

Multilevel Analysis of the Effects of Antidiscrimination Policies on Earnings by Sexual Orientation

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Abstract

This study uses the 2000 U.S. Census data to assess the impact of antidiscrimination policies for sexual orientation on earnings for gays and lesbians. Using a multilevel model allows estimation of the effects of state and local policies on earnings and of variation in the effects of sexual orientation across local labor markets. The results suggest that gay men face an earnings penalty that varies significantly (though not sizably) across local areas, and that state antidiscrimination policies may decrease that penalty in private sector employment. There is, however, no evidence that lesbians in any sector average higher earnings or wages in areas with antidiscrimination policies. The strongest evidence of effects for antidiscrimination policies is for weeks of employment and for gay men who are in the private sector, white, and in the upper half of the earnings distribution. © 2011 by the Association for Public Policy Analysis and Management.

The last 30 years have transformed the political and economic opportunities of gays, lesbians, and bisexuals in the U.S. and globally. Evolving social norms, patterns of family formation, and social movements have all pushed public and private institutions toward tolerance and acceptance of homosexuality. Americans have become increasingly supportive of civil rights for gays and lesbians and less negative about homosexuality (Herek, 2000; Loftus, 2001; Lewis & Rogers, 1999; Yang, 1997). However, tolerance in the U.S. is still lower than in most European countries and, as in most countries, varies with age, religiosity, and education (Kelly, 2001).

In this context, there have been concurrent changes in the laws and policies governing sexual behavior, family policy, and labor market discrimination. In 2003, the U.S. Supreme Court banned state sodomy laws, which had been used to regulate sexual behavior and to limit efforts to expand employment and other rights for gays and lesbians. Massachusetts became the first state to establish marriage for same-sex couples in 2004, and other states have followed or have adopted a variety of civil union or domestic partnership policies. Regulations on adoption and foster parenting by gays and lesbians and parenting rights for non-biological parents have continued to evolve within many states. And the number of states, counties, and cities with laws prohibiting sexual orientation discrimination in employment, housing, or education has continued to grow over time, though no national protections exist. State and local laws banning discrimination on the basis of sexual orientation have proliferated since the early 1970s, expanding coverage geographically and moving from public to private sector employment.

This paper expands on previous studies of those employment protections by using multilevel methods to assess separate and potentially interacting effects of state laws from those passed by cities and counties. It also explores differences in policy effects by type of worker (sector of employment, race, earnings quantile, and household designation) and dimension of work (annual earnings, wages, weeks of work, and hours of work). Finally, it quantifies the variation in earnings by sexual orientation across local geographic areas. Data from the 2000 U.S. Census Public Use Microdata Sample provide the opportunity to estimate the impact of antidiscrimination policies on earnings for gays and lesbians in the national context.

The findings suggest that state antidiscrimination laws, but not local laws, offset some of the earning penalty experienced by gay men in the private sector relative to heterosexual men in married couples. The laws seem to increase employment opportunities in the private sector for gay men (weeks of employment) rather than to increase hourly earnings, and the evidence is stronger for white men, those in the upper half of the earnings distribution, and those designated as householders. For women, there is no evidence that employment protections affect earnings, but this may be explained by the lack of earnings deficit relative to married women. For both men and women, earnings differences by sexual orientation are relatively stable across local areas after accounting for individual and local area characteristics.

EMPLOYMENT AND SEXUAL ORIENTATION

Support for hiring sexual minorities has increased over time because of changing attitudes and changing characteristics of the population, including in birth cohort and education levels (Lewis & Rogers, 1999). But about half of Americans still believe that homosexuality is immoral,¹ and evidence suggests that attitudes in support of labor market discrimination persist and vary by demographics and geography (Lewis & Rogers, 1999; Haeberle, 1999). For example, support for hiring homosexuals has remained weak for jobs like elementary teacher, elected office, or religious clergy (Yang, 1997). And surveys of gays and lesbians and their coworkers still consistently produce widespread reports of perceived job discrimination in hiring, firing, evaluation, or promotion (Badgett et al., 2007).

Public support for employment protection increased dramatically after the mid-1980s (Yang, 1997), but support for specific legislative action to enforce equal employment opportunities has varied widely among the general public (Lewis & Rogers, 1999) and among state and local politicians (Schroedel, 1999). There has been more support of gay employment rights in urban areas than in non-metropolitan areas, though during the 1990s those in less urban areas became more supportive (Haeberle, 1999).

The effects of sexual orientation and discrimination on earnings have received growing attention from empirical economists in the last 15 years beginning with Badgett (1995). Most studies find that average earnings are lower for gay men than for heterosexual men and are the same or higher for lesbians than for heterosexual women.² These studies demonstrate the systematic relationship of sexual orientation to earnings but also call into question labor market discrimination as the primary influence given the earnings premium for lesbians (Antecol, Steinberger, & Jong, 2008). A partial explanation may be found in the evidence that prejudice against gay men is more severe than against lesbians, especially among heterosexual men—those most likely to be making hiring and firing decisions (Herek, 2000). But earnings differences by sexual orientation for men and women will capture

¹ Results from a CNN/Opinion Research Corporation Poll, February 12–15, 2010, with 1,023 adults nationwide (accessed March 21, 2010, at <http://www.pollingreport.com/civil.htm>).

² For a recent summary of studies see Badgett et al. (2007). More recent studies include Antecol, Steinberger, and Jong (2008), Jepsen (2007), and Daneshvary, Waddoups, and Wimmer (2009).

both the influence of discrimination and the influence of any differences in human capital formation and labor market choices. The wage premium for lesbians points to other potential influences, including intrahousehold decisions based on earnings in gendered labor markets or household ideologies regarding sharing of market and non-market roles. At the same time, the existence of the wage penalty for gay men suggests the possibility of labor market discrimination and a larger role for antidiscrimination policies in addressing it.

STATE AND LOCAL ANTIDISCRIMINATION POLICIES

Beginning in the 1970s, hundreds of local governments and about 20 states have adopted employment protections that prohibit discrimination on the basis of sexual orientation by private or public sector employers in hiring, firing, and promotion. The antidiscrimination policies are modeled on those designed to address discrimination on the basis of race and gender and, at least at the state level, generate a similar rate of complaints of discrimination (Rubenstein, 2002; Badgett et al., 2007). There is, to date, no national protection against discrimination on the basis of sexual orientation by private employers as there is for race, gender, national origin, and disability.

Antidiscrimination policies for sexual orientation have been adopted in areas with more highly educated, less religious, and more urban populations (Dorris, 1999; Klawitter & Hammer, 1999; Haeberle, 1996). There is some evidence that, after controlling for demographics, local areas were more likely to adopt policies in states where other local governments had previously adopted policies and less likely when local governments in their region but outside their state had policies (Klawitter & Hammer, 1999). Local area adoptions may also be less likely within a state with private employment coverage (Klawitter & Hammer, 1999; Carpenter & Klawitter, 2007). Qualitative and quantitative studies of the political processes for adoption have found that public salience of the issue, scope of the public debate, interest group resources, the presence of policy entrepreneurs, and how the issue was framed all influenced the ability of politicians to shepherd antidiscrimination laws through state or local legislative bodies (Haider-Markel & Meier, 2003, 1996; Button, Rienzo, & Wald, 1997; Wald, Button, & Rienzo, 1996). Both demographic and political factors related to adoption of these laws suggest that antidiscrimination policies may have been adopted in places with higher earnings for all workers and especially for gays and lesbians (Klawitter & Flatt, 1998).

State and local policies on sexual orientation generally use the same enforcement mechanisms as employment protections based on race, gender, and other protected groups, but states, and especially local governments, may lack the structural or political elements necessary to effectively monitor and process discrimination complaints (Colvin, 2000; Riccucci & Gossett, 1996; Button, Rienzo, & Wald, 1995). As noted above, the rate of complaints is similar to that for other protected groups given the estimated size of the gay and lesbian population (Badgett et al., 2007; Riccucci & Gossett, 1996).

Federal and state protections for employment significantly reduced but did not eliminate earnings gaps by race and gender (Collins, 2003; Neumark & Stock, 2001; Donohue & Heckman, 1991; Gunderson, 1989; Chay, 1998). If labor market discrimination is an important determinant of earnings for gays and lesbians and if public policies are effective at addressing discrimination, then we should expect to see similar results: higher earnings for gays and lesbians in areas with antidiscrimination policies for sexual orientation. Policies could work by increasing wages, increasing work opportunities (weeks or hours), or by increasing stability of jobs. Also, the laws could allow gays and lesbians access to different occupations or industries (previously not gay friendly) or encourage them to be more open about their sexual orientation at work—effects that may not lead to higher earnings.

To date, however, there has been little study of the effects of these antidiscrimination public policies on earnings for gays and lesbians. Using data from the 1990 U.S. Census, Klawitter and Flatt (1998) found no effects of state or local antidiscrimination policies on earnings, but most antidiscrimination policies had not been in place longer than five years in 1989. Gates (2009) used the 2000 census data to analyze the effects of state-level policies on hourly earnings for full-time workers. The 2000 census data have better information on same-sex couples and capture the effects of longer periods of implementation and the larger number of more recently adopted antidiscrimination policies. He found evidence of an impact of state policies on men in same-sex couples, but not on women. In separate analyses for those with and without a college degree, Gates finds policy effects only for gay men with a college degree. Carpenter and Klawitter (2007) used the California Health Interview Surveys and found some evidence of the influence of local policies on earnings within California (which had a state antidiscrimination policy) for government workers, but not for private sector workers.

This paper expands on the work described above by using the more recent 2000 census data, as did Gates, but examines the effects of both state and local antidiscrimination policies (as did Klawitter and Flatt). Many states have large cities with antidiscrimination policies that predate state policies, and this could confound estimates of the effects of state policies if both types of policies are not included.³ This paper, unlike the earlier work, uses multilevel models that control for more local characteristics and allow the influence of those characteristics to differ by sexual orientation. Controlling for local labor market variation in earnings is important in correctly estimating the effects of both state and local antidiscrimination policies given higher numbers of gays and lesbians in more urban areas where there are higher earnings. In addition, this paper adds to the understanding of the policy effects and sexual orientation differences in earnings by estimating separate models by sector of employment, race, income quantile, and for earnings, wages, and hours and weeks of employment. This work helps to isolate the impact of the policies as well as to assess the robustness of the conclusions. The methodology section will elaborate on the empirical model.

Figure 1 shows the geographic distribution of antidiscrimination policies across states and local areas as of 1999, the year of the earnings data captured in the 2000 census. The darker areas show the adoption of policies covering both private sector employment and government employment. The lighter areas are those that adopted protections only for public employment. The size of the bubbles indicates the total population of cities and counties covered by local policies (state boundaries are filled in rather than sized by population). Both state and local protections were more likely along the West and East Coasts and in the upper Midwest; only the Northern Plains states and some Southern states were without any policy adoptions.

Figure 2 shows cumulative adoptions over time by city and county governments of policies covering private sector employment (bottom) and public sector employment (top). The early 1990s saw the largest numbers of local adoptions, and, other than the early 1980s, adoptions have stayed fairly steady at five to ten private policies a year through 1999, rather than flattening out as suggested by the policy diffusion models (Gray, 1973). Similarly, the state-level private employment policies really stacked up in the early 1990s (Figure 3), though new policies were adopted in most years after 1988, and this pattern has continued beyond 1999.

Figure 4 shows the percentage of the U.S. population covered by state, local, or both state and local antidiscrimination laws prohibiting private sector discrimination (the main focus of this paper). The largest jump in coverage came with the

³ As Gates (2009) notes, state policies usually have a stronger administrative structure to support enforcement and thus are expected to be more effective. But local policies also cover an additional 15 percent of the population (beyond the 25 percent covered by state protections), adding to their importance.

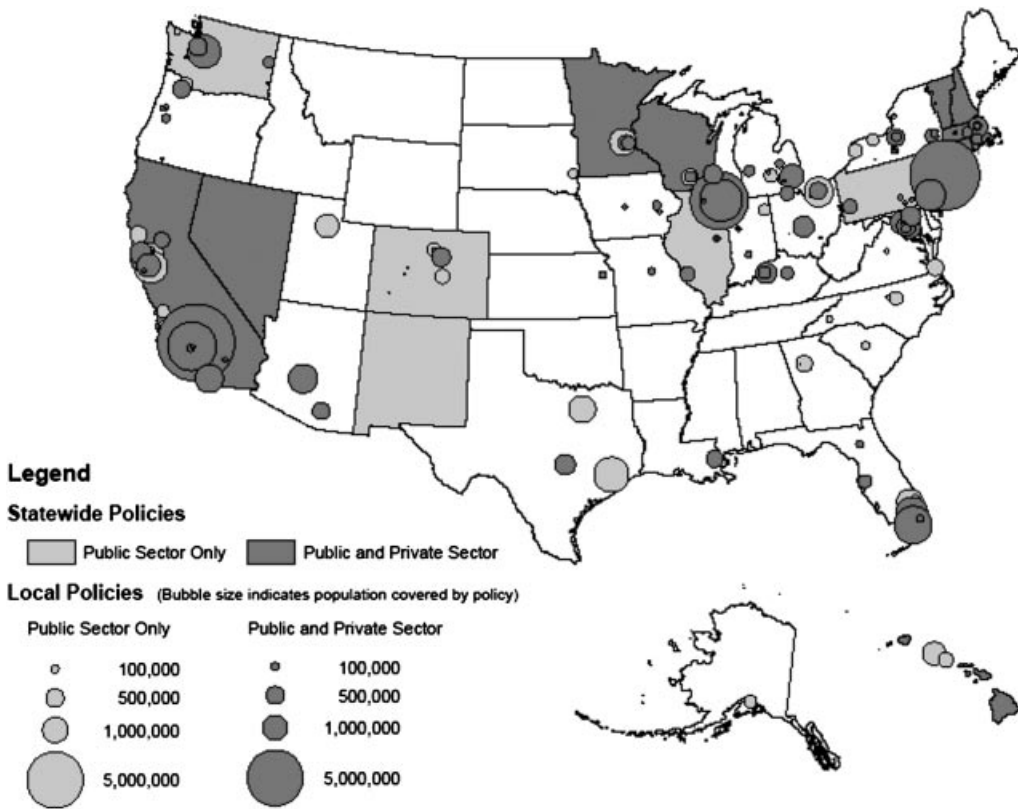


Figure 1. Antidiscrimination Policies as of 1999.

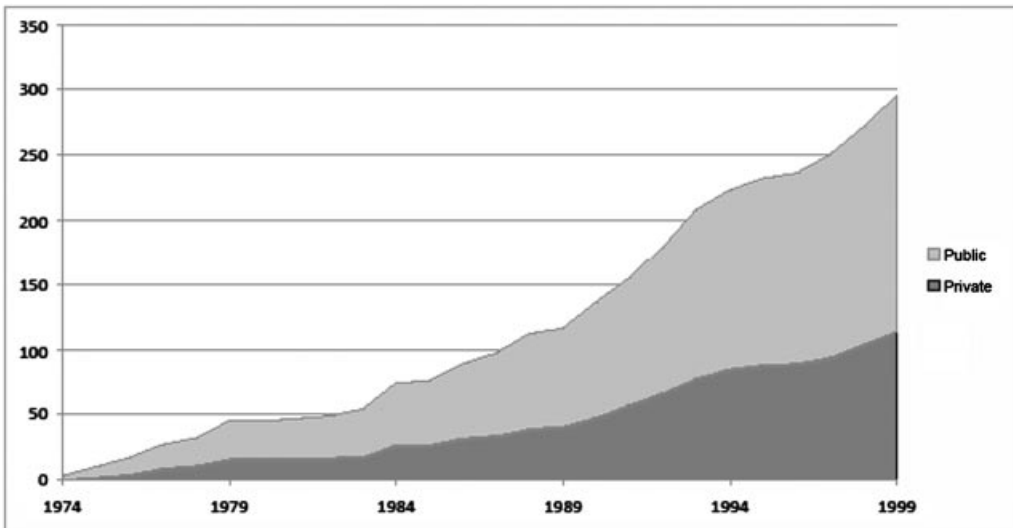


Figure 2. Cumulative City and County Adoptions of Antidiscrimination Policies on Sexual Orientation Covering Private Sector and Public Sector Employment.

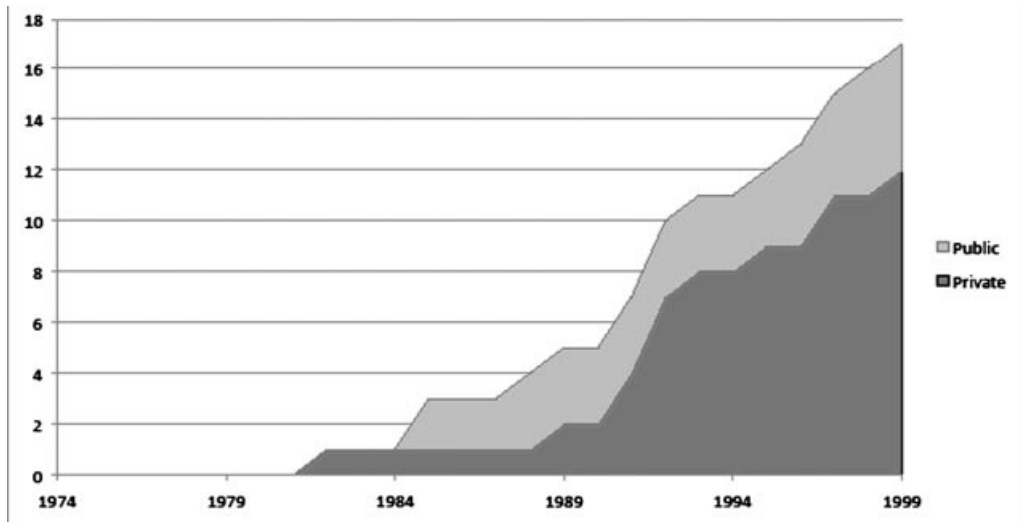


Figure 3. Cumulative State Adoptions of Antidiscrimination Policies Covering Sexual Orientation in Public and Private Sector Employment.

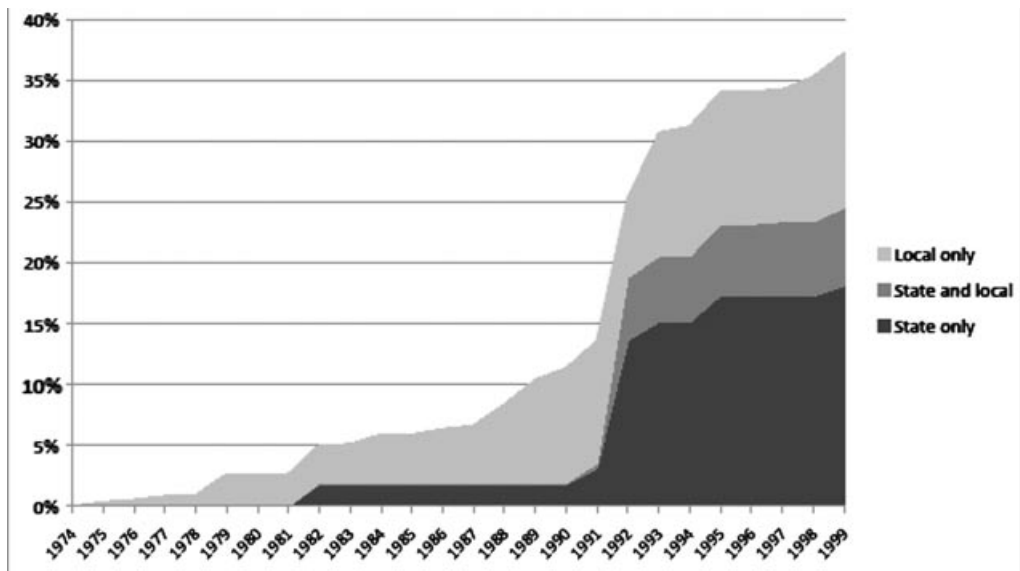


Figure 4. Percentage of U.S. Population Covered by State and Local Antidiscrimination Policies.

adoption of laws by California and New York in 1992. By 1999, almost 40 percent of the population was covered by either state or local law. State laws covered about a quarter of all U.S. residents and local laws covered another 15 percent; almost 10 percent of the population was covered by both state and local policies.

Together these figures show a number of patterns important to the evaluation of the effects of the policies: (1) There are significant numbers of both state and local policies covering a large proportion of the population; (2) many policies have been

in place long enough to have reached their full effectiveness, though some may still have been “young” in 1999, so time since adoption might be important; (3) there is wide geographic dispersion of policies and, as a result, variation in the types of labor markets they cover; and (4) important for the purpose of disentangling state and local policy effects, city and county policies have been adopted both within and outside of states with protections.

DATA AND SAMPLE

I use data from the 2000 U.S. Census to assess variation in earnings by sexual orientation and its association with antidiscrimination policies. The 5 percent Public Use Microdata Sample (PUMS) provides information from the long form of the decennial census including extensive information on demographics and labor market outcomes for all household members. Unlike most of the other sources of information on gays and lesbians, the census data identifies the local geographic area for households, which enables us to link households to state and local policy coverage and other geographically based characteristics.

This analysis compares people in married and unmarried same-sex and different-sex couples to assess the effects of sexual orientation. Beginning with the 1990 census, one of the adults owning or renting the residence (the “householder”) could identify a household member as his or her “unmarried partner.” This allowed identification of unmarried different-sex and same-sex couples and added a new source of information on same-sex couples to the small but growing set of available data sources that include information on sexual orientation.⁴ The analyses here compare members of same-sex couples to a random subsample of those in married and unmarried different-sex couples to maintain a reasonable sample size. In addition, I use only one randomly chosen member of same-sex couples to avoid having two household members in the sample who make linked labor market decisions.⁵ Researchers have found evidence of errors in the identification of same-sex couples (Black, Sanders, & Taylor, 2007); accordingly, I only use same-sex couples in which neither member had their marital status changed by the census data processors.⁶

The census data are the only national source of data on gays and lesbians who can be matched geographically to state and local areas and the presence of public policies. However, the data allow identification of cohabitating partners, but not of all gay and lesbian individuals, and also miss couples if one partner does not serve as the householder for the census. Somewhere around 40 to 60 percent of gays and lesbians are estimated to be in partnerships at a given time, with higher rates for lesbians than for gay men (Black, Sanders, & Taylor, 2007; Carpenter & Gates, 2008) and higher rates for those who are older, white, and have more education (Carpenter & Gates, 2008).⁷ Consequently, the findings here apply to those in couples and are

⁴ This paper refers to same-sex couple members as “gay” or “lesbian,” but not all might choose to identify themselves in that way.

⁵ As discussed following, I also estimate alternative models that separately use those identified as the householder or partner. The estimated effects of policies are stronger for gay men who are householders than for those who are partners, perhaps because limiting the sample to householders systematically selects those with highest earnings in the household. The policy results for women were not sensitive to the choice of householder or partner.

⁶ This strategy is used to eliminate heterosexual couples who miscoded sex (a significant number of same-sex couples in the census), but also eliminates any same-sex couples who identify as married, though none could be legally married in 2000 (Black, Sanders, & Taylor, 2007). Couples not identifying as married might be less likely to be in long relationships or to have children, which may make the census sample less different than a sample of all gay or lesbian individuals. Gates (2009) reports that dropping respondents with allocated marital status significantly changes the results for women, but not for men.

⁷ Carpenter and Gates (2008) use more recent data with larger samples, but the data are limited to California. Black, Sanders, and Taylor (2007) use very small samples that pool General Social Survey data from 1989 to 2004 and find somewhat higher partnership rates.

only suggestive of earnings variation for individuals not in partnerships. Using data on couples to assess the effects of sexual orientation on earnings may overstate the effects for all gays and lesbians (Carpenter, 2008), and this might be partly because those in couples have characteristics that are associated with higher earnings. Below, I explore the issue of whether the results here will generalize to the full gay and lesbian population by estimating separate models by place in the income distribution and other demographic characteristics.

Data on antidiscrimination policies for states and local areas were compiled from advocacy organizations and public Web sites.⁸ Where possible, I ascertained dates of policy adoption and whether the policy covered private sector employment or only government employment. I matched individual-level data from the census to the information on local policies using the Public Use Microdata Areas (PUMAs), the smallest geographic area identified for individuals in the data set. The weakness of this match is that some cities or counties may be only a proportion of the area covered by the PUMA. To account for this, our indicator of access to a local labor market with an antidiscrimination policy is limited to those that cover at least a third of the population of the PUMA territory.⁹

METHODOLOGY

To assess the effects of the antidiscrimination policies on earnings, I use a standard earnings model for those employed at some time during 1999.¹⁰ The goal of the model is to control for individual and labor market characteristics that are associated with earnings and may also be associated with sexual orientation or the presence of an antidiscrimination policy to get closer to estimating the causal influence of sexual orientation and of the policies to offset sexual orientation discrimination.

I use multilevel models to allow the effects of being in a same-sex couple to vary across local labor markets because of the research showing local variation in attitudes toward gays and lesbians and the association with policies and earnings.¹¹ The multilevel framework accounts for common influences on earnings within local labor markets (here proxied by PUMAs) as well as the effects of sexual orientation and antidiscrimination policies across local areas. As I discuss, the multilevel model can accommodate the influence of some unobserved influences of local labor markets and estimate the contribution of observed individual and local area characteristics (Singer, 1998). In all cases, I estimate separate models for men and women to allow the effects of all explanatory factors to differ by gender.

Equation (1) shows the simplest model that I estimate to assess the degree of variation in the effects of sexual orientation on earnings across labor markets:

⁸ The primary sources of these data were the Web sites and data from Human Rights Campaign, National Gay and Lesbian Task Force, Arthur Leonard, and Lambda Legal Defense Fund. As with much policy information for local areas, it was sometimes incomplete or conflicting, and, where possible, multiple sources were used to verify adoption dates for policies, including searches of city or county Web sites. An appendix with all the state and local policy information is available from the author upon request.

⁹ Cities and counties adopting policies were matched to the PUMAs using geographic information system software and geographic correspondence data from the Missouri Census Data Center (<http://mcdc.missouri.edu/websas/geocorr2k.html>). Of all PUMAs, 78 percent had no local antidiscrimination policy and 17 percent were completely covered by a city or county policy. Of the remaining 6 percent of PUMAs, about half had less than 33 percent of the population within the city or county that enacted the policy, and those were recorded as not covered. The baseline results for the policy effects are very similar, with a cut-off of 50 percent of the PUMA population covered by the local policy. The estimated effects of local policies are stronger for gay men when only PUMAs completely covered by a policy are coded as having a policy. This, however, is likely to overestimate the effects, as it limits the policy effects to the most urban areas, which are likely to be areas with the highest earnings for gay men.

¹⁰ I also estimate a Heckman selection model for employment and earnings for women as a sensitivity analysis, as described. That model uses functional form to identify the employment equation.

¹¹ Multilevel models are also called mixed or hierarchical linear models.

$$\log(\text{earnings})_i = \gamma_0 + \gamma_1 \text{SameSex} + \beta_x X_i + \varepsilon_i + u_{op} + u_{ssp} \text{SameSex} \quad (1)$$

Here the natural log of annual earnings is a function of an indicator for being in a same-sex couple and a set of individual characteristics. This model compares earnings for those in same-sex couples to those in married couples (γ_1) and also includes a dummy for those in unmarried different-sex couples (not shown here for simplicity).¹² The other explanatory variables (X) include age, age squared, indicators for ethnicity and race (Hispanic, Asian, black, and white; non-mutually exclusive categories), education (high school diploma, some college, college degree, and education beyond college degree, with less than high school as reference category), English language ability, work-limiting disability, having children under the age of 6, being a U.S. citizen, industry, and occupation. (Descriptive statistics are in Table A1.¹³)

Beyond the effects of observed characteristics, the model allows for variation in earnings both within and across PUMAs and estimates variances for three components of earnings. A random error term, ε_i , captures individual variation in earnings within each PUMA, and two random effects terms, u_{op} and $u_{ssp} \text{SameSex}$, allow average earnings to vary across PUMAs for all workers and differentially for those in same-sex couples, respectively.¹⁴ If local labor market conditions and antidiscrimination policies affect earnings for gays and lesbians, then there is likely to be to be significant variation in the effects of being in a same-sex couple across PUMAs. This model is similar to an econometric random effects model in the estimation of a variance component that allows for correlation in earnings for those in a local area (u_{op}), but unlike that model it also allows for variation in the effects of sexual orientation across those areas ($u_{ssp} \text{SameSex}$).¹⁵

The next model adds characteristics of local areas including indicators of antidiscrimination policies.

$$\begin{aligned} \log(\text{earnings})_i = & \gamma_0 + \gamma_1 \text{SameSex} + \beta_x X_i \\ & + \gamma_2 \text{Pumalaw} * \text{SameSex} + \gamma_3 \text{Statelaw} * \text{SameSex} + \gamma_4 \text{Statelaw} * \text{Pumalaw} * \text{SameSex} \\ & + \gamma_5 \text{Pumalaw} + \gamma_6 \text{Statelaw} + \gamma_7 \text{Statelaw} * \text{Pumalaw} \\ & + \alpha_1 \text{Urban} * \text{SameSex} + \alpha_2 \text{HHsamesexp} * \text{SameSex} \\ & + \alpha_3 \text{Urban} + \alpha_4 \text{HHsamesexp} \\ & + \varepsilon_i + u_{op} + u_{ssp} * \text{SameSex} \end{aligned} \quad (2)$$

¹² Those in unmarried different-sex couples provide an additional comparison to those in same-sex couples, and same-sex couples are likely to be a mix of those who would be married if possible and those who would not. I also ran models that included differential effects of antidiscrimination policies for men in unmarried different-sex couples, but those were not statistically significant, providing weight to the evidence that this model is capturing causal policy effects for gay men.

¹³ All appendices are available at the end of this article as it appears in JPAM online. Go to the publisher's Web site and use the search engine to locate the article at <http://www3.interscience.wiley.com/cgi-bin/jhome/34787>.

¹⁴ In the language of multilevel models, these are a PUMA "random intercept" and "random slope" for being in a same-sex couple. I also tried to estimate models that allowed differences in the effects of sexual orientation and policies across states and local areas, but the three-level models were not able to converge, likely due to the lack of variation across states in these effects after controlling for individual and local area characteristics as well as PUMA-level variation.

¹⁵ Greene (2008) provides a description of hierarchical (multilevel) models and compares them to random and fixed effects models (pp. 233–238). Like random effects models, multilevel models account for "clustering" or correlation of outcomes for those in the same local area, but they do not account for the possibility that the unobserved influences on earnings in local areas might be correlated with factors that are included in the model (Green, 2008, p. 234). Econometric fixed effects models could account for that possibility, but not the differential local effects of sexual orientation. To test for the sensitivity of my conclusions to the model assumptions, I also estimated the baseline models using fixed effects, random effects models, and OLS models with clustered standard errors and found that the estimated size and significance of the effects of sexual orientation and policies were hardly changed.

This model again includes the overall earnings effects of being in a same-sex couple, γ_1 , and the influence of individual characteristics, β_x , as well as the random components (bottom line) for earnings variation within PUMAs, ε_i , and the variation across PUMAs in earnings for all, u_{op} , and in the effects of being in a same-sex couple, u_{ssp} .

The second line of Equation (2) shows the key policy variables: interactions between being in a same-sex couple and living in a PUMA with a city or county antidiscrimination policy, γ_2 , a state-level policy, γ_3 , or both, γ_4 . Positive coefficients on these variables would indicate that gays and lesbians in areas with employment protections earned systematically more than those in areas with no laws. The model allows for the interaction of laws at the state and local levels (γ_4): A positive coefficient on this term might indicate cooperation in enforcement or synergistic salience of discrimination; a negative coefficient might result from redundancy of laws at two levels or diminishing effectiveness with additional resources. However, as the results below demonstrate, there is little empirical evidence of positive or negative interplay between local and state policies, so later models drop the interaction term for simplicity.

The next line of Equation (2) shows indicators for the policy variables for all workers, which allow the model to capture the earnings differences for all workers in the labor markets that chose to adopt local, state, or both types of policies. Positive coefficients on these variables would suggest that the laws were adopted in higher wage labor markets, as found by both Klawitter and Flatt (1998) and Gates (2009).

I assess the sensitivity of my findings in a number of ways. The main results in this paper center on the effects of policies covering private sector employment, but additional models add indicators of policies covering government employment for local areas and states. I also drop indicators of occupation and industry in case discrimination and antidiscrimination policies affect the types of jobs available and chosen by gays and lesbians. Other models add indicators of the time since adoption of the state and local policies to allow differential effectiveness for policies that had been in place longer. The length of time antidiscrimination policies have been in place could increase their efficacy for a number of reasons: (1) State or local government implementation of the policies could improve over time; (2) policies could create diffusion of knowledge of differential treatment by sexual orientation as discrimination and of appropriate prevention strategies and that could take time; and (3) employment, earnings, and wages are “sticky” and the effects of less discrimination may not be quickly felt. Alternatively, public discourse about discrimination could create a salience around the time of adoption that could wear off over time, resulting in a return to more discrimination later.

Some local areas may be more “gay friendly,” and they may have less discrimination and be more likely to have passed antidiscrimination laws, confounding the estimates of policy impact. To try to control for this, the model includes the degree of urbanness and the proportion of PUMA households containing a same-sex couple. Both of these measures are interacted with the indicator for being in a same-sex couple to allow gays and lesbians to have differentially higher earnings in more urban areas and those with more same-sex couples (Equation 2, line 4). But, as with the presence of the antidiscrimination policies, urbanness and the location of same-sex couples may also be characteristics of higher wage labor markets, so the models also include these measures not interacted with the same-sex couple dummy (line 5). I also estimate the base models without these characteristics to see whether not accounting for the possible selective adoption of policies by local areas could bias estimates of policies and discrimination. Further, I estimate models without the local characteristics and without local policies to see if the estimated effects of state-level policies are contingent on being able to account for local policies and characteristics.

For both men and women, I estimate Equation (2) for all workers, but then limit the analysis by sector of employment (private, government, or nonprofit).¹⁶ As discussed, the laws target different sectors (public employment or private employment) and may have different effects given hiring, firing, and compensation restrictions within the government and nonprofit sectors. Also, earlier work showed differential effectiveness of policies by sector in California (Carpenter & Klawitter, 2007).

The base models in this analysis use annual earnings as the outcome measure that encapsulates multiple dimensions of work and possible avenues for discrimination.¹⁷ However, discrimination and, by extension, efforts to abate discrimination, could differentially affect the rate of pay (wages) and access to employment (weeks and hours of work). Discriminatory hiring and firing could affect each of these employment outcomes, whereas promotion and pay policies are likely to affect only wages and earnings. So, in addition to the baseline annual earnings models, separate models using hourly earnings, weekly hours of work, and annual weeks of work assess these differential impacts of sexual orientation and antidiscrimination policies.

Similarly, some workers may be more likely to face sexual orientation discrimination than others and thus be affected by employment protections, so I estimate separate models by race and use quantile regression to estimate separate models at different point of the earnings distribution (25th, 50th, and 75th percentiles).¹⁸

Finally, antidiscrimination policies could create more stable employment opportunities for gays or lesbians, which could allow one partner in a couple to choose more leisure time or to devote more time to child rearing or other household work. Thus, policies could decrease wage penalties due to discrimination at the same time they encourage fewer hours or weeks of work in response to more stable earnings for at least one partner. There is some evidence that labor market outcomes and differences by demographic characteristics may differ for those designated as “householder” and “partner” in same-sex couples, and the differences may be related to household decisions regarding labor market specialization (Antecol & Steinberger, 2009). To explore possible differences in the policy effects, I estimate separate models by householder status.¹⁹

In addition to the models for individual earnings, I also estimate a model for household income to assess the effects of policies and sexual orientation on combined earnings and income for couples (Equation 3). The sample for this analysis includes all couples and interacts the key policy indicators with indicators for male and female couples to allow the effects of policies to differ with the gender of same-sex couples (γ_2 , γ_3 , γ_4 , and γ_5). The model reflects both the influence of gender and discrimination on both partners, and the intrahousehold choices regarding labor supply in response to the opportunities for individual employment.

¹⁶ These sector-specific models also exclude those who are self-employed or employed in a family business. Discrimination could work to drive workers into lower-paid employment of this type or into particular sectors, so the baseline models for all workers do include these workers.

¹⁷ Most studies of labor market discrimination use hourly earnings constructed from reported annual earnings, annual weeks of work, and typical hours of work per week.

¹⁸ Koenker and Hallock (2001) provide an overview of quantile regression. The quantile models are not multilevel and so do not control for the correlation of error terms within local areas.

¹⁹ These models include all members of same-sex couples (not only one random member), but drop those in different-sex couples not designated as householder (for the householder model) or partner (in the partner model) in an effort to compare similarly situated individuals. Householder status may also be chosen based on labor market outcomes and could therefore overstate earnings for gays and lesbians if compared to all men or women in different-sex couples.

$$\begin{aligned}
 \log(\text{earnings})_i = & \gamma_0 + \gamma_1 \text{male} + \gamma_2 \text{female} + \beta_x^{HH} X_i^{HH} + \beta_x^P X_i^P \\
 & + \gamma_2 \text{Pumalaw} * \text{male} + \gamma_3 \text{Statelaw} * \text{male} + \gamma_4 \text{Pumalaw} * \text{female} + \gamma_5 \text{Statelaw} * \text{female} \\
 & + \gamma_6 \text{Pumalaw} + \gamma_7 \text{Statelaw} + \gamma_8 \text{Statelaw} * \text{Pumalaw} \\
 & + \alpha_1 \text{Urban} * \text{male} + \alpha_2 \text{HHsamesexp} * \text{male} \\
 & + \alpha_3 \text{Urban} * \text{female} + \alpha_4 \text{HHsamesexp} * \text{female} \\
 & + \alpha_5 \text{Urban} + \alpha_6 \text{HHsamesexp} \\
 & + \varepsilon_1 + u_{op} + u_{ssp} * \text{SameSex}
 \end{aligned} \tag{3}$$

RESULTS

Tables 1 and 3 show the baseline results from the multilevel models for men and women. There is evidence that state policies offset the earnings penalty faced by gay men in private sector employment, but the policies don't seem to affect earnings for lesbians. For men then women, I first discuss the baseline models and then discuss the robustness of the findings to alternative specifications. Finally, I explore differential effects of policies and sexual orientation by employment outcome, sector of employment, race, income quantile, and householder status (Tables 2 and 4).

Men's Earnings

The models in Table 1 show earnings differences between men in same-sex couples and those in married couples (the reference group) after controlling for individual characteristics. As described, all models include controls for men in unmarried different-sex couples, individual demographics, occupation, and industry.

In order to assess the variability in the effects of sexual orientation on earnings across local labor markets, the first model does not control for the antidiscrimination policies or for local area characteristics (urbanness or the prevalence of same-sex couples). Men in same-sex couples earned about 20 percent less than those in married couples after controlling for individual characteristics [Model 1; $-0.20 = \exp(-0.22) - 1$].²⁰ Similarly, men in unmarried different-sex partnerships earned 17 percent less than married men.

The variance terms show that, after controlling for individual characteristics, overall earnings varied significantly across local areas ($p < 0.01$), as did the effects of being in a same-sex couple, though the latter variation is tiny (less than 1 percent of the total variance) and only marginally significant ($p = 0.07$).²¹ However, this variation in the impact of sexual orientation across local areas still leaves room for the effects of state or local policies and other geographic characteristics in addition to the possibility for offsetting influences within local markets.

Model 2 adds indicators of state and local antidiscrimination policies covering private sector employment to the model, as well as the local area characteristics (which will be discussed later).²² None of the policy measures for gay men—those for local policies, state policies, or the interaction between local and state policies—is close to being statistically significant, though all coefficients are positive, showing higher average earnings for gay men in the areas with policies. The results do, however, suggest that average earnings were higher for all men in states that

²⁰ With a logged outcome the percentage change in the outcome with a change in a dummy variable is $[\exp(\beta) - 1] * 100$ (Cameron & Trivedi, 2009, p. 86).

²¹ The proportion of variance attributable to the differing effects of sexual orientation is $0.006 / (0.009 + 0.006 + 0.001 + 0.655)$ or 0.9 percent and 1.3 percent for PUMA variation (Singer, 1998).

²² The addition of the policy and local characteristic variables results in a lower value of the Bayesian Information criterion (BIC), showing that they add to the model fit (Greene, 2008, p. 143).

Table 1. Multilevel analysis of logged earnings for men.

	All Employed Men			Private Sector Only					
	(1)	(2)	(3)	(4)	(5)	(6)			
	Coeff.	SE	p	Coeff.	SE	p			
Same-sex couple member	-0.22***	0.02	<0.001	-0.38***	0.06	<0.001	-0.40***	0.06	<0.001
Unmarried diff.-sex couple member	-0.19***	0.01	<0.001	-0.20***	0.01	<0.001	-0.21***	0.01	<0.001
Policy variables for same-sex couples:									
Local policy for private employment				0.03	0.04	0.46	0.05	0.04	0.23
State policy for private employment				0.03	0.03	0.36	0.09**	0.04	0.03
Local and state policies for private				0.04	0.06	0.44	-0.004	0.06	0.96
Policy variables for all:									
Local policy for private employment				-0.01	0.02	0.54	-0.01	0.02	0.54
State policy for private employment				0.09***	0.01	<0.001	0.09***	0.01	<0.001
Local and state policies for private				-0.07***	0.03	0.01	-0.06*	0.03	0.06
Urban percentage * same-sex couple				0.13**	0.06	0.04	0.13*	0.07	0.08
% households with same-sex couples*				-2.37	4.10	0.56	-0.17	4.62	0.97
same-sex couple									
Urban percentage				0.26***	0.02	<0.001	0.23***	0.03	<0.001
% households with same-sex couples				7.09***	2.69	0.01	7.47**	2.96	0.01
Variance/covariance terms:									
PUMA intercept	0.009***	0.002	<0.001	0.004***	0.001	0.001	0.004***	0.001	0.002
PUMA same-sex couple effect	0.006*	0.004	0.074	0.005*	0.004	0.074	0.005	0.005	0.158
PUMA intercept/same-sex couple	0.001	0.002	0.645	0.001	0.002	0.457	0.001	0.002	0.664
covariance									
Residual	0.655***	0.005	<0.001	0.651***	0.005	<0.001	0.569***	0.005	<0.001
-2 Res Log Likelihood		87010			86748			59348	
BIC (smaller is better)		87036			86774			59373	
Sample size		35827			35827			25935	

Note: All models include controls for age, age squared, indicators for ethnicity and race, education, English language ability, work limiting disability, having children under 6, being a U.S. citizen, industry, and occupation.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2. Analysis of employment outcomes and subsamples for men.

	Same-Sex Couple (%)	Unmarried Different-Sex Couple (%)	Policy Variables for Same-Sex Couples		Policy Variables for All		Sample Size
			Local Policy (%)	State Policy (%)	Local Policy (%)	State Policy (%)	
Employment outcomes (private sector only):							
Hourly earnings	-20***	-14***	1	1	2	11***	25931
Annual weeks	-8***	-4***	0	3**	-2***	-1**	27259
Weekly hours	-8***	-3***	0	1	-2***	-1*	27259
Sector							
Private	-33***	-19***	5	8**	-3*	8***	25935
Government	-18	-12***	1	8	-3	10***	4115
Nonprofit	-7	-19***	5	-11	-7	2	1578
Race (private sector only):							
White	-34***	-18***	9**	14***	-5***	8***	19203
African American	-36*	-20***	-5	-32**	0	0	2562
Hispanic	-26	-19***	5	-7	3	6**	3258
Asian	-63	-12	-29	-1	-3	-6	635
Quantile regression (private sector only):							
25th percentile	-29***	-20***	6	5	-5***	7***	25935
50th percentile	-24***	-17***	2	5*	-2	7***	25935
75th percentile	-20***	-15***	3	7**	0	8***	25935
Householder status (private sector only):							
Householder	-24***	-14***	9**	8**	-4*	9***	18627
Partner	-30***	-15***	-1	6	-1	4	11168

Note: All models include controls for age, age squared, indicators for ethnicity and race, education, English language ability, work limiting disability, having children under 6, being a U.S. citizen, industry, and occupation. Coefficients are reported as percentage change in outcome.

*Significant at 10%; **significant at 5%; ***significant at 1%.

adopted policies (the coefficient on state policies for all men), but perhaps lower for those in local areas that also adopted policies.

Models 3 and 4 restrict the sample to men employed in the private sector. These models show higher average earnings for gay men in states, but not local areas that have adopted antidiscrimination policies. Earnings for gay men in the private sector are higher by about 8 percent in places with state policies (Model 4).²³ There is no evidence of synergy or offsetting effects of policies at the state and local levels (Model 3).²⁴

Several other models provide a sense of how sensitive these results are to the particulars of the analysis, such as which states are included and whether the model controls for local area characteristics, occupation and industry, and the duration of the policy (results not shown, but available upon request).

One concern is that the estimated state policy impacts could be driven by one or two large states such as California or New York.²⁵ To test this, I reestimated the

²³ In other models, I also interacted the policy variables with indicators for those in unmarried different-sex couples to allow the earnings penalty faced by those men to be offset in places with policies. However, coefficients on those variables were very small and never statistically significant, providing more weight to the argument that the results for same-sex couples are a reflection of the impacts of the policies.

²⁴ The BIC is nearly identical for the two models, suggesting that the additional variable does not add to model fit.

²⁵ Other states with policies in 1999 were Connecticut, Hawaii, Massachusetts, Minnesota, Nevada, New Hampshire, Rhode Island, Vermont, and Wisconsin.

Table 3. Multilevel analysis of logged earnings for women.

	All Employed Women			Private Sector Only		
	(1)	(2)	(3)	(4)	(5)	(6)
	Coeff.	SE	p	Coeff.	SE	p
Same-sex couple member	0.24***	0.02	0.00	0.25***	0.07	<0.001
Unmarried diff.-sex couple member	0.11***	0.01	<0.001	0.06***	0.02	<0.001
Policy variables for same-sex couples:						
Local policy for private employment	-0.02	0.04	0.58	-0.002	0.05	0.97
State policy for private employment	0.01	0.03	0.73	0.01	0.04	0.84
Local and state policies for private	-0.05	0.06	0.40	0.01	0.08	0.94
Policy variables for all:						
Local policy for private employment	0.01	0.02	0.65	0.014	0.02	0.57
State policy for private employment	0.09***	0.02	<0.001	0.08***	0.02	<0.001
Local and state policies for private	-0.03	0.03	0.39	-0.04	0.04	0.34
Urban percentage * same-sex couple	-0.02	0.06	0.75	-0.06	0.08	0.45
% households with same-sex couples *	-7.18	5.31	0.18	-0.54	6.98	0.94
same-sex couple						
Urban percentage	0.28***	0.03	<0.001	0.30***	0.03	<0.001
% households with same-sex couples	14.39***	3.14	<0.001	12.09***	3.59	<0.001
Variance/Covariance terms:						
PUMA intercept	0.013***	0.002	<0.001	0.004***	0.001	<0.001
PUMA same-sex couple effect	0.004	0.004	0.17	0.004	0.004	0.18
PUMA intercept/same-sex couple covariance	-0.004*	0.002	0.05	-0.001	0.002	0.48
Residual	0.829***	0.007	<0.001	0.826***	0.006	<0.001
-2 Res Log Likelihood	88118	87875			59170	
BIC (smaller is better)	88143	87901			59196	
Sample size	33077	33077			22771	

Note: All models include controls for age, age squared, indicators for ethnicity and race, education, English language ability, work limiting disability, having children under 6, being a U.S. citizen, industry, and occupation.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4. Analysis of employment outcomes and subsamples for women.

	Same-Sex Couple (%)	Unmarried Different-Sex Couple (%)	Policy Variables for Same-Sex Couples		Policy Variables for All		Sample Size
			Local Policy (%)	State Policy (%)	Local Policy (%)	State Policy (%)	
Employment outcomes (private sector only):							
Hourly earnings	3	-4***	0	3	2*	11***	22764
Annual weeks	10***	4***	-1	-1	0	0	25067
Weekly hours	18***	10***	-1	1	-1	-2***	25067
Sector							
Private	28.5***	6.2***	-0.1	0.7	0.2	7.8***	22771
Government	5.6	13.1***	-11.4*	1.9	0.2	10.1***	4989
Nonprofit	49.8***	24.6***	-4.0	-12.4*	-1.2	8.9**	2994
Race (private sector only):							
White	33***	6***	8	3	-5*	6***	17291
African American	-17	1	-26**	-9	13**	19***	2159
Hispanic	88*	6	1	-7	10*	13***	2371
Asian	69	11	-25	37	4	-1	656
Quantile regression (private sector only):							
25th percentile	34***	9***	3	1	-3	4*	22771
50th percentile	21***	1	-2	0	-1	10***	22771
75th percentile	22***	-1	-3	0	1	10***	22771
Householder status (private sector only)							
Householder	16**	7**	-5	-4	5	8***	10416
Partner	37***	2	1	0	-2	7***	15944

Note: All models include controls for age, age squared, indicators for ethnicity and race, education, English language ability, work limiting disability, having children under 6, being a U.S. citizen, industry, and occupation. Coefficients are reported as percentage change in outcome.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

model after sequentially dropping all workers in California, New York, and New Jersey. The results suggest that no one state is responsible for the impact of state policies: The size of the effects were slightly smaller without Californians in the model (by about 1 percentage point) and slightly larger without workers from New York and New Jersey, but still statistically significant.

If the controls for local characteristics (urbanness and the proportion of households with same-sex couples, and the interactions with those and the indicator for same-sex couples) are not included, the estimated policy impacts for local policies are larger and statistically significant for gay men in the private sector and in all sectors combined. The state policy effects are just slightly larger, but only in the private sector models. This suggests that the local policies were selectively adopted in gay-friendly places, and it is important to control for local characteristics. In models similar to those used by Gates (2009) but with logged annual earnings as the outcome (rather than hourly earnings) and without the variance components for local effects, local policy indicators, and local characteristics (except including the urban variable), the effects of state policies were larger and more statistically significant for gay men in the private sector ($p < 0.001$) and all employed men ($p = 0.051$). This suggests that controlling for local characteristics and local policies is important to correctly assessing the size and significance of state-level policies.

Gays and lesbians could choose particular occupations or industries to try to avoid those with more discrimination, and antidiscrimination policies could open up new, higher-paying opportunities. If so, then the models in Table 1, which include controls for occupation and industry, could underestimate the levels of discrimination and the effects of antidiscrimination policies. In models that don't control for occupation and industry, the size of the earnings penalty for gay men is larger by about 20 percent, but the size and significance of the policy effects are nearly identical. So the policies do not seem to work primarily through opening up different occupations or industries.

To assess whether the length of time antidiscrimination policies had been in place increased their efficacy, I added a control for years since adoption of policies and an interaction between it and the indicator of being in a same-sex couple to the base model (not shown here). In these models, the coefficients on time since adoption of both state and local policies for gay men were small, negative, and not significant. The indicators for having state or local policies for gay men were almost identical in size to those in Table 1, but were no longer statistically significant, perhaps due to the correlation with the years since adoption measures.²⁶ On the whole, this suggests that time since implementation is not driving any policy effects.

I now turn to a more general discussion of earnings by sexual orientation in these baseline models. After controlling for the effects of the private sector antidiscrimination policies and local area characteristics, the earnings penalty for men in same-sex couples was about 30 percent in all sectors combined (Model 2) and for those in the private sector (Model 4). As described, the effects of being in a same-sex couple varied significantly across local labor markets ($p = 0.07$, Model 2), but not for those working within the private sector ($p = 0.16$, Model 3). Average earnings were higher for all men in more urban areas, but gay men had an additional boost in more urban areas (coefficients on "urban percentage" and "urban percentage * same-sex couple" in Models 2, 3, and 4). Surprisingly, local areas with more same-sex couples had higher average earnings for all, but did not seem to be more gay friendly, as earnings were not differentially higher for gay men (coefficients on "% of households with same-sex couples" for all and gay men in Models 2, 3, and 4).

Table 2 shows additional models that explore differential effects of antidiscrimination policies and sexual orientation on other employment outcomes and by type of worker (employment sector, race, income quantile, and householder status). Here the coefficients have been converted to percentage change in the outcome to facilitate comparison, and the percentage change and statistical significance for couple type, policy variables for gay men, and policy variables for all are displayed across the columns from left to right.²⁷ The models in Table 2 all include the same variables used in Model 4 of Table 1, including individual and local area characteristics, occupation, and industry. Other than the models by sector, the samples are restricted to those in the private sector, where the key antidiscrimination policies are targeted.

The first panel of Table 2 shows the effects on hourly earnings, annual weeks of work, and usual hours of work per week in the private sector. Gay men in the private sector had significantly lower wages, weeks of work, and hours of work than did married men. However, the state antidiscrimination policies were significantly associated only with higher annual weeks of work, not wages or hours. This significant association might mean that the state antidiscrimination policies increase opportunities for gay men to work more weeks by decreasing discrimination in hiring and firing, rather than by increasing pay or hours for particular jobs. Gay men

²⁶ Gates (2009) found a significant effect of policy duration for gay men, but his models do not include an indicator for having any policy, so he may be picking up an overall policy impact rather than duration *per se*.

²⁷ For logged annual earnings and hourly earnings the percentage change is $[\exp(\beta) - 1] * 100$, and for hours and weeks of work the change is taken as a percentage of the level for married workers.

in states with antidiscrimination policies worked about 3 percent more weeks than those without policies, all else held constant.²⁸

The second panel of Table 2 shows annual earnings models for the private sector (replicated from Table 1, Model 4), government, and nonprofit sectors. Private sector protections could spill over into the public and nonprofit sectors because of competition for workers in overlapping labor markets. However, the results show that protections for private sector workers did not significantly affect earnings for workers in government or nonprofits. Workers in the government and nonprofit sectors also did not have the same earnings penalty faced by private sector workers—in neither sector did gay men face a statistically significant earnings penalty. As noted, gay men in the private sector earned about 8 percent more when covered by an antidiscrimination policy, though this did not completely offset the earnings penalty of 33 percent for gay men in the private sector. In addition, antidiscrimination policies targeting the public sector could affect workers in all sectors and are not included in the preceding models. But in models that included both public and private sector protections, the public sector policies were not significantly related to earnings for gay men in any sector (results not shown).²⁹

Antidiscrimination policies could have differential effects across segments of labor markets, and to assess this differential effect, Table 2 shows separate models by race, earnings quartile, and householder status for those in private sector employment. Both state and local policies are associated with higher earnings for gay white men in the private sector by 14 and 9 percent, respectively (Table 2, panel 3). The quantile regression results show state policies linked to higher earnings for gay men at the median and 75th percentile of the earnings distribution, but not at the 25th percentile (though the coefficient there is also large and negative). Only those designated as householders (not partners) showed higher earnings when policies and both state and local policies were significant (Table 2, bottom panels).³⁰ Beyond the policy effects, earnings penalties for gay men were statistically significant only for white and African American men in the private sector (though all groups have large negative point estimates and samples sizes are small for nonwhite samples). There were large penalties for gay men at each point in the earnings distribution (25th, 50th, and 75th percentiles)³¹ and for both householders and partners. One puzzling result is that African American gay men have significantly lower earnings in states with antidiscrimination policies. This and a similar result for women might be attributable to the small sample sizes for African Americans in same-sex couples by policy type.

Overall, the results for men provide more evidence for the impact of state antidiscrimination policies than for local policies, selective effects on weeks of employment, the private sector, white men, the upper half of the earnings distribution, and those designated as householders. On the whole, the effects on subpopulations do not always point to the largest policy effects for individuals with the largest earnings penalties, but are suggestive of systematic effects of state policies.

Women's Earnings

In contrast to gay men, Table 3 shows that women in same-sex couples earned almost 30 percent more than married women after controlling for individual

²⁸ Gay men in the private sector worked about four fewer weeks per year, and the state policies are estimated to have offset that by a little more than one week.

²⁹ The size and significance of coefficients for the private sector laws were little changed by the inclusion of the public laws.

³⁰ This may overstate the policy effects as couple members choose who is the householder, and the highest earners may be chosen differentially in places more likely to have policies and higher earnings distributions.

³¹ I also tried to estimate quantile models for hours and weeks of work, but these models did not always converge, most likely because of the more limited variation in hours and weeks of work.

characteristics [$\exp(0.24) - 1$], and there was very little evidence of variation in the effects of being in a same-sex couple across local areas ($p = 0.17$, Model 1). The lack of local area variation in the effects of sexual orientation for women, as well as the lack of an earnings penalty for lesbians, suggests there would not be large effects of antidiscrimination policies or local area characteristics for lesbians. Indeed, there is no evidence of either for women.

Model 2 shows the analysis of earnings for all employed women with a model including local and state policies and local area characteristics.³² None of the policy coefficients is statistically significant, providing no evidence that local or state policies, alone or in combination, differentially affect earnings for women in same-sex couples. Consistent with the findings for men, average earnings for all women are higher in states that adopted the antidiscrimination policies. Unlike for men, models limited to those employed in the private sector did not show higher average earnings for lesbians in areas with state policies, with or without an interaction term for state and local policies (Models 3 and 4).

The conclusion of no positive policy effects for lesbians is well supported: It held in models without local characteristics, in models without controls for occupation and industry of employment, in models including time since policy adoption, for policies targeting public sector discrimination, for workers in the government and nonprofit sectors, for each racial group and earnings quartile, and for those designated as householders and partners.³³

Turning to the issue of the earnings differentials for women: The base models in Table 3 show partnered lesbians earned more than married women (Models 2, 3, and 4). As in the models for men, average earnings were higher for all women in places that had state antidiscrimination policies, were more urban, or had a higher proportion of same-sex couples. But unlike for gay men, lesbians did not earn differentially more when they lived in states with policies or in more urban settings.

Table 4 shows estimates for women by alternative employment outcomes, sector of employment, race, and earnings quantile. Models using hourly earnings, annual weeks, and weekly hours demonstrate that the earnings premium for lesbians came through more weeks and hours of work, not higher earnings per hour (Table 4, top panel).³⁴ There was, however, no evidence of positive effects of antidiscrimination policies for lesbians on any of these dimensions of work.

Lesbians earned significantly more than married women in the private and nonprofit sectors, but not in government employment (Table 4, second panel). The earnings premium in the private sector was significant for white and Hispanic women and across the earnings distribution in the quantile regressions. In almost every case, all women earned more in states with antidiscrimination policies, but in no case did lesbians differentially earn more in a state or local area with a policy. African American lesbians did not earn significantly more than married women, and their earnings were lower in places with local antidiscrimination policies. This adds to the puzzle of African American gay men earning less in states with policies. The samples of African American gay men and lesbians are very small and perhaps contribute to these anomalous findings.

The lack of impact for policies designed to offset discrimination might not be surprising given the earnings premium for lesbians. This premium is likely to reflect multiple influences of sexual orientation differences in human capital accumulation and labor market intensity, as discussed above. The source of the earnings

³² Similar to men, the lower BIC for Model 2 shows that the policy and local characteristic variables improve the model fit.

³³ I also tried a Heckman selection model to account for selection into the labor market. The estimates of the policy impacts and the lesbian earnings premium were nearly identical to the results presented here.

³⁴ Lesbians in the private sector worked about four more weeks per year and seven more hours per week, on average, than did married women in the labor force.

advantage for lesbians relative to married women has been explored by a number of authors (Daneshvary, Waddoups, & Wimmer, 2009; Antecol, Steinberger, & Jong, 2008; Jepsen, 2007). These studies find that differences in educational levels and location contribute to higher average earnings for lesbians, but little evidence of differential returns for these or for child rearing compared to married women. Taken together, the results suggest that sexual orientation differences in labor market outcomes for women primarily reflect the intensity of labor market engagement through hours and weeks of work, and the types of jobs women have, rather than broader pay differentials within jobs.

Income for Couples

Antidiscrimination policies target labor market outcomes for individuals, but the policies may also alter the intrahousehold bargaining and joint decisions regarding work for both members of a couple. More secure or lucrative employment could allow more specialization within same-sex couples, more leisure time for one or both members (through an income effect), or more intensive work opportunities (a substitution effect).³⁵ There is less household specialization in same-sex couples than in heterosexual couples (Black, Sanders, & Taylor, 2007; Antecol & Steinberger, 2009); however, labor market discrimination might partly explain those differences.³⁶

To further assess the potential effects of antidiscrimination policies on couples, Table 5 shows models of logged household income and its association with the type of couple (male same-sex, female same-sex, and unmarried different-sex, with married as the reference group), local and state antidiscrimination policies, local area characteristics, and the characteristics for both partners. If antidiscrimination policies do decrease labor market discrimination, then the policies should increase work opportunities, but may or may not increase overall income for couples if they choose more specialization (less market work time and more household work for one partner) or more leisure time for at least one member of the couple.

Table 5 shows evidence of policy effects that are still limited to gay men, but are somewhat inconsistent with the results for individuals. Earnings are higher for male couples in areas that have both state and local policies, but not in areas with only one type of policy. It's unclear why the combination of policies might be more important for household income than the state policy effects found for individuals.³⁷ Consistent with the results for the individual earnings, there is no evidence of a policy effect for lesbians.

The models also show that household incomes are highest for married couples and gay male couples (the coefficient on the indicator for male same-sex couples is not significant), and lowest for lesbian couples. These results suggest that the earnings premium for lesbian workers may be the result of their work efforts to increase overall household income in the absence of a male wage earner. Individuals in gay male couples analogously work fewer weeks and hours, and this may partly be additional leisure in response to having access to earnings for two men.

³⁵ Antidiscrimination policies could even affect the formation of partnerships, though this seems unlikely given the relatively small effects found here on earnings. Other laws, such as civil unions, domestic partnerships, and marriage for same-sex couples (all adopted after the 2000 census), are more likely to affect partnerships over time and could ultimately change patterns of earnings as well.

³⁶ Jepsen (2008) does not find that hours of work by women's partners affect their own earnings, but levels of actual or potential earnings might be more important than hours here. Both Black, Sanders, and Taylor (2007) and Antecol and Steinberger (2009) find the lower market specialization among same-sex couples might be at least partly explained by differential rates of child rearing.

³⁷ It is possible that combined effects of state and local policies push household earnings enough to offset possible decreases in labor supply due to an income effect.

Table 5. Multilevel analysis of logged household income for all couples.

All Couples	Coeff.	SE	<i>p</i>
Male same-sex couple	0.026	0.041	0.532
Female same-sex couple	-0.111***	0.036	0.002
Unmarried different-sex couple	-0.101***	0.008	<0.001
Policy variables for male same-sex couples:			
Local policy for private employment	-0.017	0.026	0.508
State policy for private employment	-0.016	0.026	0.536
Local and state policies for private employment	0.101**	0.042	0.015
Policy variables for female same-sex couples:			
Local policy for private employment	0.038	0.027	0.157
State policy for private employment	0.003	0.023	0.880
Local and state policies for private employment	-0.049	0.042	0.241
Policy variables for all:			
Local policy for private employment	0.002	0.011	0.845
State policy for private employment	0.115***	0.010	<0.001
Local and state policies for private employment	-0.058***	0.021	0.005
Urban percentage * male couple	-0.007	0.048	0.889
% households with same-sex couples * male couple	-0.979	3.115	0.753
Urban percentage * female couple	-0.052	0.042	0.224
% households with same-sex couples * female couple	0.210	3.617	0.954
-2 Res Log Likelihood	93201		
BIC (smaller is better)	93227		
Sample size	46496		

Note: Model includes controls for each partner's age, age squared, indicators for ethnicity and race, education, English language ability, work limiting disability, having children under 6, being a U.S. citizen, industry, and occupation.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

CONCLUSION

Most Americans now support equal employment opportunities for gays and lesbians, but public debates continue on the necessity of passing laws to protect those rights. Although many of the resources of gay and lesbian advocacy groups have moved toward protecting or advancing opportunities for building families through child rearing, marriage, or partnership, the political importance of employment protections has not faded, and states and local areas continue to adopt antidiscrimination policies for employment. National legislation prohibiting discrimination in private employment on the basis of sexual orientation has been introduced every year except one since 1994, but has yet to pass both the House and Senate.

This work documents the growth in state, county, and city efforts to prevent sexual orientation discrimination in the workplace. The earliest policies are now more than 30 years old, most are at least 10 years old, and they blanket many different kinds of labor markets. Using multilevel models allows the estimation of the effects of state and local policies on earnings and of variation in the effects of sexual orientation on earnings across local areas.

The results suggest that gay men face an earnings penalty that varies significantly (though not sizably) across local areas, and state policies decrease that penalty in private sector employment by increasing weeks of employment. In contrast, there is no evidence of an earnings increase for lesbians in states or local areas with antidiscrimination policies. These key results are robust to many alternative models and

specifications. Gay men in states with antidiscrimination policies earn about 8 percent more per year in the private sector than do those not covered by a policy. There is no strong evidence of an impact of local policies, though for subsamples of white gay men and those designated as householders the local policy effects are also statistically significant.

The models here also show that lower average earnings for gay men come through lower wages, weeks, and hours of work, but the antidiscrimination policies affect only weeks of work, suggesting that the most likely the source of discrimination is through hiring or firing, not pay. Conversely, the earnings premium for lesbians is present only for hours and weeks of work and not for overall income for the couple, pointing to possible efforts to offset lower earnings for households with no male earners.

Other findings point to geographic differences in the effects of sexual orientation and in the adoption of antidiscrimination policies. Local characteristics (greater urbanness and larger numbers of same-sex couples) are associated with higher average earnings for all, and gay men (but not lesbians) earn differentially more in more urban areas. Finally, state but not local antidiscrimination policies were adopted in places with higher earnings for all.

This paper uses models that include local antidiscrimination policies (unlike Gates, 2009) and multilevel models that account for local labor market characteristics and how they interact with sexual orientation (unlike Klawitter & Flatt, 1998). The estimates of the impact of state policies are lower in models that account for local laws and characteristics, highlighting the importance of local labor markets in understanding earnings and sexual orientation. Unlike Klawitter and Flatt, I find significant effects of state policies on earnings for gay men in the private sector. This could reflect the longer period of policy implementation (though the results here do not support that hypothesis) or the greater number of states with policies. Unlike Gates, I do not find effects of state policies on hourly earnings, only on annual earnings and on weeks of employment and for men in the private sector. Using a model similar to the one used by Gates, I find that estimated effects of the state policies are much larger than in a model that includes local policies and characteristics and accounts for unobserved heterogeneity in the effects of local areas on earnings. This is not good news for policy researchers, given the difficulties associated with collecting high-quality information on city and county policies over time.

The census data allow only identification of those in same-sex couples, not all gays and lesbians, but the results here provide possible insight as to how policies might affect the population of all gays and lesbians. Carpenter and Gates (2008) show that gays and lesbians in couples are more likely to be white, older, and more educated than are all individuals—all characteristics associated with higher average earnings as well. Analysis of subsamples here shows greater policy effects for whites and those with higher earnings, suggesting that the impact of antidiscrimination policies for all gay men is likely to be smaller than that estimated here for all men in same-sex couples.

The findings suggest that a focus on state rather than local antidiscrimination policies would pay off in less discrimination for gay men in the private sector, though it does not factor in the political investments required or the possibility that local policy adoptions may “soften up” policymakers and make state adoptions easier. It also suggests that other types of antidiscrimination strategies (e.g., outreach or advocacy, or changes in access to education for gays and lesbians) might be required for people of color and for those lower on the earnings distribution.

Antidiscrimination policies stand as a symbol of equal rights and as a source of remedy for individuals facing workplace inequities. Given the potential influences of policies on the salience of discrimination and changes in norms, it's unlikely that any study will be able to disentangle the full effects of antidiscrimination policies

on discrimination in labor markets. However, this paper adds to a growing literature providing a more nuanced picture of how sexual orientation affects work in America.

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REFERENCES

- Antecol, H., & Steinberger, M. D. (2009). Female labor supply differences by sexual orientation: A semi-parametric decomposition approach. SSRN eLibrary. Retrieved July 8, 2010, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1346661.
- Antecol, H., Steinberger, M., & Jong, A. (2008). Sexual orientation wage gap: The role of occupational sorting and human capital. *Industrial & Labor Relations Review*, 61, 518–543.
- Badgett, M. V. L. (1995). The wage effects of sexual orientation discrimination. *Industrial and Labor Relations Review*, 48, 726–739.
- Badgett, M. V. L., Lau, H., Sears, B., & Ho, D. (2007). *Bias in the workplace: Consistent evidence of sexual orientation and gender identity discrimination*. Los Angeles: The Williams Institute, UCLA School of Law.
- Black, D., Gates, G., Sanders, S., & Taylor, L. (2007). The measurement of same-sex unmarried partner couples in the 2000 U.S. Census. California Center for Population Research, UCLA. Retrieved July 7, 2010, from <http://papers.ccpr.ucla.edu/papers/PWP-CCPR-2007-023/PWP-CCPR-2007-023.pdf>.
- Black, D., Sanders, S., & Taylor, L. (2007). The economics of lesbian and gay families. *Journal of Economic Perspectives*, 21, 53–70.
- Button, J. W., Rienzo, B. A., & Wald, K. D. (1995). Where local laws prohibit discrimination based on sexual orientation. *Public Management*, 77, 9–14.
- Button, J. W., Rienzo, B. A., & Wald, K. D. (1997). *Private lives, public conflicts: Battles over gay rights in American Communities*. Washington, DC: Congressional Quarterly, Inc.
- Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics using stata*. College Station, TX: Stata Press.
- Carpenter, C. S. (2008). Sexual orientation, work, and income in Canada. *Canadian Journal of Economics*, 41, 1239–1261.
- Carpenter, C. S., & Gates, G. J. (2008). Gay and lesbian partnership: Evidence from California. *Demography*, 45, 573–590.
- Carpenter, C. S., & Klawitter, M. M. (2007). Local antidiscrimination ordinances and the earnings of sexual minorities: Evidence from the 2001 California Health Interview Survey. In M. L. Badgett & J. Frank, (Eds.), *Sexual orientation discrimination: An international perspective* (pp. 275–290). New York: Routledge Press.
- Chay, K. (1998). The impact of federal civil rights policy on black economic progress: Evidence from the Equal Employment Opportunity Act of 1972. *Industrial and Labor Relations Review*, 51, 608–632.
- Collins, W. J. (2003). The labor market impact of state-level anti-discrimination laws, 1940–1960. *Industrial and Labor Relations Review*, 56, 244–272.
- Colvin, R. A. (2000). Improving state policies prohibiting public employment discrimination based on sexual orientation. *Review of Public Personnel Administration*, 20, 5–19.

- Daneshvary, N. C., Waddoups, J. & Wimmer, B. S. (2009). Previous marriage and the lesbian wage premium. *Industrial Relations*, 48, 432–453.
- Donohue, J. J., & Heckman, J. (1991). Continuous versus episodic change: The impact of civil rights policy on the economic status of blacks. *Journal of Economic Literature*, 29, 1603–1643.
- Dorris, J. B. (1999). Anti-discrimination laws in local government: A public policy analysis of municipal lesbian and gay public employment protections. In E. Riggle & B. Tadlock, (Eds.), *Gays and lesbians in the democratic process* (pp. 39–61). New York: Columbia University Press.
- Gates, G. J. (2009). The impact of antidiscrimination policies on the wages of lesbians and gay men. California Center for Population Research On-Line Working Paper Series. Retrieved November 14, 2010, from <http://papers.ccpr.ucla.edu/papers/PWP-CCPR-2009-010/PWP-CCPR-2009-010.pdf>.
- Gray, V. (1973). Innovation in the states: A diffusion study. *American Political Science Review*, 67, 1174–1185.
- Greene, W. (2008). *Econometric analysis*, 6th ed. Upper Saddle River, NJ: Pearson/Prentice Hall.
- Gunderson, M. (1989). Male-female wage differentials and policy responses. *Journal of Economic Literature*, 27, 46–72.
- Haeberle, S. (1996). Gay men and lesbians at city hall. *Social Science Quarterly*, 77, 190–197.
- Haeberle, S. (1999). Gay and lesbian rights emerging trends in public opinion and voting behavior. In E. Riggle & B. Tadlock (Eds.), *Gays and lesbians in the democratic process* (pp. 146–169). New York: Columbia University Press.
- Haider-Markel, D. P., & Meier, K. J. (1996). The politics of gay and lesbian rights: Expanding the scope of the conflict. *Journal of Politics*, 58, 332–349.
- Haider-Markel, D. P., & Meier, K. J. (2003). Legislative victory, electoral uncertainty: Explaining outcomes in the battles over lesbian and gay civil rights. *Review of Policy Research*, 20, 671–690.
- Herek, G. M. (2000). The psychology of sexual prejudice. *Current Directions in Psychological Science*, 9, 19–22.
- Jepsen, L. K. (2007). Comparing the earnings of cohabiting lesbians, cohabiting heterosexual women, and married women: Evidence from the 2000 census. *Industrial Relations*, 46, 699–727.
- Kelly, J. (2001). Attitudes towards homosexuality in 29 nations. *Australian Social Monitor*, 4, 15–22.
- Klawitter, M. M., & Flatt, V. (1998). The effects of state and local antidiscrimination policies on earnings for gays and lesbians. *Journal of Policy Analysis and Management*, 17, 658–686.
- Klawitter, M. M., & Hammer, B. (1999). Spatial and temporal diffusion of local antidiscrimination policies for sexual orientation. In E. Riggle & B. Tadlock (Eds.), *Gays and lesbians in the democratic process* (pp. 22–38). New York: Columbia University Press.
- Koenker, R., & Hallock, K. F. (2001). Quantile regression. *Journal of Economic Perspectives*, 15, 143–156.
- Lewis, G. B., & Rogers, M. A. (1999). Does the public support equal employment rights for gays and lesbians? In E. Riggle & B. Tadlock (Eds.), *Gays and lesbians in the democratic process* (pp. 118–145). New York: Columbia University Press.
- Loftus, J. (2001). America's liberalization in attitudes toward homosexuality, 1973 to 1998. *American Sociological Review*, 66, 762–782.
- Neumark, D., & Stock, W.A. (2001). The effects of race and sex discrimination laws. National Bureau of Economic Research Working Paper Series No. 8215. Retrieved December 2, 2009, from <http://www.nber.org/papers/w8215>.
- Riccucci, N. M., & Gossett, C. W. (1996). Employment discrimination in state and local government: The lesbian and gay male experience. *American Review of Public Administration*, 26, 175–200.

- Rubenstein, W. (2002). Do gay rights matter? An empirical assessment. *Southern California Law Review*, 75, 65–120.
- Schroedel, J. R. (1999). Elite attitudes toward homosexuals. In E. Riggle & B. Tadlock (Eds.), *Gays and lesbians in the democratic process* (pp. 89–117). New York: Columbia University Press.
- Singer, J. D. (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. *Journal of Educational and Behavioral Statistics*, 23, 323–355.
- Wald, K. D., Button, J. W., & Rienzo, B. A. (1996). The politics of gay rights in American communities: Explaining antidiscrimination ordinances and policies. *American Journal of Political Science*, 40, 1152–1178.
- Yang, A. S. (1997). Trends: Attitudes toward homosexuality. *Public Opinion Quarterly*, 61, 477–507.

Effects of Antidiscrimination Policies on Earnings by Sexual Orientation

Table A1. Descriptive statistics by couple.

	Married Couples		Unmarried Different-Sex Couples		Same-Sex Couples	
	Mean	SD	Mean	SD	Mean	SD
Logged earnings	10.47	0.89	10.05	0.9	10.33	0.98
Annual earnings	50359	53717	32275	34088	45445	49071
Weekly hours	45	11	43	11	43	11
Annual weeks of work	49	9	46	11	47	10
Local antidis. policy for private employment	0.15	0.35	0.18	0.39	0.4	0.49
State antidis. policy for private employment	0.25	0.43	0.27	0.44	0.34	0.47
Local public sector antidis. law	0.05	0.21	0.05	0.21	0.06	0.24
State public sector antidis. policy	0.13	0.34	0.14	0.35	0.12	0.33
Urban pop. as % of local area	0.75	0.26	0.76	0.26	0.89	0.2
% of local households with a same-sex couple	0.005	0.002	0.006	0.002	0.007	0.003
Age	43	11	35	10	39	10
Hispanic	0.1	0.3	0.13	0.34	0.1	0.29
Asian	0.04	0.19	0.02	0.14	0.02	0.15
Black	0.07	0.25	0.13	0.33	0.06	0.24
White	0.85	0.36	0.78	0.42	0.87	0.33
High school diploma	0.29	0.45	0.35	0.48	0.16	0.36
Some college	0.28	0.45	0.29	0.45	0.32	0.47
College degree	0.18	0.39	0.11	0.32	0.27	0.45
Graduate or prof. school	0.12	0.32	0.04	0.2	0.18	0.39
Speaks English well	0.97	0.18	0.97	0.18	0.98	0.14
Work-limiting disability	0.10	0.30	0.12	0.32	0.07	0.26
Child under age 6	0.27	0.44	0.24	0.43	0.05	0.21
U.S. citizen	0.93	0.26	0.93	0.26	0.95	0.22
Sample size	10512		19180		6135	
Logged earnings	9.74	1.09	9.64	1.02	10.14	0.98
Annual earnings	26239	28393	22550	22471	36649	37149
Weekly hours	37	12	39	10	41	10
Annual weeks of work	45	13	44	13	47	11
Local antidis. policy for private employment	0.14	0.35	0.18	0.39	0.29	0.45
State antidis. policy for private employment	0.24	0.43	0.27	0.44	0.33	0.47
Local public sector antidis. law	0.04	0.2	0.05	0.21	0.06	0.24
State public sector antidis. policy	0.13	0.34	0.14	0.35	0.14	0.35
Urban pop. as % of local area	0.74	0.26	0.77	0.26	0.84	0.23
% of local households with a same-sex couple	0.005	0.002	0.006	0.002	0.007	0.003
Age	42	10	34	10	38	10
Hispanic	0.08	0.27	0.11	0.31	0.08	0.27
Asian	0.04	0.2	0.02	0.16	0.02	0.12
Black	0.07	0.25	0.12	0.32	0.08	0.28
White	0.85	0.36	0.8	0.4	0.87	0.34
High school diploma	0.3	0.46	0.31	0.46	0.15	0.36
Some college	0.33	0.47	0.36	0.48	0.32	0.46
College degree	0.18	0.38	0.13	0.34	0.25	0.43
Graduate or prof. school	0.1	0.3	0.05	0.22	0.21	0.41
Speaks English well	0.97	0.17	0.97	0.16	0.99	0.11
Work-limiting disability	0.09	0.29	0.1	0.31	0.07	0.26
Child under age 6	0.23	0.42	0.21	0.41	0.11	0.31
U.S. citizen	0.95	0.22	0.95	0.22	0.97	0.16
Sample size	8839		17882		6356	