

Effects of sexual preferences on earnings in the Netherlands

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Abstract. 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 at the beginning of working careers in the Netherlands. Using an alternative, and quite possibly a better, measure of sexual identity, we find (i) that young and highly educated gay male workers earn about 3% less than heterosexual men; (ii) that similarly qualified lesbian workers earn about 3% more than their heterosexual female co-workers; and (iii) 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 classifications: J15, J16, J71

Key words: Earnings, sexual preferences, gender differences, discrimination

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 involve women, blacks, the physically handicapped, the ugly and no doubt other groups too (Altonji and Blank 1999;

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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 have skirted round the sexual orientation debate to suggestions of research agendas (Klawitter 1998; Kauffman 1998; Patterson 1998). Only four (sound) empirical studies have examined the earnings effects of sexual orientation in the United States (Badgett 1995; Klawitter and Flatt 1998; Allegretto and Arthur 2001; Black et al. 2001). Their findings suggest that homosexual men earn on average 2 to 30% less than their heterosexual counterparts. But, for lesbian and heterosexual women, the results are somewhat mixed. Black et al. (2001) find that earnings are higher for lesbian women than for heterosexual women. In contrast, the other studies find that lesbian workers earn less than heterosexual women, but that observed earnings differentials are mostly insignificant.¹

Three out of four available studies seem to agree that discrimination can be the mechanism which 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 to address the problem of discrimination in the context of sexual orientation is a rather complicated exercise. 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 onto 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. Therefore, if the workers' sexual orientation is known to econometricians but not to employers or co-workers, the estimated effects of 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, its disclosure can happen either voluntarily or involuntarily. 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. Compared with 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 small. 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 current discriminatory (or homophobic) behavior, 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 current discriminatory attitudes. 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), Allegretto and Arthur (2001) and Black et al. (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. Yet the present study has three advantages over former approaches.

The first advantage is that our approach of measuring homosexuality is novel and quite possibly better. Former studies concentrate on sexual activity and partnership to measure sexual identity and may therefore introduce sample selectivity. When those who are single or those who are not sexually active are excluded from the analysis, we should be concerned about selection bias if finding a partner or having sex is somehow related to the worker's productivity. Our results do not suffer from such forms of selection bias. We include all workers and measure sexual orientation directly by asking people about their sexual preference.

The second advantage is that we are able to 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 (in other words, 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 the earnings of heterosexual male workers with those 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.

Our study offers two other clear contributions relative to the previous studies. The first contribution relies on a replication argument. Given the paucity of data sets that measure sexual orientation in combination with labor market outcomes, it is useful to have more than one study using comparable methodologies with different data. It is true that this is not an overriding or creative argument, but it is certainly a valid one. The second contribution is that we analyze homosexuality and earnings in the Netherlands. Because the Netherlands is one of the most tolerant of western societies when it comes to attitudes towards homosexuality (Van den Akker et al. 1994; Wildmer et al. 1998), studying earnings effects in this particular country adds a potential value to this study.²

The remainder of this paper is organized as follows. In Sect. 2, we examine the economic relation between sexual orientation and earnings. Section 3 describes the data on Dutch tertiary education students. We will use this data throughout the paper. In Sect. 4, we discuss how we identify sexual orientation. In Sect. 5, we estimate a simple earnings equation and discuss our empirical findings. Section 6 summarizes our findings.

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 are just a matter of differences in tastes; (ii) differences that arise from specific differences in skills; and (iii) differences that come from discrimination against homosexual workers.

2.1. 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, however, is whether sexual orientation has an influence on work-related preferences. Do heterosexual and homosexual workers differ in their preferences for leisure and paid 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, then earnings will 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.

2.2. Differences in skills

If people have different skills, human capital theory predicts that their 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 which were advanced 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. Patterson (1998) uses this AIDS argument to illustrate potential price differences in health care insurance.

Making similar predictions, Becker (1981) puts forward differences in comparative advantages to explain differences in labor outcomes between homosexual and heterosexual couples. Later on, in Sect. 5.1, we will explain how specialization in the household predicts that, among men, homosexual workers earn less, and that, among women, homosexual workers earn more.

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, for example, through differences in schooling. The literature has produced conflicting arguments with respect to educational attainment and homosexuality. We discuss three arguments: (i) if students in the early stages of their homosexuality experience painful high school experiences, further learning is discouraged; (ii) if educational decisions have already been made when students struggle with their sexual identity, then educational attainment remains unaltered; and (iii) if young homosexuals anticipate a discriminating labor market, they may compensate potential losses in earnings with additional education. In the end, with less or more human capital they will end up with lower or higher earnings. However, we can ignore these educational differences, since our sample consists only of former students with university or higher vocational degrees.

2.3. *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. Similar mechanisms may apply to the workplace and result in higher wages for heterosexual workers. We are aware that discrimination based on taste or prejudice of either employers, co-workers or consumers does not necessarily predict differentials in pay. If people who are less tolerant towards homosexuality are clustered in certain jobs and occupations, then 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, the potential wage effects of sexual identity should disappear or at least be weakened.

3. **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 as 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. On average, 50,000 students graduate each year 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 degree subjects (studies) with the largest number of students on each level. So, in total, the graduates of about one hundred most popular subjects of Dutch Higher Education are analyzed. On HBO-level students can choose between 250 different courses of study, while 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% of the student population is concentrated in the 100 subjects in the survey. That is, the survey is representative of 80% of the total population of two successive cohorts of graduates on HBO- and WO-level. Samples of, respectively, 8,200 and 7,800 were drawn from these populations.

In the present paper, we focus on a cohort of students who graduated in the years 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, the labor market and their sexual orientation. The number of original observations equals 15,998, but we restrict ourselves basically to the 12,094 people who worked. For our empirical analysis, we excluded all respondents who are self-employed, and all those for whom data on control variables are unavailable. We end up with 11,600 observations. Table 1 presents the descriptive statistics.

Table 1. Means and standard deviations of selected variables in our sample by sexual orientation and gender

	Males:			Females:		
	Hetero	Gay	Bi	Hetero	Lesbian	Bi
Share unemployed	0.215	0.222	0.286	0.240	0.236	0.371
<i>Labour market outcomes</i>						
Monthly earnings	1,392.818	1,312.448	1,420.444	1,231.226	1,263.365	1,228.342
	<i>357.724</i>	<i>298.840</i>	<i>517.643</i>	<i>301.851</i>	<i>351.456</i>	<i>342.110</i>
Log monthly earnings	7.209	7.152	7.206	7.085	7.107	7.075
	<i>0.240</i>	<i>0.243</i>	<i>0.316</i>	<i>0.250</i>	<i>0.258</i>	<i>0.280</i>
Hourly wages	8.427	8.252	9.067	8.047	8.276	8.481
	<i>2.184</i>	<i>1.894</i>	<i>4.307</i>	<i>2.023</i>	<i>2.099</i>	<i>2.379</i>
Log hourly wages	2.102	2.083	2.129	2.059	2.085	2.104
	<i>0.234</i>	<i>0.236</i>	<i>0.366</i>	<i>0.222</i>	<i>0.235</i>	<i>0.252</i>
Hours worked	38.307	37.087	37.447	35.767	35.522	34.194
	<i>3.354</i>	<i>4.750</i>	<i>4.813</i>	<i>5.723</i>	<i>5.381</i>	<i>7.115</i>
Part-time working (less than 32 hours)	0.064	0.135	0.092	0.238	0.294	0.339
<i>Individual characteristics</i>						
Age	26.799	27.611	27.327	26.064	27.061	27.129
	<i>3.905</i>	<i>3.826</i>	<i>3.830</i>	<i>3.054</i>	<i>3.654</i>	<i>3.968</i>
Partner	0.523	0.449	0.665	0.499	0.553	0.391
<i>Human capital characteristics</i>						
Higher vocational education	0.440	0.454	0.471	0.522	0.457	0.533
University	0.560	0.546	0.529	0.478	0.543	0.467
<i>Type of education</i>						
Law	0.082	0.105	0.065	0.090	0.076	0.085
Economics	0.315	0.233	0.294	0.187	0.128	0.154
Social sciences	0.098	0.176	0.181	0.288	0.394	0.311
Physics	0.057	0.046	0.074	0.021	0.028	0.006
Engineering	0.280	0.146	0.205	0.048	0.029	0.043
Agriculture	0.047	0.045	0.036	0.026	0.039	0.017
Education	0.041	0.045	0.057	0.125	0.088	0.148
Health, medicines	0.044	0.113	0.058	0.124	0.150	0.093
Language, arts	0.031	0.086	0.025	0.087	0.064	0.139
<i>Occupations</i>						
Executives and management	0.037	0.061	0.016	0.022	0.042	0.023
Public sector	0.064	0.059	0.110	0.075	0.061	0.061
Economics and financial	0.139	0.091	0.009	0.060	0.055	0.068
Sales, communication and marketing	0.100	0.097	0.183	0.119	0.104	0.036
Technicians	0.131	0.059	0.047	0.023	0.014	0.027
Programmers, IT	0.145	0.078	0.109	0.023	0.025	0.092
Education	0.150	0.168	0.095	0.224	0.185	0.260
Medical and care	0.037	0.112	0.033	0.132	0.145	0.103
Human resources, administrative support	0.045	0.118	0.147	0.124	0.104	0.066
Other	0.146	0.153	0.247	0.193	0.259	0.259
<i>Industries</i>						
Public services	0.078	0.103	0.103	0.101	0.115	0.155
Education	0.077	0.103	0.097	0.165	0.150	0.216
Professional services	0.329	0.292	0.144	0.233	0.202	0.192
Banking and financial services	0.096	0.071	0.086	0.057	0.043	0.010
Care and personal services	0.054	0.129	0.071	0.211	0.272	0.223
Manufacturing, construction	0.148	0.091	0.155	0.067	0.050	0.050
Other	0.214	0.204	0.340	0.161	0.165	0.149

Table 1 (continued)

	Males:			Females:		
	Hetero	Gay	Bi	Hetero	Lesbian	Bi
<i>Year of interview</i>						
1999	0.578	0.663	0.472	0.537	0.596	0.559
<i>N</i>	4,869	241	53	6,117	198	122

Means are weighted averages; standard deviations are in italics; all monetary amounts are measured in euros.

4. On the measurement of sexual orientation

The sexual orientation of the respondent is determined by a direct question. Respondents were asked “Concerning your sexual preference, what 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 fact that we infer information on sexual identity at the end of the survey, after all other information is gathered, is an additional strength of our data. By doing so, we circumvent potential selectivity in response behavior, when respondents belonging to a sexual minority group would have taken the opportunity to emphasize or even exaggerate problems encountered in relation to their homosexuality.

The non-response of respondents to the sexual preference question amounts to 1% on HBO-level and almost 2% 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 if non-response is correlated with sexual orientation. We have in total 294 gay/bisexual and 320 lesbian/bisexual workers. On average this implies that about 5.2% of our respondents belong to sexual minorities: 3.7% are homosexual and 1.5% are bisexual. In our further analysis, we will treat homosexuals and bisexuals as separate groups.

The sexual orientation measure we apply in this paper differs from the behavioral measures used in previous studies. Badgett (1995) and Black et al. (2001) identify homosexuality by asking respondents how many males and females they had sex with. The disadvantage is that their earnings effects rely on only small samples of gay/bisexual and lesbian/bisexual workers. Badgett’s findings rely on 34 lesbian and 47 gay workers. Black et al. use the same data covering a longer time spell and work with 101 women and 114 men who are classified as gay, lesbian or bisexual. Both Klawitter and Flatt (1998) and Allegretto and Arthur (2001) use information on the gender of the partner to identify sexual orientation. They use the same sample, but apply different sample selections. They end up with about 4,400 to 6,800 same-sex couples which is one of the larger sets of bi/homosexual workers.

It is obvious that these measures do not fully overlap and that each definition captures some notion of sexual orientation. The key question is, of course, which measure is better in capturing the impact of sexual orientation

relevant for labor market outcomes. For the reasons given below, we prefer our approach of measuring sexual identity over the ones previously used.

There are drawbacks that are typical to sexual identity measures based on sexual activity. Behavioral measures are indirect measures and focus on only one particular aspect of homosexuality. If questions on sexual orientation refer only to sexual activity, the potential misclassification would result if people with homosexual tendencies never act upon these urges, or if people who have been sexually experimenting with same-sex partners do not classify themselves as gay, lesbian or bisexual. Moreover, it is extremely hard for both employers and co-workers to obtain information on past sexual experiences. An employer and fellow workers are unlikely to know with whom an employee spends time in bed; they are much more likely to infer something from the impression that a person generates based on his/her sexual preferences. For these reasons, we do not think that behavioral measures based on past sexual experiences are the most appropriate measures.

The advantage of behavioral measures based on partnership is that data are much more widely available. It is probably also much easier for employers and co-workers to obtain information on the gender of the partner, in order to make inferences of a lesbian or gay identity. But measures of this type have one significant drawback: we have already expressed our concern that because behavioral measures based on partnership exclude all singles, we may be introducing sample selectivity. Therefore, our measure based on expressed preferences would appear better, because we ask all individuals about their sexual orientation directly and thus avoid this form of selection bias.

5. Results and estimates

With monthly earnings, we find only small differences in pay for bisexual, homosexual and heterosexual workers. Each month, gay workers earn about 80 euros less, and lesbian workers earn about 30 more than their heterosexual co-workers. In percentages, these differentials in pay amount to a 2 to 5% penalty for homosexual men and a 2 to 3% premium for homosexual women depending on whether we use hourly or monthly earnings. These findings are not entirely 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 orientation. Our findings are, however, in line with Becker's prediction and the findings of Black et al. (2001).

With respect to traditional earnings shifters, we find that homosexual respondents are somewhat older. This may be a disclosure effect. If some young workers are still struggling with their sexual identity, and classify themselves as heterosexual at the time of questioning, we should observe that homosexual workers are relatively older within a sample of young workers. With respect to education, we find small differences in type of education. Heterosexual male students more often choose financial and technical than social, health and art studies. This pattern is 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 in which, on average, workers are more

highly paid. 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 the personal, occupation and industry characteristics presented in Table 1. For modeling the earnings effects for both genders, 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 vector X :

$$\ln w = \alpha X + \theta_{hm}d_{hm} + \theta_{bm}d_{bm} + \theta_f d_f + \theta_{hf}d_{hf} + \theta_{bf}d_{bf} + \varepsilon, \quad (1)$$

where the variables d_{hm} and d_{bm} are indicators for homosexual and bisexual male workers; d_{hf} and d_{bf} represent homosexual and bisexual female workers; the variable d_f indicates the gender of the worker and equals 1 for females; and the θ 's combine gender and sexual orientation effects on earnings. We will estimate this relation using both monthly and hourly earnings, with different sets of controls, on two samples that contain, respectively, all workers and full-timers only, in order to determine whether potential earnings differences are persistent. We use both monthly and hourly earnings to make our research design comparable to previous variable specifications. Klawitter and Flatt (1998) and Allegretto and Arthur (2001) use hourly earnings, whereas Badgett (1995) and Black et al. (2001) present their findings based on annual earnings.

In Table 2, the following 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 the second column, we bring individual, human capital and regional controls into the earnings equation. In the third column, we add further occupation and industry characteristics. And finally, in the fourth column, we include hours worked.

We begin by discussing the earnings of homosexual men. In column (1), we observe that, compared with heterosexual men, gay workers receive about 5 percent less each month. With hourly earnings, however, the wage differential between homosexual and heterosexual male workers almost disappears. Although homosexual workers keep earning less, the coefficient is smaller and lacks statistical significance. If we restrict ourselves to full-time workers only, the wage penalty for being a homosexual worker is about 3 to 4% and statistically significant. With personal, human capital and regional characteristics added, the results in column (2) do not substantially change. In column (3), we control for occupation and industry differences, and find that homosexual working men always earn less than their heterosexual fellow workers. If we consider all male workers, this is best observed for monthly earnings. If we restrict ourselves to full-time workers only, we find that homosexuals always receive about 3% less. This statistically significant effect is found for both monthly and hourly earnings. The observation that gay workers are more likely to work in less profitable occupations and industries (see Table 1) does not affect the earnings differential among gay and heterosexual workers. With hours worked added, we find that, in terms of size, the

Table 2. Earnings premia and penalties by gender and sexual orientation (relative to heterosexual men)

	(1)	(2)	(3)	(4)
<i>Males and females, log monthly earnings, (N = 11,600)</i>				
Male homosexual	-0.052 <i>0.016***</i>	-0.036 <i>0.015**</i>	-0.028 <i>0.014**</i>	-0.022 <i>0.013*</i>
Male bisexual	-0.009 <i>0.037</i>	-0.002 <i>0.032</i>	0.018 <i>0.033</i>	0.023 <i>0.030</i>
Female heterosexual	-0.126 <i>0.004***</i>	-0.076 <i>0.004***</i>	-0.057 <i>0.004***</i>	-0.040 <i>0.004***</i>
Female homosexual	0.025 <i>0.017</i>	0.018 <i>0.016</i>	0.022 <i>0.015</i>	0.018 <i>0.014</i>
Female bisexual	-0.008 <i>0.022</i>	-0.011 <i>0.020</i>	-0.006 <i>0.020</i>	0.012 <i>0.018</i>
R-square	0.068	0.191	0.241	0.357
<i>Males and females, log hourly earnings, (N = 11,600)</i>				
Male homosexual	-0.014 <i>0.015</i>	-0.023 <i>0.014*</i>	-0.018 <i>0.014</i>	-0.023 <i>0.014*</i>
Male bisexual	0.022 <i>0.034</i>	0.012 <i>0.032</i>	0.029 <i>0.031</i>	0.026 <i>0.031</i>
Female heterosexual	-0.045 <i>0.004***</i>	-0.035 <i>0.004***</i>	-0.030 <i>0.004***</i>	-0.041 <i>0.004***</i>
Female homosexual	0.028 <i>0.016*</i>	0.011 <i>0.015</i>	0.013 <i>0.017</i>	0.015 <i>0.014</i>
Female bisexual	0.046 <i>0.020**</i>	0.032 <i>0.019</i>	0.026 <i>0.019</i>	0.013 <i>0.018</i>
R-square	0.019	0.131	0.161	0.226
<i>Males and females, log monthly earnings, part-time workers excluded (N = 9,511)</i>				
Male homosexual	-0.039 <i>0.015**</i>	-0.039 <i>0.014***</i>	-0.034 <i>0.013**</i>	-0.032 <i>0.013*</i>
Male bisexual	-0.015 <i>0.034</i>	-0.023 <i>0.032</i>	0.005 <i>0.031</i>	-0.002 <i>0.031</i>
Female heterosexual	-0.077 <i>0.003***</i>	-0.047 <i>0.004***</i>	-0.035 <i>0.004***</i>	-0.034 <i>0.004***</i>
Female homosexual	0.044 <i>0.018**</i>	0.024 <i>0.017</i>	0.032 <i>0.016*</i>	0.031 <i>0.016*</i>
Female bisexual	0.022 <i>0.024</i>	0.007 <i>0.023</i>	0.007 <i>0.021</i>	0.006 <i>0.021</i>
R-square	0.044	0.178	0.226	0.228
<i>Males and females, log hourly earnings, part-time workers excluded (N = 9,511)</i>				
Male homosexual	-0.028 <i>0.015*</i>	-0.032 <i>0.014**</i>	-0.028 <i>0.014**</i>	-0.033 <i>0.013*</i>
Male bisexual	-0.007 <i>0.034</i>	-0.007 <i>0.032</i>	0.006 <i>0.031</i>	-0.005 <i>0.031</i>
Female heterosexual	-0.061 <i>0.004***</i>	-0.039 <i>0.004***</i>	-0.030 <i>0.004***</i>	-0.034 <i>0.004***</i>
Female homosexual	0.041 <i>0.018**</i>	0.020 <i>0.017</i>	0.027 <i>0.016*</i>	0.032 <i>0.016*</i>
Female bisexual	0.021 <i>0.024</i>	0.007 <i>0.022</i>	0.003 <i>0.022</i>	0.005 <i>0.021</i>
R-square	0.033	0.163	0.202	0.227
<i>Controls</i>				
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. The additional control variables are defined and categorized in Table 1.

effect of being homosexual on monthly and hourly earnings is not affected but that in terms of significance the earnings penalty is (marginally) statistically significant in all specifications. From these results, we conclude that among 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 4 to 13% less. Obviously, this difference has nothing to do with homosexuality. We then measure potential earnings differences among women with the coefficient for homosexual female workers. Without control variables, we find in column (1) that (except for monthly earnings when using both part-time and full-time workers) there are significant differences in both hourly and monthly earnings of homosexual and heterosexual workers. Lesbian workers receive about

3 to 4% more income than heterosexual female workers. With controls added, this premium drops slightly. Using all working women, we find that lesbian workers are still earning somewhat more than their heterosexual female co-workers but the effects are no longer statistically significant. Using only full-time workers, we find that the differences in pay are (marginally) statistically significant. For both monthly and hourly earnings, lesbians receive about 3% more. Hence, there is some evidence, that for women, homosexuality generates a premium.

So in general, whether we use monthly or hourly earnings, we find very similar homosexuality effects. This suggests that, despite the observation that homosexual workers are much more likely to work part-time (see Table 1), the wage penalty for gay workers and the wage premium for lesbian workers is not necessarily generated by differences in the supply of labor. With respect to excluding the unemployed workers, we are aware that selection bias could manifest itself through discrimination in hiring. In Table 1, however, we find that, among homosexual and heterosexual workers, the share of unemployed workers is almost identical. It is further doubtful that our estimates would improve were a selectivity correction to be integrated into the analysis. With the data at hand, we cannot identify selectivity in a meaningful way.

These results show that, in the Netherlands, discrimination on the basis of homosexual orientation at the start of the working career of the more highly 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.³ 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, respectively. In *A Treatise on the Family*, Becker (1981, p. 225) 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 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 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 in 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. At 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 frequently be 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 earnings. For hourly earnings, we do find that among all workers bisexuals earn relatively more, but this effect is statistically insignificant. This is confirmed by our estimates. In almost all columns, for almost all specifications, there are no statistical differences in pay between bisexual and heterosexual workers. In fact, when we exclude all part-time workers, and with control variables added, we find that the estimated earnings effects for being a bisexual worker hover around 0. If we accept these outcomes at face value, our results show that with respect to earnings bisexual full-time workers are more comparable to heterosexual workers than to homosexual workers (in other words, it is easier for bisexual females to pass as heterosexual workers). We should stress, however, that our male sample contains only a 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, respectively, 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. We examine whether there are statistically significant differences in pay between men and women using alternative gender gaps by means of F test statistics. These tests are relatively easy to calculate and are based on linear restrictions on the parameters of equation (1). In Table 3, the F statistics are displayed.

Starting with the traditional gender gap, we find (not surprisingly) that heterosexual women always earn statistically less than heterosexual men. This is in line with what is found in the earlier literature, where younger women in the Netherlands earn less than younger men (Berkhout et al. 2001).⁴ Among homosexual workers, however, almost all F tests indicate that there are no structural differences in pay in entry-level jobs. 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. Without control variables, we find in column (1) that all F tests indicate that gay men always earn significantly more than heterosexual female workers. The same column shows that for monthly earnings the same statistical differentials are observed for lesbian and heterosexual male workers. But, as soon as we start including other control variables, almost all alternative gender gaps disappear. Table 3 shows that almost all F tests report no statistically significant differences in earnings. 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 are due to discrimination in the labor market. However, if we look at homosexual workers we find that differences in earnings are absent, which

Table 3. Test statistics for alternative gender gaps

	(1)	(2)	(3)	(4)
<i>F tests for gender gaps, log monthly earnings:</i>				
Heterosexual men and women	720.61	0.000***	238.75	0.000***
Homosexual men and women	4.27	0.038**	0.98	0.322
Gay men and heterosexual women	20.70	0.006***	6.96	0.008***
Heterosexual men and lesbian women	33.07	0.000***	12.47	0.000***
<i>F tests for gender gaps, log hourly earnings:</i>				
Heterosexual men and women	107.49	0.000***	58.28	0.000***
Homosexual men and women	0.01	0.926	0.00	0.993
Gay men and heterosexual women	4.18	0.040**	0.73	0.392
Heterosexual men and lesbian women	1.04	0.308	2.31	0.128
<i>F tests for gender gaps, log monthly earnings, part-time workers excluded:</i>				
Heterosexual men and women	293.32	0.000***	101.49	0.000***
Homosexual men and women	0.09	0.770	0.57	0.451
Gay men and heterosexual women	6.11	0.013***	0.32	0.574
Heterosexual men and lesbian women	3.10	0.078*	1.76	0.184
<i>F tests for gender gaps, log hourly earnings, part-time workers excluded:</i>				
Heterosexual men and women	184.06	0.000***	67.59	0.000***
Homosexual men and women	0.12	0.728	0.36	0.546
Gay men and heterosexual women	4.70	0.030**	0.23	0.633
Heterosexual men and lesbian women	1.15	0.283	1.17	0.278
<i>Controls</i>				
Individual, human capital and region	no		yes	yes
Occupation and industry	no		no	yes
Hours worked	no		no	yes

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.

suggests 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. However, from Table 3, we know that this is not the case. This is an interesting result. It means that for young and highly educated workers in the Netherlands, differences in pay by gender are not per se due to discrimination in entry-level jobs.

6. Concluding remarks

In economics, little is known about differences in pay and sexual orientation, partly because access to data is rather limited. With the data available for the Netherlands we have examined how sexual orientation affects earnings at the beginning of the working career. For men, we find that there is an earnings penalty of 3% for gay workers. For women, we find that lesbian workers earn about 3% more than 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 specifically 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 with 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%. Compared to Allegretto and Arthur (2001) and Black et al. (2001), however, we have similar earnings gaps.

The fact that there are some differences in findings does not invalidate either their or our results. The logical explanation is that we use a new, and probably better, measure to identify homosexuality, and 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, the difference in findings also suggests that there are evident differences between the Netherlands and the US.

Endnotes

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 with married couples, the earnings penalty for being homosexual increased to almost 16 percent. They concluded that the marriage pre-

mium is the dominating factor in explaining the earnings differential among homosexual and heterosexual men.

- ² About 95% of the Dutch population think that homosexuals should be allowed as far as possible to lead their lives as they please (Social and Cultural Planning Office 1992, 1996). This tolerance is also present in Dutch legislation. For example, laws vary from forbidding employment discrimination against homosexuality to allowing homosexuals to get married and to adopt.
- ³ 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.
- ⁴ For younger workers (age 16–30), they estimate the gender gap to be 0.10. They further find that the gender gap diverges with age. For middle-aged and older cohorts (age 31–45 and 46–65, respectively), the gender gap equals 0.21 and 0.23.

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