmarried but cohabiting heterosexuals. Compared to married couples, the earnings penalty for being homosexual increased to almost 16 percent. They concluded that the marriage premium is the dominating factor in explaining the earnings differential among homosexual and heterosexual men.

bi/homosexuality on earnings tend to be too low in a discriminating labor market.

The second argument is related to the first one. Because homosexuality is not generally an observable characteristic we can only speak of discrimination if the worker whose sexual orientation is disclosed involuntarily is receiving lower wages. To measure the effects of a discriminating market properly, a distinction between voluntary and involuntary disclosure is required. If disclosure happens voluntarily, it is an endogenous action where according to economic theory rational workers should experience, at least, some benefits related to workplace factors. Ignoring endogenous disclosure may lead to underestimated earnings effects of being a bi/homosexual worker.

In this paper we examine the relation between sexual orientation and earnings and concentrate on the beginning of working careers. We look at two cohorts of higher vocational and university students who graduated in the years 1999 and 2000. Twenty months after graduation these students were interviewed and their labor market behavior was monitored. Compared to previous studies that analyzed the earnings effects of sexual orientation using the whole working population, our study has the disadvantage that if the market discriminates our estimated earnings effects of being a homosexual worker are probably too low. We focus on the beginning of the working life and ignore potential discrimination effects that arise later on. If homosexual and bisexual workers experience losses in earnings because they more frequently end up in dead-end jobs or face glass ceilings, estimates based on starters do not pick up these effects.

Of course, if one is interested in discriminatory (or homophobic) behavior of today, cohort studies like ours are to be preferred. Estimates based on samples that are representative for the whole working population measure only averaged discriminatory effects as the inclination to discriminate changes over time. In our cohort study this is not the case. We know for certain that all our workers are only affected by discriminatory attitudes of today. Moreover, they all face the same anti-discrimination legislation when they enter the labor market.

Like the previous empirical economic studies of Badgett (1995), Klawitter and Flatt (1998) and Allegretto and Arthur (2001), this study ignores endogenous disclosure and applies sexual orientation measures that are known

to us, but not necessarily known to employers or fellow workers.[2] Yet the present study has three advantages over former approaches.

The first advantage is the way we measure homosexuality. Former studies concentrate on sexual activity and partnership to measure sexual identity and introduce sample selectivity. Badgett asks how many males and females people had sex with since their 18th birthday to measure the sexual identity. She ends up with a very small and selective sample where those who have been sexually inactive are excluded. There is also the problem that students who have been sexually experimenting can be incorrectly classified. The other studies use information on the gender of the partner to identify sexual orientation. Although their samples contain one of the larger sets of bi/homosexual workers, they exclude those who have been single. Our results do not suffer from previous forms of selection bias. We include all workers and measure sexual orientation directly by asking people whether they like females, males, or both.

The second advantage is that we make a clear distinction between bisexual and homosexual workers. By doing so we are able to examine the degree of potential discriminatory effects under the assumption that bisexual workers are more frequently perceived by employers or coworkers as being heterosexual (or that it is easier for bisexual workers to pass as heterosexual workers).

And finally, we think that the study of homosexuality and earnings is of interest in a broader context. By comparing earnings of heterosexual male workers with earnings of lesbian and heterosexual female workers and vice versa we introduce alternative tests to see whether differences in earnings by gender are due to a discriminating labor market.

The remainder of this paper is organized as follows. In Section 2 we examine the economic relation between sexual orientation and earnings. Section 3 provides some evidence on the economic status of lesbians and gay men in the Netherlands. Section 4 describes the data on Dutch tertiary education students. Data we will use throughout the paper. In Section 5 we estimate a simple earnings equation and discuss our empirical findings. Section 6 summarizes.

[2]This implies that the earnings estimates of being homosexual we produce are in fact lower bounds.

2 Earnings differentials and sexual preferences

In this Section we briefly discuss how sexual orientation can affect labor market outcomes. In the tradition of most economic studies on wage differentials we distinguish three mechanisms that explain differences in pay: (i) differences that come from discrimination against homosexual workers; (ii) differences that arise from specific differences in skills; and (iii) differences that are just a matter of differences in tastes. We will discuss these three forces in reverse order.

Differences in tastes

At first sight differences in tastes or preferences are obvious since heterosexual and homosexual workers differ in their sexual orientation. More important is, however, whether sexual orientation has an influence on work related preferences. Do heterosexual and homosexual workers differ in their preferences for leisure and market work? Or do they differ in their taste for public versus private sector jobs? We do not know. What we do know is that if these differences in taste exist and constitute differences in the occupational distribution, earnings differ to the extent that occupational outcomes differ. Although these differences are important in explaining potential earnings differentials, economists have little to say on the formation of preferences.

There is one exception. Homosexuals tend to choose their place of residence in areas, regions or cities that are tolerant with respect to sexual identity. Since there are regional differences in average earnings, these differences will also shape labor market rents (Klawitter and Flatt, 1998). But if preferable regions correspond with better employment opportunities, location choice and corresponding migration costs may point to human capital investments as well. This is one of the issues that is discussed below.

Differences in skills

If people have different skills, human capital theory predicts that earnings differ too. Obvious examples of skill differentials relate to education and working experience. In this Section we discuss skill differences that relate to sexual orientation and were put forward in earlier research.

A potential source of productivity differences builds on the positive relation between health and income. Since the incidence of AIDS is higher among homosexual male workers, their expected productivity is lower. If maximizing employers differentiate earnings with expected productivity in mind, pay differentials would result. We should observe the opposite for working lesbian women. Since their incidence of AIDS is lower, their wage premium should be positive.[3]

With similar predictions Becker (1981) puts forward differences in comparative advantages to explain differences in labor outcomes between homosexual and heterosexual couples. His argument is the following. Since women have an inborn comparative advantage in home production (e.g. child-care), women in traditional heterosexual households are expected to spend less time in the labor market, attain therefore less human capital, and end up with lower labor market rents. In homosexual households, however, these gains from specialization are absent because the presence of children is, although possible, unlikely. For homosexual couples this means that men spend on average less, while women spend on average more time in the market place. The consequence is that among men, homosexual workers earn less, and that among women homosexual, workers should earn more.[4]

[3]Patterson (1998) uses this AIDS argument to illustrate potential price differences in health care insurance.

[4]If we look at potential differences in relevant labor market skills and outcomes, we should be aware that structural skill differences can already be present before people enter the labor market. We think of schooling differences. The literature is not clear on educational attainment effects and has produced conflicting arguments. It is possible that for students in the early stages of their homosexuality painful high school experiences discourage further learning. It is possible that most educational decisions are already made when students struggle with their sexual identity so that educational attainment remains unaltered. And it is possible that young homosexuals anticipate a discriminating labor market and compensate potential losses in earnings with additional education. It is even possible that during the process of homosexual identity in the late teens and early twenties, young homosexuals learn additional skills because they tend to assimilate to the heterosexual norm before they disclose their sexual identity. In the end, with less or more human capital they will end up with lower or higher earnings. We will ignore these educational differences since our sample consists only of former students with university of higher vocational education degrees.

Discrimination

The labor market itself can discriminate on the basis of sexual orientation. Badgett (1995) points to homophobia (the fear of homosexuals and homosexuality) and heterosexism (the belief that heterosexuality is superior to homosexuality and should be an enforceable norm) to illustrate the presence of discriminating behavior in general. In this paper we focus on a discriminating labor market and thus distinguish three potential discriminating actors: employers, consumers and fellow workers (Becker, 1971).

Discriminating employers are said to have a distaste for homosexual workers, when they offer higher wages to heterosexual workers. If prejudices of employers vary across occupations, there might be occupational crowding (Badgett and King, 1997). In a competitive market, however, discriminators are punished for their failure to maximize profits. Ultimately the earnings gap will disappear as discriminating employers are driven out of business.

Discriminating consumers will experience disutility when they buy from the discriminated group. Because the willingness to buy from homosexual sellers decreases, the willingness to pay decreases and that lowers the market payoff. If homosexual workers try to avoid this potential loss in earnings they would end up in occupations with no consumer contact.

And finally colleagues can discriminate. If discriminating coworkers obstruct the productive capabilities of homosexual workers lower wages might be the outcome. Again, prejudice of fellow workers does not necessarily imply that we observe lower wages for homosexual workers. The result could easily be segregated work forces where some employers (firms) hire only heterosexual and others homosexual workers.

And what do these theories predict?

To sum up, these theories provide two clear predictions if we ignore potential differences in taste. Firstly, discrimination based on taste or prejudice of either employers, coworkers or consumers does not necessarily predict differentials in pay. Segregation of homosexual and heterosexual workers by occupation, industry or firm is also possible. This means that if we allow for characteristics of occupation and industry to explain wage differentials among homosexual and heterosexual workers, potential wage effects of sexual identity should disappear or at least be weakened. And secondly, potential skill

differences predict a narrowing of the gender gap among homosexual workers.

3 Some evidence on attitudes and discrimination in the Netherlands

The Netherlands is one of the most tolerant of western societies when it comes to general attitudes towards homosexuality (Van den Akker, Halman and De Moor, 1994; Wildmer, Treas and Newcomb, 1998). About 95 percent of the Dutch population thinks that homosexuals should be allowed as much as possible to lead the lives they please (Social and Cultural Planning Office, 1992, 1996). However, when kin turn out to be gay, people tend to be less tolerant towards homosexuality. This is concluded by De Graaf and Sandfort (2001) who review recent studies on sexual identity in the Netherlands. If attitudes become less tolerant when homosexuality comes closer, similar mechanisms may apply to the working situation too.

On the basis of a representative sample of 4570 labor union members, Bos and Sandfort (1998) found a lesser job satisfaction and higher work stress among homosexual workers. This may very well be the consequence of discriminating fellow workers. If prejudiced colleagues are less cooperative and lower the productivity of the homosexual worker, lower wages will be the outcome. On the other hand, Bos and Sandfort (1998) report that homosexual workers think that mistakes on the work-floor are less accepted when made by homosexual workers, which -we reason- may drive them to greater work efforts and therefore higher productivity. Clearly, with respect to the effects of discrimination of homosexuality by fellow workers, we are left indecisive as to whether a wage penalty or wage premium on homosexuality is to be expected.

On discriminating employers with respect to promotions, hires and layoffs of personnel, the review of De Graaf and Sandfort (2001) is less informative. They do report some studies wherein employers are interviewed on the issue of homosexuality. General findings suggest that for employers homosexuality is of no importance and that it plays no part in hierarchic working relationships. However, the validity of these conclusions may be questioned since responding employers and chiefs clearly have an interest in picturing things rosier than they actually are.[5]

[5]To our knowledge, other empirical evidence on discrimination of homosexuals by em-

A significant drawback in most studies reported by De Graaf and Sandfort (2001) is that they were specially designed to study attitudes towards homosexuality itself. This may result in selectivity in response behavior where respondents belonging to a sexual minority group take the opportunity to emphasize or even exaggerate encountered problems related to their homosexuality. Also misfortunes such as a denied promotion may wrongfully be attributed to their sexual preference.

In this paper we avoid these drawbacks. Firstly, we use objective earnings measures instead of subjective attitude measures to study possible discriminatory effects. And secondly, our analysis is based on a large survey that is designed to register performance in higher education during the first 20 months in the labor market. Respondents are not focussed on homosexuality or discrimination at all; merely their sexual preference is established at the end of the questionnaire as part of a series of questions concerning general personal characteristics.

4 Data

The analysis is based on data from a large survey of graduates with a tertiary education. The survey has been conducted on a yearly basis since 1996. Dutch tertiary education is basically divided into two levels: higher vocational education (in Dutch abbreviated by HBO) and academic education (WO). HBO-education prepares students for specific (categories of) professions. It is taught at about 60 special institutes evenly spread over the Netherlands. Per annum on average 50,000 students graduate from HBO. WO-education is believed to be of a somewhat higher level and has a more general academic character. It is taught at 14 universities. The yearly output amounts to approximately 23,000 graduates per year. The survey is restricted to the 50 largest degree subjects (studies) on each level. So, in total the graduates of about one hundred large subjects of Dutch Higher Education are analyzed. On HBO level students can choose between 250 different courses of study, on WO level they may choose between 260 different specializations. Most of them, however, produce only small numbers of graduates, making statistical analysis cumbersome. In practise about 80 percent of the population is concentrated in the 100 subjects in the survey.

ployers and chiefs in the Netherlands is not available.

That is, the survey is representative of two third of the total population of two successive cohorts of graduates, respectively 69,000 and 38,000 graduates on HBO and WO level. Samples of respectively 8,200 and 7,800 were drawn from these sub-populations.

In the present paper we focus on a cohort of students that graduated in the year 1998/1999 and 1999/2000 and we follow them for the first 20 months in the labor market. We have information about their performance in school, labor market and their sexual orientation. The number of original observations equals 15998, but we restrict ourselves basically to the 12662 people who worked. Our empirical analysis involves full-time workers only. All respondents who worked less than 32 hours per week (2475) and all those for whom data on control variables are unavailable (431) are excluded. We end up with 9757 observations.

4.1 On the measurement of sexual orientation

Sexual orientation of the respondent is determined by a direct question. Respondents were asked "Concerning your sexual preference, who do you prefer?" They could choose between three alternatives: 1) only men, 2) only women, and 3) both men and women. The combination of one of these alternatives with the respondent's gender makes identification of sexual preference possible. The sexual orientation question was part of a special section at the end of the questionnaire that concentrated on general individual and household characteristics. The non-response of respondents to the sexual preference question amounts to 1 percent on HBO level and almost 2 percent for university graduates. These figures seem low, but keeping in mind that homosexuals comprise only a small percentage of the population, selectivity problems may arise in case non-response is correlated with sexual orientation. On average the survey reports that about 4.7 percent belong to sexual minorities: 3.5 percent is homosexual and 1.2 percent is bisexual. In our further analysis we will treat homosexuals and bisexuals as separate groups.

There are alternatives in measuring sexual orientation. Badgett (1995) asks respondents how many males and females they had sex with since their 18th birthday. In her sample about 4.8 percent had one or more same-sex sexual partner. Disadvantage is that her earnings effects rely on only 34 lesbian/bisexual and 47 gay/bisexual workers. Both Klawitter and Flatt (1998) and Allegretto and Arthur (2001) use information on the gender of the

partner to identify sexual orientation. They also use the same sample, but apply different sample selections. They end up with 4,400 to 6,800 same-sex couples which is one of the larger sets of bi/homosexual workers. As we already mentioned, previous studies introduce sample selectivity because those who have been sexually inactive or have been single are excluded. Our measure, on the other hand, does not suffer from these flaws since we measure sexual orientation directly by asking respondents whether they like women, men or both. In total we have 255 gay/bisexual and 229 lesbian/bisexual workers. Table 1 presents descriptive statistics.

5 Results and estimates

With monthly earnings we find small differences in pay for bisexual, homosexual and heterosexual workers. Each month gay workers earn about 130 guilders less and lesbian workers earn about 195 more than their heterosexual coworkers. In percentages these differentials in pay amount to a 4 percent penalty for homosexual men and a 7 percent premium for homosexual women. When we use net hourly earnings these percentages do not change much. These observations are not in accordance with the empirical literature. Two potential sources of differences are: (i) our sample includes only young workers with higher vocational education or university degrees, and (ii) we use a better measure to identify sexual identity. Our observations, however, are in line with Becker's prediction.

With respect to traditional earnings shifters, we find that homosexual respondents are somewhat older. This may be a disclosure effect. Young workers are more likely to be less open about their homosexual identity. With respect to education we find small differences in type of education. Heterosexual male students choose more often for technical and financial related education and less often for social, health and art related education. These effects are not observed among female students. With respect to choice of occupation and industry, we find similar differences. Homosexual workers are more likely to have human resources and care related jobs, whereas heterosexual workers are more likely to work in technical and economic sectors. Again, differences are more pronounced for males. Other substantial differences are not observed.

5.1 Simple estimations

Our aim is to isolate the effect of sexual orientation on earnings by controlling for as many variables as possible. These variables are defined as different sets of regressors categorized according to personal, occupation and industry characteristics presented in Table 1. For modelling the earnings effects for both gender, we define the vector d_s to denote the sexual orientation of the worker: $d_s = [1, 0]$ if the worker is homosexual, $d_s = [0, 1]$ if the worker is bisexual, and $d_s = [0, 0]$ if the worker is heterosexual. The variable d_g indicates the gender of the worker: $d_g = 1$ for female, and $d_g = 0$ for male workers. Now we estimate the simplest version of an earnings function suitable for a sample of both gender and sexual orientation using an earnings function that is linear in gender and sexual orientation and control vectors X

$$\ln w = \alpha X + \theta_1'(1 - d_g)d_s + \theta_2 d_g + \theta_3' d_g d_s + \epsilon \tag{5.1}$$

The θ's combine gender and sexual orientation effects; θ_1 is a vector and measures the effect of sexual orientation on male earnings, θ_2 captures the "traditional" gender gap, and θ_3 should pick up potential earnings differences between bisexual, homosexual and heterosexual female workers. We will estimate this relation using both monthly and hourly earnings, with different sets of controls, and on split-gender samples to see whether potential earnings differences are persistent.

In Table 2 these estimates are tabulated. In the first column we report regressions of earnings on dummy variables for gender and sexual orientation without including any other variables. In column (2) we bring individual, human capital and regional controls into the earnings equation. In column (3) we add further occupation and industry characteristics. And finally, in column (4) we include hours worked.

We begin discussing the earnings of homosexual men. In column (1) we observe that compared to heterosexual men gay workers receive about 3 to 4 percent less each month. With hourly earnings, the wage differential between homosexual and heterosexual male workers disappears. Although we observe that among working men homosexual workers keep earning less, the coefficient is smaller and lacks statistical significance. With personal, human capital and regional characteristics added the results in column (2) do not substantially change. The observation that gay workers choose more often for less profitable occupations and industries does not affect the earnings

differential among gay and heterosexual full-timers. In column (3) we control for occupation and industry differences and find that homosexual full-time working men always earn 2 to 3 percent less than their heterosexual fellow workers. With hours worked added we find that in terms of size the effect of being homosexual on monthly earnings is not affected but that in terms of significance the earnings penalty using hourly earnings becomes (marginally) statistically significant. From these results we conclude that among full-time working men there is a wage penalty for being homosexual.

What about women? First we observe that women in general earn less than men. This is the well-known gender gap that forces the premium for both homosexual and heterosexual women downwards. Depending on the specification used, in our sample women earn about 3 to 8 percent less. Obviously, this difference has nothing to do with homosexuality. With the coefficient for homosexual female workers we measure potential earnings differences among women. Without control variables we find in column (1) that there are significant differences in monthly earnings. Lesbian workers receive about 5 percent more income than heterosexual female workers. This holds for both monthly and hourly earnings. With controls added this premium drops slightly but lesbian women still earn significantly more than their heterosexual female coworkers. Similar differences in pay are also observed when hourly earnings are used. Hence, there is evidence that for women homosexuality generates a premium.

These two results clearly show that in the Netherlands, discrimination on the basis of homosexual orientations at the start of the working career of higher educated is absent. Discrimination requires negative earnings effects for being homosexual. Although this is true for gay men, it does not hold for women. In fact, the reversed effects we find for homosexual working women contradict the hypothesis of a discriminating market.[6] Becker's idea of (anticipated) partnership and comparative advantages is perhaps a better explanation for these wage penalties and premia for homosexual male and female workers. In *A Treatise of the Family* Becker (1981, p225) writes that homosexual unions do not result in children, and that they in general have a less extensive division of labor than heterosexual marriages. In the

[6]It is also possible that a discriminating market leads to segregation of homosexual and heterosexual workers by occupation, industry or firm, and not necessarily to differentials in pay. When we add occupational and industry variables we find no mediating effect on potential differences in earnings of homosexual workers.

labor market this means that for homosexual couples men spend on average less, while women spend on average more time working. The consequence is that these differences lead to differences in work related human capital which generate differences in earnings. And the result is that among men homosexual workers earn less, and among women homosexual workers earn more.

5.2 Differences between bisexual and homosexual workers

In the scarce literature it seems to be the "standard procedure" to pool bisexual and homosexual workers. Two reasons apply. First, small samples of gay, lesbian and bisexual workers dictate that empirical analysis does not allow for treatment differentials. And second, if sexual orientation is measured using the gender of the partner the difference between bisexual and homosexual workers cannot be distinguished. There is a potential danger to this approach when the labor market treats homosexual and bisexual workers differently. And we believe that this is actually the case.

Discrimination in the labor market requires that employers (or fellow workers) know about the workers' sexual orientation and that disclosure has happened involuntarily. In the beginning of working careers, a worker's sexual orientation is not generally known to employers and fellow workers because sexual orientation is, contrary to race or gender, not easily observed. Without accurate information on the workers' sexual orientations, it is likely that bisexual workers will be frequently perceived as heterosexual workers. The result is that, if the market discriminates, the effects will be more prominent among homosexual workers. A quick glance at Table 1 tells us that there is hardly any difference between bisexual and heterosexual workers if we look at monthly and hourly earnings. This is confirmed by our estimates. In all columns, for all specifications, there are no statistical differences in pay between bisexual and heterosexual workers. In fact, with control variables added we find that the estimated earnings effects for being a bisexual worker hovers around 0. If we accept these outcomes at face value, our results show that with respect to earnings bisexual workers are more comparable to heterosexual workers than to homosexual workers (or that it is easier for bisexual females to pass as heterosexual workers). We should stress, however, that

our male sample contains only small number of bisexual workers.

5.3 The gender gap re-examined

What follows is that the penalties and premia for homosexual male and female workers narrow the gender gap among gay and lesbian workers. Smaller wage differentials among men and women are also observed among heterosexual male and lesbian workers and among gay and heterosexual female workers. In Table 3 we examine these alternative gender gaps and test whether there are statistically significant differences in pay between men and women. The tests are relatively straightforward and are simply linear restrictions on the parameters of equation (5.1). We present the F tests for all the specifications estimated in Table 2. Starting with the traditional gender gap, we find (not surprisingly) that heterosexual women always earn statistically less than heterosexual men. Among homosexual workers, however, all F tests indicate that there are no structural differences in pay. The gender gap has vanished.

Gender differentials can also be examined if earnings of gay men and heterosexual female workers and earnings of lesbian workers and heterosexual males are compared. Again, Table 3 shows that almost all F tests report of no statistical significant differences in earnings. Alternative gender gaps are not observed. This is quite a surprise and sheds some new light on the traditional gender gap among heterosexual workers.

The available literature on traditional gender differentials shows that earnings differentials are rather persistent and remain merely unexplained. In addition, many studies argue that much of the unexplained differences in pay is due to discrimination in the labor market. However, if we look at homosexual workers we find that differences in earnings are absent suggesting that the discrimination theory no longer holds. The explanation is simple. If employers discriminate on gender and offer higher wages to men, and if employers have no knowledge of the sexual identity of employees because it is not an observable characteristic, heterosexual male workers should always earn more than heterosexual women and lesbian workers. In addition, both gay and heterosexual men should always earn more than heterosexual women. From Table 3 we know that this is not the case. We think that this is a very interesting result. It means that in the Netherlands for young and highly educated workers, differences in pay by gender are not per se due to

discrimination in the labor market.

6 Concluding remarks

In economics little is known about differences in pay and sexual orientation partly because access to data is rather limited. With data available for the Netherlands we examine how sexual orientation affects earnings in the beginning of the working career. For men we find that there is an earnings penalty of 3 percent for gay workers. For women we find that lesbian workers earn about 4 percent more than bisexual and heterosexual female workers. Our sample further reveals that this lesbian wage premium almost fully compensates for the traditional difference in pay that exists between heterosexual men and women. Also for male homosexual workers the penalty almost bridges the well-known gender gap. These results lead us to conclude that in the Netherlands discrimination on the basis of sexual orientation or gender is not observed when young and highly educated people enter the labor market. Obviously, this is a result for the Netherlands which is considered to be rather tolerant towards homosexuality. In other Western societies our result may not hold.

This is certainly true when we compare our outcomes to those reported by Badgett (1995) and Klawitter and Flatt (1998) who use representative US samples and find that discrimination is most prominent among bisexual and homosexual male workers. They find differences in pay up to 30 percent. Compared to Allegretto and Arthur (2001), however, we have almost identical earnings gaps.

The fact that there are differences in findings does not invalidate their or our results. The logical explanation is that we study a group of young and highly educated homosexuals, bisexual and heterosexual workers. When people are young and have just entered the labor market, earnings differentials are not that pronounced. Of course, it also suggests that there are evident differences between the Netherlands and the US.

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Table 1: Descriptive statistics of full-time workers by sexual orientation and gender

	males:			**females:**		
	hetero	**gay**	**bi**	**hetero**	**lesbian**	**bi**
share in full-time working population	0.484	0.021	0.004	0.466	0.014	0.008
labour market outcomes						
monthly earnings	3116.679	2987.772	3147.527	2864.256	3059.051	2934.004
	824.509	*697.608*	*1143.456*	*626.194*	*977.366*	*724.138*
log monthly earnings	8.014	7.975	8.002	7.938	7.988	7.958
	0.238	*0.241*	*0.312*	*0.206*	*0.260*	*0.223*
hourly wages	18.492	17.940	18.929	17.264	18.451	17.622
	4.885	*4.321*	*6.765*	*3.784*	*6.218*	*4.021*
log hourly wages	2.887	2.859	2.887	2.826	2.874	2.845
	0.239	*0.240*	*0.321*	*0.207*	*0.270*	*0.213*
hours worked	38.940	38.505	38.472	38.344	38.427	38.389
	1.775	*2.087*	*1.884*	*2.077*	*1.850*	*2.402*
individual characteristics						
age	26.761	27.376	26.861	25.878	26.808	26.699
	2.905	*3.598*	*3.830*	*2.482*	*2.928*	*3.046*
partner	0.521	0.445	0.711	0.515	0.559	0.415
human capital characteristics						
higher vocational education	0.438	0.453	0.453	0.495	0.468	0.431
university	0.562	0.547	0.547	0.505	0.632	0.569
type of education						
law	0.083	0.120	0.068	0.114	0.099	0.116
economics	0.357	0.282	0.374	0.254	0.190	0.253
social sciences	0.086	0.153	0.134	0.231	0.302	0.240
physics	0.042	0.043	0.085	0.022	0.042	0.020
technics	0.167	0.075	0.143	0.040	0.027	0.053
agriculture	0.045	0.040	0.038	0.028	0.054	0.025
education	0.033	0.046	0.050	0.117	0.099	0.050
health, medicines	0.041	0.103	0.042	0.107	0.142	0.118
language, arts	0.030	0.061	0.026	0.091	0.081	0.164
region						
north	0.070	0.075	0.066	0.062	0.041	0.079
east	0.175	0.195	0.175	0.176	0.150	0.175
south	0.212	0.141	0.164	0.205	0.280	0.117
west	0.541	0.587	0.592	0.555	0.527	0.627
occupations						
executives and managment	0.043	0.058	0.072	0.025	0.050	0.022
public sector	0.064	0.062	0.105	0.092	0.078	0.066
economics and financial	0.146	0.104	0.009	0.075	0.076	0.103
sales, communication and marketing	0.105	0.113	0.191	0.144	0.138	0.054
technicians	0.136	0.067	0.049	0.028	0.016	0.040
programmers, IT	0.150	0.086	0.113	0.028	0.027	0.139
education	0.134	0.151	0.055	0.208	0.193	0.217
medical and care	0.030	0.089	0.031	0.086	0.067	0.076
human resources, administrative support	0.042	0.113	0.135	0.139	0.120	0.069
other	0.145	0.152	0.235	0.170	0.230	0.210
industries						
public services	0.075	0.104	0.108	0.107	0.119	0.197
education	0.063	0.085	0.073	0.139	0.168	0.125
professional services	0.341	0.328	0.140	0.287	0.257	0.222
banking and financial services	0.100	0.081	0.089	0.069	0.060	0.015
care and personal services	0.044	0.102	0.056	0.129	0.148	0.164
manufacturing, construction	0.156	0.104	0.161	0.084	0.060	0.076
other	0.218	0.188	0.369	0.180	0.184	0.197
year of interview						
1999	0.580	0.653	0.448	0.536	0.622	0.572
N	4632	209	46	4641	145	84

Means are weighted averages, standard deviations are in italics; All monetary amounts are measured in Dutch guilders (10HFL $\approx$ \$4).

Table 2: Earnings functions for gay, lesbian, bisexual and heterosexual workers

	(1)		(2)		(3)		(4)	
full-time male and female workers using log monthly earnings, (N=9757)								
homosexual male worker	-0.035	*0.015***	-0.034	*0.014***	-0.029	*0.014***	-0.027	*0.014**
bisexual male worker	-0.019	*0.034*	-0.020	*0.032*	-0.004	*0.031*	-0.002	*0.031*
female worker	-0.079	*0.003****	-0.048	*0.004****	-0.035	*0.004****	-0.034	*0.004****
homosexual female worker	0.054	*0.018****	0.032	*0.017**	0.041	*0.017***	0.040	*0.017***
bisexual female	0.021	*0.024*	0.007	*0.023*	0.008	*0.022*	0.007	*0.022*
R-square	0.043		0.178		0.221		0.223	
full-time male workers using log monthly earnings, (N=4887)								
homosexual male worker	-0.035	*0.017***	-0.031	*0.015***	-0.028	*0.015**	-0.027	*0.015**
bisexual male worker	-0.019	*0.037*	-0.020	*0.034*	-0.004	*0.033*	-0.004	*0.033*
R-square	0.015		0.157		0.222		0.223	
full-time female workers using log monthly earnings, (N=4870)								
homosexual female worker	0.054	*0.017****	0.029	*0.016**	0.037	*0.015***	0.036	*0.015***
bisexual female	0.021	*0.022*	0.007	*0.021*	0.001	*0.020*	0.000	*0.020*
R-square	0.021		0.169		0.201		0.205	
full-time male and female workers using log hourly earnings, (N=9757)								
homosexual male worker	-0.024	*0.015*	-0.027	*0.014**	-0.022	*0.014*	-0.027	*0.014**
bisexual male worker	-0.007	*0.034*	-0.009	*0.032*	0.002	*0.031*	-0.002	*0.031*
female	-0.063	*0.003****	-0.039	*0.004****	-0.030	*0.004****	-0.034	*0.004****
homosexual female worker	0.052	*0.018****	0.028	*0.017**	0.037	*0.017***	0.040	*0.017***
bisexual female worker	0.021	*0.025*	0.007	*0.023*	0.004	*0.022*	0.007	*0.022*
R-square	0.023		0.160		0.200		0.222	
full-time male workers using log hourly earnings, (N=4887)								
homosexual male worker	-0.024	*0.017*	-0.022	*0.015*	-0.021	*0.015*	-0.027	*0.015**
bisexual male worker	-0.007	*0.037*	-0.010	*0.034*	0.001	*0.033*	-0.003	*0.033*
R-square	0.013		0.154		0.210		0.229	
full-time female workers using log hourly earnings, (N=4870)								
homosexual female worker	0.052	*0.017****	0.026	*0.016**	0.034	*0.016***	0.036	*0.016***
bisexual female worker	0.021	*0.021*	0.007	*0.021*	-0.001	*0.021*	0.001	*0.020*
R-square	0.019		0.149		0.184		0.211	
controls								
individual, human capital and region	no		yes		yes		yes	
occupation and industry	no		no		yes		yes	
hours worked	no		no		no		yes	

Standard errors are in italics; * significant at 10% level,** significant at 5% level, and *** significant at 1% level.

Table 3: Testing the presence of alternative gender gaps

	(1)		(2)		(3)		(4)	
Gender gaps among full-time male and female workers using log monthly earnings:								
heterosexual men and women	291.87	*0.000****	99.74	*0.000****	54.53	*0.000****	50.73	*0.000****
homosexual men and women	0.22	*0.637*	0.72	*0.396*	2.58	*0.108*	2.41	*0.120*
gay men and heterosexual women	7.56	*0.006****	0.82	*0.363*	0.18	*0.667*	0.20	*0.651*
heterosexual men and lesbian women	1.64	*0.200*	0.79	*0.373*	0.12	*0.732*	0.13	*0.718*
Gender gaps among full-time male and female workers using log hourly earnings:								
heterosexual men and women	184.40	*0.000****	65.88	*0.000****	38.95	*0.000****	50.47	*0.000****
homosexual men and women	0.30	*0.586*	0.52	*0.469*	1.80	*0.179*	2.34	*0.214*
gay men and heterosexual women	6.03	*0.014***	0.67	*0.414*	0.26	*0.609*	0.21	*0.648*
heterosexual men and lesbian women	0.33	*0.567*	0.38	*0.539*	0.15	*0.697*	0.12	*0.732*
controls								
individual, human capital and region	no		yes		yes		yes	
occupation and industry	no		no		yes		yes	
hours worked	no		no		no		yes	

With equation (5.1) in mind, we compare the earnings effects of homosexuality and gender using the parameters θ_1, θ_2 and θ_3. No gender gap among heterosexual workers implies $\theta_2 = 0$ (first row). No gender gap among homosexual workers implies $\theta_1 = \theta_2 + \theta_3$ (second row). No gender gap among heterosexual male and lesbian workers implies $\theta_2 + \theta_3 = 0$ (third row). And no gender gap among heterosexual female and gay workers implies $\theta_1 = \theta_2$ (fourth row). F test scores are reported in all columns, and p values are added in italics. High test scores imply that the absence of gender differentials is statistically rejected. Note further that we only compare the earnings of heterosexual and homosexual workers. We ignore the earnings effects of bisexuals.

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