

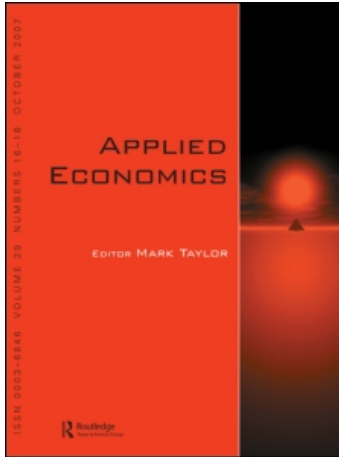
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### Sexual orientation and labour relations: new evidence from Athens, Greece

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# Sexual orientation and labour relations: new evidence from Athens, Greece

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We use data from the 2008–2009 Athens Area Study (AAS) to provide the first evidence on the relationship between men's sexual orientation and wages in the Greek capital, Athens. Gay and bisexual men are found to receive significantly lower monthly wages than heterosexual male workers after accounting for demographic and occupational characteristics. The estimations reveal that educated gay and bisexual workers face lower wage differentials than less-educated gay and bisexual workers, which is consistent with the statistical theory of discrimination. However, wage gaps are significant at all educational attainment levels, suggesting that these workers face strong prejudices in the Athenian labour market. The same pattern holds also across all occupations and sectors. Furthermore, to better understand the determinants of the wage gaps, we compare gay/bisexual men with both married and unmarried heterosexual men. By making these comparisons, we are able to disentangle the penalty associated with being unmarried from other human-capital explanations for the wage gap.

**Keywords:** sexual orientation; wage discrimination

**JEL Classification:** C93; J7; J16; J31; J42; J64; J71

## I. Introduction

The current social situation of gay men represents a problem for Greece. The European Union Agency for Fundamental Rights (FRA, 2009) report highlights that sexual-orientation minorities experience unequal treatment and harassment in Greece. In the labour market, researchers often recount instances of bias to assert that employment discrimination is common (Drydakis, 2009). These trends are

especially striking when considered in the context of legislation aimed at securing improvements in the labour-market position of gay men (De Schutter, 2008). New Greek laws prohibiting discrimination on the grounds of sexual orientation (GR/2005/3304) came into effect in January of 2005 under the European Union's Employment Equality Directive 2000/78. According to this legislation, employment equality applies to everyone, regardless of sexual orientation.<sup>1</sup> Its goal is to ensure that everyone living

<sup>1</sup> It is unlawful to discriminate against (i) job applicants, in relation to recruitment, arrangements, decisions and harassment, (ii) employees, in relation to terms, promotions, transfers, training, benefits and dismissals and (iii) ex-employees, where the discrimination is closely connected to their employment (EC/2000/78).

in the EU can benefit from effective legal protection against discrimination.

For economists to determine whether sexual-orientation minorities face inequalities, it is useful to compare the wages of gays/bisexuals to the wages of heterosexuals. If sexual-orientation minorities earn less than heterosexuals after accounting for differences in productivity and other factors that influence wages, then the differential may be attributed to labour-market discrimination by employers. Until recently, however, no Greek datasets included data on sexual orientation. In this study, data from the 2008–2009 Athens Area Study (AAS), a randomly sampled survey, allow initial research into whether discrimination against gay/bisexual men might affect wages in Greece. The comparative strength of this study is that it identifies gay and bisexual men based on self-reporting of sexual-orientation status instead on sexual behaviour, which can be experimental and not indicative of true sexual orientation (see Carpenter's 2005 analysis). Hence, the measure is likely to be correlated with the concept of interest, living an 'openly gay/bisexual' lifestyle, and is arguably better than the sexual-behaviour measures used in previous research. Knowledge of the size of the gay population holds promise for helping social scientists understand a wide array of important questions about the general nature of labour-market choices, accumulation of human capital, specialization within households, discrimination and decisions about geographic location. Demographics would also help to calculate the costs and benefits of marriage and the impact of legalizing gay adoption (Black *et al.*, 2000).

The estimations presented here demonstrate that significant wage gaps exist between gay/bisexual employees and heterosexual employees. To examine the alternative theoretical explanations of wage discrimination, we focus on various occupation, sector and education-level subgroups. Occupations and sectors were found to have a significant impact on sexual-orientation minorities' wages. The lowest wage differentials are observed for white-collar workers and for those employed in the public sector. However, even among these occupational sectors, wage penalties against sexual-orientation minorities are still large in magnitude and significant. We can consequently suggest that prejudices against gay/bisexual workers are present. In addition, the estimations show that gay/bisexual workers with university or technical-school diplomas face lower wage gaps than those gay/bisexual workers with no such educational attainment. This outcome suggests that educated gay/bisexual men face lower wage differentials, which is consistent with the statistical theory of discrimination. However, wage gaps are

also significant at all educational attainment levels, suggesting that all gay/bisexual workers face strong discrimination in the Athenian market. Thus, the study's results can be evaluated by more than one theory of labour-market discrimination, providing the opportunity for a multifaceted discussion. In addition, to better understand the determinants of the wage gaps, we compare gay/bisexual men with both married and unmarried heterosexual men. By making these comparisons, we are able to disentangle the penalty associated with being unmarried from other human-capital explanations of the wage gap. We can then view the estimated wage gap between gay/bisexual men and unmarried heterosexual men as a lower bound estimate of the gay/bisexual-heterosexual wage differential and the estimated wage gap between gays/bisexuals and married heterosexuals as an upper bound estimate.

The evidence presented here will suggest that wage gaps continue at alarming levels, and it will suggest the need to more closely examine the effects of sexual-orientation differentials and labour-market characteristics on employment for gay/bisexual workers in Greece. The rest of this article is divided into five sections. Section II reviews the literature concerning sexual-orientation differentials in the labour market. Section III discusses the AAS dataset. Section IV discusses the descriptive statistics. Section V evaluates the estimation framework, presents the empirical estimations and offers a theoretical discussion. The last section concludes this article.

## II. Literature Review

Greece is one of the most sexually repressive societies in terms of general attitudes towards sexual-orientation minorities. Eurobarometer (2007/263) revealed that a large majority of Greeks (85%) feel that homosexuality is a taboo, compared with 48% of individuals in the EU overall. A similarly large majority (84%) of Greek respondents share the opinion that it is difficult for gays and lesbians to state their sexual orientation at work, compared with 68% of EU respondents. In Greece, the derogatory terms used for gay individuals in school from a young age teach gays to remain invisible. Homosexuals also cannot secure their relationships to one another as legal partners, are rarely seen represented positively in the media and hesitate to reveal themselves in settings that take heterosexuality for granted, for example, when seeking medical treatment for themselves or their partner (Vlami, 2007; Pavlou, 2009). Only one economic study has been implemented in

Greece regarding discrimination on the grounds of gay identity (Drydakis, 2009). This study tested discrimination through a survey that isolated and experimentally evaluated the taste (Becker, 1957) and statistical (Arrow, 1973) discrimination hypotheses that have been proposed to explain some of the disadvantages gay men experience in the private labour market. The study led to the observations that gay men faced significantly lower access to employment and lower initial wage offers from employers.

In fact, evidence of employment inequalities largely comes from personal accounts and from data collected in studies on the socioeconomic status of sexual-orientation minorities (Colgan *et al.*, 2006; Badgett *et al.*, 2007). This evidence reveals the use of institutionalized procedures to restrict officially conferred work rewards such as promotions, salary increases or increased job responsibilities. Wage regressions have documented lower incomes for gay men, though they have shown both higher and lower incomes for lesbians. In this study, we make no attempt to review the existing literature of the earning differentials of lesbian women. Drydakis (2011) discusses many relevant issues pertaining to this group.

A number of studies have documented a significant and dramatic relationship between sexual orientation and economic outcomes in the United States. Badgett (1995), using data from the 1989–1991 General Social Survey (GSS), found that behaviourally gay/bisexual men (defined in various ways depending on the presence of a same-sex partner) earned 11–27% less than heterosexual men. Black *et al.* (2003) employed GSS data from 1989–1996 and found earnings to be between 14% and 16% lower for behaviourally gay men than for heterosexuals. Moreover, Carpenter (2007) used the 1984–1994 wave of the Third National Health and Nutrition Examination Survey and found that behaviourally gay men experienced a statistically and economically significant penalty on the order of 23–30%. Allegretto and Arthur (2001) used data on men from the 1990 US Census and found a smaller earnings penalty for gay males (in unmarried partnered relationship) on the order of 3%.

Furthermore, Carpenter (2005) used self-reported sexual-orientation data from a public-health survey in California (California Health Interview Survey, 2001) and found small, statistically insignificant earnings differentials for gay men compared with heterosexuals. Similarly, studies of self-reported gay men in the Netherlands between 1998 and 2002 found that such men earned approximately 4% less than heterosexuals (Plug and Berkhout, 2004). In the

United Kingdom, Arabsheibani *et al.* (2005), using data from the Labour Force Survey between 2001 and 2005, found that gay men, identified as individuals living with same sex partners, earned about 5% less than heterosexuals. Finally, in Sweden, Ahmed and Hammarstedt (2010), using data from the LOUISE database at Statistics Sweden, found that gay men who were living in civil unions in the year 2003 were at a 10–15% earnings disadvantage compared with male heterosexuals. The general trend of these studies suggests that gay workers earn less than heterosexual men. To the extent that human-capital variables are unable to explain pay differences between gay and heterosexual workers, the remainder of the assigned differential is generally interpreted as evidence of labour-market discrimination. However, until all other relevant variables have been identified, we should be careful in drawing this conclusion.

### III. Dataset

Data were gathered from April 2008 through January 2009 in the AAS, conducted by the University of Piraeus, the University of Central Greece and Panteion University of Social and Political Sciences. The 2008 AAS is one component of the Multi-City Study of the Scientific Centre for the Study of Discrimination (SCSD), which has collected information on Athenian labour-market variables (employment status, demographic characteristics and wages) and which examines sexual orientation. The 2008 AAS consisted of telephone-based surveys administered to approximately 7400 households. Male individuals in each household were selected to provide information on a variety of demographic characteristics. Interviews were restricted to individuals aged 18–65 years. Income was measured as a continuous variable. The AAS constructed an hourly wage measure by dividing the last month's wages by self-reported working hours per month. Surveyors asked, 'What is your best estimate of your wage last month before taxes and other deductions?' The wages variable was defined as the Natural Logarithm of Hourly Wages (NLHW).

The AAS included a direct question about an individual's sexual orientation. To investigate sexual orientation, adult men were asked: 'The next question is about sexual orientation: Do you consider yourself to be: (1) Heterosexual? (2) Homosexual? (3) Bisexual?' Carpenter (2005) argued that direct self-reports of sexual orientation offer a measure of sexuality that, in the context of labour-market analyses, is preferable to

the behavioural measures used by most previous research on individuals.<sup>2</sup> Self-reported sexual orientation is almost certainly closer to workplace disclosure than same-sex sexual behaviour,<sup>3</sup> in large part because the latter is likely to be less observable to employers.

At this stage, two issues in economic analyses of sexual orientation are important to discuss. First, an important factor influencing the potential for gay and bisexual background to decrease earnings through employer discrimination is employers' ability to distinguish gay, bisexual and heterosexual individuals. To the extent that an employer only imperfectly observes gay/bisexual employees, any evidence of discrimination we find would understate the extent of discrimination against sexual-orientation minorities. Second, 'underreporting' is a concern in every study that infers sexual orientation from self-reported data. The literature suggests that within the gay community, a higher percentage of higher earning men may be willing to identify themselves as gay/bisexual.<sup>4</sup> Both instances of untruthfulness, if uniformly distributed over all kinds of employees, would tend to bring the averages of gays/bisexuals and heterosexuals closer together, biasing a test against any differences. Nothing suggests that the two points mentioned above cause greater bias than in comparable studies.

There are numerous factors besides sexual orientation that may influence wage levels. To isolate the effect of sexual orientation on wages, we must appropriately control for all other factors that affect wages and that correlate with sexual orientation. Some of these factors pertain to individual productivity. The productivity variables used in this study are age, education, fluency in the Greek language, health status and occupation. The variable AGE measured the individual's age in years. To allow for a nonlinear relationship between wage and age, the square of age (AGESQ) was included in the regression. The variable MARR was set to 1 if the respondent was married and 0 otherwise.

The variable CHIL measured the number of children in the household. The variable HOMEM measured the number of an individual's household members. The variable COPART measured whether the individual had a cohabiting partner. The variable COPARTEM measured whether the individual's cohabiting partner was employed.

The variable IMM was set to 1 if the individual was an immigrant (non-Greek) and 0 otherwise. The variable FLUEN was set to 1 if the individual spoke the Greek language well or very well and 0 otherwise. To capture the possible effects of disability and disease, the variable DIS was set to 1 if the individual's activities were limited by poor health and 0 otherwise. To be comparable to previous research, we defined disability status using the self-reported response to the question concerning conditions that limited the individual's ability to work (Baldwin and Johnson, 2000). Similarly, the variable MHS was set to 1 if the respondent indicated negative mental-health symptoms in the last week (Dhaval *et al.*, 2008).<sup>5</sup> For convenience, variable definitions are summarized in Table 1.

Further, the variable SCHOL was set to 1 if the respondent had completed the minimum mandatory education level and 0 otherwise. The variable GRAD was set to 1 if the respondent had graduated from high school and 0 otherwise. The variable UNIV was set to 1 if the respondent had a university or technical-school diploma and 0 otherwise. The coefficients of these variables measured the effects of degree completion compared with workers who did not attain a comparable educational level. In addition, the variable PC was set to 1 if the individual had computer skills and 0 otherwise. The variable ENGL was set to 1 if the respondent had knowledge of English and 0 otherwise. The variable DRIV was set to 1 if the respondent had a driver's license and 0 otherwise. The variable EXPER measured the individual's years of working experience. For reasons discussed above, we also included the square of experience (EXPERSQ).

<sup>2</sup> In the data gathering stage, in 15 cases (0.2%) we provided the following definitions of heterosexuality, homosexuality and bisexuality because the respondents were not sure about the meaning of these conditions. (1) Heterosexuality: sexual relations with people of the opposite sex. (2) Homosexuality: sexual relations with people of your own sex. (3) Bisexuality: sexual relations with people of both sexes. No difference is seen in the estimated trends regardless of whether we control for these 15 observations with a dummy variable or even exclude them from the sample. Those incidents are an imperceptible feature of the study.

<sup>3</sup> Studies have found that more than half the people who report a same-sex sex partner in adulthood concurrently do not report a gay, lesbian or bisexual orientation (Laumann *et al.*, 1994).

<sup>4</sup> In contrast, we can also suggest that in a sexually repressive society like Greece, higher educated and higher earning men could be unwilling to identify themselves as sexual-orientation minorities to avoid facing stereotyping. All scenarios are possible here.

<sup>5</sup> The AAS contains a depression scale, as defined by the Center for Epidemiologic Studies. The MHS variable measures the existence of adverse mental-health symptoms for the past week, and studies have confirmed the validity and reliability of the variable as a screening instrument for the identification of major depression (Irwin *et al.*, 1999).

**Table 1. Definitions of variables**

Variable name	Definition
NLHW	Natural logarithm of hourly wages
G	1 if individual is gay; 0 otherwise
B	1 if individual is bisexual; 0 otherwise
AGE	Years of age
AGESQ	Squared years of age
MARR	1 if individual is married; 0 otherwise
CHIL	Number of children in household
HOMEM	Number of members in household
COPART	1 if individual has a cohabiting partner; 0 otherwise
COPARTEM	1 if individual's cohabiting partner is employed; 0 otherwise
IMM	1 if individual is an immigrant; 0 otherwise
FLUEN	1 if individual is fluent in the Greek language; 0 otherwise
DIS	1 if individual is limited in kind or amount of work, has a mobility limitation, or has a personal care limitation; 0 otherwise
MHS	1 if individual has either mild or major depression; 0 otherwise
SCHOL	1 if individual has completed minimum mandatory education; 0 otherwise
GRAD	1 if individual has graduated from a high school; 0 otherwise
UNIV	1 if individual has university or a technical-school diploma; 0 otherwise
PC	1 if individual has computer skills; 0 otherwise
ENGL	1 if individual has knowledge of English; 0 otherwise
DRIV	1 if individual has a driving license; 0 otherwise
EXPER	Years of working experience
EXPERSQ	Squared years of working experience
WHITE	1 if individual's occupation is among managerial or professional specialties, or the individual works in a technical, sales, or administrative support position; 0 if individual is in a service (SERV) occupation (i.e. food preparation, protective service occupation, ground cleaning and maintenance occupations, personal care and healthcare support occupations)
BLUE	1 if individual's occupation is among precision production, craft or repair occupations, or the individual works as an operator, fabricator or labourer; 0 if individual is in a service occupation
PUBL	1 if individual is employed in the public sector; 0 if individual is employed in the private (PRIV) sector
FULL	1 if individual is a full time employee, 0 otherwise (i.e. part-time employee; PART)
MON	Time (month) controls

Two dummy variables for occupational categories were included in the analysis. The variable WHITE was set to 1 if the individual's occupation was considered white-collar and 0 if the individual's occupation was considered a service occupation (SERV). Similarly, the variable BLUE was set to 1 if the individual's occupation was considered blue collar, and 0 if the individual's occupation was considered a service occupation (SERV). For greater occupational control, an additional variable was considered. The variable PUBL was set to 1 if the worker was employed in the public sector and 0 if the employee was employed in the private sector (PRIV). In addition, the variable FULL was set to 1 if the individual was a full-time worker (for Greece, this means 8 hours per day) and 0 if the worker was a

part-time worker (PART). Finally, the variables MON represented time effects (month controls). Because interviews were conducted over a period of 10 months, it was necessary to control for time effects using time dummy variables defined by the month when the interview took place.<sup>6</sup>

#### IV. Descriptive Statistics

By using self-reported sexual-orientation data, we are able to separate gay and bisexual respondents from heterosexuals. Our sample of adults consists of 7006 heterosexuals, 335 gays and 64 bisexuals, representing a proportion of gay individuals on the order of 4.52%

<sup>6</sup> However, if we do not control for time effects, the estimations do not vary in magnitude and significance.

**Table 2. Descriptive statistics: heterosexuals, gay and bisexuals**

	Heterosexuals		Gay		Bisexuals	
	Employed	Unemployed	Employed	Unemployed	Employed	Unemployed
	(1)	(2)	(3)	(4)	(5)	(6)
Number of observations	6305	701	277	58	58	12
Mean hourly wages (natural log)	3.61	–	3.43	–	3.47	–
Mean age	35.71	29.58	34.07	31.37	35.78	31.25
Percentage who are married	65.56	47.50	3.24	0.00	7.69	0.00
Mean number of children in household	0.91	0.63	0.02	0.00	0.03	0.00
Mean number of household members	4.23	4.31	1.40	2.34	1.90	2.58
Percentage of cohabiting couples	22.16	7.04	12.32	2.04	18.26	1.02
Percentage of individuals' cohabiting partners who are employed	47.36	38.62	88.36	93.83	89.95	100.00
Percentage who are immigrants	6.36	11.84	5.18	5.17	6.63	6.66
Percentage with Greek fluency	99.41	99.00	98.11	98.27	95.23	100.00
Percentage with disability limitations	5.26	6.41	3.25	3.42	1.92	0.00
Percentage with negative mental health symptoms	2.47	2.99	2.16	2.17	1.92	0.00
Percentage completing minimum mandatory education	95.49	97.57	96.38	98.27	96.15	100.00
Percentage of high school graduates	83.48	84.16	82.22	86.20	82.69	83.33
Percentage of university or technical-school graduates	45.78	46.64	45.12	41.37	50.00	58.33
Percentage with computing skills	69.34	78.17	79.06	74.13	76.92	91.66
Percentage with English skills	47.31	40.08	42.59	39.65	53.84	36.66
Percentage with driving license	89.92	81.45	92.01	81.03	88.46	91.66
Mean years of experience	14.79	9.28	13.48	11.10	15.42	9.66
Percentage in white-collar jobs	39.66	–	36.24	–	34.93	–
Percentage in blue-collar jobs	49.45	–	54.87	–	56.61	–
Percentage in service occupations	10.88	–	8.30	–	7.617	–
Percentage in public sector	39.49	–	41.51	–	50.00	–
Percentage in private sector	58.92	–	58.48	–	50.00	–
Percentage of full-time work	87.66	–	81.93	–	94.52	–

and of bisexual individuals on the order of 0.94%.<sup>7</sup> In this section, we present variable means stratified by employment status and sexual orientation. Table 2 shows descriptive statistics for employed heterosexuals, gays and bisexuals (columns 1, 3 and 5). At first glance, gay and bisexual men have significantly<sup>8</sup> lower hourly wages than heterosexuals. The results also indicate that gays, bisexuals and heterosexuals have nearly the same average ages. As expected, gay and bisexual men are significantly less likely to be married than their heterosexual counterparts and have significantly fewer children. In addition, their households<sup>9</sup> have fewer members than heterosexuals. Gay and bisexual men have significantly fewer

cohabiting partners than do heterosexual men, but their cohabiting partners are more likely to be employed. In addition, gays are insignificantly less likely to have a university or technical-school degree than heterosexuals, but bisexuals are more likely to have a degree than heterosexuals. Moreover, gays and bisexuals are insignificantly less likely to have negative mental health symptoms than heterosexuals.

Among employed men, gays have insignificantly fewer years of work experience than heterosexuals. In contrast, bisexuals have insignificantly more years of work experience than heterosexuals. Gay and bisexual men are significantly less likely to be

<sup>7</sup> In 6% of all cases, the respondents did not answer the relevant question regarding sexual orientation. The descriptive statistics between those who responded to the question and those who did not respond to the question are identical. In the estimation portion of the study, whether we include these observations (with a missing sexual-orientation dummy) makes no difference to the coefficients.

<sup>8</sup> *T*-tests are available from the authors on request.

<sup>9</sup> Unfortunately, there is no information regarding the identities of household members. They might be individuals' parents, spouses, children, lovers, friends or housemates.

employed in white-collar jobs than heterosexuals, and gays are significantly more likely to be employed in blue-collar jobs than heterosexuals. Moreover, gays and bisexuals are significantly less likely to work in service occupations than heterosexuals. Gay men are insignificantly more likely to be employed in the public sector than heterosexuals, while bisexuals are significantly more likely to be employed in the public sector than heterosexuals. The present results indicate that gay, bisexual and heterosexual workers have approximately the same educational levels and work experience. A potential difference between sexual-orientation minorities and heterosexuals is their occupational categories, but this difference would not necessarily indicate discriminatory wages. Hence, an econometric analysis that takes all of these variables into consideration is necessary to determine whether gays/bisexuals suffer from lower wages than otherwise comparable heterosexuals. Finally, for unemployed<sup>10</sup> individuals, the descriptive statistics are interpreted similarly (columns 2, 4 and 6). Importantly, however, we can observe that gay men face a 17.3% unemployment rate and bisexuals face an 17.1% unemployment rate, while heterosexuals are unemployed at the lower rate of 10.0%. This result supports claims that sexual-orientation minorities in Athens might have higher rates of unemployment than heterosexuals (Drydakis, 2009, 2011).

## V. Estimation Framework and Outcomes

In this study, we test the hypothesis that sexual-orientation minorities have statistically different wages from heterosexuals when controlling for differences in labour-market experience, educational levels, occupations and other characteristics. The empirical work is based on the standard human-capital wage equation developed by Mincer (1974). We develop our estimates by systematically modifying the Mincer equation, as outlined in Badgett (1995) and updated in Allegretto and Arthur (2001), Black *et al.* (2003) and Carpenter (2005, 2007). The

wage Equation 1, relates the calculated wages to dummy variables for the demographic and control variables. We use the natural logarithm of the wage variable, which increases the efficiency of estimation because it increases the extent to which the variable approximates a Gaussian distribution. It also allows for an easier interpretation of the coefficients as percentages. Equation 1 presents a linearly estimable specification of this basic model

$$\ln W_i = \alpha_1 + \beta_1 G_i + \gamma_1 B_i + \delta_1 X_i + \varepsilon_{1i} \quad (1)$$

where  $W_i$  = hourly wage of individual  $i$ ;  $G_i = 1$  if the worker is gay and 0 if the worker is heterosexual;  $B_i = 1$  if the worker is bisexual and 0 if the worker is heterosexual;  $X_i$  = vector of characteristics that describe individuals and that are thought to be related to wages;  $\alpha_1, \beta_1, \gamma_1, \delta_1$  = parameters to be estimated by the OLS model and  $\varepsilon_{1i}$  = error term. The key variables of interest are the dummy variables indicating that the worker is gay or bisexual. The main effect of any discrimination will be captured by the sexual-orientation coefficients. Statistically significant negative coefficients would imply discrimination in the form of lower wages. Following Halvorsen and Palmquist (1980), the percentage impact on wages given the presence of the characteristic represented by the dummy variable must be measured using the formula:  $100\psi = 100\{\exp(\tau_i) - 1\}$ , where  $\psi$  = the relative effect on wages and  $\tau_i$  = the dummy variables' coefficients.

In Table 3, we present coefficients from Equation 1. We document a large and significant income penalty on the order of 4.2% for gay male workers at the 1% level. For bisexual male workers, the estimated income penalty is an approximately 5.0% reduction in wages, which is also significant at the 1% level. As we can see, the sexual-orientation effect is stronger for bisexuals than for gay men.<sup>11</sup> In both cases, we cannot reject the hypothesis that there is a nontrivial incidence of sexual-orientation discrimination in the market. Human-capital theory suggests that differences in pay can be explained by differences in workers' education, with more educated workers earning more because of their

<sup>10</sup> We define an unemployed man as a person who is available to work and seeking work but currently without work.

<sup>11</sup> It seems that in Greece bisexuality is punished more than homosexuality. The problem seems to be that stereotypes and distastes about bisexuality are unquestioned. In fact, some Greek citizens are adamant that bisexual people do not exist. There is a belief that bisexuals are gay people who falsely declare a desire for the opposite sex to 'improve' their position in the society. As it is commonly expressed, the belief is that 'you're either gay, straight or lying' (Burlison, 2005; Rieger *et al.*, 2005). The current estimates allow us to suggest that those bisexuals who are open about their sexual orientation face two penalties: one penalty for being attracted to same-sex partners and another penalty for being seen as lying about their attraction to the opposite sex. However, the trend in this study should be critically examined because the AAS dataset includes only 58 observations of self-reported bisexual workers. Thus, in terms of bisexuals' wages, this study should be viewed as exploratory. Additional research should be undertaken in order to examine the complex trends, beliefs and relationships that stigmatize bisexual people in the labour market and society.

**Table 3. Coefficients from wage regression, gay/bisexual vsrsus Heterosexual Workers**

	Panel I
Gay	-0.044 (0.013)*
Bisexual	-0.052 (0.020)*
Age	0.056 (0.002)*
Age <sup>2</sup>	-0.0004 (0.0000)*
Married	0.031 (0.007)*
Number of children	0.027 (0.002)*
Immigrant	-0.026 (0.011)*
Fluency in Greek	0.009 (0.003)*
Work experience	0.025 (0.003)*
Work experience <sup>2</sup>	-0.0004 (0.0000)*
Minimum mandatory education	0.053 (0.012)*
Graduation from high school	0.080 (0.006)*
University or technical school diploma	0.097 (0.005)*
Basic knowledge of computer	0.011 (0.003)*
Basic knowledge of English	0.008 (0.004)*
Driving license	0.038 (0.006)*
Disability status	-0.059 (0.018)*
Mental health symptoms	-0.026 (0.021)
White-collar occupation	0.017 (0.004)***
Blue-collar occupation	0.008 (0.005)
Public-sector	0.015 (0.004)*
Full-time worker	0.012 (0.005)*
Month effects	Yes
Intercept	1.731 (0.024)*
R <sup>2</sup>	0.781
N	6640

Notes: SEs are in parentheses.

\* and \*\*\* denote significance at 1 and 10% levels, respectively.

increased productivity. To the extent that human-capital variables are unable to explain pay differences between gays/bisexuals and heterosexuals, the remainder of the assigned differential is generally interpreted as evidence of discrimination. The patterns of results found here appear consistent with the findings of previous studies. The expected significant wage penalties against gay/bisexual men are confirmed. Notably, the size of the estimated reduction in

income associated with homosexuality is comparable with the results of the most recent studies in the Netherlands (Plug and Berkhout, 2004), the United Kingdom (Arabsheibani *et al.*, 2005) and California (Carpenter, 2007). As Carpenter (2005) notes, the findings of the previous studies are somewhat sensitive to the time period considered.

With respect to other variables of interest, the results are as expected. Age, marital status and the presence of children have positive and statistically significant effects on wages. Being an immigrant has a negative and significant impact on wages. Fluency in Greek has a positive effect on wages. Work experience has a positive and significant correlation with wages, and each education variable is positive and significant. In addition, wages significantly negatively correlate with disability status and insignificantly negatively correlate with symptoms of poor mental health. Concerning the occupation covariates, all have positive effects on the dependent variable. In white-collar jobs, we observe significant covariates, but in blue-collar jobs, we observe insignificant effects. In addition, the effect on wages of having a public job is statistically significant. The same pattern holds for full-time employees.<sup>12</sup>

When discussing the descriptive statistics, we mentioned earlier that a potential difference between gay/bisexual and heterosexual employees is occupational category. In this stage, we extended our analysis to include separate comparisons of heterosexual and gay/bisexual employees based on their occupational category. Holding occupational status constant, we were able to observe direct differences because the underlying distribution is the same. We re-estimated Equation 1 separately for white-collar, blue-collar and service occupations as well as for public and private sectors. The wage estimations are presented in Table 4. The regressions show significant wage penalties among gay and bisexual employees in all specifications for each occupation and sector. The higher differential is observed for blue-collar

<sup>12</sup> Isolating unbiased outcomes requires attention to unobserved heterogeneity. In this study, we addressed this issue as it relates to the effects of sexual orientation and potential employment heterogeneity by estimating a preliminary employment equation to construct an inverse Mills' ratio term. This served as a statistical correction when estimating wage equations for only individuals with observed wages. A two-stage estimation procedure proposed by Heckman (1974) was applied, which translated sample selection into a problem of an omitted variable. The variables that were included in the estimation of employment but not wages, and therefore help the identification of the model, include the number of household members, whether the individual has a cohabiting partner, and whether the individual's cohabiting partner is employed. The estimated probability of unemployment for gay (bisexual) men was lower by -0.342 (-0.436) than that for heterosexuals, generating a negative marginal effect on the order of 8.1 (8.8) percentage points (see the transformation in Vance, 2009). Both results showed a strong negative effect of gay/bisexual orientation on employment chances at the 1% level. Adam (1981) and Drydakis (2009, 2011) agreed that sexual-orientation discrimination could explain the differences in hiring between equally qualified gay and heterosexual men. Detailed coefficients are available from the authors on request. The controls for sample corrections were estimated to be statistically insignificant. Thus, we can suppose that the uncorrected estimated wage differential, as developed in Equation 1 and presented in Table 2, would be its true level.

**Table 4.** Estimates from wage regressions, gay/bisexual versus heterosexual workers per occupation. Each column is a separate regression

	Panel I	Panel II	Panel III	Panel IV	Panel V
	White-collar occupations	Blue-collar occupations	Service occupations	Public sector	Private Sector
Gay	-0.034 (0.013)*	-0.042 (0.012)*	-0.041 (0.011)*	-0.038 (0.013)*	-0.044 (0.012)*
Bisexuals	-0.053 (0.020)*	-0.067 (0.019)*	-0.050 (0.016)*	-0.054 (0.012)*	-0.064 (0.015)*
R <sup>2</sup>	0.772	0.718	0.813	0.743	0.793
N	2577	3271	656	2601	3849

Notes: SEs are in parentheses.

\*Denotes significance at 1% level.

workers (Panel II) and those employed in the private sector (Panel V). It is possible to claim that in blue-collar jobs and in the private sector, workers are less protected by anti-discrimination policies because the pay criteria are less specific to workers' experience and qualifications. Nevertheless, even among white-collar occupations, wage penalties against gays/bisexuals are still large in magnitude and significant (Panel I). Prejudices against sexual-orientation minorities are likely to be widespread in the Athenian labour market.<sup>13</sup> It is important to keep in mind, however, that many factors that could affect the level of wage discrimination, such as the importance of unobservable skills, apparent qualifications, precision of observable skills, and ease of performance measurement, may vary greatly across occupations and sectors.

Further, and in line with the previous analysis, it is of interest to examine the pattern of wage discrimination separately for full-time and part-time workers. As can be seen in Table 5, a greater wage penalty among sexual-orientation minorities is observed for those who are employed only part time (Panel II). One could suggest that the pay criteria in part-time jobs are less fixed than in full-time jobs and thus an opportunity exists for firms to practice wage discrimination depending on employees' sexual orientation. From a wage-discrimination perspective, full-time jobs could therefore be viewed as safer working environments than part-time jobs for sexual-orientation minorities. It is also important to note that in the AAS sample the majority of part-time workers were in blue-collar occupations and the private sector, sectors in which wage discrimination is most practiced, as can be seen in Table 4. Drydakis

(2009) observes that in higher status jobs (i.e. white-collar jobs), the wage penalty for gay men is smaller in magnitude than in blue collar and service jobs. In view of these results, we can imagine that occupations, sectors and hours of daily work could play a critical role in the wage gap. These factors should be considered carefully whenever we study labour-market discrimination based on sexual orientation.

It is of great interest now to examine whether sexual-orientation minorities' higher educational attainment could mitigate the wage penalty. If gay/bisexual workers with university or technical-school diplomas are shown to face lower wage gaps than gay/bisexual workers with high school or minimum mandatory education degree, then we could suggest that employers value education and skills when evaluating workers' productivity. In Table 6, we present regression outcomes by education level. The wage gap for those having a minimum mandatory education degree is 4.5% (6.1%) for gay (bisexual) workers. Gay (bisexual) workers who have graduated from high school face a lower wage gap, on the order of 3.8% (4.9%), while for those gay (bisexual) workers who have a university or technical-school diploma, the wage gap is even lower, on the order of 2.9% (3.7%). The estimation results suggest that as the education level increases, the wage gap decreases. We further observe that the differences between those with minimum mandatory education and those with a university degree are quite large. However, even at a higher level of education, the wage gap is still significant and does not disappear.

Additionally, we extend the analysis to include separate comparisons of gay and bisexual workers to

<sup>13</sup>Note also that if we estimate probit model specifications, we can show that gay and bisexual men have lower probabilities of holding white-collar jobs than heterosexual men. A form of segregation based on sexual orientation might be prevalent. Gay and bisexual men generally seem to be at an occupational disadvantage compared with heterosexual men.

**Table 5. Coefficients from wage regression, gay/bisexual versus heterosexual workers per full/part time employment. Each column is a separate regression**

	Panel I	Panel II
	Full-time employment	Part-time employment
Gay	-0.029 (0.014)*	-0.032 (0.015)*
Bisexuals	-0.034 (0.012)*	-0.038 (0.013)*
$R^2$	0.664	0.701
$N$	5804	810

Notes: SEs are in parentheses.

\*Denotes significance at 1% level.

two other groups: married heterosexual men and unmarried heterosexual men. Economists often use marital status signals to employers as a proxy for such personality traits as stability and responsibility. It is possible that employers award a bonus to married employees on the assumption that they possess these characteristics (Bloch and Kuskin, 1978; Loh 1996). An exploration of the effect of marriage on the wage differential is particularly timely given current debates concerning gay marriage. Following Allegretto and Arthur (2001), these comparisons, which result in two estimates of the wage differential, are desirable because it is not obvious whether gays/bisexuals are more comparable to married heterosexuals or to unmarried heterosexuals. Because relationships develop along a continuum, we suggest that some gays/bisexuals may be more similar to the former group and others to the latter. We can view the estimated wage gap between gays/bisexuals and unmarried heterosexuals as a lower bound estimate of the gay/bisexual-heterosexual wage differential and the estimated wage gap between gays/bisexuals and married heterosexuals as an upper bound estimate. A range is presented with end points that represent the maximum and minimum magnitudes of the wage gap.

In Table 7, Panel I presents the upper bound on the wage differential between gays/bisexuals and married heterosexuals.<sup>14</sup> A statistically significant wage penalty of 5.9% (7.5%) is estimated for gay (bisexual) males. Panel II presents the lower bound on the wage gap. The unexplained differential between gay (bisexual) and unmarried heterosexuals in this analysis is statistically significant and negative at 3.3% (3.8%). To sum up, we can calculate the wage gap for gay (bisexual) men as a range between 5.9% (7.5%) and 3.3% (3.8%). The results in this stage are consistent with previous estimates of the penalty for being

unmarried (Allegretto and Arthur, 2001; Carpenter, 2005).

The primary purpose of this study was to uncover the statistical relationship between men's sexual orientation and wages and to interpret the meaning of this relationship. Having demonstrated that the wages of gays/bisexuals are different from those of heterosexuals, we now discuss what may cause these differences after the human-capital parameters are controlled. A variety of economic explanations have been formulated to explain the effects of sexual orientation on wages. One explanation for the observed wage differential between heterosexuals and gays/bisexuals is that employers discriminate against sexual minority individuals. Becker (1957) suggests that discrimination coefficients incorporate the influence of characteristics on tastes and attitudes. In particular, employers may seek to maintain physical or social distance from certain groups, or they may fear that other employers, co-workers and customers dislike interacting with gay/bisexual men in the labour market. Following this line of thinking, employers may also offer gay/bisexual men a lower wage compared with heterosexual men in order to equalize the unit cost of labour once psychic costs are factored in. On the other hand, the statistical theory of discrimination (Arrow, 1973) predicts that in a world of imperfect information, employers face risks when hiring individuals. Thus, specific characteristics can become screening devices. If the belief that sexual-orientation minorities are less productive can be self-fulfilling, then sufficient conditions exist to create a permanent differential in hiring chances and wage offers for gay/bisexual workers. In this situation, discrimination is not the consequence of exogenous preferences but of the profit-maximizing behaviour of risk-averse employers.

As we discussed previously, the estimations show that gay/bisexual workers with university or technical-school diplomas face lower wage gaps than those gay/bisexual workers with no such educational attainment. This pattern suggests that educated gay and bisexual workers face lower wage differentials, which is consistent with Arrow's (1973) statistical theory of discrimination. Importantly, however, wage gaps were found to be significant at all educational attainment levels (as well as occupations and sectors). This suggests that all sexual-orientation minorities face strong prejudices in the Athenian market. Thus, the effects predicted by Becker's (1957) theory of distastes are also present. Consequently, the results support more than one theory of labour-market discrimination, giving us the opportunity for a

<sup>14</sup> At this stage, to be comparable with other studies, we include only unmarried gays/bisexuals.

**Table 6.** Estimates from wage regressions, gay/bisexual versus heterosexual workers per education level. Each column is a separate regression

	Panel I	Panel II	Panel III
	Minimum mandatory education	High school diploma	University or technical school diploma
Gay	-0.046 (0.019)*	-0.039 (0.018)*	-0.031 (0.015)*
Bisexuals	-0.063 (0.024)*	-0.052 (0.021)*	-0.038 (0.011)*
$R^2$	0.637	0.640	0.684
$N$	6341	5588	3040

Notes: SEs are in parentheses.

\*Denotes significance at 1% level.

**Table 7.** Coefficients from wage regression, gay/bisexual versus heterosexual workers per marital status. Each column is a separate regression

	Panel I	Panel II
	Gay/Bisexuals versus married heterosexuals	Gay/Bisexuals versus unmarried heterosexuals
Gay	-0.061 (0.013)*	-0.035 (0.011)*
Bisexuals	-0.076 (0.031)*	-0.039 (0.016)*
$R^2$	0.754	0.671
$N$	4416	2525

Notes: SEs are in parentheses.

\*Denotes significance at 1% level.

multifaceted discussion. Neumark (1999) suggests that from a policy perspective, it is important to determine whether taste discrimination or statistical discrimination plays a major role in the wage differentials between sexual orientations. If taste discrimination accounts for the unexplained lower wages for gay/bisexual workers, then anti-discrimination legislation may be the only appropriate response. However, if statistical discrimination is important, then a better means of assessing workers' productivity may contribute to the reduction of discrimination at the individual or group level.

It is also important to note that industrial relations theory (Rubery and Wilkinson, 1994) could shed some light on the role of workplace practices in creating discriminatory treatment and leaving productive potential underutilized. This issue is then complicated by the wide variety of firm-specific labour markets, the strong influence of occupational factors in determining employment practices and the impacts of these practices on sexual-orientation minorities' employment positions and prospects as well as problems associated with comparisons at the occupational and sectoral level across markets. Specifically, in the current study, we estimated that

the wage differential for gay/bisexual workers was greater for blue-collar jobs, the private sector and part-time workers.

Further, some researchers have hypothesized that sexual minority individuals receive different wages from heterosexuals because these minorities do not conform to traditional gender roles. More specifically, these authors argue that the labour-market values gay/bisexual men's characteristics less than the characteristics of heterosexual men (Blandford, 2003). Historical, sociological and psychological research demonstrates the existence of sexual stigma (the shared knowledge of society's negative regard for any behaviour, identity, relationship or community that is not heterosexual), heterosexism (the cultural ideology that perpetuates sexual stigma) and sexual prejudice (negative attitudes based on sexual orientation) as well as the effects that such attitudes have on the everyday experiences of homosexuals (see Herek's (2000) analysis).

However, other explanations for these wage differentials are also possible. In the economic story of specialization, the expectation of marriage and acceptance of traditional gender roles may drive the relationship between sexual orientation and wages

(Becker, 1981). Young gay men may invest less in human-capital formation than their heterosexual counterparts because of rational, sexual orientation based expectations about their future partners and domestic arrangements. Along the same line, other theories argue that gay men choose different levels of work effort given different budget constraints (Berg and Donald, 2002). Further, gay men might also make different choices regarding location and spending; Black *et al.* (2000) argue that the clustering of gay men in cities with expensive non-child amenities partly reflects different incentives associated with their having fewer children. Importantly, additional unobservable factors may have contributed to the wage gap.

To conclude this study, the findings are strictly applicable only to the time and place from which the sample was drawn. The AAS contains a random sample of gay and bisexual individuals in Athens. Previous findings from the United Kingdom (Arabsheibani *et al.*, 2004) and the United States of America (Clain and Leppel, 2001) suggest that gay men face higher earnings disadvantages in non-metropolitan areas. Geographical variations may reflect regional differences in attitudes towards gay men. Some researchers have argued that gay men's decisions to live in a particular area depend on the area's prevailing social and political views towards the gay population (Murray, 1996). Hence, in non-Athenian areas, the wage penalty for sexual-orientation minorities is expected to differ in comparison with the current estimates.

## VI. Conclusions

In this study, we report the first estimates of the economic effect of men's sexual orientation in the Greek labour market using the AAS from 2008–2009 data. The empirical framework, which uses a random sample of hourly wages, confirms other empirical findings on the effect of sexual orientation on individual wages. This study concludes that significant wage gaps exist between gay/bisexual men and heterosexual men. To examine alternative theoretical explanations of wage discrimination, we focus on various occupation/sector and education level subgroups. Gay/bisexual workers with university or technical-school diplomas face smaller wage gaps than gay/bisexual workers with no such educational attainment. Occupations, sectors and hours of daily employment were also found to have significant impacts on sexual-orientation minorities' wages. By examining various subgroups, we suggested that both

taste and statistical motivations are implicated in the wage penalties for sexual-orientation minorities. Moreover, in this research, to better understand the determinants of the wage gaps, we compare gay/bisexual men with both married and unmarried heterosexual men. By making these comparisons, we were able to disentangle the penalty associated with being unmarried from other human-capital explanations of the wage gap. The evidence set forth here suggests that the wage differential based on sexual orientation continues at alarming levels and that the need remains to examine more closely the effects of sexual-orientation discrimination and labour-market characteristics on the employment of sexual-orientation minorities in Greece.

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