The Role of Work Values and Characteristics in the Human Capital Investment by Gays and Lesbians

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We use data from nationally representative surveys (the ACS, the NHIS, and Add-Health) in the United States to show that differences in educational attainment are consistent with pre-market efforts to sort into occupations that mediate the effects of future labor market discrimination. Gay men obtain more years of schooling than heterosexual men, between 0.6 and 1.1 years. This differences is robust to controlling for demographics, personality, and family characteristics. While similarly sized gaps exist between women, the gaps appear due to differences in personality and family background. We then show that gay men are more likely to choose majors with lower levels of prejudice, higher levels of workplace independence, and occupations with more opportunity to build relationships with coworkers, customers, and clients even if these majors have lower earnings. Lesbian women are attracted to majors with less prejudice and more workplace independence.

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1 Introduction

Researchers in the United States document that sexual minorities complete more schooling than their heterosexual counterparts. These systematic differences in human capital investments are persistent across many nationally representative samples. In the American Community Survey (ACS), gay men complete 14.3 years of schooling on average, which is 1.23 years more than heterosexual men. Lesbian women received 14.1 years of schooling, which is 1.07 years more than heterosexual women. The main driver of these differences is the higher rates of college and graduate school attendance by gay men and lesbian women. Similar differences exist in the General Social Survey (GSS), the National Health Interview Survey (NHIS), and the National Longitudinal Study of Adolescent to Adult Health (AddHealth). While many researchers have noted these differences in empirical analysis, little work has investigated the source of differences in educational attainment by sexual orientation (Black, Gates, Sanders and Taylor 2000, Klawitter 2015).

Not only are gay men and lesbian women completing more years of schooling, but they also select different college majors. In the ACS, gay men are more likely to complete majors in the arts/humanities and the social sciences and are less likely to complete majors in computer sciences or engineering than heterosexual men. There are fewer differences in the college majors of lesbian and heterosexual women. Lesbians are slightly less likely to complete majors in biology and life sciences or business/economics than heterosexual women. These differences in college majors are important because the economic returns to higher education vary significantly across fields of study (Altonji, Arcidiacono and Maurel 2016) and could contribute to the worse economic outcomes of sexual minorities (Badgett 1995, Klawitter 2015, Elmslie and Tebaldi 2014).

Understanding the differences in how individuals select a college majors is important because there are meaningful differences in the economic returns to individual fields of study. Hughes (2018) finds a significant "leaky pipeline" in STEM fields for gay men and lesbian women. Gay and lesbian students who begin with the intention of majoring in a relatively high paying STEM field are more likely to change their majors to the lower paying humanities and social sciences than their heterosexual classmates (Hughes 2018). Many of these major specific pay differentials have continued to grow over time (Altonji et al. 2016, Gemici and Wiswall 2014). Understanding the determinants of the choice of major is, therefore, important as it contributes to an understanding of the source of earnings differentials that persist, and sometimes grow, over the life cycle.

We contribute to a more complete understanding of the human capital attainment of

sexual minorities by making two important contributions. First, we document the differences in schooling remain significant in the most recently available data. We show that data limitations in the Census data and the GSS data used by earlier researchers do not explain these schooling gaps. By comparing the gaps in the ACS and the NHIS, we show that the differences in education seen in the Census data are not unique to the subset of the gay and lesbian population that cohabits, which the Census captures. Moreover, the gaps in schooling are similar in size across the two sources. Using data from the AddHealth, we show that these education gaps are unlikely to be driven by characteristics unrelated to sexual orientation that are typically unobserved by researchers. The differences in years of schooling between gay men and heterosexual men remain significant even after controlling for demographics, family background, and personality characteristics. The difference between lesbian women and heterosexual women is not robust to these controls, suggesting that unobservable personality differences may play a role in the differences among women.

In order to investigate the source of differences in years of schooling, we build on the literature by investigating the intensive margin to document that the characteristics of educational investments differ by sexual orientation. Thus, our second contribution is showing that the college major choices of gay men and lesbian women are consistent with efforts to avoid the negative effects of social stigma. For gay men, this takes the form of compensating wage differentials, while for lesbians there is no trade-off between income and prejudice. Using data from the GSS, the National Survey of College Graduates, and the Occupational Information Network (O*NET), we investigate how differences in pecuniary and non-pecuniary major characteristics influence the choice of a college major and whether these factors potentially explain the differences in college majors by sexual orientation. We find that both gay men and lesbian women are attracted to majors that lead to occupations with lower levels of prejudice and higher levels of independence. Higher levels of independence reflect occupations in which workers are able to perform their job without co-worker interactions. Gay men also select majors that lead to occupations with a larger focus on relationship building (such as social sciences or humanities). Conditional on prejudice and independence, the pecuniary rewards for a college major do not appear to influence their choices. The average income of a major does not influence the choice of lesbian women, while gay men are less likely to select higher paying majors. In other words, gay men are willing to accept lower levels of earning potential for a more attractive package of non-pecuniary workplace values. This is consistent with the existence of compensating wage differentials for gay men.

Our results show that the skills and fields of study meaningfully differ by sexual orientation. They highlight the impact of social stigma on the economic experiences of sexual minorities. We build on Carpenter (2009) and Hughes (2018) who find that the college experience differs by sexual orientation by showing that differential experiences lead to differential college outcomes. Our results suggest these differences arise due to efforts by gay men and lesbian women to mediate the effects of social stigma. These effects suggest that equating human capital investment with degree attainment, as typically implemented in empirical research, masks meaningful heterogeneity in the educational experience and attainment of gay men and lesbian women.

2 Educational Differences and their Source

Black et al. (2000) showed that in the 1990 Census, the General Social Survey, and the NHSLS gay men and lesbian women were much more likely to attend college and graduate school than heterosexual men and women. In the GSS-NHSLS data, 24% of gay men have earned college degrees and, 13.0% of gay men have gone to graduate school.[1] The college graduation rates of gay men are 7 percentage points higher than married heterosexual men, and the graduate school attendance rate is 3 percentage points higher. Among lesbian women, 25% attended college and 14% went to graduate school. This is 8 percentage points and 9 percentage points higher than married heterosexual women. The differences in educational obtainment by sexual orientation are larger in the 1990 Census.[2]

The significant differences in the educational attainment of gays and lesbians could result from the differential experiences of gays and lesbians in higher education. Carpenter (2009), using data from the Harvard College Alcohol Study, finds that gay men have higher GPAs than their heterosexual counterparts in college, while lesbians did not achieve meaningfully different GPAs from heterosexual women. Gay men and lesbian women select different extracurricular activities than heterosexual students (Carpenter 2009), and are more likely to participate in research with faculty than heterosexual students (Hughes 2018). Thus, during college gay and lesbian students seem to be more engaged in their human capital investments than their heterosexual counterparts. One explanation of this greater engagement among gay and lesbian students is that this observed behavior reflects preferences that differ by sexual orientation.

[1] Black et al. (2000) utilize the 1998 through 1996 GSS-NSLS data to calculate educational obtainment.

[2] Gay men are 11 percentage points more likely to have gone to college than married men and lesbian women are also 11 percentage points more likely to have attended college.

Indeed, the selection of college majors is often driven by tastes and preferences for a field of study. After conditioning on academic performance, individual preferences have been found to be largest determinant of a college major choice in many studies (see, for example, Altonji et al. (2016), Arcidiacono (2004), Wiswall and Zafar (2015), and Zafar (2013)). Zafar (2013) finds that preferences for a major explain 86% of the choice of a college major for women, but only 54% of the choice for men. Preferences may also be shaped by student perceptions of ability. Students are more likely to select a major when they have previously excelled in related coursework (Arcidiacono 2004, Butcher, McEwan and Weerapana 2014, Ost 2010).[3]

Social institutions within educational institutions may also influence college major choices. Social psychologists argue that preferences of minority individuals are influenced by social stereotypes (Singh, Allen, Scheckler and Darlington 2007, Gunderson, Ramirez, Levine and Beilock 2012, Nosek, Banaji and Greenwald 2002). These stereotypes discourage minority students from exploring fields when teachers do not associate successful students with the minority (e.g., women in math) (Hughes 2018, Gunderson et al. 2012, Steele 1997). The stereotyping of minority students may also lower their academic performance because it discourages them from engaging more with the class material and the professor (Adams, Garcia, Purdie-Vaughns and Steele 2006, Spencer, Steele, and Quinn 1999).

Social institutions in labor markets may also influence college major choices. Differences in the human capital attainment of gay men and lesbian women may also reflect investment decisions as a response to perceptions of future social stigma and prejudice against sexual minorities in the labor market. College major choices may reflect efforts of gay men and lesbian women to mitigate future discrimination, which has been more extensively researched for gay men than lesbians (Klawitter 2015, Elmslie and Tebaldi 2014), they may experience within occupations that are associated with completed college majors.

Gays and lesbians may choose college majors that lead to future occupations with lower levels of prejudice. Avoiding prejudice can be important for gay men and lesbian women as higher levels of prejudice results in higher wage penalties for gay men (Burn 2017). Therefore gay men may select majors where the students and faculty are less prejudiced because they believe the economic and social returns to these majors will be higher. Even

[3]The feedback between performance in previous coursework and major choice implies that grade inflation may induce students to select into less rigorous majors, even if they are more adept at the more rigorous major (Butcher et al. 2014, Ost 2010, Sjoquist and Winters 2015, Stinebrickner and Stinebrickner 2014). Equalizing the grading across majors has been shown to increase female participation in STEM fields, where grades are curved, at the expense of the Arts and Humanities, where there are no curves (Butcher et al. 2014).

if more prejudiced majors may pay more on average, the wage penalties associated with prejudice for gay men may offset any difference in average earnings resulting in an outcome similar to a compensating differential (Martell 2013a).[4] These efforts to avoid prejudice via human capital investments can explain why occupational attainment varies by sexual orientation (Tilcsik, Anteby and Knight 2015).

Gays and lesbians may choose college majors associated with occupations that facilitate the ability to avoid discrimination through selective disclosure of sexual orientation. Selective disclosure of sexual orientation is more easily managed in occupations with higher levels of worker independence, such as truck drivers or appliance repairers, because decreases in the frequency of co-worker interactions reduces the probability of unintentional disclosure. Indeed, higher levels of worker independence lead to lower wage gaps for gay men (Martell 2018). This may explain why gay men sort towards occupations with higher levels of independence (Tilcsik et al. 2015). This pattern of wage differentials and occupational sorting may also reflect underlying differences in the college major choices of gays and lesbians.

3 Description of Data Sources

Because data on sexual minorities is imperfect and rare, the use of the ACS, AddHealth and the NHIS allows for an investigation of the entire LGB population (single as well as cohabiting) whereas research utilizing a single source typically has limited generalizability (Klawitter 2015). We supplement data on sexual minorities and educational attainment with data on workplace and major characteristics in the GSS and O*NET. The GSS contains information on college major and prejudice, while the O*NET data is only on occupations. We match each major to its distribution of occupations and construct the average.

3.1 Data on Gays and Lesbians

To address the strengths and limitations of existing data sources, we investigate the educational attainment and major choices of gays and lesbians using the American Community Survey (ACS), AddHealth, and the National Health Interview Survey. Utilizing the ACS

[4]There is evidence that women select majors with lower gender wage gaps and are willing to give up higher levels of income for this (Burn 2018). A 10% decrease in the expected wage gap of a major leads to a 1.4 percentage point increase in selecting a major.

allows us to utilize a larger sample size, but the ACS has limited sexual orientation information. The NHIS and AddHealth contain smaller sample sizes of gays and lesbians but provide researchers with a richer set of covariates on individual characteristics and sexual orientation.

While the ACS is the largest (it is a 1% sample of the US population every year), researchers are only able to identify gays and lesbians based on their cohabitation status. The ACS does not allow individuals to self-report their sexual orientation; gay men and lesbian women are identified based on the family interrelationships. A same-sex couple is identified when the sex of the householder and the sex of the unmarried partner (or spouse) of the householder are the same.[5] This classification excludes single gay men and lesbian women. Therefore, the large sample size in the ACS comes with a more limited ability to investigate the full population of gays and lesbians. Despite this limitation, many researchers have used the ACS to investigate labor market outcomes of gays and lesbians (Klawitter 2015).

We identify approximately, 60,000 cohabiting gay men and lesbian women in the 2011 through 2015 ACS. In this sample, gay men and lesbian women are more likely to be white than heterosexual couples. They are slightly younger and more likely to live in a metropolitan area. See Table A2 for a more detailed comparison of the gays and lesbian couples and the heterosexual couples. It is unclear if results based on samples of cohabiting gays and lesbians can be generalized to the population of individuals who do not cohabit (Martell 2018). Therefore, we supplement our analysis of the ACS with the NHIS and AddHealth to show that the limitation of the ACS does not lead to substantively different human capital patterns for gays and lesbians.

In the NHIS, we observe individual self-reported sexual orientation. Self-reported sexual orientation includes both single and cohabiting gays and lesbians. However, the sample of the NHIS is smaller and contains approximately 50,000 responses each year. Using the 2013 through 2016 surveys, during which sexual orientation information is available, we identify approximately 3,200 gays and lesbians. Identifying both single and cohabiting gays and lesbians in the NHIS allows us to extrapolate our results to the entire gay and lesbian population. The NHIS sample is similar in demographics to the ACS. Again, we find that gay men and lesbian women are more likely to be white and younger.[6] However,

[5]Unmarried partners exclude roommates, renters, and other household members who are not in a romantic relationship. We exclude respondents whose sex or relationship status was allocated by data administrators to avoid contaminating the sample and any bias such contamination would impose (Gates and Steinberger 2015).

[6]See Table A3 for a more detailed comparison of LGB individuals and heterosexuals in the NHIS.

like the ACS, the NHIS does not contain individual information related to personality characteristics or preferences that may affect the choice of college major.

The AddHealth data contain a rich set of variables related to individual preferences and scholastic achievement that are likely related to college major choices. The AddHealth also contains individual self-reported sexual orientation.[7] However, the sample of gays and lesbians in AddHealth is smaller than the NHIS and the ACS. The Addhealth Survey is a longitudinal, rather than a repeated cross-section like the NHIS and ACS, survey of approximately 5,000 individuals with four waves over the past 20 years. We observe 99 gay men and 278 lesbian women. While the AddHealth sample is small, it provides the richest set of controls possible. It includes data on many personal and family characteristics that would otherwise not be observable.

– Table 1 about here –

3.2 Data on Prejudice

Data on prejudice is taken from attitudinal data in the General Social Survey. In 2012 and 2014, respondents were asked which college major they had completed. We calculate prejudice as the percent of individuals in each major who report that same-sex sexual relations are "always wrong". This measure follows the approach of previous research on the impact of prejudice on sexual orientation differentials in the labor market (Burn 2017, Martell 2013a, Martell 2013b).

– Table 2 about here –

Figure 1 highlights the shares of prejudiced individuals by major. Social sciences is the least prejudiced major with only 19% of respondents. The most prejudiced major is Business and Economics, where 29% of respondents were prejudiced. Overall, more technical majors (STEM and Business and Economics) are more prejudiced than the less technical majors (Arts and Humanities and the Social Sciences).

– Figure 1 about here –

3.3 Data on Workplace Values

Data on workplace characteristics come from the Occupational Information Network (O*NET) (National Center for O*Net Development 2015). O*NET provides a wide variety of oc-

[7] In the model that we estimate for the main results, homosexuals and bisexuals are combined into a single group. Individuals who are mostly heterosexual are coded as heterosexual.

cupational characteristics.[8] These occupational characteristics are averages based on a survey-based occupation rating system (see for a fuller discussion see Martell (2018) and Tilcsik et al. (2015)). We utilize the O*NET data on work values. Work values correspond to characteristics of work that are important to individuals' satisfaction with their work and should correspond to individual preferences for college majors and future careers. These ratings range from one to seven. We focus on independence, recognition, relationships, support and working conditions.[9]

Occupations with higher levels of independence at work allow employees to work on their own and make decisions. High achievement occupations are "results oriented and allow employees to use their strongest abilities, giving them a feeling of accomplishment." (National Center for O*Net Development 2015) Occupations with high recognition offer advancement, the potential for leadership, and prestige. The relationships workplace value focuses on how employees provide service to others and work with co-workers in a friendly environment that does not emphasize competition. Occupations that score high on the working conditions value have job security and good working conditions. Occupations with high levels of support offer "supportive management that stands behind employees" (National Center for O*Net Development 2015).

– Figure 2 about here –

We merge occupational characteristics available in O*NET with the ACS data. Within each major in the ACS, we calculate the average worker characteristic (weighted by the share of each major in each occupation defined at the detailed SOC level). Figure 2 highlights how each major scores on these six workplace values. Not surprisingly, computer science and engineering majors have the highest independence rating (4.9). The lowest independence is in arts/humanities as well as social sciences (4.6). Simultaneously, computer science and engineering majors exhibit the lowest level of relations (4.4). The highest level of relations is in biology and life sciences (5.5) where collaboration is common. Biology and life sciences also exhibit the highest degree of support (4.9) compared to the lowest level in arts and humanities (4.3).

[8]See National Center for O*NET Development for full details (National Center for O*Net Development 2015).

[9]In preliminary analysis, we investigated additional workplace values of achievement and recognition. However, as Figure 2 shows, these values exhibit significant correlation. We find that achievement, recognition, and working conditions are highly correlated with independence (Table A7). Of the four values that were highly collinear, we keep independence because there is a significant previous literature highlighting the role of independence in the wage gap for gay men (i.e., Martell 2018, Tilksic et al 2015)

3.4 Data on Average Incomes by Major

Because income may play an important role in determining which major to pursue, we use data from the National Surveys of College Graduates (NSCG) obtained from IPUMS (Minnesota Population Center 2016). The income of a college major depends on the year that an individual enters college. As seen in Figure 3, the relative ranking in the income of majors changes over time. Arts and Humanities, which was once a high paying major, has seen stagnant wages. Other majors experienced high levels of wage growth and overtook it. To provide the best match between income by major and the college major decision, we match the income from the NSCG to the year that an individual was 18 years old.[10]

The NSCG has been collected every two to three years since 1993. Surveys were conducted in 1993, 1995, 1997, 1999, 2003, 2006, 2008, 2010, and 2013. We interpolate the years in between these surveys using linear time trends. To do this, we estimate the following regression.

$$Y_{gmt} = \alpha + \beta_1 t + \beta_2(I_g \times t) + \beta_3(I_m \times t) + \beta_4(I_m \times I_g \times t) + \theta_m I_m + \theta_F I_g + \epsilon_{gmt} \quad (1)$$

Y is the average income of a graduate in major m in year t by sex. We express income in constant 1999 dollars. We include separate time trends for women ($I_g = 1$) and major ($I_m = 1$ if major graduated with a degree in major m). We predict the average income of male and female graduates with a degree in major m for each year between 1993 and 2015.

– Figure 3 about here –

4 Analysis

We begin by testing whether there are indeed significant differences in the human capital investment of gays and lesbians after controlling for relevant demographic characteristics. To do this, we test whether the differences in tables 1 and 2 documented in the ACS, the NHIS, and the AddHealth are robust to including available controls for observable differences. We condition our sample on the respondent being over the age of 25 to avoid individuals who have still not completed their schooling. To account for the fact that we have individuals still pursuing their Ph.D. or medical school, we assume that individuals

[10]The age of 18 is selected since this is the median age that most students enter college in the United States.

with postgraduate education all receive the same years of additional schooling.[11]

$$S_{ist} = \alpha + \beta LGB_{ist} + \mathbf{X}_{ist}^{'}\delta + \theta_s + \theta_t + \epsilon_{ist} \tag{2}$$

We test the significance of the gaps in years of schooling using linear regressions with robust standard errors to correct for heteroscedasticity. The outcome variable is defined as the years of schooling (S), which is determined by the highest level of schooling that individuals reported obtaining. The controls available in the American Community Survey, contained in the vector $\mathbf{X}$, can be found in Table A0. The coefficient of interest is β, which tests whether the years of schooling of cohabiting gay men and lesbian women is significantly different from the years of schooling in the heterosexual sample.

To test the effect of prejudice and workplace values on selecting a college major, we use a mixed multinomial logit to test for associations between sexual orientation and college major choices. We predict major choice (arts/humanities, social sciences, business and economics, physical sciences, computer sciences and engineering, as well as biology and life sciences) for individuals using the following mixed multinomial logit.

$$p_{ij} = \frac{e^{\mathbf{X}_{ij}'\beta + \mathbf{W}_i'\gamma_j}}{\sum_{j=1}^{m} e^{\mathbf{W}_{ij}'\beta + \mathbf{W}_i'\gamma_j}}, \quad j = 1, ..., m \tag{3}$$

The empirical model predicts the likelihood of choosing major j for individual i. The mixed multinomial logit allows us to test for associations between major choices of individuals and both characteristics of major alternatives, $\mathbf{X}_{ij}'$, as well as characteristics of individuals, $\mathbf{W}_i'$ that do not vary over major alternatives.

We include as individual characteristics within $\mathbf{W}_i'$ controls that should be related to the choice of college major for individuals when the individuals were students, even though the characteristics are recorded after individuals within the data completed their education. We include age and its square to control for generational differences in preferences as well as labor market conditions. We include indicator variables for a non-white race and Hispanic ethnicity to control for opportunities that vary by race and ethnicity. We include the number of children individuals currently have because the choice of a college major may have been made with future parenthood in mind. Finally, we also control for whether or not respondents live in urban areas as choice of major is likely correlated with future lifestyle preferences. In our baseline specifications, we also include indicator variables for

[11] From Table 1, we can see that top coding years of schooling shrinks the differences in years of schooling by sexual orientation. This may biases the estimates towards zero, meaning our results are a lower-bound.

respondents living in a same-sex household. We predict major choices separately for men and women.

We include as major characteristics within $\mathbf{X}'_{ij}$ the percent of each major that is prejudiced and the average occupational ratings of independence, relationships, and support of workers within each major. We enter these characteristics separately by sexual orientation to investigate how gay men and lesbian women have differential responses to these major characteristics in their choice of college major.

Using individual-level characteristics from the ACS as well as major characteristics from the GSS and O*NET allows us to investigate if the differences in college major obtainment previously shown in Table 2 remain after conditional on observable characteristics.

5 Results

Using data from the ACS, we begin by showing that the gaps in education present in the Census data (Black et al. 2000, Black, Makar, Sanders and Taylor 2007) are also found in the ACS. We find that gay men complete on average 14.3 years of schooling. In Table 1, we find that the difference in years of schooling between gay men and heterosexual men is mainly due to the higher rate of gay men attending to college. We find 77% of gay men choose to go to college, compared to only 59% of heterosexual men. Approximately half of gay men will graduate from college, with 23% going on to graduate school. In columns 3 and 4, we see the patterns for women appear very similar to the pattern for men. Lesbian women obtain 14.1 years of schooling, 74% of them go to college, and 24% of them go to graduate school. While heterosexual women are more likely to go to college than heterosexual men, they are less likely to obtain a doctoral or professional degree.

The differences in educational attainment among men have been relatively stable. The average years of schooling completed for gays and lesbians do not change much as we compare cohorts in Figure 4. Gay men and lesbian women in their 50s and 60s have similar levels of schooling to gays and lesbians in their 30s. The gap among men has remained fairly constant over time, but the gap between lesbian women and heterosexual women has shrunk rapidly as heterosexual women obtain more schooling.

– Figure 4 about here –

In addition to differences in the years of education completed, there are meaningful differences in the content of educational investments, measured by college major choice, by sexual orientation. These differences are most notable among men. Table 2 details the

college major completed by sexual orientation and sex. Heterosexual men are most likely to complete majors in business/economics as well as computer sciences or engineering. Gay men are more likely to complete majors in the arts/humanities as well as social sciences than heterosexual men. Gay men are less likely to complete majors in computer sciences or engineering than heterosexual men.[12]

There are fewer differences in the major choices of lesbian and heterosexual women. All women are equally likely to choose majors in the arts and humanities, which is the most common major. Lesbians, however, are more likely to complete majors in the social sciences than heterosexual women. Lesbians are slightly less likely to complete majors in biology and life sciences or business/economics than heterosexual women.

5.1 Effect of Individual Characteristics on Schooling Differences

Differences in years of schooling discussed above could be due to differences in the demographic characteristics of gays and lesbians that have been well documented in previous research (Black et al. 2007). These differences in demographic characteristics could lead to differences in the human capital investments of sexual minorities. The raw difference in years of schooling in the ACS data is 1.2 years more years of schooling for gay men than heterosexual men. We show in Table 3 that this difference shrinks to 0.95 years when we condition on demographics, as well as year and Census division. The demographic controls available in the ACS include age, race, sex, and marital status.[13] The impact of conditioning on demographics has a larger impact on the difference in schooling among women. Controlling for demographic characteristics reduces the schooling advantage exhibited by lesbians from 1.1 years in the descriptive statistics to 0.64 years.

–Table 3 about here –

From the NHIS, we have similar controls to those in the ACS. The main difference between these two samples is that the NHIS data includes LGB individuals who are single as well as cohabiting.[14] Therefore, the NHIS sample of LGB individuals is representative

[12]Hughes (2018) documented that there was a significant movement of gay men and lesbian women from STEM towards other majors during college. The data from the ACS reports completed majors. Therefore we cannot observe what major individuals started with.

[13]Table A0 provides more detail on the controls for each data source. Including how the variable is controlled for in the analysis.

[14]In Appendix Table A6, we show the years of schooling do not vary by cohabitation status for gay men and lesbian women after conditioning on demographics. We find no differences in schooling between gay men and lesbian women who were married, living with a partner, or never married. Gay men and lesbian women who are separated, divorced, or widowed have education levels more similar to heterosexuals.

of the full LGB population. In columns 3 and 4, we compare how the gap changes after controlling for demographics, Census division, and year. We find that the raw gap between gay/bisexual men and heterosexual men is approximately the same size as found in the ACS (1.3 years). When adding in the full set of controls, the gap shrinks down to 1.1 years difference but remains significant at the 1% level. For women, the gap is smaller in the NHIS than in the ACS. After including controls, the gap falls by about half but remains significant.

The demographic controls in the ACS and the NHIS are limited. We use the more detailed individual characteristics from the AddHealth to show that the difference in schooling remains even after conditioning on a broader set of controls (columns 5 and 6 of Table 3). We control for family background by controlling for the unemployment rate of the zip code they lived in during high school, the poverty rate of the zip code, and the education of their mother and father. We also control for personality characteristics (e.g., how independent a respondent is, how adaptable, how reliable, how aggressive etc.).[15] Despite the small sample size of the AddHealth data, we observe that gay men complete approximately 0.42 years more education than heterosexual men. After we condition on demographics and a more detailed list of controls, we find that the gap becomes significant and increases in size to 0.65 years. For lesbian women, the opposite pattern emerges from the Addhealth data. Lesbians complete approximately 0.4 years of education less than heterosexual women. This difference shrinks to just over 0.2 years less education for lesbian women and becomes statistically insignificant when we condition on the full set of controls in the AddHealth. Thus, sexual identity among gay men, but not lesbian women, appears to lead to differential levels of human capital independent of observable differences in personality and background characteristics that vary by sexual orientation.

5.2 Effect of Prejudice and Workplace Values on Choice of a Major

We investigate the impact of college major characteristics on the likelihood of completing majors for gay men and lesbian women by interacting major characteristics with sexual orientation within the mixed multinomial logit. The results, shown in Table 4, are provide evidence that gay men and lesbian women choose majors to avoid the negative effects of

[15]Tables A0 and A1 provide more detail on the additional controls for family background, personality and physical characteristics

stigma.[16] Consistent with Zafar (2013), heterosexual men value the potential income of a major, but gay men are less likely to select majors that pay more. For every $10,000 increase in average income of a business and economics major, gay men are 1.8% less likely to select it.[17]

– Table 4 about here –

Heterosexual men have a marginally significant preference for majors that are more prejudiced towards gay men. Gay men appear to have stronger preferences and are less likely to choose majors with a higher share of individuals that are prejudiced against homosexuality and or majors that lead to occupations that emphasize developing relationships. If social science majors had the same level of prejudice as business and economics majors, the percent of gay men who completed social science majors would fall from 14% to 13%.[18] If the percent of prejudiced individuals in business and economics (29%) were the same as that of social sciences (19%), the percent of gay men completing a business and economics major would increase from 24% to approximately 26%.

Workplace values do not appear to influence the choice of a college major for heterosexual men, the predominant factor for these men is potential income. Gay men are more likely to choose majors that lead to occupations that value worker independence and cultivating relationships. Majors with higher levels of workplace independence also have lower levels of support from management. The negative coefficient on the interaction of LG$\times$ support is a reflection of this trade-off between having a manager providing more oversight with a manager who is helpful and supportive. Gay men are also more likely to choose majors that map into occupations that value work relationships.

The effect of these workplace characteristics can be larger than the effect of prejudice, though interpretation is less straightforward due to the ordinal nature of the O*NET coding. Increasing independence from the lowest value of 4.6 (social sciences) to 4.9 (computer sciences and engineering) leads to a 3 percentage point increase in the probability of gay men choosing social sciences (from 14% to 17%).[19] In terms of magnitude, increasing relationships from the lowest value of 4.4 (computer science and engineering) to 5.5 (biology

[16]Results shown are for full-time workers. This pattern is robust to including part-time workers in the estimation sample. We also note that these significant estimates are present in our specification that may over control for preferences that may vary by sexual orientation by including controls for parenthood and current residence in urban areas. Thus, these estimates may be conservative.

[17]The marginal effect combines the marginal effects of income and LG*income. There is a positive effect of income for all men, but the effect is more negative for gay men. The net effect is a small, negative coefficient of -0.009.

[18]Marginal effect calculated as $p_j(1-p_j)\beta_p$, where p_j is the percent of gay men in a major.

[19]The marginal effect of independence is calculated as 0.3*(0.14*(1-0.14)*5.989).

and life sciences) leads to a 3 percentage point increase in the probability of gay men choosing computer science and engineering (from 12% to 15%).

Taken altogether the results in Table 4 highlight an important trade-off among the combined effects for income, prejudice, relationships, and independence. Gay men are more likely to select majors that pay less, but only if these majors are less prejudiced and have more desirable workplace values. For every $10,000 increase in average income of a business and economics major, gay men are 1.8% less likely to select it.[20] A 2.6% increase in prejudice in computer science and engineering would induce the same sized decline in selection as a $10,000 increase in income. Using those two numbers, we can calculate that gay men are willing to give up $3,846 dollars in potential income for a 1% decline in prejudice.

We find a similar pattern of results among women. Lesbians are less likely than heterosexual women to choose majors with higher shares of prejudiced individuals, more likely to complete majors associated with occupations that have higher levels of independence and less likely to choose majors associated with occupations that value support from management and supervisors. The impact of independence for lesbians is similar to that of gay men. Increasing independence from the lowest value of 4.6 (social sciences) to 4.9 (computer sciences and engineering) leads to approximately a 4 percentage point increase in the probability of lesbian women choosing social sciences.[21]

Again, the impact of prejudice on major completion is not particularly large. If those social science majors had the same prejudice level as business and economics majors, the percent of lesbian women who completed social science majors would fall from 22% to approximately 19%. If the percent of prejudiced individuals in business and economics were the same as social sciences, the percent of lesbians in business and economics would increase from 14% to approximately 15%.

We do not find any evidence of a compensating wage differential for lesbian women. While potential income matters for all women, we do not find that it influences lesbian women and heterosexual women differently. This is consistent with the literature which has found that there is no significant wage gap between lesbian women and heterosexual women (Klawitter 2015, Montag 2015).

[20]The marginal effect combines the marginal effects of income and LG*income. There is a positive effect of income for all men, but the effect is more negative for gay men. The net effect is a small, negative coefficient of -0.009.

[21]Calculated as 0.3*(0.22*(1-0.22)*3.835)

6 Conclusion

Our results indicate there are persistent differences in human capital attainment by sexual orientation. The robustness of predicted differences in educational attainment to controlling for a wide set of individual characteristics associated with individual preferences highlights that sexual orientation in and of itself leads to systematically different levels and types of human capital for sexual minorities. Our evidence that the type of human capital, such as college major choices, that LGB individuals choose to invest in is dependent on prejudice mirrors experimental evidence found for women in STEM (Burn 2017). The results provide more evidence that minorities actively respond to prejudice in making important investments in their earnings capacity, making empirical estimation of wage gaps difficult.

The occupational sorting of LGB individuals into occupations with higher levels of independence found in Tilcsik et al. (2015) is an important mediating factor in discrimination in the labor market against LGB individuals. Gay men select into occupations with higher levels of independence, and these occupations have lower wage gaps for gay men (Martell 2018). Our results suggest that this occupational sorting is the result of decisions made in young adulthood about the types of human capital to invest in. For gay men, where the relationship between independence and wage gaps has been found (Martell 2018), we find that gay men are less sensitive to income when making decisions about college majors than heterosexual men. The evidence indicates that gay men are willing to select majors with lower levels of prejudice and higher levels of independence at the expense of higher paying majors. Whereas, the choices of heterosexual men are only influenced by the average income of majors. Lesbian women respond the same to income as heterosexual women. Their decisions are only differentially impacted by prejudice and independence.

The impact of prejudice on college major choice highlights a formative role that educational institutions can play in promoting equality for sexual minorities. To mediate differences in major choices for sexual minorities, educational institutions can promote tolerance among students through curricular offerings and requirements (for example, courses with an emphasis on valuing and rethinking differences) as well as student groups to offer support. Publicizing efforts to promote under-represented students may also encourage students to take up majors they have historically avoided. Educational institutions can also promote the transmission of tolerance through increased recruitment and retention of sexual minorities among the faculty. Lastly, educational institutions can promote partnerships with employers who actively recruit sexual minorities to increase information among students of tolerant future employers within traditionally stigmatized majors (Hughes 2018).

Our results provide important evidence that prejudice towards LGBT individuals influences their pre-labor market decisions. Policymakers interested in reducing labor market discrimination against LGBT individuals need to carefully consider how the laws and regulations they promote impact the stigma towards the LGBT community. Since stigma affects pre-market behavior and investments in human capital, it is unlikely that anti-discrimination laws are sufficient to remove sexual orientation based differences in labor market outcomes. While previous work shows that state anti-discrimination laws decrease earnings differentials for gay men (Burn 2017, Martell 2013b), these laws may not affect human capital differences unless they affect prejudice against sexual minorities (which is unlikely as they primarily provide punishment for acting on prejudice instead of targeting prejudice). Therefore, policymakers and advocates should devote attention to promoting increased tolerance of homosexuality in addition to efforts to promote inclusion in educational institutions as a complement to the implementation and enforcement of anti-discrimination laws.

The results also highlight important areas for future research. Future research should investigate the earnings effects of college major choices for sexual minorities for a broader understanding of the impacts of stigma. Future work should also investigate the impact of stigma on relationship formation and stability. Like education, these characteristics also play a central role in empirical work on a variety of important endeavors.

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Table 1: Distribution of Degree Obtainment in ACS

	Men		Women	
	Heterosexual	Gay	Heterosexual	Lesbian
High school dropout	14%	6%	13%	7%
High school graduate	29%	17%	29%	19%
Some college	20%	20%	21%	19%
Associate's degree	7%	8%	9%	9%
Bachelor's degree	18%	27%	18%	22%
Master's degree	8%	14%	9%	17%
Professional degree	3%	5%	2%	4%
Doctoral degree	2%	3%	1%	3%
Total	3,772,788	29,488	4,178,885	30,235

Note: Data comes from the 2011 through 2015 ACS 5 Year Sample. Gay and lesbians are identified using cohabitation status.

Table 2: College Major Characteristics and Popularity

	Avg Income	Prej Share	Ind	Relations	Support	Hetero M	Gay	Hetero F	Lesbian
Arts/Humanities	57,499	23%	4.6	5.1	4.3	27%	36%	42%	42%
Social Sciences	44,714	19%	4.6	5.0	4.4	11%	14%	18%	22%
Business/Economics	63,893	29%	4.7	4.8	4.5	27%	23%	18%	14%
Physical Sciences	54,988	24%	4.8	4.7	4.5	6%	4%	3%	3%
Computer Science/Engineering	62,016	28%	4.9	4.4	4.6	21%	12%	4%	5%
Biology and Life Sciences	57,057	25%	4.8	5.5	4.9	8%	11%	15%	14%

Note: Data on average income come from the National Surveys of College Graduates (NSCG) obtained from IPUMS (Ruggles, Alexander, Gendadek, Goeken, Schroeder and Sobek 2010). Average income averages data across all years of the survey and is in constant 1990 dollars. Prejudice shares come from the 2012 and 2014 General Social Surveys. Respondents were asked how they viewed consensual homosexual sex. Prejudiced individuals felt it was always wrong. Independence (IND), Relationships (Relations), and Support (Support) are drawn from O*NET. For each major in the ACS, we calculated the average of these characteristics based on the occupations graduates were employed in. The college major choices of gays and lesbians are conditional on going to college. We do not include majors from 2-year degrees.

Table 3: Effect of Demographics on Education Gap

Panel A. Men	(1) ACS	(2) ACS	(3) NHIS	(4) NHIS	(5) AddHealth	(6) AddHealth
LG	1.231***	0.949***	1.334***	1.101***	0.424	0.647**
	(0.015)	(0.016)	(0.078)	(0.078)	(0.268)	(0.262)
N	3878395	3213101	126079	126079	1875	1875
r2	0.001	0.102	0.002	0.170	0.002	0.232
Demographics		X		X		X
Year		X		X		X
Census division		X		X		
Family background						X
Personality characteristics						X
Panel B. Women	(1) ACS	(2) ACS	(3) NHIS	(4) NHIS	(5) AddHealth	(6) AddHealth
LG	1.074***	0.636***	0.934***	0.497***	-0.385***	-0.229
	(0.015)	(0.016)	(0.076)	(0.075)	(0.140)	(0.146)
N	4248961	3547151	142506	142506	2333	2332
r2	0.001	0.134	0.001	0.177	0.003	0.229
Demographics		X		X		X
Year		X		X		X
Census division		X		X		
Family background						X
Personality characteristics						X

Note: The ACS data uses the 2011 through 2015 samples. It is restricted to cohabiting adults over the age of 25. The NHIS data uses the 2013 through 2016 samples. It is restricted to adults over the age of 25. The AddHealth data uses the wave IV data and does not place any restrictions on the sample. Heteroscedasticity robust standard errors are reported in parentheses. See Table A0 for a detailed description of the controls used in columns 2, 4, and 6.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

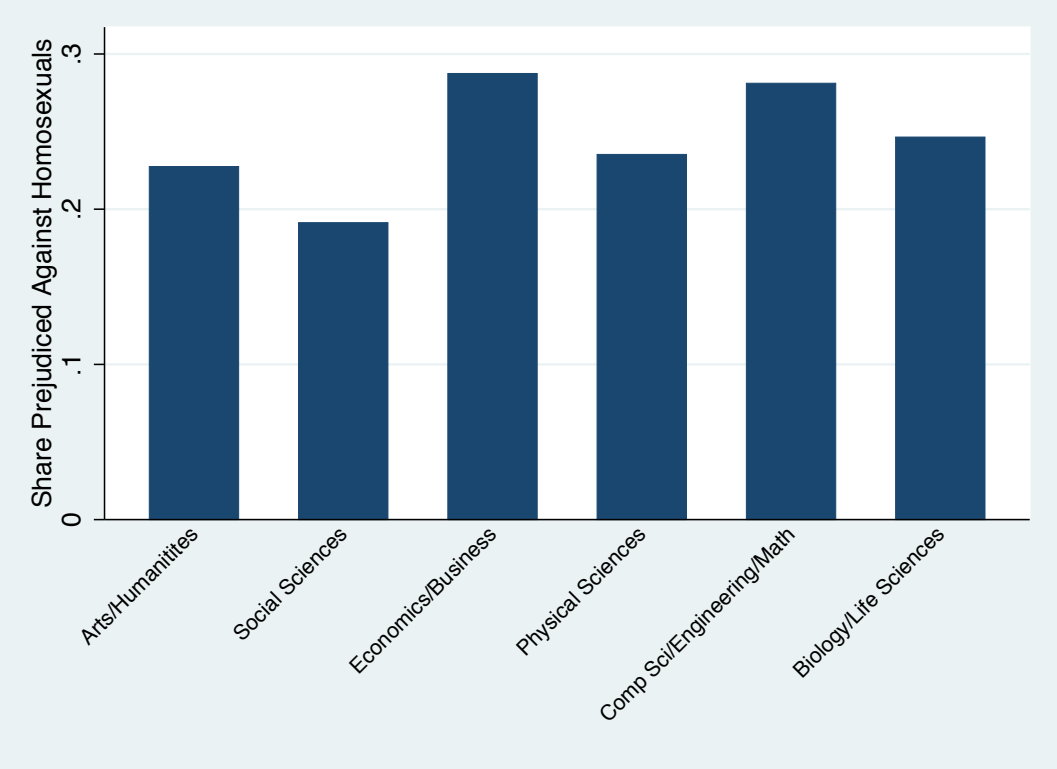
Table 4: Effect of Major Characteristics on Major Attainment

	Men	Women
Income (thousands)	0.015**	0.013**
	(0.005)	(0.004)
LG×Income (thousands)	-0.024**	-0.011
	(0.007)	(0.007)
Prejudice Share	11.782*	5.092
	(5.869)	(6.250)
LG×Prejudice Share	-4.006**	-6.610***
	(1.399)	(1.621)
Independence	-0.012	-1.526
	(5.889)	(5.410)
LG×Independence	5.989***	3.835***
	(1.199)	(1.101)
Support	-0.430	-1.336
	(3.189)	(2.666)
LG×Support	-3.795***	-1.951**
	(0.717)	(0.596)
Relationships	1.056	2.362*
	(1.496)	(1.113)
LG×Relationships	2.232***	0.462
	(0.318)	(0.238)
N	781590	955020
Chi^2	43226.5	76188.3

Note: Authors' calculations based on ACS data 2011 through 2015 samples restricted to cohabiting adults over the age of 25. Data on average income come from the National Surveys of College Graduates (NSCG) obtained from IPUMS (Ruggles et al. 2010). Average income averages data across all years of the survey and is in constant 1990 dollars. Prejudice shares come from the 2012 and 2014 General Social Surveys. Respondents were asked how they viewed consensual homosexual sex. Prejudiced individuals felt it was always wrong. Independence (IND), Relationships (Relations), and Support (Support) are drawn from O*NET. For each major in the ACS, we calculated the average of these characteristics based on the occupations graduates were employed in.

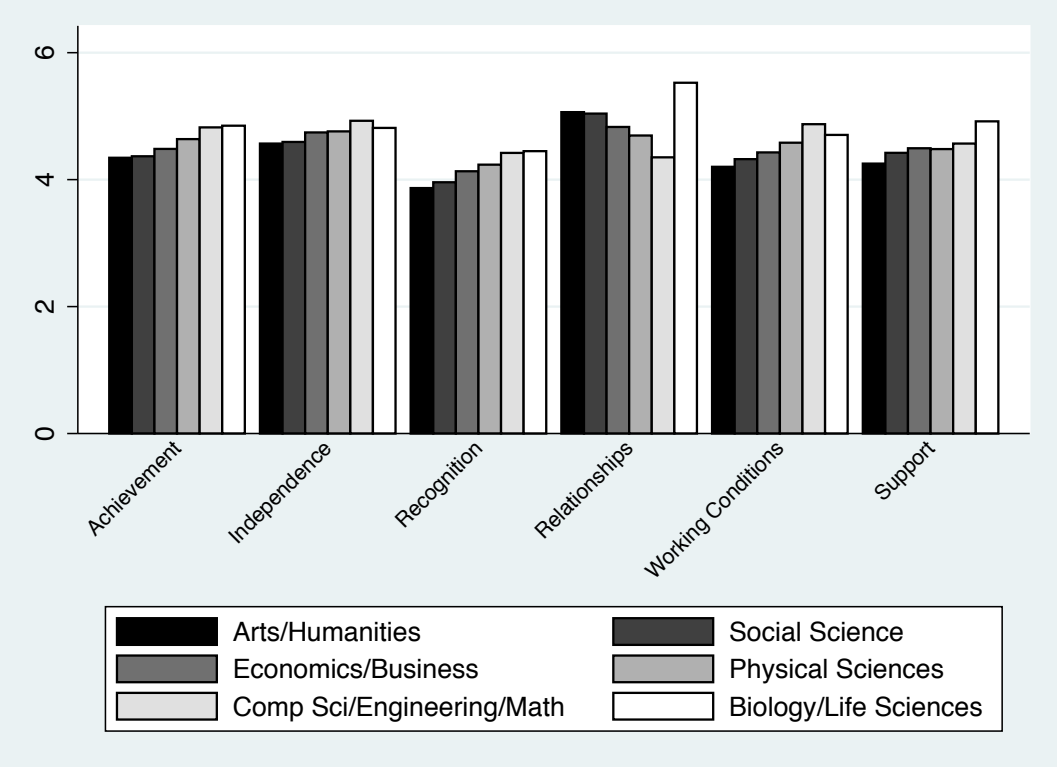
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Figure 1: Average Prejudice by College Major



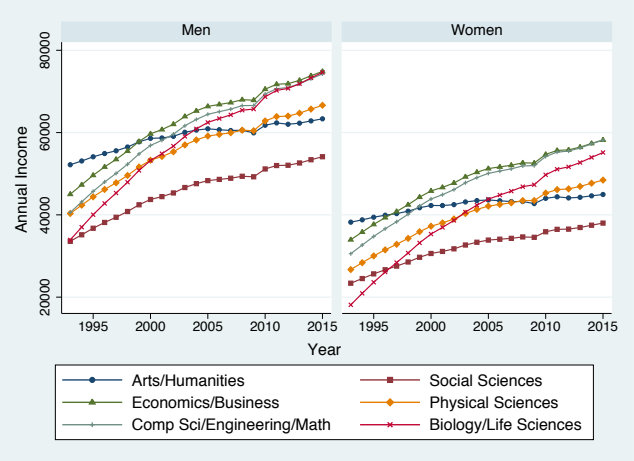
Note: Average prejudice is drawn from the General Social Survey. In 2012 and 2014, respondents were asked their college major. Prejudice was determined by their responses to the question about sexual relations between two consenting adults of the same sex. Prejudiced individuals were those who said it was always wrong.

Figure 2: Average Work Values by College Major



Note: Data on workplace characteristics comes from the O*NET data (National Center for O*Net Development 2015). These ratings range from one to seven. Occupations with high achievement allow employees to use their strongest abilities, giving them a feeling of accomplishment. Independence at work allows employees to work on their own and make decisions. Occupations with high recognition offer advancement, potential for leadership, and prestige. Relationships focuses on how employees provide service to others and work with co-workers in a friendly non-competitive environment. Working conditions measures the job security and good working conditions of an occupation. Occupations with high levels of support offer supportive management that stands behind employees.

Figure 3: Average Annual Income by College Major



Note: Data comes from the National Surveys of College Graduates (NSCG) obtained from IPUMS (Minnesota Population Center 2016). The NSCG is conducted every two to three years. Linear time paths are estimated by gender and college major, and the results are plotted here.

Figure 4: Average Years of Schooling by Age and Sexual Orientation

Note: Average years of schooling comes from the American Community Survey. Sample is restricted to individuals 30 to 65 to illustrate how this gap has evolved over time.

7 Appendix Tables and Figures

Table A0: Description of Control Variables

Variable	Description
American Community Survey	
Same-sex cohabiting couple	Gay and lesbian couples are identified if the householder and unmarried partner are the same sex.
Marital status	Indicator variables for married, divorced/widowed, and never married.
Cohabiting	Indicator variable for whether a couple is cohabiting.
Age	Age of individual, also use quadratic of age.
Sex	Indicator variable for sex.
Race	Indicator variables for the major race categories.
Census division	Indicator variable for each of the nine divisions.
Year	Indicator variable for the ACS year.
NHIS	
Sexual orientation	Indicator variables for gay/lesbian, bisexual, and heterosexual.
Age	Age of individual, also use quadratic of age.
Sex	Indicator variable for sex.
Race	Indicator variables for the major race categories.
Census division	Indicator variable for each of the nine divisions.
Year	Indicator variable for the NHIS year.
AddHealth	
Sexual orientation	Indicator variables for gay/lesbian, bisexual, and heterosexual.
Age	Age of individual, also use quadratic of age.
Sex	Indicator variable for sex.
Race	Indicator variables for the major race categories.
Immigrant	Indicator variable for immigration status.
English	Indicator variable for if respondent speaks English at home.
Unemployment of zip code	Indicator for high, medium, or low rate of unemployment. Omitted category is "not available".
Poverty of zip code	Indicator for high, medium, or low rate of poverty. Omitted category is "not available".
Father's education	Indicator variable for father's level of education.
Mother's education	Indicator variable for mother's level of education.
Personality characteristics	Indicator variables for possible answers to personality questions. See Table A1 for a list of the questions.

Table A1: Personality Questions from Wave III of the AddHealth

Mnemonic	Question text
H3BM10	How often is the following statement true of you? I am affectionate.
H3BM11	How often is the following statement true of you? I am conscientious.
H3BM12	How often is the following statement true of you? I am independent.
H3BM13	How often is the following statement true of you? I am sympathetic.
H3BM14	How often is the following statement true of you? I am moody.
H3BM15	How often is the following statement true of you? I am assertive.
H3BM16	How often is the following statement true of you? I am sensitive to the needs of others.
H3BM17	How often is the following statement true of you? I am reliable.
H3BM18	How often is the following statement true of you? I have a strong personality.
H3BM19	How often is the following statement true of you? I am understanding.
H3BM20	How often is the following statement true of you? I am jealous.
H3BM21	How often is the following statement true of you? I am forceful.
H3BM22	How often is the following statement true of you? I am compassionate.
H3BM23	How often is the following statement true of you? I am truthful.
H3BM24	How often is the following statement true of you? I have leadership abilities.
H3BM25	How often is the following statement true of you? I am eager to soothe hurt feelings.
H3BM26	How often is the following statement true of you? I am secretive.
H3BM27	How often is the following statement true of you? I am willing to take risks.
H3BM28	How often is the following statement true of you? I am warm.
H3BM29	How often is the following statement true of you? I am adaptable.
H3BM30	How often is the following statement true of you? I am dominant.
H3BM31	How often is the following statement true of you? I am tender.
H3BM32	How often is the following statement true of you? I am conceited.
H3BM33	How often is the following statement true of you? I am willing to take a stand.
H3BM34	How often is the following statement true of you? I love children.
H3BM35	How often is the following statement true of you? I am tactful.
H3BM36	How often is the following statement true of you? I am aggressive.
H3BM37	How often is the following statement true of you? I am gentle.
H3BM38	How often is the following statement true of you? I am conventional.

Table A2: Observable Characteristics by Sexual Orientation and Gender: ACS

	Gay men		Heterosexual men		Lesbian women		Heterosexual women	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Years of schooling	14.26	2.64	13.12	2.93	14.12	2.68	13.17	2.89
Age	50.53	13.95	52.57	15.87	50.51	14.82	54.30	16.70
Hispanic	11%	0.31	12%	0.32	10%	0.30	11%	0.32
Nonwhite	15%	0.35	20%	0.40	15%	0.36	21%	0.41
Metro area	94%	0.24	86%	0.34	91%	0.28	87%	0.34
No of Kids	0.23	0.69	0.66	1.06	0.47	0.90	0.74	1.08
New England	6%	0.24	5%	0.21	8%	0.26	5%	0.21
Middle Atlantic	14%	0.34	13%	0.34	13%	0.34	13%	0.34
Central North East	11%	0.32	15%	0.36	13%	0.33	15%	0.36
Central North West	4%	0.20	7%	0.25	5%	0.22	7%	0.25
South Atlantic	22%	0.42	20%	0.40	20%	0.40	20%	0.40
Central South East	4%	0.20	6%	0.24	5%	0.22	6%	0.24
Central South West	9%	0.29	11%	0.32	10%	0.30	11%	0.32
Mountain	7%	0.25	7%	0.26	8%	0.27	7%	0.25
Pacific	22%	0.42	16%	0.37	19%	0.39	16%	0.36
2012	20%	0.40	25%	0.43	21%	0.41	25%	0.43
2013	25%	0.43	25%	0.43	25%	0.43	25%	0.43
2014	26%	0.44	25%	0.43	26%	0.44	25%	0.43
2015	29%	0.45	25%	0.43	28%	0.45	25%	0.43
Observations	31329		4060850		32504		4463721	

Table A3: Observable Characteristics by Sexual Orientation and Gender: NHIS

	Gay men		Heterosexual men		Lesbian women		Heterosexual women	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Schooling	14.68	2.82	13.35	3.22	14.28	2.86	13.35	3.15
Age	48.14	14.24	50.94	15.57	45.13	14.36	51.77	16.08
White	83%	0.38	80%	0.40	79%	0.41	77%	0.42
African-American	11%	0.31	12%	0.32	15%	0.36	14%	0.35
Native American	1%	0.10	1%	0.12	2%	0.15	1%	0.11
Chinese	1%	0.10	1%	0.11	0%	0.07	1%	0.12
Filipino	1%	0.11	2%	0.12	1%	0.10	2%	0.13
Indian	1%	0.09	1%	0.12	0%	0.07	1%	0.11
Other Asian	2%	0.12	2%	0.15	1%	0.08	3%	0.16
Other Asian	0%	0.06	0%	0.06	1%	0.08	0%	0.06
Multiple Races	0%	0.06	0%	0.05	1%	0.09	0%	0.05
Not Hispanic	86%	0.34	83%	0.38	88%	0.33	83%	0.38
Mexican	3%	0.18	7%	0.26	4%	0.20	7%	0.25
Mexican-American	2%	0.15	3%	0.18	3%	0.17	4%	0.19
Puerto Rican	2%	0.15	1%	0.11	2%	0.14	2%	0.12
Cuban-American	1%	0.11	1%	0.09	1%	0.08	1%	0.09
Dominican	0%	0.06	0%	0.07	0%	0.05	1%	0.08
Central or South American	3%	0.17	3%	0.17	1%	0.12	3%	0.17
Other Latin	0%	0.03	0%	0.02	.	.	0%	0.02
Other Spanish	1%	0.09	0%	0.07	1%	0.08	0%	0.07
Multiple Hispanic	0%	0.06	0%	0.04	0%	0.05	0%	0.05
Northeast	18%	0.39	17%	0.37	19%	0.39	17%	0.38
Midwest	15%	0.35	20%	0.40	19%	0.39	20%	0.40
South	35%	0.48	35%	0.48	33%	0.47	36%	0.48
West	31%	0.46	28%	0.45	30%	0.46	27%	0.45
2013	26%	0.44	25%	0.43	22%	0.42	25%	0.43
2014	26%	0.44	27%	0.44	27%	0.45	27%	0.44
2015	24%	0.43	25%	0.43	25%	0.43	25%	0.43
2016	25%	0.43	24%	0.43	25%	0.43	24%	0.42
Observations	1305		126774		1414		143191	

Table A4: Observable Characteristics by Sexual Orientation and Gender: AddHealth

	Heterosexual		Homosexual	
	Men	Women	Men	Women
Years of School	14.02	14.67	14.45	14.29
	(2.23)	(2.31)	(2.61)	(2.19)
Age	29.07	28.84	28.70	28.85
	(1.80)	(1.78)	(1.69)	(1.70)
White	0.76	0.74	0.77	0.84
	(0.78)	(0.81)	(1.04)	(0.68)
Black	0.23	0.27	0.26	0.17
	(0.42)	(0.45)	(0.44)	(0.38)
Hispanic	0.11	0.10	0.15	0.12
	(0.31)	(0.31)	(0.36)	(0.32)
Asian	0.05	0.05	0.05	0.03
	(0.22)	(0.21)	(0.23)	(0.16)
Immigrant	0.05	0.05	0.08	0.05
	(0.23)	(0.22)	(0.27)	(0.21)
English	0.94	0.93	0.93	0.98
	(0.24)	(0.25)	(0.26)	(0.15)
Observations	1777	2054	99	278

Table A5: College Attendance by Sexual Orientation: ACS

	(1)	(2)	(3)	(4)
	Men	Men	Women	Women
Gay/Lesbian	0.582***	0.499***	0.464***	0.308***
	(0.008)	(0.009)	(0.008)	(0.009)
N	3878395	3213101	4248961	3547151
Controls		X		X

Note: The ACS data uses the 2011 through 2015 samples. It is restricted to cohabiting adults over the age of 25. Heteroscedasticity robust standard errors are reported in parentheses. See Table A0 for a detailed description of the controls used in columns 2 and 4.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Effect of Cohabitation on Results of LGB Population: NHIS

	(1) Men	(2) Men	(3) Women	(4) Women
Married, spouse absent	-0.943	-1.625**	-2.141***	-1.625**
	(0.766)	(0.688)	(0.817)	(0.688)
Separated	-2.068**	-1.184***	-1.769***	-1.184***
	(0.873)	(0.398)	(0.439)	(0.398)
Divorced	-0.834***	-1.355***	-1.327***	-1.355***
	(0.288)	(0.256)	(0.263)	(0.256)
Widowed	-2.699***	-2.585***	-2.566***	-2.585***
	(0.776)	(0.454)	(0.470)	(0.454)
Living with partner	-0.626**	-0.360	-0.449*	-0.360
	(0.259)	(0.224)	(0.231)	(0.224)
Never married	-0.558***	-0.302	-0.640***	-0.302
	(0.214)	(0.201)	(0.210)	(0.201)
Unknown	0.241	1.285	1.046	1.285
	(1.453)	(0.824)	(0.922)	(0.824)
N	1304	1412	1412	1412
r2	0.023	0.178	0.046	0.178
Controls		X		X

Note: The NHIS data uses the 2013 through 2016 samples. It is restricted to adults over the age of 25. Robust standard errors are reported in parentheses. See Table A0 for a detailed description of the controls used in columns 2, 4, and 6. Outcome variable is years of schooling. Omitted category is married, spouse present. Heteroscedasticity robust standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Correlation Between Workplace Values of Majors

	Achievement	Independence	Recognition	Relationships	Work conditions	Support
Achievement	1					
Independence	0.9213	1				
Recognition	0.9872	0.9451	1			
Relationships	-0.0874	-0.404	-0.1152	1		
Work conditions	0.9594	0.9725	0.9638	-0.3324	1	
Support	0.8307	0.6564	0.8493	0.3992	0.7073	1

Note: Data on workplace characteristics comes from the O*NET data. Occupations with high achievement allow employees to use their strongest abilities, giving them a feeling of accomplishment. Independence at work allows employees to work on their own and make decisions. Occupations with high recognition offer advancement, potential for leadership, and prestige. Relationships focuses on how employees provide service to others and work with co-workers in a friendly non-competitive environment. Working conditions measures the job security and good working conditions of an occupation. Occupations with high levels of support offer supportive management that stands behind employees.