Isolating Discrimination in the Sexual Orientation Wage Gap

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ABSTRACT:
At the end of 2016, twenty-three U.S. states prohibited employers from discriminating on the basis of sexual orientation. This legislation increases the cost of discrimination in particular states, creating a natural experiment with roughly half of the country in a treatment group and the other half in a control group. Data from the American Community Survey indicate that after controlling for local political and social climate, the passage of anti-discrimination legislation is associated with a significant increase in employment rates and wages of gay men; it has no effect on employment outcomes for lesbian women. Controlling for educational attainment, labor supply decisions, and occupational standing reveals a persistent gay male wage penalty. Controlling for these same factors reveals a persistent wage premium for lesbian women.

Introduction

Firing an employee because he is gay remains legal in most U.S. states. The legality of an action, however, is not evidence of its occurrence. Although persistent wage gaps between heterosexual and gay men point to possible discrimination against the latter, whether employers actually exploit their legal latitude remains unclear. Gay men may earn less than their heterosexual counterparts because they differ along dimensions other than sexuality. For example, gay men may attain lower levels of education, live in poorer parts of the country, choose lower-paying jobs, or work fewer hours. Isolating the effects of discrimination therefore requires significant legwork. Although some studies use controlled experiments to uncover discrimination in hiring (see Tilesik (2011), for example), this work assumes sexuality is an unambiguous, clearly observable characteristic. It also provides no evidence of discrimination in pay, leaving the sexual orientation wage gap unexplained.

To robustly track discrimination in both hiring and pay, I rely on a series of natural experiments state legislatures created in the years leading up to 2016. By making lesbian and gay workers a protected class in certain parts of the country, they altered the costs of discrimination for some employers but not others. Most studies on the sexual orientation wage gap control for possible confounding factors–educational attainment, race, hours worked, and so forth–and suggest that persistent wage gaps may be the result of discrimination. In this study, I go further. Protected class legislation increases the costs of employer discrimination (discriminators face an increased risk of lawsuit, for example). Of course, the passage of such legislation is likely to correlate with a state's general tolerance for the LGB community. Controlling for this lurking variable is essential to conducting a robust experiment. After controlling for tolerance, if the passage of legislation is associated with an increase in gay male wages, it is likely because employers are reducing their discrimination against gay men–indicating they were discriminating before the legislation was enacted.

The policy landscape that allows for such an experiment is complex; passage of anti-

discrimination legislation has been both sporadic and inconsistent. In July 1964, Lyndon Johnson signed the Civil Rights Act into law, protecting workers from discrimination based on their race, color, religion, sex, and national origin. Eight years later, in 1972, the college towns of East Lansing and Ann Arbor, Michigan banned private employers from discriminating against workers on the basis of sexual orientation; in 1973, Washington D.C. followed suit (Eskridge 1999, 130). Over the following four decades, a trickle of states and municipalities enacted and repealed–and in some cases re-enacted–laws and executive orders protecting sexual orientation in private employment. By February 2018, when a federal appeals court in New York ruled that Title VII of the Civil Rights Act protects workers on the basis of sexual orientation[1], twenty-three states and the District of Columbia prohibited employment discrimination on the basis of sexual orientation; twenty-eight states allowed it. This policy split endured both rising national acceptance for the LGB[2] population and a burgeoning gay rights movement in the 2000s and 2010s. For gay men and lesbian women, the resulting policy landscape was a checkerboard assortment of state laws, local laws, and court precedents. For social scientists, this same landscape comprises a multitude of natural experiments that isolate and distill the effects of possible discrimination against lesbian and gay workers.

Economics of Discrimination

A comprehensive literature review is beyond the scope of this paper. I will, however, provide a brief overview of relevant models of discrimination. The most well-known model comes from the work of Gary Becker. As a graduate student in the 1950s, he recognized the futility of desegregating schools and places of worship if black graduates and parishioners would still be denied employment or fair wages. Becker extended existing microeconomic theory to account for white employers' intrinsic preference for white workers. His 1955 doctoral thesis, later published as *The Economics of Discrimination* (1957), argues that

[1]Zarda v. Altitude Express, Inc., 883 F.3d 100

[2]This study does not address discrimination faced by transgender individuals. By focusing on sexual orientation, this study avoids measuring related, but possibly confounding, gender pay gaps.

without these intrinsic preferences, racial discrimination in hiring is irrational. In other words, if the wage for a white worker is w_{white}, and an employer achieves some disutility from hiring an equally productive black (or gay) worker, the cost of employing the black worker is $w_{white}(1 + d_{black})$, where d_{black} is the employer's (positive) discrimination coefficient (DC) against black workers. Because his cost of employing a white worker, w_{white} is lower than his cost of employing a black worker, the employer will discriminate based on race.

From an accounting standpoint, hiring white workers over equally qualified black workers is an expensive exercise. An employer's psychic cost of hiring a black worker must more than offset the wage premium he is thus forced to pay white workers. Of course, not all employers will discriminate against black workers. If enough firms treat white and black workers equally, non-discriminating firms may compete away any profits of discriminating firms. If firms with high DCs are less exposed to non-discriminating firms or if the proportion of black (or gay) workers is too small to affect the labor market, then a wage gap between white and black workers will persist. Assuming white and black workers are perfect substitutes, Becker defines the proportional difference in white and black wages as the marginal discrimination coefficient (MDC). If w_w and w_b are the wages of white and black workers, respectively, then

$$MDC = \frac{w_w - w_b}{w_b}.$$

If black and white workers are, on average, different in ability or productivity, then $MDC = \frac{w_w}{w_b} - \frac{w_w^0}{w_b^0}$, where w_w^0 and w_b^0 are white and black wages in the absence of racial discrimination, accounting for differences in productivity. A positive MDC points to systematic discrimination based on race.

The average employer's distaste for black workers is only one possible source of a wage gap, however: white customers may also exhibit distaste for black workers. A customer discrimination wage gap can manifest in two ways: customers may choose to patronize a firm's white car salesmen more than they patronize its black salesmen, making the black salesmen

less productive. I will refer to this as direct customer discrimination. Employers may also anticipate their customers' preferences. They may underpay or refuse to hire black salesmen not out of any personal prejudice, but because they believe black workers will be unsuccessful at selling cars to the firm's white customers. In this case, customers indirectly discriminate against black workers. Because it may be direct or indirect or both, customer discrimination is difficult to measure and classify. If employers are assumed to have no personal preference for white or black workers, then customer discrimination may be responsible for the entire marginal discrimination coefficient.

Quantifying indirect customer discrimination is fundamentally different from measuring Becker's marginal discrimination coefficient, which assumes wage gaps are the product of differences in employer taste. If a firm pays its black workers less than it pays white workers because it understands that its customers will discriminate against the black workers, then this wage gap is the direct result of productivity differences, not prejudice. As taste-based, racial discrimination became illegal in the United States, economists looked for other narratives to explain persistent wage gaps. Phelps (1972) theorizes that employers discriminate based on sex and race not because they dislike women or black people, but because they view gender and race as imperfect signals of productivity and believe that female and black employees are less productive than their white, male counterparts.

Aigner and Cain (1977) suggest that Phelps's assumptions are unrealistic and obscure true discrimination. Discrimination is most evident, they argue, when workers of the same ability are treated differently because of personal characteristics unrelated to ability. Quantifying racial discrimination, for example, requires controlling for non-racial characteristics that affect ability. Phelps's assumption that black and white workers differ in their underlying abilities is unnecessary. Aigner and Cain (1977) extend their model of racial bias to discrimination against minority groups in general. Statistical discrimination against lesbian women or gay men may result from employers' beliefs about differing work ethics, productivity, or career patterns. Heterosexual employers may also better understand heterosexual job applicants

and their credentials because they come from similar backgrounds and cultures. Cornell and Welch (1996) argue that employers faced with limited information about a large pool of applicants will tend to hire candidates who most resemble themselves. This sort of screening discrimination is most common in sectors where information on applicants is limited, and unobservable applicant characteristics are important for productivity (e.g., trustworthiness is an important characteristic for a bank teller, but bank tellers are not required to pass the same Multistate Professional Responsibility Examination required of lawyers; employers must infer their trustworthiness). While this sort of statistical discrimination is extremely difficult to isolate and prove (even employers may not realize they are discriminating), it remains possible to separate potential statistical discrimination from Becker's brand of taste-based discrimination. Whereas statistical discrimination may be unaffected by the law, taste-based discrimination against gay men and lesbian women is unlikely to persist in the face of anti-discrimination legislation, as the potential for lawsuit makes it even more costly for firms. Isolating possible discrimination and then distilling it into taste-based employer discrimination, customer discrimination, and statistical discrimination requires a detailed analysis of the sexual orientation wage gap and its response to changes in anti-discrimination legislation.

Sexual Orientation Wage Gap

Wage gaps are easy to observe. That a woman earned 78 cents for every dollar a man earned was a frequent talking point for both the Obama administration and candidates in the 2016 Democratic Primary. This figure comes from raw census data (Kessler 2015). It does not control for labor supply decisions, work experience, or educational attainment. In other words, it says very little about discrimination based on sex. Similarly, raw data indicate that lesbian women and gay men respectively earn higher and lower wages than their heterosexual counterparts (Badgett 1995; Klawitter 2015). Whereas lesbian women on average receive a significant wage premium, gay men earn between 10 and 30 percent less

than heterosexual men, depending on controls used. While localized case studies and surveys report employment and pay discrimination (see Badgett et al. (2007)), attributing the entire unexplained wage gap to such bias is difficult given data constraints. The gay male wage penalty could be the result of educational decisions, discount rates, occupational sorting, and family and labor supply decisions that make gay men fundamentally different from their heterosexual counterparts. Mirror differences in these factors could also explain the wage premium for lesbian women and may obfuscate the effects of discrimination.

Klawitter (2015) reviews a twenty-year literature on the subject, employing a meta-regression to average estimates of gay and lesbian wage gaps. While many studies use census variables on couple status to infer sexual orientation, others rely on explicit questions from the General Social Survey (GSS). Because of small sample sizes in the GSS, most studies rely on census data and imputed same-sex couple (SSC) variables. This decision imposes a significant restriction on the generalizability of results because it fails to measure discrimination against single gay men and lesbian women. These groups may face discrimination that is fundamentally different from the discrimination their married or coupled counterparts face (e.g., single gay men may face discrimination based on the stereotype that they are sexually promiscuous). Klawitter (2015) finds that while GSS data and census data reveal similar wage penalties for gay men (of around 15 percent), the GSS data gives single lesbian women a higher wage premium. If being in a couple detracts from lesbians' wages, then couple status may also detract from gay males' wages, suggesting that studies using the GSS underestimate the wage penalty for gay men. In other words, single gay men may face additional discrimination, compared to married or coupled gay men.

All gay men lack the marriage premium afforded to heterosexual men whose wives specialize in caring for their children. If two gay partners equally share parenting tasks, or even if one specializes in caring for children, on average, gay men cannot receive a marriage premium. In other words, coupled gay men cannot work more outside of the home by offloading household work onto another gender. Whereas married heterosexual women on

average incur a marriage penalty, married or coupled lesbian women do not. Nor, however, do they receive a heterosexual male's marriage premium (Loh 1996).

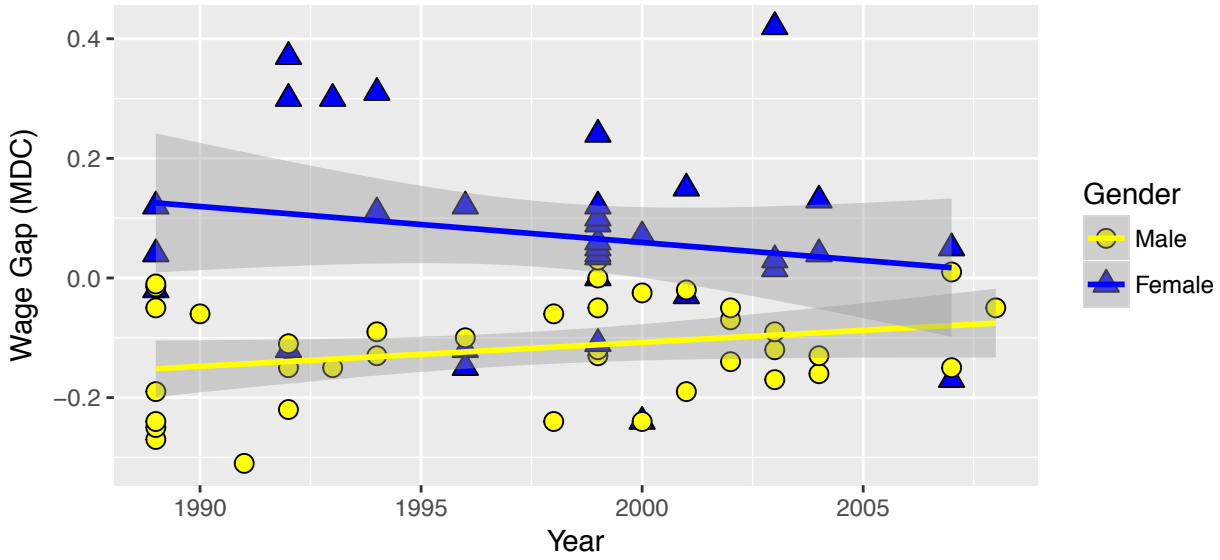

Figure 1: Data from the Klawitter (2015) meta-regression. Year reflect the year of data observation, not the year of publication. The first paper in this literature was Badgett (1995). While some estimates of the lesbian wage gap are negative, most estimates suggest a wage premium. In constrast, nearly all estimates for the gay male wage gap suggest a wage penalty.

Figure 1 plots data from the Klawitter (2015) meta-regression. The variance in estimates of the lesbian wage premium is significantly higher than the variance in estimates of the gay male wage penalty. If females are more likely to forgo work and care for children in the home, then labor supply choices such as hours worked may play a larger role in explaining differences in female wages. If differences in family structure make lesbian women less likely to cut back hours compared to their heterosexual counterparts, then they may appear to earn a significant wage premium. Controlling for hours worked dampens this premium by nearly half, Klawitter estimates, with greater variation in labor supply controls directly responsible for greater variation in lesbian wage premium estimates. Cushing-Daniels and Yeung (2009) analyze GSS data from 1988-2006. Using a Heckman selection model to correct for bias in labor participation rates, they control for education, experience, region, and marital status. When regressing these factors on hourly and weekly wages, they find wage penalties for both gay men and lesbian women, suggesting other studies may inadequately control for lesbians'

having a higher propensity to work than heterosexual women.

Antecol, Jong, and Steinberger (2008) address other key lurking variables. They measure the educational attainment and occupational sorting of individuals in same-sex couples and compare them to individuals in both married and cohabiting opposite-sex couples. Occupational sorting into traditionally male-dense and female-dense sectors, they find, explains little of the sexual orientation wage gap. Furthermore, gay men and lesbian women are on average more educated than their heterosexual counterparts. Controlling for educational attainment therefore exacerbates the wage penalty for gay men and dampens the wage premium for lesbian women. The authors are left with a significant unexplained wage penalty for gay men and a potentially masked wage penalty for lesbian women.

To assess the effects of anti-discrimination legislation on minority wage penalties, Baumle and Poston (2011) also control for race, region, and educational attainment. In addition, they construct indicator variables for LGB tolerance using data on state-level anti-discrimination laws. They find that such laws are associated with a 2.5 percent decrease in the earnings gap between members of same-sex male couples and married heterosexual men. These results differ from an earlier study, Klawitter and Flatt (1998), which assessed the effectiveness of state-level anti-discrimination legislation passed in the late 1980s and early 1990s. The authors use dummy variables for state anti-discrimination policies and state sodomy laws. They also control for the proportion of a state that favored laws prohibiting sexual orientation discrimination. They find that anti-discrimination legislation does not have a significant effect on the wages of gay men or lesbian women who are in same-sex couples (the study relies on a SSC variable imputed from census questions).

The authors qualify their results in several ways, however. First, they note that many same-sex couples may be uncomfortable reporting their sexuality to census-takers. The authors assume they are sampling only a subset of gay and lesbian couples and speculate that these couples may differ from non-reporting couples in significant ways (for instance, they may be more likely to be "out" at work). In addition, same-sex couples exhibit a different

geographic distribution than opposite-sex couples, and non-reporting couples may exhibit a distribution distinct from that of reporting couples. While approximately 12 percent of married opposite-sex couples lived in states with anti-discrimination laws, 42 percent of reporting gay male couples and 30 percent of reporting lesbian couples lived in these states. If same-sex couples are moving away from discrimination, as Becker (1957) predicts, they may accept lower wages to live in more accepting parts of the country. In addition, Klawitter and Flatt note, the lack of national anti-discrimination legislation may leave state laws difficult to enforce. While half of U.S. states banned racial discrimination before 1964, only with the passage of the Civil Right Act did these bans become widely enforced. Finally, the authors recognize the considerable variation of LGB tolerance within states. Failing to control for such variation may result in severe omitted variable bias. Unfortunately, more nuanced tolerance indicators were "virtually nonexistent" at the time of publication (Klawitter and Flatt 1998, 673).

Data limitations are a major obstacle to most regressions Klawitter (2015) includes in her meta-analysis. The majority of papers that concretely quantify discrimination use employee surveys, which are subject to bias. One study is particularly robust in its analysis, however. Carpenter (2005) uses data from the 2001 California Health Interview Survey, which included a confidential question on sexual orientation. Ninety-nine percent of respondents indicated they were straight, gay, lesbian, or bisexual. Carpenter hypothesizes that self-reported sexual orientation is a better proxy for the sexual orientation coworkers, customers, and employers infer. After controlling for educational attainment, occupational sector, family characteristics, race, and employment in San Francisco or Los Angeles, he finds no evidence that gay men or lesbian women in California earn less than their heterosexual counterparts.

Only one paper completely isolates the effects of discrimination. Tilesik (2011), using an experiment with resumes including LGBT extracurricular activities (akin to Bertrand and Mullainathan (2004)), finds that gay men suffer much lower callback rates than their heterosexual counterparts. In states with anti-discrimination legislation, 11.7 percent of

heterosexual applicants received callbacks, and 8.7 percent of gay applicants received callbacks. In states with no anti-discrimination policies, 11.3 percent of heterosexual applicants received callbacks; only 5.3 percent of gay applicants did. A major shortcoming in this study, however, is its lack of granularity. Iowa is assigned the same tolerance score as California, just as Florida is assigned the same score as Alabama. At the time of publication, more local data were unavailable. This study employs a more granular tolerance score and uses changes in anti-discrimination legislation to detect and isolate persistent wage gaps, possibly caused by discrimination. It extends and augments the work of Klawitter and Flatt (1998), Douglas and Steinberger (2015), and Antecol, Jong, and Steinberger (2008).

Data

Of the two mainstays in economic research on sexual orientation in the U.S., the American Community Survey (ACS) is the standard bearer. Administered to nearly 300,000 households each month, the ACS is far larger than the General Social Survey (GSS), and for that reason alone, it is more effective at tracking the inherently small population of gay and lesbian Americans. What it possesses in breadth, however, the ACS lacks in precision. This is not to say that the Census Bureau, which administers the ACS, is less conscientious than the National Opinion Research Center, which collects the GSS. In fact, because participation is mandatory, ACS data may be more representative of the U.S. population than data from any other survey. But the ACS's breadth is possible because of its concision. The GSS, with thousands of variables, takes 90 minutes to administer. The ACS collects far less information from each individual surveyed. Using its limited variables to address specific questions often requires considerable inference. For example, before 2013 the ACS collected no information on sexual orientation or same-sex couple membership. Even after 2013, its explicit tracking of same-sex couples is limited to those who are married.

Using pre-2013 ACS data to identify lesbian women and gay men requires the construction

of proxy variables for sexual orientation. Given a wealth of information about household composition, several options are feasible. In constructing a proxy that is both appropriate for distilling the sexual orientation wage gap and useful for measuring discrimination, I consider three goals. First, the gay and lesbian individuals I track should be as similar as possible in lifestyle, and therefore in labor supply decisions, to their heterosexual counterparts. Second, to stand any chance of tracking discrimination, the proxy sexual orientation indicator must be accurate. Its construction must consider both sensitivity and specificity. In other words, it should not allow relevant gay couples to go undetected (false negatives). More important, the proxy must minimize false positives–that is, the misclassification of opposite-sex couples or non-traditional households as same-sex couples. Finally, the proxy's accuracy must be verifiable using non-ACS data.

The ACS details every inhabitant of the households it samples. It then links household constituents by marriage and generational relationships, but these indicators are often inadequate to reliably identifying same-sex couples. The ACS records some family interrelationships but infers most household links using its own algorithms. It relies on limited survey information, including data on age, marital status, and relationships to household head, to construct family structures and classify some constituent pairs as couples. To demonstrate the problems associated with these algorithms, I will use an example household. Suppose an elderly opposite-sex couple, Mr. and Mrs. Jones, lives with three adult children: two sons, Michael and Zach, and one daughter, Emily. While Michael and Emily are the Joneses' biological children, Zach is adopted. Emily has children of her own, but she never married their father. If Zach was not classified as an actual son (because he was adopted), the ACS may infer that he is Emily's partner. Suppose, however, that Emily moves out. In the absence of known family links and a similarly aged female, the ACS will link Zach with the male nearest in age–his adopted brother, Michael. The household now contains a false positive same-sex couple. Suppose that over the next year Michael moves out and Mrs. Jones dies. Now in the absence of biological links and similarly aged females, Zach will be coupled with his adopted father, Mr. Jones, creating another false positive.

Although the Jones family is slightly unusual in its complexity and its turbulent year, the sort of false positives it raises are fairly common. While both of the false positives require an error in the Jones family's filling out the survey, they each require only the same single error–Zach's misclassification as a non-family member. Households containing same-sex roommates or friends are even more susceptible to misclassifications caused by simple errors. If everyone completing the ACS accurately reported family links, these errors would be minimal. The reality is that living arrangements are complicated, and respondents may have difficulty describing their complex households using the limited ACS family interrelationship variables. Because the object of this study is detecting discrimination and because false positives tend to occur with atypical, often lower-income households, increasing the classifier's specificity is essential. One way to weed through survey errors and noise is to use a classifier where false positives require several mistakes in several variables. In other words, pairs of same-sex household constituents must meet a number of criteria to be classified as a couple. Raising the bar for same-sex couple classification reduces the test's sensitivity (increasing the false negative rate), but I control for this compromise by also reducing the sensitivity of the classifier for opposite-sex couples.

I restrict all analyses to two-parent couples with children. I construct the classifier using ACS variables on the number of mothers and the number of fathers in a household, the number of families in a household, the generations in a household, the number of children in a household, parent-child links, and spouse/partner links. Opposite-sex couples must be linked as spouses or partners and must live in households with one family, two generations (adult-children), and one mother and one father. Lesbian couples must have two mothers and no fathers and gay couples must have two fathers and no mothers. For two individuals to be misclassified as same-sex (or opposite-sex) parents, they must erroneously report several variables. Take the Jones family example. The first false positive, where the adopted son, Zach, is coupled with his adoptive brother, Michael, would be omitted by the number of fathers criterion. Even if Zach had children who lived with their mother in a different household, the Jones household would contain 2 fathers and one mother. Suppose again

that Mrs. Jones dies, and Michael moves away. Only Mr. Jones and his adopted son, Zach remain in the household. For this pair to be erroneously classified as a same-sex couple, the household must contain two fathers, one family, two generations (adult-children), children, and a spouse-partner link. Even if the ACS erroneously infers a spouse-partner link between Zach and his adopted father, the two will not be classified as a same-sex couple. For this false positive to occur, the household must contain two generations. This requires Zach's being classified as a biological relative, which would prevent his being linked as a spouse.

From a brief manual survey of the ACS's suggested same-sex variable, same-sex roommates appear to be the most common false positive. The classifier I construct omits most of these cases. Suppose two heterosexual women live together as roommates, each with her own children. Even in this unusual case, which at first blush looks a lot like a lesbian couple, the two women must erroneously report themselves as one family to be misclassified as a same-sex couple. Potential opposite-sex couples are subject to the same scrutiny, which omits significant populations from this study. By using a robust classifier, however, I achieve my three objectives. First, I compare only two-parent couples with children. If different family structures and coupling propensities cause gay men and lesbian women to make different labor supply decisions compared to their heterosexual counterparts, by only analyzing families of a particular structure, I compare only the most similar same-sex and opposite-sex couples. The strict classifier also creates a low false positive rate. Although the same-sex couple classifier has a high false negative rate with respect to same-sex couples in general, it has a low false negative rate with respect to same-sex couples with children. This distinction qualifies all of this study's conclusions–particularly if members of same-sex couples with children are fundamentally different from childless or uncoupled gay men and lesbian women.

That its accuracy is verifiable is a final, major advantage to the classifier I use. Data on the geographic distribution of same-sex couples and same-sex adoptions is collected independently of the ACS. To assess the accuracy of my imputed same-sex couple indicator, I create independent estimates of the distribution of same-sex couples with children and

compare these to the ACS data. The upper panel in figure 2 reflects the data used in this paper, and the lower panel shows estimates computed using multiple data sources, including the 2010 Census and its population projections, a Gallup poll of the LGBT population, and state-level adoption data. While the ACS data run from 2000-2016, the alternative data only run from 2011-2013. This difference in time span may help explain the growing incidence of same-sex couple parenting, which is reflected in the lower panel. Nevertheless, the estimates from the two data sources are highly similar. Of the fifteen states with the highest rates of same-sex couple parenting according to the ACS data and classifier, eleven of these states are in the top fifteen according to the alternative data. Of the fifteen states with the lowest rates of same-sex couple parenting in the ACS data, twelve of these are in the bottom fifteen in the alternative data. Appendix 1 details these estimates.

Model

Hiring and pay decisions are a function of employee, employer, and market characteristics. Detecting potential employer discrimination requires robust experimentation that controls for personal characteristics unrelated to sexual orientation. I take a difference in differences approach, where the treatment group is subject to state-level legislation that bans discrimination based on sexual orientation. The control group is not covered by this legislation. When the last cohort of ACS data was collected in 2016, twenty-three states and the District of Columbia had passed laws making sexual orientation a protected class in employment decisions. Twelve of these states implemented laws between 2000 and 2016; the others passed legislation between 1973 and 1999.

The refined ACS data contains information on 61,281 members of same-sex couples who are of working age (which I define as at least 25, but no more than 65-years old).[3] Table 1

[3]The uneven number of couple members is likely due to false negatives, where one member of a same-sex couple may fail to meet this dataset's strict standards. For example, suppose a twenty-four-year-old gay male is married to his twenty-five-year-old husband, and the two men are raising a family. The younger spouse is excluded from this dataset on the basis of his age. Of course, operations that require spouse information are

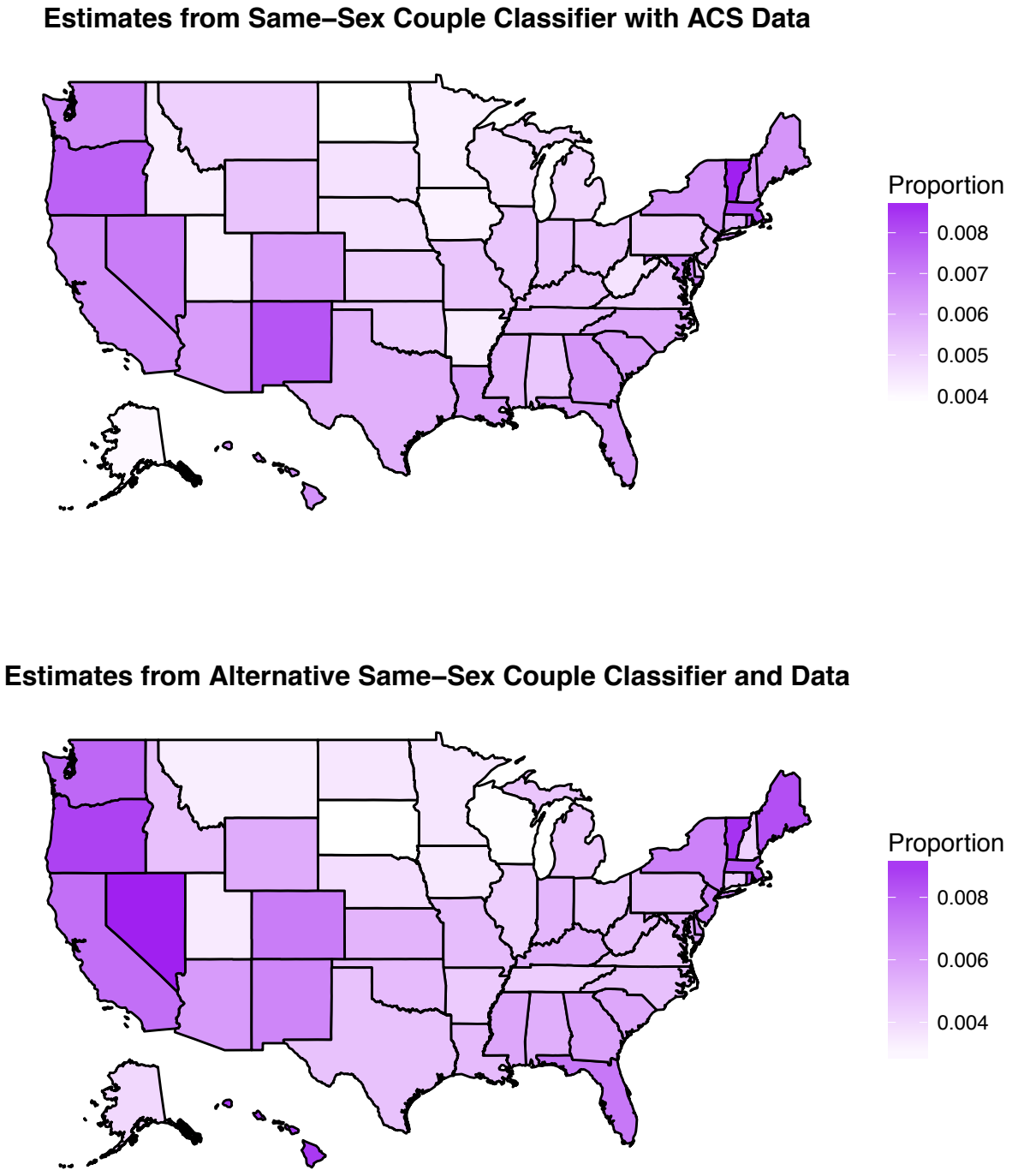

Figure 2: Density of same-sex couples by state. Small differences in the percentage of couples identified here may stem from errors in either classifier and changing interstate adoption patterns. On the whole, however, no state gap is larger than 0.3 percent of the state population. Source: ACS, 2010 Census.

shows that 36.1 percent of heterosexual males in this dataset live in states with legislation, and 63.9 percent live in states without. Gay men are similarly distributed, with 35.6 percent living in states with and 64.6 percent living in states without legislation. Lesbian women, on the other hand, are slightly more likely than heterosexual women to live in states with anti-discrimination legislation. Only 36.4 percent of heterosexual women live in these states, compared to 39.1 percent of lesbian women.

Table 1: Mean wages, occupational scores, and personal characteristics

	Heterosexual Males	Gay Males	Heterosexual Females	Lesbian Females
	(1)	(2)	(3)	(4)
Mean wage	54,739.020	40,205.210	23,879.830	37,190.940
Mean occupational score	31.611	29.314	26.862	29.021
Employment status				
Unemployed	0.113	0.241	0.327	0.221
Employed	0.887	0.759	0.673	0.779
Education				
Less than HS	0.089	0.121	0.075	0.078
HS or GED	0.273	0.262	0.250	0.229
Some college	0.297	0.289	0.330	0.321
Bachelors	0.207	0.195	0.226	0.199
Masters	0.085	0.088	0.091	0.118
Professional or doctoral	0.049	0.045	0.029	0.055
Region				
New England Division	0.052	0.055	0.052	0.072
Middle Atlantic Division	0.138	0.141	0.139	0.136
East North Central Div.	0.162	0.144	0.162	0.138
West North Central Div.	0.075	0.061	0.075	0.059
South Atlantic Division	0.179	0.186	0.179	0.186
East South Central Div.	0.059	0.055	0.058	0.054
West South Central Div.	0.112	0.108	0.111	0.107
Mountain Division	0.070	0.070	0.069	0.071
Pacific Division	0.154	0.178	0.155	0.177
Anti-discrimination legislation				
Unaffected by legislation	0.639	0.644	0.636	0.609
Affected by legislation	0.361	0.356	0.364	0.391
Customer Service				
Works in non-customer service position	0.944	0.936	0.945	0.938
Works in customer service position	0.056	0.064	0.055	0.062
Observations	5,295,948	23,085	5,310,133	38,196

I use a base model that regresses wage (W_i) on a series of explanatory variables including a vector of personal characteristics, X_i (age, race, educational attainment, occupation). I will also include an indicator for same-sex couple status (SSC_i) and a difference-in-differences

performed prior to data subsetting.

indicator (DD_j) for the effects of state-level anti-discrimination legislation. Finally, to control for the lurking variable of local political and social climate, I use search engine data on the geographic density of homophobic queries to control for local attitudes toward gay men and lesbian women. I map this distribution onto a tolerance index ($Tolerance_{ij}$) similar in function to the diversity index used by Grawe and Wahl (2009). For each gender, the reduced form equation will be as follows.

$$P(Employed) = \beta_0 + \beta_1 X_i + \beta_2 SSC_i + \beta_3 DD_{ij} + \beta_4 Tolerance_{ij} + \beta_5 SSC_i * DD_{ij} + \beta_6 MP$$

$i \in \{\text{male, female}\}$

$j \in \{\text{50 states}\}$

To test for the possibility of discrimination in hiring as well as in pay, I regress a similar set of explanatory variables on employment status.

Controlling for local tolerance for gay men and lesbian women is particularly important in a difference in differences natural experiment such as this. Without this control, the coefficient on $SSC * DD$ might capture the effects of interstate variation in political and social climate, which likely correlates with the passage of anti-discrimination legislation. Several studies use proxies for this lurking variable. For example, Baumle and Poston (2011) use the presence of sodomy laws, the percentage of state residents who identify as Southern Baptist, and the percentage of the state that identifies as gay. Other studies use only region to control for local attitudes (Tilesik 2011; Antecol, Jong, and Steinberger 2008). These region variables are problematic because unless they are interacted with variables for each minority group, they also capture regional variation in cost of living. In addition, they fail to detect intraregional variance in LGB tolerance, which can be significant. I take a different approach, using data from Google searches between 2004 and 2018 to track local tolerance levels. Not only does this method capture religious attitudes, it also captures secular homophobia. For

instance, the top panel of figure 2 shows, at the state level, the density of searches for gay and lesbian slurs that have no religious connotations. This distribution is vastly different from the distribution of traditional tolerance measures, such as anti-sodomy laws, which often follow the Bible Belt. The lower panel, which tracks intolerant searches with religious connotations, better captures this distribution. In contrast to the tolerance controls used by Antecol, Jong, and Steinberger (2008) and Baumle and Poston (2011), a robust Google Trends index will capture both religious and secular intolerance at the state level.

Assuming the tolerance index will control for local attitudes, a positive coefficient on the interaction term for same-sex couple status and the difference in differences variable implies previous taste-based discrimination by employers (as Becker (1957) describes). In Becker's framework, changing legislation increases the price of taste-based discrimination–as lawsuits become increasingly likely, for instance. A lack of employer discrimination, on the other hand, will result in an insignificant coefficient on the $SSC * DD$ interaction term.

The literature on the economics of discrimination references a second, highly important source of bias. Indirect discrimination by the customer is difficult to distill from employer discrimination: employees who are discriminated against will simply be less productive and therefore earn less. One additional experiment may help to explain the role of customer discrimination. By running a separate regression on wages for only those individuals working in commission-based positions, I can compare their wage gap to the wage gap of their counterparts whose wages are not based primarily on customer preferences.

Results

Employment discrimination can manifest in both pay gaps and differential hiring rates. The two are related; consistently lower hiring rates for a particular class of workers will cause a systemic pay gap. Differing employment rates or labor supply decisions may also have a significant effect on a sexual orientation wage gap. Table 1 indicates that gay men

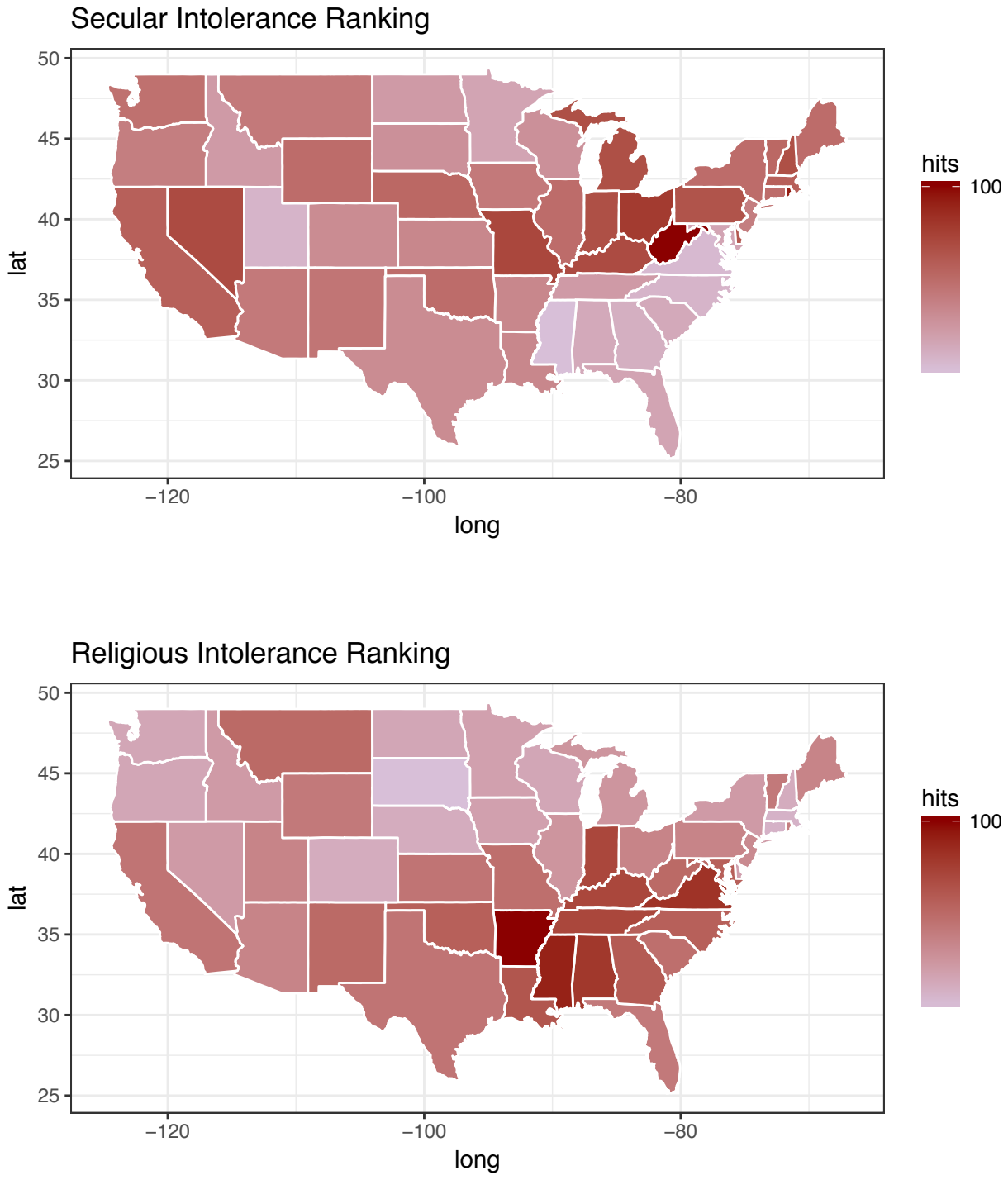

Figure 3: Secular and religious intolerance scores by state. Whereas states in the Deep South rank highly in religious intolerance for gay men, they rank relatively low in secular intolerance. In contrast, states in the Rust Belt and some parts of New England rank highly in secular intolerance and low in religious intolerance. Source: Google Trends ((www.google.com/trends).

are much less likely to work and lesbian women are much more likely to work compared to their heterosexual counterparts. Therefore, I first address the possibility that gay men and lesbian women are employed at different rates because of employer discrimination. I then use a subset of employed workers to tackle the sexual orientation wage gap.

Employment Status

To estimate the effects of sexual orientation–specifically, same-sex couple membership–on employment outcomes, I perform a probit regression using the ACS data from 2000 to 2016 (Bliss (1934)). Estimating the likelihood of employment using longitudinal data can be problematic. While annual fixed-effects indicators roughly capture national business cycle fluctuations, they may mask important changes to regional or local labor markets. They may fail to control for trends unique to particular regions or industries or both, such as increasing structural unemployment in Rust Belt manufacturing sectors. While the 2000-2016 ACS data collection coincides with important changes in gay-rights legislation and LGB tolerance, it also coincides with major changes to U.S. labor markets, culminating in the Great Recession and its aftermath. The purpose of tracking employment outcomes is to augment the work of Tilesik (2011), who found that openly gay men are clearly discriminated against in the hiring process. His experiment assumes that gay men are exactly the same as their heterosexual counterparts–except for their sexual orientation. If gay men and heterosexual men in fact make different labor supply decisions, a similar study must strictly control for the factors that influence these decisions.

I subset the ACS data accordingly. To avoid students, I omit all individuals less than 25-years-old. In calculating which of these potential workers are employed, I do not differentiate full-time from part-time workers. This abstraction has two purposes. First, if gay men and lesbian women allocate breadwinning and housework differently from heterosexual couples, I minimize the effects of same-sex couples' working fewer or more hours than their heterosexual counterparts. Second, I create a buffer between variables of interest and changing

economic conditions by controlling for census region, which may partially capture regional trends in structural unemployment.

Finally, I attempt to control for the wage premium and increased likelihood of employment enjoyed by coupled, heterosexual men. This "marriage premium" is the result of outmoded gender roles and stereotypes, but it remains a relevant control. Despite an increasing proportion of women in the workforce, if women on average continue to specialize in childrearing and other household tasks, and men continue to specialize in work outside of the home, then heterosexual men are, on average, compensated for their wife's (or female partner's) housework. Because heterosexual men on average receive a premium, their wives (or female partners) necessarily suffer a penalty (as they are not compensated for their labor in the home). Similarly situated gay men cannot receive a marriage (or couple) premium because even if one partner specializes in breadwinning and his husband specializes in housework, these effects cancel one another when aggregating by gender. At the same time, married or coupled lesbian women are not subject to their heterosexual counterparts' penalties. Though one female partner may spend more time on household tasks, her wife's marriage premium will cancel out this effect in the aggregation of females.

I approach this marriage premium, which may obscure discriminatory gaps in both hiring and pay, from several angles. First, I control for whether an individual lists himself as a head of household or as a spouse/partner. In married opposite-sex couples, approximately 70 percent of men classify themselves as heads of household; for unmarried opposite-sex couples only 52 percent of men are listed this way. Head of household and spouse/partner classifications are split equally in same-sex couples. In these cases, whether an individual lists herself as a head of household is not particularly indicative of whether he receives a marriage premium. Controlling for labor supply decisions requires distinguishing partners who specialize in breadwinning from partners who specialize in childrearing or other household tasks. Typical methods for distinguishing professionally advantaged spouses or partners require information about income and occupation. This information does not exist for individuals who are

unemployed. Instead, I create a proxy for professional advantage using information about an individual's educational attainment relative to his/her partner's. Individuals who are more educated than their partners are more likely to work and more likely to receive a marriage premium. By controlling for likelihood of being the breadwinner in a household, I allow for the possibility that the marriage premium does affect particular gay men and lesbian women. While some gay men receive a premium, their partners suffer a penalty. The same is true for lesbian women.

Table 2 presents results from employment outcome probit regressions for each sex.[4] After controlling for age, year fixed effects, household head status, race, local tolerance for gay men, region, and the presence of anti-discrimination legislation, a gay man is 7.16 percent less likely to secure employment compared to his heterosexual counterpart[5]. The difference in likelihood of full-time employment is even greater among more educated men; gay college graduates are 7.86 percent less likely to be employed than their heterosexual counterparts. The effect of anti-discrimination legislation is dramatic. In a state with low levels of gay male intolerance (in the bottom quartile of state rankings), legislation increases the likelihood of employment for gay men by 3.61 percent. For states with higher levels of intolerance, however, the effect is less clear. In a state with the median level of gay male intolerance, anti-discrimination increases the likelihood of employment for gay men by only 1.65 percent. For states with the highest levels of gay male intolerance, the probit regression suggests that anti-discrimination laws actually decrease a gay man's likelihood of employment. Importantly, however, no state with such high levels of intolerance has passed anti-discrimination legislation; this effect is more relevant to states with lower levels of intolerance. For heterosexual men, the passage of legislation changes the likelihood of employment by less than 0.5 percent for all levels of intolerance.

Interestingly, an increase in intolerance is associated with an increased probability of

[4]Note that these regressions show only variables of importance. Full regressions are relegated to Appendix 2.

[5]Calculated at the mean for numeric variables.

Table 2: Probit regression for employment status

	Dependent variable:	
	Probability of employment	
	Male	Female
	(1)	(2)
Same-sex couple (SSC)	−1.120*** (0.184)	0.185** (0.086)
Anti-discrimination legislation (DD)	0.127*** (0.049)	−0.336*** (0.024)
More educated than spouse/partner	−0.011*** (0.001)	0.224*** (0.001)
Age	0.057*** (0.001)	0.076*** (0.001)
Age^2	−0.001*** (0.00001)	−0.001*** (0.00001)
White	0.065*** (0.002)	−0.078*** (0.002)
Relation to household head		
Spouse	−0.114*** (0.002)	−0.163*** (0.001)
Unmarried Partner	−0.379*** (0.003)	0.024*** (0.004)
Education		
HS or GED	0.246*** (0.003)	0.459*** (0.003)
Some college	0.400*** (0.003)	0.566*** (0.003)
Bachelors	0.621*** (0.003)	0.553*** (0.003)
Masters	0.810*** (0.004)	0.738*** (0.003)
Professional or doctoral	0.540*** (0.005)	0.706*** (0.005)
Region		
Middle Atlantic Division	0.044*** (0.004)	−0.069*** (0.003)
East North Central Div.	0.090*** (0.004)	0.014*** (0.004)
West North Central Div.	0.038*** (0.005)	0.131*** (0.004)
South Atlantic Division	0.065*** (0.004)	−0.042*** (0.004)
East South Central Div.	−0.013** (0.005)	−0.014*** (0.004)
West South Central Div.	0.042*** (0.005)	−0.116*** (0.004)
Mountain Division	0.054*** (0.005)	−0.160*** (0.004)
Pacific Division	−0.056*** (0.004)	−0.205*** (0.003)
Intolerance		
Gay intolerance	−0.003*** (0.0002)	
Lesbian intolerance		−0.002*** (0.0001)
Interaction Terms		
SSC:DD	1.819*** (0.628)	0.341 (0.256)
SSC:HS or GED	0.031 (0.036)	0.049 (0.033)
SSC:Some college	0.030 (0.037)	0.092*** (0.032)
SSC:Bachelors	−0.146*** (0.040)	0.199*** (0.035)
SSC:Masters	−0.094* (0.051)	0.234*** (0.041)
SSC:Professional or doctoral	0.116* (0.066)	0.233*** (0.052)
SSC:More educated than spouse/partner	0.074*** (0.019)	−0.167*** (0.015)
DD:Gay intolerance	−0.001* (0.001)	
SSC:Gay intolerance	0.011*** (0.003)	
SSC:DD:Gay intolerance	−0.026*** (0.009)	
DD:Lesbian intolerance		0.007*** (0.0005)
SSC:Lesbian intolerance		0.0002 (0.001)
SSC:DD:Lesbian intolerance		−0.007 (0.005)
Constant	0.167*** (0.022)	−1.437*** (0.015)
Observations	4,969,115	4,999,044
Log Likelihood	−1,701,314.000	−2,744,360.000
Akaike Inf. Crit.	3,402,725.000	5,488,819.000
Note:		*p<0.1; **p<0.05; ***p<0.01

employment for gay men in states without anti-discrimination legislation. I suggest this may be the result of self-selection, where only those gay men who are well-established in their communities or careers choose to stay and raise families in intolerant areas. Suggestive of this narrative is the coefficient on the interaction between sexual orientation and educational attainment. While gay men with less than a high school degree have a lower probability of employment compared to their heterosexual counterparts, gay men with bachelor's or master's degrees are even less likely to have jobs. If gay men with less education are less able to migrate to more tolerant states, then they may retain employment advantages associated with working near one's family and hometown. More educated men who migrate to more tolerant regions may lack these benefits.

In states with no anti-discrimination legislation, 28.9 percent of gay males had at least a bachelor's degree, compared to 40.1 percent in states with legislation. In contrast, 31.7 percent of heterosexual males in states with no legislation had at least a bachelor's degree, compared to 38.4 percent in states with legislation. In short, gay men in states with anti-discrimination legislation are disproportionately more educated than their heterosexual counterparts while gay men in states with no anti-discrimination legislation are less educated. On one hand, gay men in intolerant states may be less able to enter the higher education system. On the other hand, men who are more educated may be more likely to migrate and consequently experience employment difficulties. I will further discuss lurking issues of migration and self-selection into tolerant states in this paper's discussion section.

The second column in table 2 contains an identical probit regression for females. Here, anti-discrimination legislation has no significant effect on employment outcomes for lesbian women. At the same time, lesbian women at all levels of educational attainment are more likely to be employed compared to their heterosexual counterparts. In fact, they are much more likely to work: after controlling for age, year fixed effects, household head status, race, local tolerance for lesbian women, and region, a college-educated woman in a same-sex couple

is approximately 13 percent more likely to work than her heterosexual counterpart[6]. While heterosexual women's marriage penalty is a tempting explanation for this result, the regression controls for household head status and whether an individual is more or less educated than her partner. These controls suggest that other, less observable characteristics may increase lesbian women's propensity to work. While lesbian intolerance is associated with a lower likelihood of employment for all women, it is unrelated to a lesbian woman's probability of employment.

While some of these results are inconclusive, I want to emphasize the importance of controlling for a marriage premium. Interestingly, being more educated than his spouse decreases a heterosexual man's probability of working. When a gay man is more educated than his partner, however, he is far more likely to work. In contrast, being more educated than her spouse dramatically increases the probability that a heterosexual woman is employed. Lesbian women also are more likely to work if they are more educated than their spouses, but the receive a smaller boost than heterosexual women.

Sexual Orientation Wage Gap

To detect wage discrimination against gay men and lesbian women, I must make several assumptions about similarities between members of same-sex couples and members of opposite-sex couples. For example, I must assume they make similar labor supply choices, enter similar industries and similar occupations, and seek promotions with the same tenacity. To limit the negative consequences of these weighty assumptions, I restrict my analysis to individuals who are employed and who work similar hours (between 40 and 65 per week). By limiting my analysis to full-time workers, I mitigate several confounds, including the marriage premium and possible differences in propensity to work. In addition, I use data on occupational scores to control for the effect of sexual orientation on occupational sorting. The ACS constructs an individual's occupational score by comparing the national median

[6]Evaluated at the means for numeric variables.

income for his occupation and industry to a distribution of median incomes. Each industry and occupation is then ranked and assigned an occupational score.

While heterosexual men in states without anti-discrimination legislation have approximately the same mean occupational score (31.5) as in states with legislation, gay men in states with legislation have a mean score of 30.1. This is 1.24 points higher than their mean score in states without legislation (for more details, see table 1). While an occupational score may reflect an individual's career opportunities, it may also reflect his career preferences. If, as Antecol, Jong, and Steinberger (2008) finds, gay men are more likely to enter traditionally female-dominated fields, which pay less than traditionally male-dominated fields, self-selection may be responsible for a portion of the sexual orientation wage gap. Gay men may also experience discrimination in higher-paying, male-dominated fields. Lesbian women are the mirror image. The literature suggests lesbian women are more likely to enter traditionally male-dominated fields than heterosexual women–possibly because they self select into these fields, and possibly because they are discriminated against in traditionally female-dominated fields. To control for the unobservable factors that may affect occupational sorting (and therefore wages), I use occupational scores to control for occupation and industry.

Table 3 reports the coefficients of interest from wage regression for males who work full time (more than 40 hours/week). To minimize noise caused by the incorrect reporting of salaried income and other ACS errors, I also restrict my analysis to individuals who earn at least $8,000 per year. In 2000, when the ACS data begins, the federal minimum wage was $5.15 an hour. If an individual earning this minimum wage works 40 hours per week for 50 weeks a year, then he will earn $10,300. Because some full-time workers may not work quite 2000 hours per year, I allow for an approximately $2300 buffer zone. In fact, specification tests suggest that the exact placement of this $8,000 cutoff has relatively little effect on any regression coefficients. The bulk of the noise I omit comes from individuals who report being employed and report usually working 40 hours per week, but who also report no income or very little income from wages. Fully 578,495 men and women in the dataset report earning

no income from wages in the previous year but also report being employed in the previous year. I point out this peculiarity not only to justify my methodology but also to warn anyone working with ACS wage data of an annoying (and somewhat camouflaged) data problem.

Table 3: Selected OLS Coefficients for Males

	Income from wages	
	Base Regression	Restricted States
	(1)	(2)
Same-sex couple (SSC)	−0.049*** (0.017)	−0.003 (0.020)
Anti-discrimination legislation (DD)	0.074*** (0.001)	0.069*** (0.001)
Age	0.070*** (0.0003)	0.069*** (0.0003)
Age^2	−0.001*** (0.00000)	−0.001*** (0.00000)
White	0.154*** (0.001)	0.160*** (0.001)
Hispanic	−0.157*** (0.001)	−0.151*** (0.001)
Education		
HS or GED	0.182*** (0.001)	0.170*** (0.001)
Some college	0.323*** (0.001)	0.310*** (0.001)
Bachelors	0.614*** (0.001)	0.599*** (0.001)
Masters	0.759*** (0.001)	0.736*** (0.002)
Professional or doctoral	0.750*** (0.002)	0.742*** (0.002)
Region		
Middle Atlantic Division	0.019*** (0.001)	0.204*** (0.004)
East North Central Div.	−0.032*** (0.002)	0.197*** (0.004)
West North Central Div.	−0.112*** (0.002)	0.104*** (0.004)
South Atlantic Division	−0.055*** (0.002)	0.151*** (0.004)
East South Central Div.	−0.081*** (0.002)	0.134*** (0.004)
West South Central Div.	−0.027*** (0.002)	0.178*** (0.004)
Mountain Division	−0.075*** (0.002)	0.127*** (0.004)
Pacific Division	0.013*** (0.001)	0.163*** (0.004)
Misc. controls and interaction terms		
Gay intolerance	−0.004*** (0.0001)	−0.004*** (0.0001)
Occupational Score	0.018*** (0.00003)	0.017*** (0.00003)
SSC:HS or GED	−0.032 (0.019)	−0.082*** (0.023)
SSC:Some college	−0.036* (0.019)	−0.073*** (0.022)
SSC:Bachelors	−0.035* (0.019)	−0.090*** (0.023)
SSC:Masters	−0.054** (0.022)	−0.134*** (0.026)
SSC:Professional or doctoral	0.054** (0.027)	−0.007 (0.032)
SSC:DD	0.023** (0.010)	0.032** (0.016)
Constant	8.211*** (0.008)	8.104*** (0.010)
N	3,704,122	2,809,738
Adjusted R^2	0.405	0.393
Residual Std. Error	0.512 (df = 3703883)	0.505 (df = 2809519)
F Statistic	58,571.670*** (df = 43; 3703883)	42,337.430*** (df = 43; 2809519)

Notes:
***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

The coefficients in the first column of table 4 suggest the gay male wage penalty affects men across the educational spectrum. After accounting for regional income variation, race, local intolerance, and occupational score, a gay male with less than a high school education can expect to earn approximately 5 percent less than his heterosexual counterpart. The local

intolerance variable is highly relevant to detecting discrimination; after controlling for region, a one unit increase in local intolerance is associated with a small decrease in wages across the board. To preserve other regression coefficients of interest, I refrain from interacting gay male intolerance with the same-sex couple (SSC) indicator. Of particular interest is the interaction term between same-sex couple status and the legislation indicator (DD). Across the board, the presence of legislation is associated with a small (2.3 percent) but statistically significant increase in gay male wages compared to wages of similarly situated heterosexual men. Because many states had already passed legislation when the ACS data collection began, I take this number with a grain of salt–some self-selection may be at work. If certain, more economically advantaged gay men move from states where they feared discrimination to states they deem more gay-friendly, then they may artificially increase the coefficient on the difference in differences (DD) estimator. That similar percentages of gay and heterosexual men live in states with anti-discrimination legislation, however, suggests this may not be a major concern.

Nonetheless, I construct the second model in table 4 using the same regression methods and formula as the first, but I exclude data from California, Connecticut, Hawaii, Massachusetts, Minnesota, Nevada, New Hampshire, New Jersey, Rhode Island, Vermont, Wisconsin, and the District of Columbia–jurisdictions that passed anti-discrimination bills before 2000. Maryland, New York, New Mexico, Maine, Washington, Oregon, Colorado, Iowa, Delaware, Illinois, Virginia, and Utah passed legislation between 2000 and 2016. In this regression, even after controlling for local intolerance levels, the gay male wage penalty is more pronounced than in the baseline regression. So is the effect of legislation. Although the coefficient on the same-sex couple indicator is itself insignificant, gay men with at least a high school degree suffer wage penalties of 7 to 13 percent, depending on their educational attainment. The 95 percent confidence intervals for these coefficients are always less than zero. At the same time, the passage of legislation is associated with a statistically-significant 3.2 percent increase in wages for gay men across the educational spectrum.

Given these regressions' robust controls, the marginal discrimination coefficient for gay men in states without anti-discrimination legislation is approximately equal to the coefficient on the same-sex couple indicator interacted with educational attainment. To distill this coefficient into employer and customer discrimination, I run several specification tests. When analyzing only workers in occupations where the majority of wages are earned from commission or tips[7], the coefficient on the $SSC * DD$ interaction increases substantially. For gay men across the country who work in customer service occupations, the presence of legislation is associated with a 12 percent increase in wages, significant at the 1 percent level. Omitting states that passed legislation prior to 2000 increases this coefficient and its significance, yielding a premium of 30.8 percent at the 0.1 percent level of confidence. This result is surprising. It suggests that while anti-discrimination legislation reduces the sexual orientation wage gap, this reduction is more pronounced in occupations where the customer's actions–not the employer's–are the primary determinant of income.

If employers in states with anti-discrimination legislation feel compelled to compensate for customer discrimination, then this result suggests customers may be a direct and significant source of discrimination against gay men. For individuals in non-customer service positions who are not covered by anti-discrimination legislation, the average heterosexual man's income is $59,749, and the average gay man's income is $51,700. The average incomes for customer service workers in these same states are $74,849 and $59,947, respectively. In raw terms (i.e. without controls), gay men who work full time in customer service positions earn approximately 80 cents on each dollar earned by their heterosexual counterparts. When covered by anti-discrimination legislation, these same gay men earn 89 cents on their heterosexual counterpart's dollar. Regression analysis suggests this difference is robust to the alteration of various controlling factors, including occupational scores and educational attainment. Appendix 3 contains the full tables of males' OLS coefficients. Appendix 4 contains results from the regressions restricted to customer service workers.

[7]These occupations are detailed in the ACS codebook as codes 411 and 470-496. They include waiters and waitresses, salespersons, travel agents, telemarketers, and so forth.

Although gay men in customer service industries suffer a clear wage penalty, the possibility that gay men self-select into less lucrative occupations than their heterosexual counterparts lurks behind many reports on the broader sexual orientation wage gap. By controlling for occupational score, I crudely control for occupation and expected wage. In fact, among full-time workers, controlling for occupational score increases the model's explanatory power by nearly 20 percent. The blanket occupation control leaves open the possibility that different classes of gay men–say, those with different levels of educational attainment–suffer different levels of wage discrimination in different occupational circumstances. By performing a triple interaction between same-sex couple status, educational attainment, and occupational score, I investigate the possibility that gay men with say, less than a high school degree, perform differently in the context of their occupational circumstances compared to gay men with college degrees.

In fact, a regression suggests they do perform differently. Whereas gay men with less than a high school degree outperform their occupational score compared to their heterosexual counterparts, gay men with high school degrees, and especially gay men with bachelor's degrees, underperform their occupational scores–all compared against their heterosexual counterparts. For example, a one unit increase in occupational score will increase a gay, college-educated man's wage by less than it would increase a heterosexual college=educated man's wage. For gay men with less than a high school degree, the income boost from a one unit increase in occupational score is larger than the boost for his heterosexual counterpart. This difference is somewhat unexplainable without more detailed data (for example, on self-selection into educational cohorts and self-selection into living an openly gay lifestyle–a prerequisite for same-sex couple status). In the interim, however, a useful test population is available.

Although lesbian women may be fundamentally different from gay men, they face many of the same social barriers to living in an openly gay couple with children. The lesbian women and gay men as identified in this dataset may self-select into the same-sex couple category

in similar ways. For the sake of consistency, I perform identical regressions on females in the ACS data. Table 4 indicates that, in contrast to gay men, lesbian women with all levels of educational attainment earn more than their heterosexual counterparts. In addition, the presence of anti-discrimination legislation is associated with a decrease in lesbian wages. This holds true both in the full regression and in the regression excluding states with pre-2000 legislation. This result is surprising because I can think of no reason why the presence of legislation should penalize lesbian workers. The answer to this puzzle, I think, is that it doesn't penalize lesbian workers. Rather, the political and social conditions conducive to the passage of anti-discrimination laws also benefit heterosexual women. To avoid this gender problem, I compare lesbian women to heterosexual men. In an identical regression where heterosexual women are swapped out for heterosexual men, the coefficient on the same-sex couple-difference in differences interaction ($SSC * DD$) is the only one to change in sign or significance. In fact, it becomes insignificant, suggesting that lesbian women may, on average, be unaffected by the presence of anti-discrimination legislation. Appendix 5 contains regressions including heterosexual men and lesbian women.

This is not to exclude the possibility they are unaffected by wage discrimination. Although lesbian women earn more than their heterosexual counterparts for all levels of educational attainment, the wage premium decreases as educational attainment increases. The first model in table 4 indicates that whereas lesbian women with less than a high school degree can expect to earn approximately 17 percent more than their heterosexual counterparts, those with a bachelor's degree can expect to earn only 9 percent more. These premiums occur in both the full and the reduced models. In addition, whereas specification tests suggest the interaction between local intolerance and same-sex couple status has no explanatory power for gay males, it has significant explanatory power for lesbian females. Even in the states with the highest intolerance scores, however, lesbian women can expect to earn more than their heterosexual counterparts, although this wage premium diminishes as intolerance increases. Among bachelor's degree holders living in states with median levels of intolerance, a lesbian woman can expect to earn about $8,000 more than a comparable heterosexual woman. In

Table 4: Selected OLS Coefficients for Females

	Income from wages	
	Base Regression	Restricted States
	(1)	(2)
Same-sex couple (SSC)	0.168*** (0.017)	0.154*** (0.019)
Anti-discrimination legislation (DD)	0.090*** (0.001)	0.086*** (0.001)
Age	0.051*** (0.0004)	0.050*** (0.0004)
Age^2	−0.0005*** (0.00000)	−0.0005*** (0.00000)
White	0.037*** (0.003)	0.021*** (0.003)
Hispanic	−0.075*** (0.004)	−0.065*** (0.004)
Education		
HS or GED	0.206*** (0.002)	0.179*** (0.002)
Some college	0.379*** (0.002)	0.351*** (0.002)
Bachelors	0.663*** (0.002)	0.634*** (0.002)
Masters	0.818*** (0.002)	0.787*** (0.002)
Professional or doctoral	0.904*** (0.003)	0.890*** (0.003)
Region		
Middle Atlantic Division	0.020*** (0.002)	0.164*** (0.005)
East North Central Div.	−0.026*** (0.002)	0.148*** (0.005)
West North Central Div.	−0.104*** (0.002)	0.042*** (0.005)
South Atlantic Division	−0.038*** (0.002)	0.117*** (0.005)
East South Central Div.	−0.104*** (0.002)	0.051*** (0.005)
West South Central Div.	−0.061*** (0.002)	0.093*** (0.005)
Mountain Division	−0.069*** (0.002)	0.085*** (0.005)
Pacific Division	0.017*** (0.002)	0.123*** (0.006)
Misc. controls and interaction terms		
Lesbian Intolerance	−0.002*** (0.0001)	−0.002*** (0.0001)
Occupational Score (1-100)	0.015*** (0.00004)	0.015*** (0.00004)
SSC:HS or GED	−0.035* (0.019)	−0.027 (0.021)
SSC:Some college	−0.074*** (0.018)	−0.060*** (0.020)
SSC:Bachelors	−0.056*** (0.018)	−0.034 (0.021)
SSC:Masters	−0.089*** (0.019)	−0.061*** (0.022)
SSC:Professional or doctoral	−0.106*** (0.022)	−0.094*** (0.026)
SSC:DD	−0.019*** (0.007)	−0.038*** (0.010)
Constant	8.298*** (0.009)	8.218*** (0.011)
N	2,027,862	1,552,956
Adjusted R^2	0.392	0.378
Residual Std. Error	0.465 (df = 2027726)	0.459 (df = 1552836)
F Statistic	30,420.810*** (df = 43; 2027726)	21,945.680*** (df = 43; 1552836)

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

states with the highest levels of intolerance, this premium decreases to approximately $4,000, all else equal.

As with gay men, I attempt to separate potential employer discrimination from potential customer discrimination. Whereas the passage of anti-discrimination laws is associated with a sharp increase in the wages of gay men who work in customer service jobs, lesbian women in such jobs receive no such benefit. In fact, anti-discrimination legislation is associated with decrease in the wages of lesbian women; however, I believe this is again the result of particular legislatures *decreasing* the gender pay gap–it is not the result of their *increasing* the sexual orientation wage gap. When compared to heterosexual men in customer service sectors, the introduction of anti-discrimination legislation has no explanatory power for lesbian women's wages.

Just as I raise the possibility that gay men select into less lucrative careers compared to their heterosexual counterparts, I also raise the possibility that lesbian women select into more lucrative careers than their heterosexual counterparts. Separately controlling for occupation and educational attainment leaves open the possibility that lesbian women with different occupational standings experience different sorts of discrimination. By again performing a triple interaction between same-sex couple status, educational attainment, and occupational score, I investigate the possibility that lesbian women with less education perform differently in the context of their occupational circumstances compared to more educated lesbian women. As with gay men, lesbian women with less than a high school degree outperform their educational attainment and occupational score. Lesbian women of all other levels of educational attainment underperform their education and occupational score. For heterosexual men and women this trend is reversed–that is, individuals with less education underperform their occupational score. This single comparison is perhaps most suggestive of unusual sorting into same-sex couples–especially for less educated gay men and lesbian women. While this finding does not alter the significance of this study's other results, it does suggest that further research is needed to help understand the most vulnerable LGB

populations.

Discussion

This study compares particular gay men and lesbian women (those in couples with children) to their similar heterosexual counterparts. Comparing individuals with similar family structures has several functions. First, I assess the natural experiment created by changes in state-level anti-discrimination legislation. Second, I calculate wage gaps that persist, even in the presence of robust controls. Given the robust same-sex couple classifier, data subsetting, and controls I use, persistent wage penalties for gay men are highly suggestive of labor market discrimination. That the passage of anti-discrimination legislation is associated with higher employment rates and a reduced wage penalty confirms this result. The story is less clear for lesbian women. In spite of strong controls for labor supply decisions, occupation, and educational attainment, lesbian women across the board earn more than their heterosexual counterparts. Anti-discrimination legislation has no effect on their rate of employment, and no effect on their wages. Lesbian women appear to be exempt from the sexual orientation wage penalties and lower employment rates that plague gay men.

Importantly, however, local intolerance for lesbian women has a strong negative effect on their wages, compared to its effects on the wages of all women. Especially with respect to lesbian women, this fact has implications on the validity of the difference in differences estimator. If intolerance is associated with lower wages for lesbian women–possibly the result of sexual orientation discrimination and possibly the result of lurking variables–lesbian women may migrate to more tolerant regions. The possibility of interstate migration presents major challenges in this study. If the presence of anti-discrimination legislation attracts gay men or lesbian women from less tolerant states, then the difference in differences estimator may track the results of their migration–not the results of employers changing their hiring and pay decisions. Better data on the employment history and migration will help address

this concern. At the same time, this study's validity is supported by the fact that omitting states that enacted legislation prior to 2000 has little effect on wage gaps and the $SSC * DD$ interaction coefficient.

Restricting my income analysis to full-time workers also restricts the generalizability of results. Because of major differences in domestic labor supply decisions among same-sex and opposite-sex couples, however, I believe this restriction is necessary to asserting any sort of discriminatory wage penalty. That I am only able to identify gay men and lesbian women who are in same-sex couples with children is problematic for the extrapolation of my results to all gay men and lesbian women. Although this restriction serves as a robust control, Elmslie and Tebaldi (2007) find that unmarried or uncoupled gay men, who earn far less than their heterosexual counterparts, may be most exposed to labor market discrimination. Finally, health conditions, including HIV/AIDS status, may continue to play a significant role in both employer taste-based and statistical discrimination and may disproportionately affect uncoupled gay men. Better data that control for these factors may alter results and will present opportunities for further research.

Conclusion

Since 1995, economists and sociologists have attempted to quantify and explain the sexual orientation wage gap. Not only does this study confirm the presence of wage gaps, it also indicates that anti-discrimination legislation has a strong effect on reducing the gap for gay men, suggesting that both employer and customer discrimination is partly responsible for the gay male wage penalty. This penalty has endured both rising national acceptance for the LGB population and a burgeoning gay rights movement. In June 2015, Supreme Court Justice Anthony Kennedy authored the majority opinion in *Obergefell v. Hodges*, whose plaintiff challenged states' bans on same-sex marriage and their refusal to recognize marriages from other states. "[Same-sex couples] ask for dignity in the eyes of the law," Kennedy wrote.

"The Constitution grants them that right." Despite federal law's sweeping ruling on marriage, its stance toward employment discrimination remains limited.

In February 2018, however, a New York federal court of appeals ruled that by prohibiting discrimination based on sex, the Civil Rights Act of 1964 by corollary prohibits discrimination based on sexual orientation–a characteristic that is inextricably linked to sex[8]. As the case moves forward to the Supreme Court, the U.S. is poised to decide whether sexual orientation ought to be a protected characteristic. This study uses a novel method and data to conduct a national experiment on the effectiveness of such legislation. It suggests that such anti-discrimination legislation is highly effective at curbing discrimination against gay men. It also suggests that the legislation is urgently needed.

[8]Zarda v. Altitude Express, Inc., 883 F.3d 100

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APPENDIX 1: SAME-SEX COUPLE DISTRIBUTION AND CLASSIFIER VERIFICATION

Table 1: Same-sex couple distribution ranked by ACS proportion

	State	In opposite-sex couple	In same-sex couple	ACS proportion SSC	Alternative proportion SSC
1	Vermont	29,283	258	0.0087	0.0092
2	Massachusetts	245,160	2,005	0.0081	0.0081
3	New Mexico	63,185	502	0.0079	0.0068
4	Rhode Island	42,882	337	0.0078	0.0087
5	Oregon	127,021	974	0.0076	0.0088
6	Nevada	79,855	565	0.0070	0.0095
7	Maryland	206,579	1,398	0.0067	0.0054
8	Washington	239,449	1,619	0.0067	0.0078
9	California	1,227,346	8,177	0.0066	0.0075
10	Hawaii	44,204	290	0.0065	0.0090
11	Maine	48,923	318	0.0065	0.0085
12	New York	670,013	4,354	0.0065	0.0069
13	Georgia	318,882	2,044	0.0064	0.0059
14	New Hampshire	56,175	359	0.0064	0.0042
15	Florida	549,565	3,478	0.0063	0.0072
16	South Carolina	144,721	913	0.0063	0.0057
17	Arizona	194,813	1,225	0.0062	0.0061
18	Colorado	178,383	1,118	0.0062	0.0071
19	Louisiana	150,788	944	0.0062	0.0050
20	North Carolina	312,698	1,872	0.0060	0.0048
21	Connecticut	135,728	798	0.0058	0.0045
22	Texas	844,335	4,922	0.0058	0.0048
23	Mississippi	99,375	573	0.0057	0.0057
24	Tennessee	215,433	1,193	0.0055	0.0044
25	New Jersey	346,703	1,901	0.0055	0.0069
26	Kentucky	167,239	911	0.0054	0.0054
27	Wyoming	26,363	141	0.0053	0.0055
28	Missouri	216,213	1,148	0.0053	0.0049
29	Indiana	242,289	1,282	0.0053	0.0051
30	Alabama	158,291	837	0.0053	0.0054
31	Illinois	479,949	2,535	0.0053	0.0043
32	Ohio	430,020	2,265	0.0052	0.0046
33	Oklahoma	126,750	661	0.0052	0.0050
34	Delaware	34,381	179	0.0052	0.0062
35	Pennsylvania	472,140	2,423	0.0051	0.0049
36	Virginia	284,627	1,456	0.0051	0.0046
37	Kansas	111,277	568	0.0051	0.0052
38	Montana	37,907	192	0.0050	0.0033
39	Michigan	373,224	1,825	0.0049	0.0047
40	Nebraska	76,078	354	0.0046	0.0038
41	South Dakota	40,531	187	0.0046	0.0027
42	Wisconsin	225,219	1,033	0.0046	0.0028
43	West Virginia	71,341	327	0.0046	0.0049
44	Arkansas	96,145	421	0.0044	0.0044
45	Idaho	61,415	267	0.0043	0.0048
46	Utah	116,256	496	0.0042	0.0034
47	Minnesota	212,625	907	0.0042	0.0035
48	Iowa	124,356	526	0.0042	0.0034
49	Alaska	30,622	125	0.0041	0.0040
50	North Dakota	32,709	128	0.0039	0.0035

APPENDIX 2: FULL PROBIT EMPLOYMENT STATUS REGRESSIONS

Table 2: Probit regression for employment status

	Dependent variable:	
	Probability of employment	
	Male	Female
	(1)	(2)
Same-sex couple (SSC)	-1.120^{***} (0.184)	0.185^{**} (0.086)
Anti-discrimination legislation (DD)	0.127^{***} (0.049)	-0.336^{***} (0.024)
More educated than spouse/partner	-0.011^{***} (0.001)	0.224^{***} (0.001)
Age	0.057^{***} (0.001)	0.076^{***} (0.001)
Age^2	-0.001^{***} (0.00001)	-0.001^{***} (0.00001)
White	0.065^{***} (0.002)	-0.078^{***} (0.002)
Relation to household head		
Spouse	-0.114^{***} (0.002)	-0.163^{***} (0.001)
Unmarried Partner	-0.379^{***} (0.003)	0.024^{***} (0.004)
Education		
HS or GED	0.246^{***} (0.003)	0.459^{***} (0.003)
Some college	0.400^{***} (0.003)	0.566^{***} (0.003)
Bachelors	0.621^{***} (0.003)	0.553^{***} (0.003)
Masters	0.810^{***} (0.004)	0.738^{***} (0.003)
Professional or doctoral	0.540^{***} (0.005)	0.706^{***} (0.005)
Year		
2001	0.029^{***} (0.005)	-0.040^{***} (0.004)
2002	0.011^{**} (0.005)	-0.052^{***} (0.004)
2003	-0.002 (0.004)	-0.066^{***} (0.004)
2004	-0.020^{***} (0.004)	-0.081^{***} (0.004)
2005	0.002 (0.004)	-0.062^{***} (0.004)
2006	0.025^{***} (0.005)	-0.050^{***} (0.004)
2007	0.035^{***} (0.005)	-0.040^{***} (0.004)
2008	0.047^{***} (0.004)	-0.025^{***} (0.004)
2009	-0.010^{**} (0.004)	-0.045^{***} (0.004)
2010	-0.068^{***} (0.004)	-0.065^{***} (0.004)
2011	-0.044^{***} (0.004)	-0.079^{***} (0.004)
2012	-0.020^{***} (0.004)	-0.074^{***} (0.004)
2013	0.011^{**} (0.005)	-0.080^{***} (0.004)
2014	0.031^{***} (0.005)	-0.074^{***} (0.004)
2015	0.049^{***} (0.005)	-0.071^{***} (0.004)
2016	0.060^{***} (0.005)	-0.049^{***} (0.004)
Region		
Middle Atlantic Division	0.044^{***} (0.004)	-0.069^{***} (0.003)
East North Central Div.	0.090^{***} (0.004)	0.014^{***} (0.004)
West North Central Div.	0.038^{***} (0.005)	0.131^{***} (0.004)
South Atlantic Division	0.065^{***} (0.004)	-0.042^{***} (0.004)
East South Central Div.	-0.013^{**} (0.005)	-0.014^{***} (0.004)
West South Central Div.	0.042^{***} (0.005)	-0.116^{***} (0.004)
Mountain Division	0.054^{***} (0.005)	-0.160^{***} (0.004)
Pacific Division	-0.056^{***} (0.004)	-0.205^{***} (0.003)
Intolerance		
Gay intolerance	-0.003^{***} (0.0002)	
Lesbian intolerance		-0.002^{***} (0.0001)
Interaction Terms		
SSC:DD	1.819^{***} (0.628)	0.341 (0.256)
SSC:HS or GED	0.031 (0.036)	0.049 (0.033)
SSC:Some college	0.030 (0.037)	0.092^{***} (0.032)
SSC:Bachelors	-0.146^{***} (0.040)	0.199^{***} (0.035)
SSC:Masters	-0.094^{*} (0.051)	0.234^{***} (0.041)
SSC:Professional or doctoral	0.116^{*} (0.066)	0.233^{***} (0.052)
SSC:More educated than spouse/partner	0.074^{***} (0.019)	-0.167^{***} (0.015)
DD:Gay intolerance	-0.001^{*} (0.001)	
SSC:Gay intolerance	0.011^{***} (0.003)	
SSC:DD:Gay intolerance	-0.026^{***} (0.009)	
DD:Lesbian intolerance		0.007^{***} (0.0005)
SSC:Lesbian intolerance		0.0002 (0.001)
SSC:DD:Lesbian intolerance		-0.007 (0.005)
Constant	0.167^{***} (0.022)	-1.437^{***} (0.015)
Observations	4,969,115	4,999,044
Log Likelihood	$-1,701,314.000$	$-2,744,360.000$
Akaike Inf. Crit.	3,402,725.000	5,488,819.000
Note:		*p<0.1; **p<0.05; ***p<0.01

APPENDIX 3: FULL OLS INCOME REGRESSIONS

Table 3: All OLS Coefficients for Males

	Income from wages	
	Base Regression	Restricted States
	(1)	(2)
Same-sex couple (SSC)	-0.049^{***} (0.017)	-0.003 (0.020)
Anti-discrimination legislation (DD)	0.074^{***} (0.001)	0.069^{***} (0.001)
Age	0.070^{***} (0.0003)	0.069^{***} (0.0003)
Age^2	-0.001^{***} (0.00000)	-0.001^{***} (0.00000)
White	0.154^{***} (0.001)	0.160^{***} (0.001)
Hispanic	-0.157^{***} (0.001)	-0.151^{***} (0.001)
Year		
2001	0.025^{***} (0.002)	0.025^{***} (0.002)
2002	0.050^{***} (0.002)	0.049^{***} (0.002)
2003	0.058^{***} (0.002)	0.052^{***} (0.002)
2004	0.091^{***} (0.002)	0.085^{***} (0.002)
2005	0.118^{***} (0.002)	0.110^{***} (0.002)
2006	0.148^{***} (0.002)	0.142^{***} (0.002)
2007	0.181^{***} (0.002)	0.174^{***} (0.002)
2008	0.203^{***} (0.002)	0.195^{***} (0.002)
2009	0.206^{***} (0.002)	0.196^{***} (0.002)
2010	0.199^{***} (0.002)	0.190^{***} (0.002)
2011	0.210^{***} (0.002)	0.202^{***} (0.002)
2012	0.229^{***} (0.002)	0.220^{***} (0.002)
2013	0.251^{***} (0.002)	0.243^{***} (0.002)
2014	0.268^{***} (0.002)	0.261^{***} (0.002)
2015	0.290^{***} (0.002)	0.281^{***} (0.002)
2016	0.316^{***} (0.002)	0.305^{***} (0.002)
Education		
HS or GED	0.182^{***} (0.001)	0.170^{***} (0.001)
Some college	0.323^{***} (0.001)	0.310^{***} (0.001)
Bachelors	0.614^{***} (0.001)	0.599^{***} (0.001)
Masters	0.759^{***} (0.001)	0.736^{***} (0.002)
Professional or doctoral	0.750^{***} (0.002)	0.742^{***} (0.002)
Region		
Middle Atlantic Division	0.019^{***} (0.001)	0.204^{***} (0.004)
East North Central Div.	-0.032^{***} (0.002)	0.197^{***} (0.004)
West North Central Div.	-0.112^{***} (0.002)	0.104^{***} (0.004)
South Atlantic Division	-0.055^{***} (0.002)	0.151^{***} (0.004)
East South Central Div.	-0.081^{***} (0.002)	0.134^{***} (0.004)
West South Central Div.	-0.027^{***} (0.002)	0.178^{***} (0.004)
Mountain Division	-0.075^{***} (0.002)	0.127^{***} (0.004)
Pacific Division	0.013^{***} (0.001)	0.163^{***} (0.004)
Misc. controls and interaction terms		
Gay intolerance	-0.004^{***} (0.0001)	-0.004^{***} (0.0001)
Occupational Score	0.018^{***} (0.00003)	0.017^{***} (0.00003)
SSC:HS or GED	-0.032 (0.019)	-0.082^{***} (0.023)
SSC:Some college	-0.036^{*} (0.019)	-0.073^{***} (0.022)
SSC:Bachelors	-0.035^{*} (0.019)	-0.090^{***} (0.023)
SSC:Masters	-0.054^{**} (0.022)	-0.134^{***} (0.026)
SSC:Professional or doctoral	0.054^{**} (0.027)	-0.007 (0.032)
SSC:DD	0.023^{**} (0.010)	0.032^{**} (0.016)
Constant	8.211^{***} (0.008)	8.104^{***} (0.010)
N	3,704,122	2,809,738
R^2	0.405	0.393
Adjusted R^2	0.405	0.393
Residual Std. Error	0.512 (df = 3703883)	0.505 (df = 2809519)
F Statistic	$58{,}571.670^{***}$ (df = 43; 3703883)	$42{,}337.430^{***}$ (df = 43; 2809519)

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Table 4: All OLS Coefficients for Females

	Income from wages	
	Base Regression	Restricted States
	(1)	(2)
Same-sex couple (SSC)	0.168*** (0.017)	0.154*** (0.019)
Anti-discrimination legislation (DD)	0.090*** (0.001)	0.086*** (0.001)
Age	0.051*** (0.0004)	0.050*** (0.0004)
Age^2	−0.0005*** (0.00000)	−0.0005*** (0.00000)
White	0.037*** (0.003)	0.021*** (0.003)
Hispanic	−0.075*** (0.004)	−0.065*** (0.004)
Year		
2001	0.046*** (0.002)	0.045*** (0.002)
2002	0.072*** (0.002)	0.068*** (0.002)
2003	0.094*** (0.002)	0.092*** (0.002)
2004	0.126*** (0.002)	0.120*** (0.002)
2005	0.149*** (0.002)	0.145*** (0.002)
2006	0.174*** (0.002)	0.168*** (0.002)
2007	0.205*** (0.002)	0.199*** (0.002)
2008	0.226*** (0.002)	0.219*** (0.002)
2009	0.245*** (0.002)	0.237*** (0.002)
2010	0.257*** (0.002)	0.249*** (0.002)
2011	0.268*** (0.002)	0.262*** (0.002)
2012	0.284*** (0.002)	0.274*** (0.002)
2013	0.299*** (0.002)	0.292*** (0.002)
2014	0.311*** (0.002)	0.304*** (0.002)
2015	0.329*** (0.002)	0.319*** (0.002)
2016	0.353*** (0.002)	0.344*** (0.002)
Education		
HS or GED	0.206*** (0.002)	0.179*** (0.002)
Some college	0.379*** (0.002)	0.351*** (0.002)
Bachelors	0.663*** (0.002)	0.634*** (0.002)
Masters	0.818*** (0.002)	0.787*** (0.002)
Professional or doctoral	0.904*** (0.003)	0.890*** (0.003)
Region		
Middle Atlantic Division	0.020*** (0.002)	0.164*** (0.005)
East North Central Div.	−0.026*** (0.002)	0.148*** (0.005)
West North Central Div.	−0.104*** (0.002)	0.042*** (0.005)
South Atlantic Division	−0.038*** (0.002)	0.117*** (0.005)
East South Central Div.	−0.104*** (0.002)	0.051*** (0.005)
West South Central Div.	−0.061*** (0.002)	0.093*** (0.005)
Mountain Division	−0.069*** (0.002)	0.085*** (0.005)
Pacific Division	0.017*** (0.002)	0.123*** (0.006)
Misc. controls and interaction terms		
Lesbian Intolerance	−0.002*** (0.0001)	−0.002*** (0.0001)
Occupational Score (1-100)	0.015*** (0.00004)	0.015*** (0.00004)
SSC:HS or GED	−0.035* (0.019)	−0.027 (0.021)
SSC:Some college	−0.074*** (0.018)	−0.060*** (0.020)
SSC:Bachelors	−0.056*** (0.018)	−0.034 (0.021)
SSC:Masters	−0.089*** (0.019)	−0.061*** (0.022)
SSC:Professional or doctoral	−0.106*** (0.022)	−0.094*** (0.026)
SSC:DD	−0.019*** (0.007)	−0.038*** (0.010)
Constant	8.298*** (0.009)	8.218*** (0.011)
N	2,027,862	1,552,956
R^2	0.392	0.378
Adjusted R^2	0.392	0.378
Residual Std. Error	0.465 (df = 2027726)	0.459 (df = 1552836)
F Statistic	30,420.810*** (df = 43; 2027726)	21,945.680*** (df = 43; 1552836)

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

APPENDIX 4: INCOME REGRESSIONS FOR FULL-TIME CUSTOMER SERVICE WORKERS

Table 5: OLS Coefficients for Males in Customer Service Positions

	Income from wages	
	Base Regression	Restricted States
	(1)	(2)
Same-sex couple (SSC)	-0.296^{**} (0.128)	0.160 (0.227)
Anti-discrimination legislation (DD)	0.069^{***} (0.004)	0.050^{***} (0.005)
Age	0.083^{***} (0.001)	0.083^{***} (0.002)
Age^2	-0.001^{***} (0.00002)	-0.001^{***} (0.00002)
White	0.208^{***} (0.004)	0.208^{***} (0.005)
Hispanic	-0.166^{***} (0.005)	-0.168^{***} (0.006)
Year		
2001	0.033^{***} (0.005)	0.033^{***} (0.006)
2002	0.062^{***} (0.005)	0.059^{***} (0.006)
2003	0.168^{***} (0.008)	0.177^{***} (0.009)
2004	0.225^{***} (0.008)	0.228^{***} (0.009)
2005	0.233^{***} (0.008)	0.232^{***} (0.009)
2006	0.280^{***} (0.008)	0.287^{***} (0.009)
2007	0.305^{***} (0.007)	0.311^{***} (0.009)
2008	0.317^{***} (0.007)	0.319^{***} (0.009)
2009	0.320^{***} (0.008)	0.327^{***} (0.009)
2010	0.318^{***} (0.008)	0.326^{***} (0.009)
2011	0.342^{***} (0.007)	0.344^{***} (0.009)
2012	0.348^{***} (0.007)	0.353^{***} (0.009)
2013	0.373^{***} (0.007)	0.373^{***} (0.008)
2014	0.381^{***} (0.007)	0.388^{***} (0.008)
2015	0.405^{***} (0.007)	0.402^{***} (0.008)
2016	0.430^{***} (0.007)	0.434^{***} (0.008)
Education		
HS or GED	0.161^{***} (0.009)	0.148^{***} (0.010)
Some college	0.314^{***} (0.009)	0.304^{***} (0.010)
Bachelors	0.657^{***} (0.009)	0.647^{***} (0.010)
Masters	0.830^{***} (0.009)	0.818^{***} (0.011)
Professional or doctoral	0.898^{***} (0.012)	0.861^{***} (0.014)
Region		
Middle Atlantic Division	-0.004 (0.007)	0.219^{***} (0.021)
East North Central Div.	-0.048^{***} (0.007)	0.225^{***} (0.021)
West North Central Div.	-0.142^{***} (0.007)	0.120^{***} (0.021)
South Atlantic Division	-0.081^{***} (0.007)	0.166^{***} (0.021)
East South Central Div.	-0.095^{***} (0.009)	0.165^{***} (0.021)
West South Central Div.	-0.019^{**} (0.008)	0.228^{***} (0.021)
Mountain Division	-0.128^{***} (0.008)	0.115^{***} (0.021)
Pacific Division	-0.001 (0.006)	0.193^{***} (0.021)
Misc. controls and interaction terms		
Gay intolerance	-0.005^{***} (0.0004)	-0.006^{***} (0.0004)
Occupational score	0.007^{***} (0.0002)	0.006^{***} (0.0002)
SSC:HS or GED	0.148 (0.139)	-0.309 (0.236)
SSC:Some college	0.134 (0.131)	-0.352 (0.231)
SSC:Bachelors	0.155 (0.130)	-0.278 (0.231)
SSC:Masters	0.083 (0.133)	-0.334 (0.236)
SSC:Professional or doctoral	0.138 (0.164)	-0.524^{**} (0.262)
SSC:DD	0.120^{***} (0.046)	0.308^{***} (0.080)
Constant	8.358^{***} (0.042)	8.235^{***} (0.050)
N	221,096	165,372
R^2	0.328	0.326
Adjusted R^2	0.328	0.326
Residual Std. Error	0.524 (df = 221038)	0.518 (df = 165314)
F Statistic	$2{,}506.166^{***}$ (df = 43; 221038)	$1{,}858.002^{***}$ (df = 43; 165314)

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Table 6: OLS Coefficients for Females in Customer Service Positions

	Income from wages	
	Base Regression	Restricted States
	(1)	(2)
Same-sex couple (SSC)	0.059 (0.117)	0.044 (0.127)
Anti-discrimination legislation (DD)	0.121^{***} (0.005)	0.120^{***} (0.007)
Age	0.057^{***} (0.002)	0.056^{***} (0.002)
Age^2	-0.001^{***} (0.00002)	-0.001^{***} (0.00002)
White	0.095^{***} (0.005)	0.095^{***} (0.005)
Hispanic	-0.097^{***} (0.006)	-0.087^{***} (0.007)
Year		
2001	0.033^{***} (0.006)	0.039^{***} (0.007)
2002	0.079^{***} (0.006)	0.068^{***} (0.007)
2003	0.258^{***} (0.012)	0.251^{***} (0.013)
2004	0.299^{***} (0.011)	0.308^{***} (0.013)
2005	0.315^{***} (0.011)	0.315^{***} (0.012)
2006	0.327^{***} (0.011)	0.333^{***} (0.012)
2007	0.375^{***} (0.011)	0.381^{***} (0.012)
2008	0.410^{***} (0.011)	0.401^{***} (0.012)
2009	0.375^{***} (0.011)	0.355^{***} (0.012)
2010	0.399^{***} (0.011)	0.391^{***} (0.012)
2011	0.428^{***} (0.011)	0.416^{***} (0.012)
2012	0.460^{***} (0.010)	0.447^{***} (0.012)
2013	0.451^{***} (0.010)	0.435^{***} (0.012)
2014	0.445^{***} (0.010)	0.441^{***} (0.011)
2015	0.477^{***} (0.009)	0.461^{***} (0.011)
2016	0.502^{***} (0.009)	0.486^{***} (0.011)
Education		
HS or GED	0.135^{***} (0.010)	0.129^{***} (0.011)
Some college	0.311^{***} (0.010)	0.308^{***} (0.011)
Bachelors	0.679^{***} (0.010)	0.679^{***} (0.011)
Masters	0.850^{***} (0.011)	0.839^{***} (0.012)
Professional or doctoral	0.943^{***} (0.016)	0.919^{***} (0.018)
Region		
Middle Atlantic Division	0.048^{***} (0.009)	0.155^{***} (0.025)
East North Central Div.	-0.001 (0.010)	0.149^{***} (0.025)
West North Central Div.	-0.064^{***} (0.010)	0.052^{**} (0.026)
South Atlantic Division	0.016^{*} (0.009)	0.141^{***} (0.025)
East South Central Div.	-0.061^{***} (0.012)	0.068^{***} (0.026)
West South Central Div.	-0.003 (0.010)	0.121^{***} (0.025)
Mountain Division	-0.044^{***} (0.010)	0.078^{***} (0.026)
Pacific Division	0.028^{***} (0.009)	0.112^{***} (0.026)
Misc. control and interaction terms		
Lesbian intolerance	-0.003^{***} (0.0004)	-0.004^{***} (0.0004)
Occupational score	0.013^{***} (0.0002)	0.013^{***} (0.0003)
SSC:HS or GED	0.126 (0.123)	0.109 (0.133)
SSC:Some college	0.142 (0.121)	0.119 (0.131)
SSC:Bachelors	0.037 (0.121)	0.068 (0.131)
SSC:Masters	0.089 (0.124)	0.180 (0.137)
SSC:Professional or doctoral	-0.092 (0.140)	0.115 (0.163)
SSC:DD	-0.083^{**} (0.033)	-0.238^{***} (0.052)
Constant	8.195^{***} (0.044)	8.123^{***} (0.055)
N	100,770	75,921
R^2	0.501	0.499
Adjusted R^2	0.501	0.499
Residual Std. Error	0.455 (df = 100718)	0.445 (df = 75871)
F Statistic	$2{,}352.483^{***}$ (df = 43; 100718)	$1{,}760.572^{***}$ (df = 43; 75871)

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

APPENDIX 5: INCOME REGRESSIONS FOR LESBIAN WOMEN AND HETEROSEXUAL MEN

Table 7: OLS Coefficients for Lesbian Women and Heterosexual Men

	Income from wages	
	Base Regression	Restricted States
	(1)	(2)
Same-sex couple (SSC)	-0.131^{***} (0.019)	-0.138^{***} (0.021)
Anti-discrimination legislation (DD)	0.079^{***} (0.001)	0.074^{***} (0.001)
Age	0.070^{***} (0.0003)	0.069^{***} (0.0003)
Age^2	-0.001^{***} (0.00000)	-0.001^{***} (0.00000)
White	0.154^{***} (0.001)	0.159^{***} (0.001)
Hispanic	-0.156^{***} (0.001)	-0.148^{***} (0.001)
Year		
2001	0.026^{***} (0.002)	0.025^{***} (0.002)
2002	0.050^{***} (0.002)	0.049^{***} (0.002)
2003	0.058^{***} (0.002)	0.052^{***} (0.002)
2004	0.091^{***} (0.002)	0.085^{***} (0.002)
2005	0.118^{***} (0.002)	0.110^{***} (0.002)
2006	0.147^{***} (0.002)	0.141^{***} (0.002)
2007	0.180^{***} (0.002)	0.174^{***} (0.002)
2008	0.203^{***} (0.002)	0.194^{***} (0.002)
2009	0.205^{***} (0.002)	0.195^{***} (0.002)
2010	0.197^{***} (0.002)	0.188^{***} (0.002)
2011	0.209^{***} (0.002)	0.201^{***} (0.002)
2012	0.227^{***} (0.002)	0.219^{***} (0.002)
2013	0.249^{***} (0.002)	0.242^{***} (0.002)
2014	0.267^{***} (0.002)	0.259^{***} (0.002)
2015	0.289^{***} (0.002)	0.280^{***} (0.002)
2016	0.315^{***} (0.002)	0.303^{***} (0.002)
Education		
HS or GED	0.182^{***} (0.001)	0.170^{***} (0.001)
Some college	0.324^{***} (0.001)	0.311^{***} (0.001)
Bachelors	0.615^{***} (0.001)	0.601^{***} (0.001)
Masters	0.760^{***} (0.001)	0.738^{***} (0.002)
Professional or doctoral	0.752^{***} (0.002)	0.744^{***} (0.002)
Region		
Middle Atlantic Division	0.021^{***} (0.001)	0.196^{***} (0.004)
East North Central Div.	-0.019^{***} (0.002)	0.200^{***} (0.004)
West North Central Div.	-0.105^{***} (0.002)	0.094^{***} (0.004)
South Atlantic Division	-0.038^{***} (0.002)	0.162^{***} (0.004)
East South Central Div.	-0.080^{***} (0.002)	0.121^{***} (0.004)
West South Central Div.	-0.016^{***} (0.002)	0.182^{***} (0.004)
Mountain Division	-0.064^{***} (0.002)	0.134^{***} (0.004)
Pacific Division	0.014^{***} (0.001)	0.163^{***} (0.004)
Misc. controls and interaction terms		
Lesbian intolerance	-0.002^{***} (0.0001)	-0.002^{***} (0.0001)
Occupational score	0.018^{***} (0.00003)	0.017^{***} (0.00003)
SSC:HS or GED	-0.051^{**} (0.020)	-0.051^{**} (0.023)
SSC:Some college	-0.062^{***} (0.020)	-0.057^{**} (0.022)
SSC:Bachelors	-0.078^{***} (0.020)	-0.065^{***} (0.023)
SSC:Masters	-0.105^{***} (0.021)	-0.080^{***} (0.024)
SSC:Professional or doctoral	-0.074^{***} (0.024)	-0.062^{**} (0.028)
SSC:DD	0.012 (0.008)	0.001 (0.011)
Constant	8.048^{***} (0.007)	7.896^{***} (0.009)
N	3,712,342	2,815,670
R^2	0.405	0.393
Adjusted R^2	0.405	0.393
Residual Std. Error	0.512 (df = 3712103)	0.505 (df = 2815451)
F Statistic	$58{,}656.450^{***}$ (df = 43; 3712103)	$42{,}388.170^{***}$ (df = 43; 2815451)

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.