The Sexual Orientation Glass Ceiling in the United States (1990 - 2019)

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Abstract

We find that homosexual male workers in the United States have persistently faced a glass ceiling since the sexual orientation wage gap increases across the wage distribution. Specifically, non-white homosexuals and those working in female-dominated environment are exposed to a greater glass ceiling effect. We employ unconditional quantile regression and Oaxaca-style decomposition to determine whether this pattern is primarily attributable to productivity differences or to wage structure differences. Results suggest that although homosexual male workers should have earned more due to their better labor market characteristics, the unequal reward system based on sexual orientation impedes them from gaining high incomes.

Keywords: Sexual Orientation, Wage Difference, Glass Ceiling

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1 Introduction

As suggested in Figure 1, the sexual orientation wage gap of male workers decreases over time, which implies an amelioration of sexual-minority working environment for homosexual male workers. But does it indicate that homosexual workers hold equal opportunity to reach high-income positions? Despite the extensive research on the "glass ceiling"[1] faced by female workers (e.g., Arulampalam et al. 2007, Adams and Funk 2012, Jafarey and Maiti 2015, Bertrand et al. 2018), research on this aspect of sexual minorities is relatively limited. The seminal work is Aksoy et al. (2019) that found a gay "glass ceiling" in the UK. However, the sexual orientation wage difference at the top and bottom end of the wage distribution deserves more research attention. As suggested by Hambrick and Mason (1984), the possible exclusion of homosexual managerial authorities will possibly induce a cognitive bias and potentially generate a homogeneous decision. Also, preventing low-income workers to promote is inconsistent with the profit-maximization goal (Dezsö and Ross 2012, Lückerath – Rovers 2013).

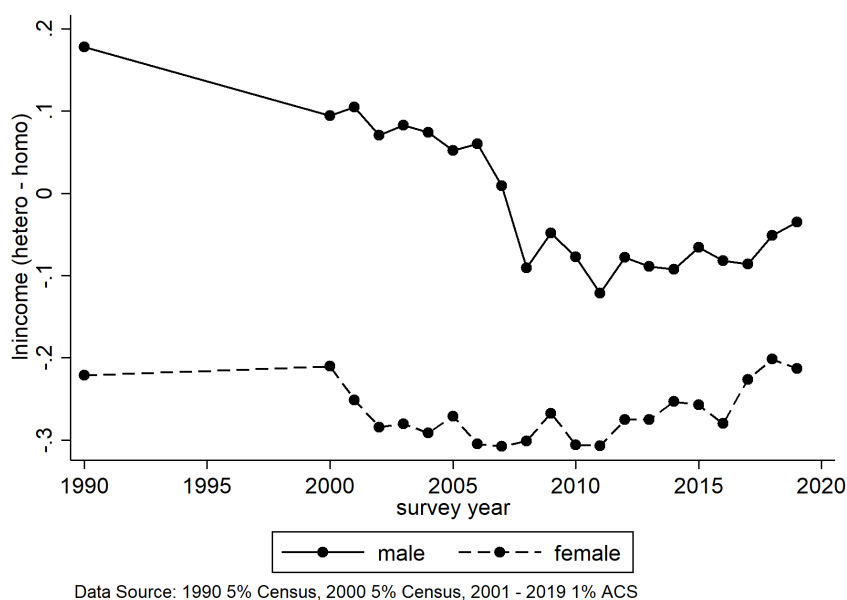Data Source: 1990 5% Census, 2000 5% Census, 2001 - 2019 1% ACS

Figure 1: Sexual Orientation Wage Gap Trend

In this paper, inspired by previous work on sexual orientation wage gap (e.g., Badgett 1995, Allegretto and Arthur 2001, Carpenter 2007, Antecol et al. 2008, Badgett 2018), we investigate the sexual orientation wage gap across the wage distribution and aim to discover "glass ceiling" or "sticky floor" in the labor market. Specifically, we use 1990 5%

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[1]According to Christofides et al. (2013), "glass ceiling" is the scenario that the wage gap is wider at the top of the wage distribution, while "sticky floor" is the scenario that the wage gap is wider at the bottom of the wage distribution.

US Census, 2000 5% US Census, and 2014-2019 5% American Community Survey (ACS) to trace working conditions of homosexual workers in the United States. Following previous wisdom, we use the variable "relationship to household head" to identify homosexual respondents who hold an unmarried-partner relationship with a same-sex household head. It renders impossible for researchers to directly identify the respondent's sexual orientation but the 2014-19 ACS finally allows researchers to directly identify same-sex married couples. Following this strategy, we identify 26,011 homosexual males, 26,392 homosexual females, 8,046,843 heterosexual males and 7,564,560 heterosexual females in all.

The main findings are three folds. First, OLS and mean-level Oxacad-Blinder decomposition suggest that homosexual male workers suffer a gay wage penalty though the wage difference disappears over time. On the other hand, homosexual female workers experience a lesbian wage premium with an approximately constant magnitude over time. This finding is consistent with previous researchers (e.g, Allegretto and Arthur 2001).

Second, we find that homosexual male workers continuously face a gay glass ceiling in the labor market. Preliminary descriptive results suggest that for male employees, the sexual orientation wage difference is the largest for higher educated group and for people who have longer years of working experience. Quantile level Oaxaca-style decomposition results also provide supportive evidence. For instance, using 2000 Census data, we find that heterosexuals earn an average of 1.3 percentage points *less*, 8.9 percentage points *more*, and 12.1 percentage points *more* in low-income, middle-income and high-income group respectively. Further, detailed decomposition results suggest that the increasing sexual orientation wage gap is more linked to a homosexual disadvantaged wage structure, instead of productivity difference, implying discrimination against homosexuals in the labor market. [2] Our results are consistent with Aksoy et al. (2019) although they studied the gay glass ceiling in the UK.

Third, using the unconditional quantile regression and quantile-level Oaxaca-style decomposition approach, we study the heterogeneity of the gay glass ceiling in different groups according to occupations, martial status and races. We specifically focus on occupations of different dominated genders because we hope to understand whether homosexuals tend to work in occupations of more female workers (Antecol et al. 2008) because they are treated better. We find that the overall working environment in female-dominated occupations is better than that in male-dominated occupations [3]. However, homosexuals face a stronger glass ceiling in female-dominated occupations when looking at the quantile level decomposition results, which implies that high-income heterosexual males are still privileged in female-dominated occupations. When focusing on workers of different marital status, we find that when compared with married heterosexuals, homosexual male workers tend to face

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[2]The Oaxaca-Blinder decomposition allows researchers to disentangle the wage gap into the part that can be explained by productivity difference (composition effect) and the part that is linked to different wage structure (structure effect), or sometimes interpreted as discrimination (e.g., Chi and Li 2008, Arulampalam et al. 2007).

[3]We define female-dominated occupations as those who hold more than 75% female workers, and male-dominated occupations as those who hold more than 75% male workers.

a sticky floor that the gay wage gap is larger at the bottom end of the wage distribution compared to the top; while when compared with unmarried heterosexuals, homosexual workers earn more. This sharp contrast indicates that married heterosexuals are more privileged in the labor market, and will thus be more likely to get promoted and leave the low-income job. It also points out to the necessity of legally permitting same-sex marriage. When focusing on race, we find that the overall working environment is more friendly for non-white homosexual workers due to a smaller sexual orientation wage gap. However, the glass ceiling effect is more evident for non-white workers.

The remainder of the paper is organized as below. Section 2 describes the data source and the method. Section 3 uses OLS and mean-level Oxaca-Blinder decomposition to introduce the gay wage penalty and lesbian wage premium. Section 4 uses quantile-level Oaxaca-style decomposition to investigate the sexual orientation wage gap across the wage distribution and suggests the gay glass ceiling in the labor market. Section 5 studies groups of different occupations, marital status, and races. Section 6 concludes.

2 Data, Descriptive Results and Methods

2.1 Data and Descriptive Results

Data

For three reasons, we use data of 1990 and 2000 US Census as well as the 2014-19 American Community Survey (ACS) (Ruggles et al. 2003). In the first instance, it has a desirable data capacity. For example, the 2000 Census contains a total of more than 6.184 million households and 14.081 million people. As a second advantage, it collects comprehensive data on labor market statuses and outcomes, which can then be used by researchers to collect detailed income data of employed workers who work for wages. Furthermore, the Census also includes standard demographic variables (e.g., age, gender, marital status, and race) that make it possible to conduct robustness checks and heterogeneity analysis. Thirdly and most importantly, the US Census and ACS allow researchers to identify homosexual individuals. Using the variable "relationship to household head", we can indirectly identify an individual as homosexual if the individual's self-reported relationship with a same-sex household head is "unmarried partner". The benefit of this method lies in its ability to enable a clear distinction between unmarried homosexuals and other types of relationships that are ambiguous or unclear, such as roommates who are the same sex. Additionally, researchers are able to directly identify homosexuals by using the 2014-19 ACS data due to its inclusion on married homosexual couples.

We would like to emphasize, however, that this study does not reflect the entire population of homosexuals, although it locates all homosexuals who have resided together with their partners. We believe that the identified group of homosexuals is more likely to represent homosexuals who have disclosed their sexual orientation to the public because homosexuals who live in close proximity to their partners are more likely to have already formed

a stable and committed relationship with their partners. However, we cannot assure that the homosexuals identified in this paper have already "come out of the closet" because of data limitation. Although it would be great to have data on homosexuals who have already "come out of the closet" in the labor market, data from the Census can serve as a substitute. Moreover, Carpenter (2004) drew upon data from the Center for Disease Control and argued that using Census to identify homosexual individuals would not induce significant bias.

A brief summary of the datasets I used is presented below in Table 1. We use data of 1990 5%, 2000 5% US Census, and 2014-19 ACS. And we only focus on working-age individuals (aged 15-64) who are employed to earn a salary. That is, self-employed and unemployed individuals are exempted from this study. The homosexual proportion in the 1990 Census is similar to that presented by Allegretto and Arthur (2001).

Table 1: Number of Observations of Each Data Set

Dataset		Male			Female	
	N(obs)	Hetero	Homo	N(obs)	Hetero	Homo
1990 Census	$2,420,849$	$2,418,139$	$2,710$	$2,176,377$	$2,174,329$	$2,048$
		99.89%	0.11%		99.91%	0.09%
2000 Census	$2,660,120$	$2,651,483$	$8,637$	$2,489,414$	$2,480,335$	$9,079$
		99.67%	0.33%		99.64%	$22\ 0.37\%$
2014-19 ACS	$2,991,885$	$2,977,221$	$14,664$	$2,925,161$	$2,909,896$	$15,265$
		99.51%	0.49%		99.48%	0.52%

Note: (1) We use data of 1990 5%, 2000 5% US Census, and 2014-19 ACS; (2) We only focus on working-age individuals (aged 15-64) who are employed to earn a salary.

Descrpitive Results

We present here in Table 2, Table 3 and Table 4 some facts regarding differences between homosexuals and heterosexuals in terms of demographic and labor market characteristics of male and female workers, based on the 1990 Census, the 2000 Census, and the 2014-19 American Community Survey, respectively. First and foremost, homosexuals have a higher educational level than their heterosexual counterparts. They received longer years of schooling and more homosexuals than heterosexual have obtained a bachelor's degree (approximately 10 percent higher than their heterosexual counterparts). As income and education are well-acknowledged to be positively correlated by researchers (e.g.,Heckman et al. (2005)), it is reasonable to assume in the first place that homosexual workers' advantages in education should make them more competitive in the labour market and possibly earn more. A second finding is that homosexual workers are more likely to live in cities as compared to rural areas. Thirdly, homosexuals tend to work in occupations of more female workers. This finding is consistent with the work of Antecol et al. (2008), which suggests that most homosexual workers (56%) work in occupations that have more than 50% female workers.

Table 2: Labor Market Characteristics by Sexual Orientation (1990 Census)

	Male		Female	
	Heterosexual	Homosexual	Heterosexual	Homosexual
Age	37.14	32.91	37.00	33.78
Working Experience	18.67	13.59	18.54	14.19
White	85.07%	84.17%	83.55%	87.26%
Education				
Years of Education	13.10	14.05	13.25	14.50
Bachelor or Above	23.34%	37.64%	21.36%	43.55%
Occupations				
Female% > 75%	12.66%	27.34%	49.54%	37.11%
Female% < 25%	35.87%	14.61%	4.77%	9.77%
Female% > 50%	28.97%	51.51%	71.49%	55.86%
Female% < 50%	71.03%	48.49%	28.51%	44.14%
Regions				
South	33.52%	30.22%	34.14%	25.73%
Northeast	21.30%	20.96%	21.72%	23.63%
Middle West	24.19%	13.69%	24.30%	17.58%
West	20.99%	35.13%	19.83%	33.06%
N(obs)	2, 418, 139	2, 710	2, 174, 329	2, 048
	99.89%	*0.11%*	*99.91%*	*0.09%*

Note: (1) The used sample is that of the 1990 21 5% Census; (2) Female% represents the percentage of females within an occupation. For instance, "Female% > 75% " indicates occupations whose female percentage is above 75%.

Table 3: Labour Market Characteristics by Sexual Orientation (2000 Census)

	Male		Female	
	Heterosexual	Homosexual	Heterosexual	Heterosexual
Age	38.55	38.61	38.80	38.58
Working Experience	19.98	19.64	20.08	19.38
White	81.94%	81.75%	80.63%	82.34%
Working in City	74.60%	81.32%	73.14%	79.35%
Education				
Years of Education	13.29	13.74	13.55	14.03
Bachelor or Above	25.72%	33.11%	26.4%	36.01%
Occupations				
Female% > 75%	14.07%	30.81%	50.97%	41.22%
Female% < 25%	35.34%	14.65%	4.42%	11.38%
Female% > 50%	32.79%	55.95%	76.06%	63.59%
Female% < 50%	67.21%	44.05%	23.94%	36.41%
Regions				
South	34.61%	35.39%	34.77%	33.81%
Northeast	19.20%	19.50%	19.88%	21.06%
Middle West	24.34$	17.77%	24.69%	19.05%
West	21.85%	27.34%	20.66%	26.07%
N(obs)	2,651,483	8,637	2,480,335	9,079
	99.67%	*0.33%*	*99.64%*	*0.37%*

Note: (1) The used sample is that of the 2000 5% Census; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% > 75% " indicates occupations whose female percentage is above 75%.

Table 4: Labour Market Characteristics by Sexual Orientation (2014-2019 ACS)

	Male		Female	
	Heterosexual	Homosexual	Heterosexual	Heterosexual
Age	41.07	41.99	41.22	41.27
Working Experience	22.27	22.39	22.07	21.71
White	78.2%	79.41%	76.29%	80.64%
Working in City	75.95%	85.14%	75.03%	79.99%
Education				
Years of Education	13.57	14.48	14.00	14.45
Bachelor or Above	33.79%	49.00%	38.97%	46.01%
Occupations				
Female% > 75%	15.69%	28.59%	49.70%	39.68%
Female% < 25%	31.75%	11.60%	4.50%	9.11%
Female% > 50%	37.10%	57.57%	76.71%	67.19%
Female% < 50%	62.90	42.43%	23.29%	32.81%
Regions				
South	36.02%	36.77%	36.43%	36.80%
Northeast	18.09%	18.99%	18.80%	19.27%
Middle West	22.41%	15.79%	22.47%	18.15%
West	23.49%	28.45%	22.30%	25.77%
N(obs)	2,977,221	14,664	2,909,896	15,265
	99.51%	*0.49%*	*99.48%*	*0.52%*

Note: (1) The used sample is that of the 2014 - 2019 5% ACS; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% > 75% " indicates occupations whose female percentage is above 75%;

Table 5, Table 6 and Table 7 present descriptive statistics regarding the sexual orientation wage gap among male workers, based on the 1990 Census, the 2000 Census, and the 2014-19 American Community Survey, respectively. Below is a summary of the major findings.

First, in 1990 and 2000, homosexual workers earned less than their heterosexual counterparts on average, but the wage gap narrowed over time. In 1990, heterosexual workers earned 18.28% *more* than their homosexual counterparts, whereas in 2000, the heterosexual wage advantage decreased to 11.92%. Nevertheless, heterosexual workers tend to earn 2.73 *less* than their homosexual counterparts in 2014-2019. Though the improvement in homosexual workers' working environment and the social acceptance towards LGBT may explain the disappearance of the sexual orientation wage gap, the real cause why the sexual orientation wage gap narrows is worth rigorous empirical investigation. Specifically, even if the wage gap seems to disappear, we cannot conclude assertively that discrimination towards homosexual workers disappear in the labour market. It is still possible that discrimination ameliorates but still exists, hence those higher educated homosexuals get better paid but still do not received the payment that they should deserve. The further investigation in this

paper substantiates this claim.

Second, the preliminary result indicates the possible existence of a male homosexual glass ceiling, that is, the sexual orientation wage gap is the highest in the high income group. We find that the sexual orientation wage gap is the highest for individuals who hold the highest educational levels (bachelors degree holders and above) and who have greater work experience (more than 25 years). It still holds true for 2014-19 ACS although homosexuals in this survey already earn a higher average income. Since people belonging to those two groups normally earn a higher income, this preliminary descriptive results inspire us to study the glass ceiling issue. If we find that glass ceiling is a persistent issue for male homosexuals, then it helps us to answer the question mentioned above - whether homosexual workers face discrimination in nowadays labour market. According to this descriptive result and the further analysis in this paper, I believe that glass ceiling persists, which implies that discrimination still exists in the labour market.

Table 5: Descriptive Sexual Orientation Wage Gap: Males (1990 Census)

	Heterosexual	Homosexual	Difference	Dif/Homosexual %
Annual Income(k)	26,970.94	22,802.60	4,168.34	18.28%
Mean Wages by Education				
Below High School	17,247.95	13,200.32	4,047.63	30.66%
High School	23,455.42	17,087.04	6,368.38	37.27%
Bachelor Above	39,235.92	30,214.33	9,021.59	29.86%
Mean Wages by Working Experience				
< 5 years	11,380.79	14,335.64	−2,954.85	−20.61%
5 - 10years	22,353.69	20,594.02	1,759.67	8.54%
10 - 15 years	27,366.83	24,657.12	2,709.71	10.99%
15 - 20 years	30,747.30	26,577.53	4,169.77	15.69%
20 - 25 years	33,319.32	27,991.03	5,328.29	19.04%
over 25 years	32,252.25	27,891.20	4,361.05	15.64%
Mean Wages by Race				
White	28,000.45	23,870.44	4,130.01	17.30%
Nonwhite	21,103.94	17,124.87	3,979.07	23.24%
Mean Wages by Heterosexual Marital Status				
Married	31,443.97	22,802.60	8,641.37	37.90%
Unmarried	18,769.04	22,802.60	−4,033.56	−17.69%
Mean Wages by Occupations of Different Female %				
Female < 25%	24,695.41	20,135.71	4,559.70	22.64%
Female > 25% & < 50%	29,849.99	26,804.74	3,045.25	11.36%
Female > 50% & < 75%	27,192.84	21,110.15	6,082.69	28.81%
Female > 75%	25,953.73	21,343.10	4,610.63	21.60%
Mean Wages by Different Regions				
South	24,995.24	20,676.82	4,318.42	20.89%
Northeast	29,698.91	25,334.35	4,364.56	17.23%
Middlewest	26,602.20	20,189.28	6,412.92	31.76%
West	27,783.29	24,139.28	3,644.01	15.10%
N(obs)	2,418,139	2,710		

Note: (1) The used sample is that of the 2000 5% Census; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% > 75% " indicates occupations whose female percentage is above 75%; (3) "Difference" = Homosexual Wage − Heterosexual Wage, all significant at the 99% confidence level according to t-tests if not particularly noted.

Table 6: Descriptive Sexual Orientation Wage Gap: Males (2000 Census)

	Heterosexual	Homosexual	Difference	Dif/Homosexual %
Annual Income(k)	$38,452.33$	$34,357.20$	$4,095.13$	11.92%
Mean Wages by Education				
Below High School	$21,413.94$	$20,402.47$	$1,011.47$	4.96%
High School	$33,979.31$	$28,976.36$	$5,002.95$	17.27%
Bachelor & Above	$58,863.52$	$48,262.94$	$10,600.58$	21.96%
Mean Wages by Working Experience				
< 5 years	$15,405.10$	$20,682.75$	$-5,277.65$	-25.52%
5 - 10 years	$31,295.53$	$30,027.15$	$1,268.38$	4.22%
10 - 15 years	$38,540.35$	$34,131.99$	$4,408.36$	12.92%
15 - 20 years	$43,120.83$	$38,820.59$	$4,300.24$	11.08%
20 - 25 years	$45,066.98$	$37,320.61$	$7,746.37$	20.76%
over 25 years	$45,394.22$	$35,331.75$	$10,062.47$	28.48%
Mean Wages by Race				
White	$40,231.84$	$35,644.85$	$4,586.99$	12.87%
Non White	$30,376.93$	$28,588.07$	$1,788.86$	6.26%
Mean Wages by Heterosexual Marital Status				
Married	$45,489.34$	$34,357.20$	$11,132.14$	32.40%
Unmarried	$27,291.52$	$34,357.20$	$-7,065.68$	-20.57%
Mean Wages by Occupations of Different Female %				
Female $< 25\%$	$34,286.11$	$30,150.55$	$4,135.56$	13.72%
Female $> 25\%$ & $< 50\%$	$38,535.63$	$34,250.45$	$4,285.18$	12.51%
Female $> 50\%$ & $< 75\%$	$44,297.75$	$40,390.75$	$3,907.00$	9.67%
Female $> 75\%$	$34,417.35$	$29,741.50$	$4,675.85$	15.72%
Mean Wages by Different Regions				
South	$34,286.11$	$30,150.55$	$4,135.56$	13.72%
Northeast	$41,251.06$	$37,705.64$	$3,545.42$	9.40%
Middlewest	$38,622.78$	$31,777.65$	$6,845.13$	21.54%
West	$38,716.25$	$36,147.01$	$2,569.24$	7.11%
N(obs)	$2,651,483$	$8,637$		

Note: (1) The used sample is that of the 2000 5%; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% $> 75\%$" indicates occupations whose female percentage is above 75%; (3) "Difference" = Homosexual Wage $-$ Heterosexual Wage, all significant at the 99% confidence level according to t-tests if not particularly noted.

Table 7: Descriptive Sexual Orientation Wage Gap: Males (2014-2019 ACS)

	Heterosexual	Homosexual	Difference	Dif/Homosexual %
Annual Income(k)	62,059.43	63,802.50	−1,743.07	−2.73%
Mean Wages by Education				
Below High School	31,629.44	32,158.18	−528.74	−1.64%
High School	43,250.69	39,390.34	3,860.35	9.80%
Bachelor Above	94,361.24	85,333.21	9,028.03	10.58%
Mean Wages by Working Experience				
< 5 years	23,041.32	33,471.41	−10,430.09	−31.16%
5-10years	46,520.23	49,763.24	−3,243.01	−6.52%
10-15 years	60,374.26	59,381.66	992.60	1.67%
15-20 years	69,046.41	68,966.07	80.34	0.12%
20-25 years	75,411.36	73,249.84	2,161.52	2.95%
over 25 years	72,983.74	69,944.41	3,039.33	4.35%
Mean Wages by Race				
white	64,748.45	65,867.14	−1,118.69	−1.70%
nonwhite	52,421.34	55,838.70	−3,417.36	−6.12%
Mean Wages by Heterosexual Marital Status				
married	77,221.94	70,389.29	6,832.65	9.71%
unmarried	42,029.45	56,750.68	−14,721.23	−25.94%
Mean Wages by Occupations of Different Female %				
Female < 25%	53,341.96	51,907.03	1,434.93	2.76%
Female > 25% & < 50%	75,090.75	80,256.46	−5,165.71	−6.44%
Female > 50 % & < 75 %	56,441.09	54,549.73	1,891.36	3.47%
Female > 75%	54,853.06	55,367.99	−514.93	−0.93%
Mean Wages by Different Regions				
South	60,515.28	59,477.34	1,037.94	1.75%
Northeast	67,208.96	71,238.85	−4,029.89	−5.66%
Middlewest	58,866.63	56,925.03	1,941.60	3.41%
West	63,508.30	68,248.03	−4,739.73	−6.94%
N(obs)	2,977,221	14,664		

Note: (1) The used sample is that of the 2014-19 ACS; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% > 75% " indicates occupations whose female percentage is above 75%; (3) "Difference" = Homosexual Wage − Heterosexual Wage, all significant at the 99% confidence level according to t-tests if not particularly noted.

Table 8, Table 9 and Table 10 present the descriptive statistics on the sexual orientation wage gap of female workers. In general, heterosexual female workers tend to earn approximately 20% *less* than their homosexual counterparts across time. The finding of the lesbian wage premium is consistent with previous research (e.g, Allegretto and Arthur 2001 and Badgett 1995) as well.

Table 8: Descriptive Sexual Orientation Wage Gap: Females (1990 Census)

	Heterosexual	Homosexual	Difference	Homosexual %
Annual Income(k)	$15,951.83$	$20,036.53$	$-4,084.70$	-20.39%
Mean Wages by Education				
Below High School	$9,845.19$	$11,731.82$	$-1,886.63$	-16.08%
High School	$13,637.04$	$14,699.08$	$-1,062.04$	-7.23%
Bachelor Above	$23,227.40$	$24,764.11$	$-1,536.71$	-6.21%
Mean Wages by Working Experience				
< 5 years	$9,523.37$	$12,600.19$	$-3,076.82$	-24.42%
5 - 10years	$16,501.01$	$18,812.67$	$-2,311.66$	-12.29%
10 - 15 years	$17,318.91$	$20,878.19$	$-3,559.28$	-17.05%
15 - 20 years	$17,837.63$	$23,558.42$	$-5,720.79$	-24.28%
20 - 25 years	$18,157.33$	$23,713.82$	$-5,556.49$	-23.43%
over 25 years	$16,736.53$	$22,518.64$	$-5,782.11$	-25.68%
Mean Wages by Race				
white	$16,030.24$	$20,571.37$	$-4,541.13$	-22.08%
nonwhite	$15,553.55$	$16,374.60$	-821.05	-5.01%
Mean Wages by Heterosexual Marital Status				
married	$16,379.06$	$20,036.53$	$-3,657.47$	-18.25%
unmarried	$15,951.83$	$20,120.56$	$-4,168.73$	-20.72%
Mean Wages by Occupations of Different Female %				
Female $< 25\%$	$15,708.90$	$20,082.30$	$-4,373.40$	-21.78%
Female $> 25\%$ & $< 50\%$	$17,772.68$	$22,282.72$	$-4,510.04$	-20.24%
Female $> 50\%$ & $< 75\%$	$14,675.31$	$18,086.06$	$-3,410.75$	-18.86%
Female $> 75\%$	$16,439.91$	$20,038.84$	$-3,598.93$	-17.96%
Mean Wages by Different Regions				
South	$15,229.40$	$17,702.31$	$-2,472.91$	-13.97%
Northeast	$17,447.13$	$22,258.43$	$-4,811.30$	-21.62%
Middlewest	$14,709.83$	$18,107.73$	$-3,397.90$	-18.76%
West	$17,079.76$	$21,290.75$	$-4,210.99$	-19.78%
N(obs)	$2,174,329$	$2,048$		

Note: (1) The used sample is that of the 1990 5% Census; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% $> 75\%$" indicates occupations whose female percentage is above 75%; (3) "Difference" = Homosexual Wage − Heterosexual Wage, all significant at the 99% confidence level according to t-tests if not particularly noted.

Table 9: Descriptive Sexual Orientation Wage Gap: Females (2000 Census)

	Heterosexual	Homosexual	Difference	Homosexual %
Annual Income(k)	24,410.66	29,303.72	−4,893.06	−16.70%
Mean Wages by Education				
Below High School	13,060.74	18,278.26	−5,217.52	−28.54%
High School	19,548.61	22,269.42	−2,720.81	−12.22%
Bachelor & Above	35,704.36	38,047.93	−2,343.57	−6.16%
Mean Wages by Working Experience				
¡ 5 years	12,780.62	17,863.41	−5,082.79	−28.45%
5 - 10 years	24,184.81	25,529.31	−1,344.50	−5.27%
10 - 15 years	26,112.54	29,850.11	−3,737.57	−12.52%
15 - 20 years	26,838.26	31,061.68	−4,223.42	−13.60%
20 - 25 years	27,550.03	32,316.13	−4,766.10	−14.75%
over 25 years	26,712.85	30,808.39	−4,095.54	−13.29%
Mean Wages by Race				
White	24,697.98	30,199.16	−5,501.18	−18.22%
Nonwhite	23,214.68	25,127.65	−1,912.97	−7.61%
Mean Wages by Heterosexual Marital Status				
Married	25,824.06	29,303.72	−3,479.66	−11.87%
Unmarried	24,410.66	29,303.72	−4,893.06	−16.70%
Mean Wages by Occupations of Different Female %				
Female < 25%	23,897.50	28,806.61	−4,909.11	−17.04%
Female > 25% & < 50%	21,557.55	28,089.46	−6,531.91	−23.25%
Female > 50% & < 75%	29,022.35	33,542.23	−4,519.88	−13.48%
Female > 75%	24,094.02	27,525.42	−3,431.40	−12.47%
Mean Wages by Different Regions				
South	23,461.53	27,059.84	−3,598.31	−13.30%
Northeast	26,640.90	31,814.28	−5,173.38	−16.26%
Middlewest	22,889.80	27,611.89	−4,722.09	−17.10%
West	25,679.49	31,422.62	−5,743.13	−18.28%
N(obs)	2,480,335	9,079		

Note: (1) The used sample is that of the 2000 5% Census; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% > 75% " indicates occupations whose female percentage is above 75%; (3) "Difference" = Homosexual Wage − Heterosexual Wage, all significant at the 99% confidence level according to t-tests if not particularly noted.

Table 10: Descriptive Sexual Orientation Wage Gap: Females (2014-2019 ACS)

	Heterosexual	Homosexual	Difference	Homosexual %
Annual Income(k)	42,332.88	50,838.54	−8,505.66	−16.73%
Mean Wages by Education				
Below High School	18,509.65	24,882.94	−6,373.29	−25.61%
High School	28,516.14	33,638.05	−5,121.91	−15.23%
Bachelor Above	60,432.77	67,033.54	−6,600.77	−9.85%
Mean Wages by Working Experience				
< 5 years	19,692.28	28,035.41	−8,343.13	−29.76%
5-10years	38,998.00	38,083.90	914.10	2.40%
10-15 years	45,648.28	46,594.58	−946.30	−2.03%
15-20 years	48,477.76	52,393.61	−3,915.85	−7.47%
20-25 years	50,121.44	57,182.33	−7,060.89	−12.35%
over 25 years	46,776.34	59,357.90	−12,581.56	−21.20%
Mean Wages by Race				
White	43,068.44	52,662.17	−9,593.73	−18.22%
Nonwhite	39,966.73	43,244.85	−3,278.12	−7.58%
Mean Wages by Heterosexual Marital Status				
Married	48,446.35	56,678.46	−8,232.11	−14.52%
Unmarried	35,655.83	43,881.12	−8,225.29	−18.74%
Mean Wages by Occupations of Different Female %				
Female < 25%	39,164.40	47,493.32	−8,328.92	−17.54%
Female > 25% & < 50%	55,062.67	62,970.81	−7,908.14	−12.56%
Female > 50 % & < 75 %	37,280.24	44,450.42	−7,170.18	−16.13%
Female > 75%	39,556.20	46,547.78	−6,991.58	−15.02%
Mean Wages by Different Regions				
South	40,729.93	47,452.47	−6,722.54	−14.17%
Northeast	46,800.37	57,268.37	−10,468.00	−18.28%
Middlewest	38,788.68	44,271.14	−5,482.46	−12.38%
West	44,757.53	55,491.49	−10,733.96	−19.34%
N(obs)	2,909,896	15,265		

Note: (1) The used sample is that of the 2014 - 19 ACS; (2) "Female%" represents the percentage of females within an occupation. For instance, "Female% > 75% " indicates occupations whose female percentage is above 75%; (3) "Difference" = Homosexual Wage − Heterosexual Wage, all significant at the 99% confidence level according to t-tests if not particularly noted.

Considering the descriptive results of this study, we highlight two preliminary conclusions regarding the differences in wage outcomes between homosexual and heterosexual workers. In the first place, homosexual male workers suffer a wage penalty even if the wage difference disappears over time; however homosexual female workers may experience a wage premium with an approximately constant magnitude over time. Second, the glass ceiling problem - where the wage gap is widest at the top end of the wage distribution - appears to affect mainly homosexual men, but not homosexual women.

2.2 Empirical Specification: OLS

Consistent with previous research, I used the OLS to examine the gay wage gap in the first place. The regression takes the form of

$$ln(incwage)_{ij} = \alpha + \beta_1 GAY_{ij} + \beta_2 C_{ij} + \gamma_j + \epsilon_j \tag{1}$$

where $ln(incwage)_{ij}$ is the log wage and salary income for individual i in state j, the dummy variable GAY_{ij} is the key treatment variable, γ_j is the state fixed effect, ϵ_{ij} is the standard error, and α is the constant term. C_{ij} represents all control variables that include age, race, education, working experience and the metropolitan status. Note that I do not add the "marital status" as a control due to the possible concern of "bad control" problem. On the one hand, homosexual individuals have not been able to get married due to legal constraints before the 21st Century. On the other hand, Ciscato et al. (2020) suggests that homosexual individuals follow different assortative matching pattern in the marriage market. Hence, the marital status would be an outcome of the sexual minority identity. Introducing this control variable might reversely induce selection bias. Following similar thoughts, the baseline OLS regression also does not control the occupation fixed effect in that homosexual individuals may face barrier when entering an industry due to the discrimination against sexual minorities. Moreover, given different levels of sexual-minority acceptance within an occupation, gay workers will make their occupational choice accordingly. Under this scenario, occupation is also a choice made by gay workers and should also be considered as a bad control if adding to the regression. However, since the impact of sexual orientation identity on occupational choice is not as salient as the one on marital status, we also present the results of adding occupational FE in the Appendix to check the robustness.

2.3 Decomposition

Oaxaca-Blinder Decomposition

To further decompose the wage gap, I go beyond the traditional OLS regression and applies the Oaxaca-Blinder decomposition (Blinder 1973, Oaxaca 1973) to investigating the sexual orientation wage gap at the *mean* level. This decomposition approach takes use of OLS estimates and decomposes the wage gap into two components. The wage is specified as the following where *so* represents the sexual orientation, S represents "straight", G represents "gay", and ϵ_{so} represents the error term.

$$Y_{so} = X\beta_{so} + \epsilon_{so} \qquad \text{for } so = S, G \tag{2}$$

After taking the expectations over X, one can write the overall *mean* wage gap as:

$$\begin{aligned}
\Delta_O^\mu &= E[Y_S|D_S = 1] - E[Y_G|D_S = 0] \\
&= (E[X|D_S = 1] - E[X|D_S = 0])\beta_S + E[X|D_S = 0](\beta_S - \beta_G) \\
&= \text{composition effect} + \text{structural effect} \\
&= \Delta_X^\mu + \Delta_S^\mu
\end{aligned} \tag{3}$$

Here, one can interpret β_S and β_G as the wage structure of heterosexual and homosexual male workers. X represents the endowment, which includes the years of education, working experience, occupation, working place metropolitan status and state. Hence, $E[X|D_S = 0]\beta_S$ is the counterfactual wage that gay should have earned if treated as their heterosexual counterparts. With this counterfactual wage, one can interpret the composition effect $(E[X|D_S = 1] - E[X|D_S = 0])\beta_S$ as the wage difference due to endowment differences, while the structural effect $E[X|D_S = 0](\beta_S - \beta_G)$ as the difference due to different wage structures, which is commonly linked to discrimination.

Specifically, if the composition effect is negative, it indicates that gay men should have earned more than their counterparts if being treated the same way in the labour market due to better productivity attributes, and vice versa. If the structural effect is positive, then it indicates that heterosexual males are rewarded more strongly than their homosexual counterparts in the labor market (e.g, Chi and Li 2008 and Albrecht et al. 2003).

Quantile Level Decompositions

To examine the wage gap across the wage distribution, I use the decomposition method from Sergio Firpo et al. (2009) that relies on Recentered Influence Function(RIF) unconditional quantile regression estimates, representing how individual observation influences distributional statistics, for instance, quantile. The RIF take the form of:

$$RIF(Y; q_\tau, F_Y) = q_\tau + \frac{\tau - I(Y \le q_\tau)}{f_Y(q_\tau)} \tag{4}$$

where F_Y and f_Y are the cumulative distribution function and the probability density function of Y. $I(.)$ is the indicator function.

$$E[RIF(Y; q_\tau, F_Y)|X] = X\beta \tag{5}$$

where β measures the unconditional quantile partial effects, which is the marginal effect of X on quantile q_τ. Since RIF has the same property as OLS, one can take advantage of RIF to apply Oaxaca-style decomposition at different quantile levels.

3 Gay Wage Penalty and Lesbian Wage Premium

3.1 OLS Results

Table 11, Table 12, and Table 13 investigate the impact of the homosexual identity on the labor market outcome of male and female workers based on the 1990 Cencus, 2000 Census, and 2014 - 19 ACS respectively. After controlling productivity endowments, metropolitan status, and state fixed effects, the main findings suggest both a gay wage penalty and a lesbian wage premium.

Our analysis of Panel A of Table 11, Table 12, and Table 13 reveals a gay wage penalty. This is in keeping with previous research (e.g.,Badgett 1995, Allegretto and Arthur 2001, and Carpenter 2007). Column (1) indicates that being homosexual is directly linked to a lower wage, which is a sign of a gay wage penalty. The magnitude of the penalty was 16.1 percent in 1990, 18.0 percent in 2000, and 11.8 percent in 2014 - 2019. Adding the occupational fixed effect in Column (2) maintains the direction and significance of the gay wage penalty, but the magnitude is smaller. Second, the magnitude of the gay wage penalty changes across the different samples. In Columns (3) and (4), we find evidence that the gay wage penalty is much more pronounced, both in magnitude and significance, for gay workers relative to their heterosexual married counterparts than for their heterosexual non-married counterparts. [4] In Columns (5) and (6), we look at male workers in occupations that are dominated by different genders. It is found that gay workers fare slightly better in occupations dominated by women. [5] Columns (7) and (8) demonstrate that white workers suffer a greater rate of gay wage penalty than their non-white counterparts.

Our analysis of Panel B of Table 11, Table 12, and Table 13 reveals a lesbian wage premium. This is also consistent with previous research (Allegretto and Arthur 2001), which is a sign of a lesbian wage premium. The magnitude of the premium was relatively stable across time: 13.9 percent in 1990, 12.0 percent in 2000, and 13.8 percent in 2014 - 2019. Adding the occupational fixed effect in Column (2) maintains the magnitude and significance. Second, the magnitude of the lesbian wage premium changes across the different samples. In Columns (3) and (4), we find evidence that the lesbian wage premium is much more pronounced, both in magnitude and significance, for lesbian workers relative to their heterosexual married counterparts than for their heterosexual non-married counterparts. This is opposite with homosexual male workers. The only exception is the result of 2014 - 2019, which will be discussed in detail in the next paragraph. [6] In Columns (5) and (6), we again investigate female workers in occupations that are dominated by different genders and draw upon a similar conclusion that female-dominated occupations are more friendly to homosex-

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[4]Detailed regressions studying the wage differences between heterosexual and homosexual workers based on their marital status and child status are presented in the appendix.

[5]Appendix contains regressions that examine wage differences between homosexuals and heterosexuals in occupations with different male densities.

[6]Detailed regressions studying the wage differences between heterosexual and homosexual workers based on their marital status and child status are presented in the appendix.

ual workers. [7] Columns (7) and (8) demonstrate that white workers enjoy a greater lesbian wage premium than their non-white counterparts.

The comparison between female and male results lead to some interesting findings regarding the different impacts of marriage and child-bearing on males and females. Given the fact that homosexuals shoulder less traditional responsibility of establishing a family and giving birth to children, homosexuals can be considered as the counterfactual group of heterosexuals if without those traditional family responsibility. Following this thought, some opposite findings for lesbians and gay imply that being married motivates males but discourages females in the labor market. First, overall, despite gays and lesbians all shoulder less family responsibility, gays face a wage penalty, while lesbians face a wage premium. Second, the gay wage penalty and the lesbian wage premium are all of the largest magnitude of the married group. More interestingly, in 2014 - 2019 there was a similar wage premium for lesbians in the unmarried group and married group. The 2014-19 ACS allows us to discern between homosexual married couples and heterosexuals unmarried, therefore the result implies that lesbians earn more than their heterosexual counterparts no matter their marital status. As shown in Table 31 in Appendix, when married lesbians are compared to married heterosexuals who don't have children, the lesbian pay premium is of the smallest magnitude. Results from this study give us insight into how marriage and giving birth affect the careers of heterosexual female workers. The working condition of homosexual female workers sheds light on the counterfactual outcome if heterosexual female workers did not have children and suggests that heterosexuals possibly should have earned more if without children.

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[7]Appendix contains regressions that examine wage differences between homosexuals and heterosexuals in occupations with different male densities.

Table 11: OLS Estimation (1990 Census)

Outcome Variable: ln(incwage), Sample: 1990 Census

	Whole Sample		Marital Status		Occupation		Race	
			Married	Unmarried	Female	Male	White	NonWhite
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A : Male								
Gay	-0.161***	-0.115***	-0.346***	-0.034**	-0.095***	-0.123***	-0.174***	-0.089**
	(0.012)	(0.014)	(0.010)	(0.015)	(0.020)	(0.036)	(0.014)	(0.035)
Constant	10.230***	9.336***	10.436***	9.958***	14.442***	2.168***	10.640***	8.572***
	(0.195)	(0.152)	(0.195)	(0.208)	(0.216)	(0.470)	(0.137)	(0.699)
N(obs)	49,524,913	49,524,913	31,213,996	18,373,408	6,488,384	17,313,046	41,359,416	8,165,497
Panel B: Female								
Lesbian	0.139***	0.124***	0.114***	0.050***	0.137***	0.214***	0.152***	0.060
	(0.015)	(0.013)	(0.019)	(0.014)	(0.023)	(0.052)	(0.015)	(0.061)
Constant	7.194***	4.414***	7.088***	7.537***	7.227***	-3.047**	7.492***	5.535***
	(0.177)	(0.214)	(0.231)	(0.193)	(0.170)	(1.252)	(0.187)	(0.203)
N(obs)	44,104,124	44,104,124	24,668,802	19,480,452	21,928,119	2,061,763	36,116,636	7,987,488
Controls								
Productivity	YES	YES	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES	YES	YES
FE								
State	YES	YES	YES	YES	YES	YES	YES	YES
Occupation	NO	YES	NO	NO	NO	NO	NO	NO

Notes: (1) The used sample is that of 1990 Census; (2) Column 3 focuses on the sample of homosexuals and married heterosexuals, Column 4 focuses on the sample of homosexuals and unmarried heterosexual males; Column 5 focuses on female dominated occupations (the percentage of females is greater than 75%), Column 6 focuses on male dominated occupations (the percentage of males is greater than 75%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level; (6) The Appendix re-examines all OLS results after adding the occupation fixed effect, and the results remain robust after the change.

Table 12: OLS Estimation (2000 Census)

Outcome Variable: ln(incwage), Sample: 2000 Census

	Whole Sample		Marital Status		Occupation		Race	
			Married	Unmarried	Female	Male	White	NonWhite
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SubSample: Male								
Gay	-0.180***	-0.101***	-0.300***	-0.043***	-0.119***	-0.110***	-0.195***	-0.106***
	(0.012)	(0.010)	(0.014)	(0.009)	(0.020)	(0.018)	(0.016)	(0.022)
Constant	8.442***	9.010***	8.972***	8.182***	11.685***	7.637***	8.641***	7.940***
	(0.137)	(0.083)	(0.169)	(0.116)	(0.344)	(0.102)	(0.135)	(0.154)
N(obs)	54,963,970	54,963,970	33,175,524	21,977,209	7,982,460	18,766,771	44,374,026	10,589,944
SubSample: Female								
Lesbian	0.120***	0.086***	0.114***	0.050***	0.093***	0.189***	0.124***	0.102***
	(0.007)	(0.006)	(0.008)	(0.007)	(0.015)	(0.025)	(0.007)	(0.019)
Constant	7.810***	8.692***	8.269***	7.544***	8.313***	6.765***	7.963***	7.214
	(0.129)	(0.108)	(0.141)	(0.116)	(0.127)	(0.249)	(0.108)	(0.148)
N(obs)	50,675,016	50,675,016	27,885,862	22,979,149	25,799,926	2,190,722	40,181,853	10,493,163
Controls								
Productivity	YES	YES	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES	YES	YES
FE								
State	YES	YES	YES	YES	YES	YES	YES	YES
Occupation	NO	YES	NO	NO	NO	NO	NO	NO

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of homosexuals and married heterosexuals, Column 4 focuses on the sample of homosexuals and unmarried heterosexual males; Column 5 focuses on female dominated occupations (the percentage of females is greater than 75%), Column 6 focuses on male dominated occupations (the percentage of males is greater than 75%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level; (6) The Appendix re-examines all OLS results after adding the occupation fixed effect, and the results remain robust after the change.

Table 13: OLS Estimation (2014- 2019 ACS)

Outcome Variable: ln(incwage), Sample: 2014-2019 ACS

| | Whole Sample | | Marital Status | | Occupation | | Race | |
| | | | Married | Unmarried | Female | Male | White | NonWhite |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SubSample: Male								
Gay	-0.118***	-0.077***	-0.234***	0.015	-0.035	-0.081***	-0.144***	-0.034
	(0.017)	(0.015)	(0.019)	(0.020)	(0.017)	(0.019)	(0.017)	(0.022)
Constant	9.021***	9.475***	10.002***	8.431***	12.728***	8.005***	9.378***	8.399***
	(0.159)	(0.108)	(0.199)	(0.127)	(0.386)	(0.097)	(0.164)	(0.159)
N(obs)	65,463,466	65,463,466	34,347,458	31,116,008	10,233,234	21,123,465	48,321,805	17,141,661
SubSample: Female								
Lesbian	0.138***	0.133***	0.117***	0.135***	0.115***	0.214***	0.143***	0.126***
	(0.009)	(0.009)	(0.015)	(0.013)	(0.012)	(0.030)	(0.009)	(0.015)
Constant	8.683***	9.147***	9.627***	8.066***	9.555***	7.321***	8.946***	8.095***
	(0.111)	(0.101)	(0.137)	(0.102)	(0.129)	(0.213)	(0.145)	(0.081)
Observations	61,742,314	61,742,314	29,535,787	32,206,527	29,989,589	2,937,767	44,475,016	17,267,298
Controls								
Productivity	YES	YES	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES	YES	YES
FE								
State	YES	YES	YES	YES	YES	YES	YES	YES
Occupation	NO	YES	NO	NO	NO	NO	NO	NO

Notes: (1) The used sample is that of 2014 - 19 ACS; (2) Column 3 focuses on the sample of married homosexuals and married heterosexuals, Column 4 focuses on the sample of unmarried homosexuals and unmarried heterosexual males; Column 5 focuses on female dominated occupations (the percentage of females is greater than 75%), Column 6 focuses on male dominated occupations (the percentage of males is greater than 75%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level; (6) The Appendix re-examines all OLS results after adding the occupation fixed effect, and the results remain robust after the change.

3.2 Mean Level Decomposition Results

Columns (1) of Table 14, Table 15, and Table 16 decomposes the mean sexual orientation wage gap of all male workers and all female workers. Overall, results suggest a gay wage penalty and a lesbian wage premium. This finding corroborates the OLS results presented in Tables 11 - 13 and the descriptive wage summary presented in Tables 5 - 7. For female workers, we find that female heterosexuals earned less than their homosexual counterparts over time, indicating a lesbian wage premium. For male workers, we find that male heterosexuals earned 13.9% more than their homosexual counterparts in 1990, and 6.1% more in 2000. Nevertheless, heterosexual males earn 11.5% less than their homosexual counterparts in 2014. Overall, these results suggest the existence of a gay wage penalty, however, the magnitude has decreased over time. An exception is that the OLS results in Table 13 appear to contradict to the mean decomposition result in Table 16. The former indicates a gay wage penalty after holding others constant; while the latter suggests that homosexual males earn more than their heterosexual counterparts. We believe the contradiction demonstrates that homosexual workers are negatively affected by their sexual orientation even though they appear to earn more than heterosexual workers. Combining with the analysis below, the unequal wage structure is still a problem in the labour market.

Female Workers: Lesbian Wage Premium

According to Table 14 to Table 16, we find that lesbian workers have persistently earned more than their heterosexual workers. The lesbian wage premium is stronger for female homosexual workers in unmarried group, male dominated occupation group, and white group.

Male Workers: Gay Wage Penalty

Decomposition results also explain the real contributor to the gay wage penalty is a disproportionally disadvantaged wage structure against homosexuals. First, the composition effect in nearly all columns in Table 15 and Table 16 remains negative, indicating that male homosexual workers should have earned more than their heterosexual counterparts regardless of their marital status, occupation and race. It is mainly due to homosexual male workers' better productivity attributes. As shown in Tables 2 - 4, homosexual men tend to have a higher educational level than heterosexual men. Second, the structural effect, though decreases over time, remains positive. It indicates that homosexual men are rewarded less strongly than heterosexual men in the labor market. It might imply that discrimination is the key factor that shapes the sexual orientation wage gap.

It could be argued that heterosexual male workers earn more because of marriage rather than discrimination because column (2) and (3) in Table 14 - 16 indicate only a positive structural effect in the married group instead of the unmarried group. Some may argue that the marriage effect, instead of discrimination, explains why heterosexuals earned more money when they got married. For instance, it is shouldering more family responsibilities that motivates married heterosexuals work harder and earn more in the labour market. This

claim may be grounded. However, we believe that discrimination still exists. For one thing, homosexuals were not allowed to marry before the 21st century. They therefore could not receive this additional effect brought by marriage, even if they wished to. Furthermore, column (2) of Table 16 demonstrates that the positive structural effect persists even when the married group also comprises married homosexuals, suggesting that marriage effect alone cannot explain the gay wage penalty.

Column (4) and (5) in Tables 14 to Table 16 suggest that the sexual orientation wage gap is smaller in female dominated occupations than in male dominated occupations. This indicates a better working environment in female dominated occupations. This may explain why male homosexual workers prefer to work in female dominated occupations (Ciscato et al. 2020). Column (6) and (7) in Tables 14 to 16 indicate that the gay wage penalty is stronger for white males compared to non-whites.

Table 14: Wage Gap Decomposition across the Wage Distribution (1990 Census)

1990 Census, Method: Oaxaca-Blinder Decomposition

	Whole	Marital Status		Occupation		Race	
		Married	Unmarried	Female	Male	White	NonWhite
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SubSample: Male							
Raw Gap	0.139	0.390	-0.288	0.118	0.209	0.139	0.148
	(0.003)	(0.003)	(0.003)	(0.005)	(0.008)	(0.003)	(0.008)
Composition Effect	0.010	0.112	-0.165	0.035	0.042	0.011	0.024
	(0.003)	(0.004)	(0.003)	(0.004)	(0.006)	(0.003)	(0.006)
Structural Effect	0.129	0.278	-0.124	0.083	0.167	0.128	0.124
	(0.004)	(0.004)	(0.003)	(0.006)	(0.008)	(0.004)	(0.009)
SubSample: Female							
Raw Gap	-0.275	-0.217	-0.349	-0.223	-0.379	-0.307	-0.071
	(0.004)	(0.004)	(0.004)	(0.006)	(0.010)	(0.004)	(0.011)
Composition Effect	-0.078	-0.012	-0.161	-0.007	-0.075	-0.079	0.007
	(0.003)	(0.004)	(0.003)	(0.005)	(0.008)	(0.003)	(0.009)
Structural Effect	-0.197	-0.204	-0.189	-0.216	-0.304	-0.228	-0.078
	(0.004)	(0.005)	(0.004)	(0.007)	(0.011)	(0.005)	(0.012)

Note: (1) Raw Gap = ln(heterosexual wage) - ln(homosexual wage) and indicates how much more heterosexuals earned compared to homosexuals; (2) "Female" indicates female dominated occupations (female proportion is greater than 75%), while "Male" indicates male dominated occupations (male proportion is greater than 75%); (3) The "composition effect" refers to the part of the wage differential attributable to differences in productivity characteristics (for instance, education and experience), and the "structural effect" refers to the part attributable to differences in wage structure, which is normally interpreted as discrimination; (4) Results are all significant at the 1% significance level, so stars are not presented; (5) Robust standard errors are in parenthesis.

Table 15: Wage Gap Decomposition across the Wage Distribution (2000 Census)

2000 Census, Method: Oaxaca-Blinder Decomposition

	Whole	**Marital Status**		**Occupation**		**Race**	
		Married	Unmarried	Female	Male	White	NonWhite
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SubSample: Male							
Raw Gap	0.061	0.320	-0.163	0.009	0.116	0.075	0.008
	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.002)	(0.004)
Composition Effect	-0.027	0.057	-0.149	-0.022	0.026	-0.025	-0.032
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.003)
Structural Effect	0.088	0.263	-0.014	0.031	0.090	0.100	0.040
	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.002)	(0.004)
SubSample: Female							
Raw Gap	-0.247	-0.146	-0.369	-0.181	-0.261	-0.269	-0.140
	(0.002)	(0.002)	(0.002)	(0.003)	(0.005)	(0.002)	(0.004)
Composition Effect	-0.090	-0.032	-0.160	-0.050	-0.008	-0.103	-0.023
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Structural Effect	-0.156	-0.114	-0.208	-0.131	-0.253	-0.166	-0.116
	(0.002)	(0.002)	(0.002)	(0.002)	(0.005)	(0.002)	(0.004)

Note: (1) Raw Gap = ln(heterosexual wage) - ln(homosexual wage) and indicates how much more heterosexuals earned compared to homosexuals; (2) "Female" indicates female dominated occupations (female proportion is greater than 75%), while "Male" indicates male dominated occupations (male proportion is greater than 75%); (3) The "composition effect" refers to the part of the wage differential attributable to differences in productivity characteristics (for instance, education and experience), and the "structural effect" refers to the part attributable to differences in wage structure, which is normally interpreted as discrimination; (4) Results are all significant at the 1% significance level, so stars are not presented; (5) Robust standard errors are in parenthesis.

Table 16: Wage Gap Decomposition across the Wage Distribution (2014-19 ACS)

2014 - 2019 ACS, Method: Oaxaca-Blinder Decomposition

	Whole	Marital Status		Occupation		Race	
		Married	Unmarried	Female	Male	White	NonWhite
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SubSample: Male							
Raw Gap	-0.115	0.132	-0.396	-0.173	-0.017	-0.095	-0.148
	(0.002)	(0.002)	(0.002)	(0.003)	(0.004)	(0.002)	(0.003)
Composition Effect	-0.134	-0.067	-0.219	-0.102	-0.066	-0.143	-0.089
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Structural Effect	0.020	0.199	-0.176	-0.071	0.049	0.047	-0.059
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.002)	(0.003)
SubSample: Female							
Raw Gap	-0.260	-0.165	-0.319	-0.208	-0.333	-0.288	-0.144
	(0.002)	(0.002)	(0.002)	(0.002)	(0.005)	(0.002)	(0.003)
Composition Effect	-0.093	-0.064	-0.104	-0.062	-0.072	-0.109	-0.008
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.001)	(0.002)
Structural Effect	-0.168	-0.102	-0.215	-0.146	-0.261	-0.178	-0.136
	(0.001)	(0.002)	(0.002)	(0.002)	(0.005)	(0.002)	(0.003)

Note: (1) Raw Gap = ln(heterosexual wage) - ln(homosexual wage) and indicates how much more heterosexuals earned compared to homosexuals; (2) "Female" indicates female dominated occupations (female proportion is greater than 75%), while "Male" indicates male dominated occupations (male proportion is greater than 75%); (3) The "composition effect" refers to the part of the wage differential attributable to differences in productivity characteristics (for instance, education and experience), and the "structural effect" refers to the part attributable to differences in wage structure, which is normally interpreted as discrimination; (4) Results are all significant at the 1% significance level, so stars are not presented; (5) Robust standard errors are in parenthesis.

4 Quantile level decomposition results

Figure 2 - 4 and Table 17 -19 demonstrate the decomposition results of sexual orientation wage gaps across the wage distribution. Those results shed light for us to understand whether there exists glass ceiling for male homosexual workers and female homosexual workers.

From Figure 2 - 4, we straightforwardly observe that for male workers, the magnitude of the raw sexual orientation wage gap and the structural effect increases as the income percentile increases, while the magnitude of the composition effect remains slightly below 0. The results lead to three conclusions: (1) homosexual male workers face a glass ceiling in the labor market that high-income homosexual male workers suffer from a more severe gay wage penalty; (2) given a small and negative composition effect, homosexual male workers should have earned slightly more than their heterosexual counterparts; (3) given a persistently large and positive structural effect, the sexual orientation wage gap is more linked to homosex-

uals facing a different wage structure that they are rewarded less than their heterosexual counterparts in the labor market.
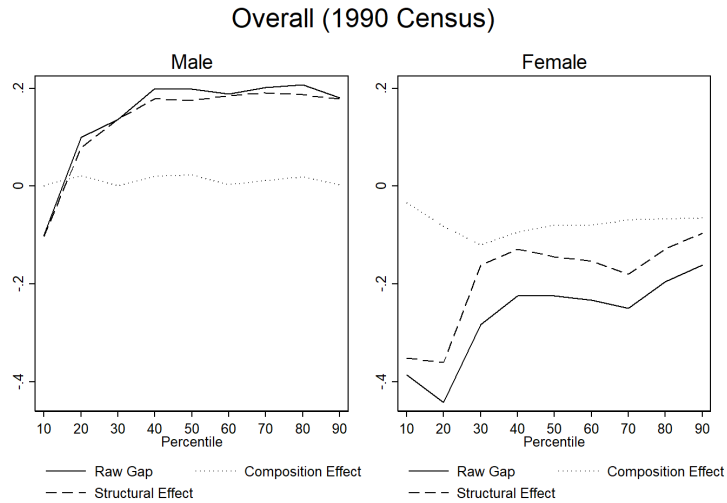
Overall (1990 Census)

Figure 2: Sexual Orientation Wage Gap across the Wage Distribution (1990)
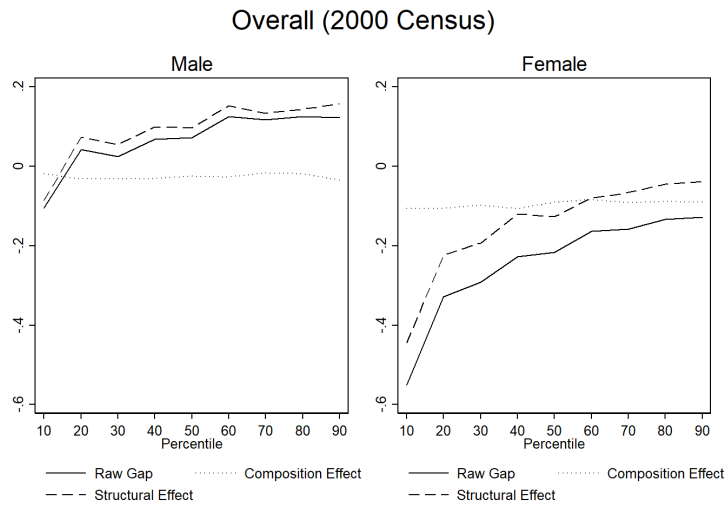Method: Oaxaca-Blinder Decomposition

Overall (2000 Census)

Figure 3: Sexual Orientation Wage Gap across the Wage Distribution (2000)
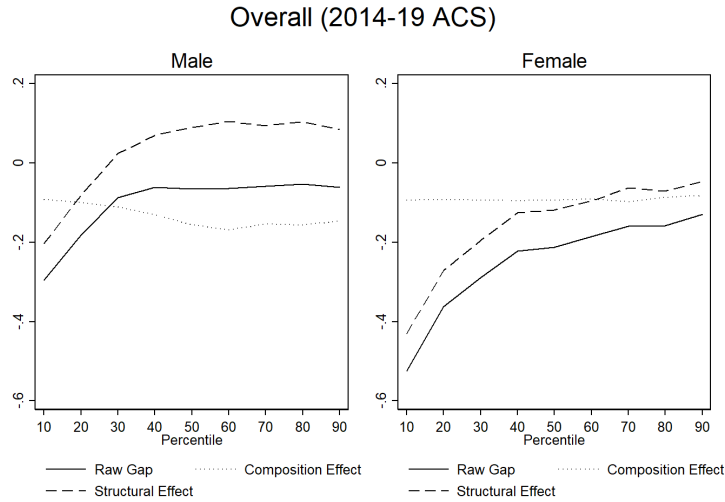Method: Oaxaca-Blinder Decomposition

Figure 4: Sexual Orientation Wage Gap across the Wage Distribution (2014-2019)
Method: Oaxaca-Blinder Decomposition

Male Workers: Gay Glass Ceiling

As shown in Table 18, using the 2000 Census data, we find that for male employees, the raw sexual orientation wage gap increases as income levels increase, indicating a gay glass ceiling in the labor market. First, the magnitude of the raw wage gap shows an increasing trend as the income level increases. The heterosexual group earns 1.3 percentage points *less* than homosexuals in the low-income group (below the 40th percentile). For those in the middle-income (40th to 70th percentile) group, heterosexuals earn 8.9% *more* than homosexuals. In addition, the wage gap further increases to 12.1% for the high-income groups (above the 70th income bracket). Overall, it indicates a gay glass ceiling in the labor market.

Additionally, similar to the results from decomposition at the mean level, we find that the composition effect is not of a large magnitude throughout the wage distribution, indicating that endowment differences are not the major cause of the gay wage gap. Moreover, given the composition effect is negative, it suggests that homosexual male workers should have earned more than heterosexuals given their productivity advantages. As the main contributor of the raw gap, the structural effect is a strong indication that discrimination plays an important role in determining the sexual orientation wage gap. That is, homosexual workers receive less income because they face a different wage structure in the labor market and hence they are not rewarded as strongly as heterosexuals. Moreover, As the income level increases, the structural effect grows in magnitude, further supporting the existence of the glass ceiling.

Table 17 also suggests a gay glass ceiling in the labor market using 1990 Census. According to the 1990 census results, the sexual orientation wage gap is more pronounced for both middle-income and high-income groups than for low-income groups. Compared to

2000 Census results, this indicates that homosexual male employees in the 1990s faced a stronger barrier that it was difficult for low-income homosexual workers even to reach the middle-income position.

Table 19 differs from previous Table 17 and Table 18 in that the raw sexual orientation wage gap is negative across the wage distribution, indicating that homosexual male workers earn more than their heterosexual counterparts nowadays. However, does it indicate that the gay glass ceiling has been broken in current labor market? Our answer is negative. First, homosexual workers earn more nowadays because of their productivity advantage. As the composition effect results present, homosexual workers should have earned more. Second, the structural effect is still of the highest magnitude the high-income group.

In conclusion, we find that gay glass ceiling exists in the labor market, though its magnitude differs across years. In Section 4, we will examine the gay glass ceiling of different occupations, marital statuses, and racial groups in more detail.

Female Workers

For female workers, we find that despite homosexual female workers earn more than their heterosexual counterparts, a similar pattern of glass ceiling exists because the magnitude of the raw wage gap decreases to 0 as the income level increases. However, we hesitate to confirm that female homosexual workers face a glass ceiling because female homosexual workers earn more than heterosexuals. In the following analysis in Section 4, we will focus only on male workers.

Table 17: Sexual Orientation Wage Gap Decomposition across the Wage Distribution (1990 Census)

1990 Census, Method: Quantile Oaxaca-style Decomposition

	mean	10	20	30	40	50	60	70	80	90
SubSample: Male										
Raw Gap	0.139	-0.100	0.100	0.137	0.199	0.198	0.188	0.202	0.207	0.181
	(0.003)	(0.008)	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)	0.003	0.003	0.004)
			0.046			*0.195*			*0.196*	
Composition Effect	0.010	0.001	0.021	0.001	0.020	0.023	0.003	0.011	0.019	0.003
	(0.003)	(0.008)	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)	0.003	0.003	0.004)
			0.008			*0.015*			*0.011*	
Structural Effect	0.129	-0.102	0.079	0.137	0.179	0.175	0.185	0.191	0.187	0.178
	(0.004)	(0.011)	(0.006)	(0.005)	(0.004)	(0.004)	(0.004)	0.004	0.004	0.005)
			0.038			*0.180*			*0.185*	
SubSample: Female										
Raw Gap	-0.275	-0.385	-0.442	-0.282	-0.224	-0.224	-0.233	-0.249	-0.195	-0.161
	(0.004)	(0.008)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)
			-0.370			*-0.227*			*-0.202*	
Composition Effect	-0.078	-0.034	-0.082	-0.120	-0.094	-0.080	-0.080	-0.069	-0.067	-0.065
	(0.003)	(0.007)	(0.005)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
			-0.079			*-0.085*			*-0.067*	
Structural Effect	-0.197	-0.351	-0.360	-0.161	-0.129	-0.144	-0.153	-0.180	-0.128	-0.096
	(0.004)	(0.010)	(0.007)	(0.007)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
			-0.291			*-0.142*			*-0.135*	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 18: Sexual Orientation Wage Gap Decomposition across the Wage Distribution (2000 Census)

2000 Census, Method: Quantile Oaxaca-style Decomposition

	mean	10	20	30	40	50	60	70	80	90
SubSample: Male										
Raw Gap	0.061	-0.105	0.042	0.024	0.068	0.072	0.126	0.117	0.125	0.122
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
			-0.013			*0.089*			*0.121*	
Composition Effect	-0.027	-0.019	-0.032	-0.031	-0.031	-0.025	-0.027	-0.017	-0.019	-0.035
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
			-0.027			*-0.028*			*-0.023*	
Structural Effect	0.088	-0.086	0.074	0.055	0.099	0.098	0.153	0.134	0.144	0.156
	(0.002)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
			0.014			*0.112*			*0.145*	
SubSample: Female										
Raw Gap	-0.247	-0.550	-0.329	-0.291	-0.227	-0.217	-0.164	-0.158	-0.134	-0.128
	(0.002)	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
			-0.390			*-0.203*			*-0.140*	
Composition Effect	-0.090	-0.106	-0.106	-0.098	-0.107	-0.090	-0.084	-0.092	-0.089	-0.090
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
			-0.103			*-0.093*			*-0.090*	
Structural Effect	-0.156	-0.444	-0.223	-0.193	-0.120	-0.127	-0.080	-0.066	-0.045	-0.038
	(0.002)	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
			-0.287			*-0.109*			*-0.050*	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 19: Sexual Orientation Wage Gap Decomposition across the Wage Distribution (2014-19 ACS)

2014-19 ACS, Method: Quantile Oaxaca-style Decomposition

	mean	10	20	30	40	50	60	70	80	90
SubSample: Male										
Raw Gap	-0.115	-0.296	-0.181	-0.087	-0.061	-0.066	-0.064	-0.059	-0.053	-0.061
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
			-0.188			-0.064			-0.058	
Composition Effect	-0.134	-0.092	-0.100	-0.111	-0.131	-0.156	-0.169	-0.154	-0.157	-0.146
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
			-0.101			-0.152			-0.152	
Structural Effect	0.020	-0.203	-0.081	0.024	0.070	0.090	0.105	0.094	0.104	0.085
	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
			-0.087			0.088			0.095	
SubSample: Female										
Raw Gap	-0.260	-0.524	-0.363	-0.289	-0.222	-0.212	-0.186	-0.160	-0.158	-0.130
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
			-0.392			-0.207			-0.149	
Composition Effect	-0.093	-0.094	-0.092	-0.094	-0.095	-0.094	-0.091	-0.098	-0.087	-0.082
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
			-0.093			-0.093			-0.089	
Structural Effect	-0.168	-0.430	-0.271	-0.195	-0.126	-0.118	-0.096	-0.063	-0.071	-0.047
	(0.001)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
			-0.299			-0.113			-0.060	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

5 Quantile Level Decomposition: Heterogeneity

5.1 Occupations

In Figures 5 - 7 and Tables 20 -22, we investigate the sexual orientation wage gap in female-dominated and male-dominated occupations. The former represents the occupations whose female density is above 75%, while the latter represents the occupations whose male density is above 75%. The reason why we divide occupations according to the male density is that we want to examine whether individuals of different genders will show different attitudes towards their homosexual coworkers.[8]

Figures 5 - 7 allow us to observe straightforwardly that male homosexuals face a more severe glass ceiling in female-dominated occupations though the raw sexual orientation wage gap is largely of a smaller magnitude than in male-dominated occupations across the wage distribution. The figures deliver two important messages. First, homosexuals are better off working in a female-dominated working environment. Second, in a female dominated working environment, homosexual workers face a glass ceiling; while such glass ceiling does not exist in male-dominated working environment.
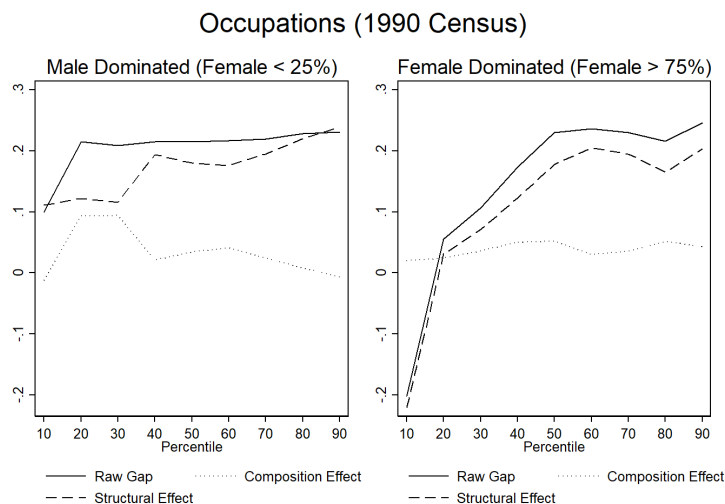

Figure 5: Sexual Orientation Wage Gap across the Wage Distribution (1990)
Method: Oaxaca-Blinder Decomposition

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[8]Detailed composition of male-dominated and female-dominated occupations can be found in Table 29. The occupation of the lowest male density is healthcare support, while the one of the highest male density is construction.
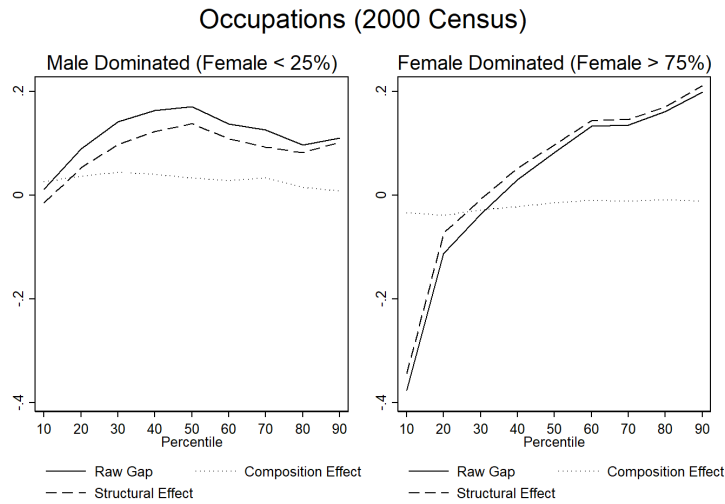
Occupations (2000 Census)

Figure 6: Sexual Orientation Wage Gap across the Wage Distribution (2000)
Method: Oaxaca-Blinder Decomposition
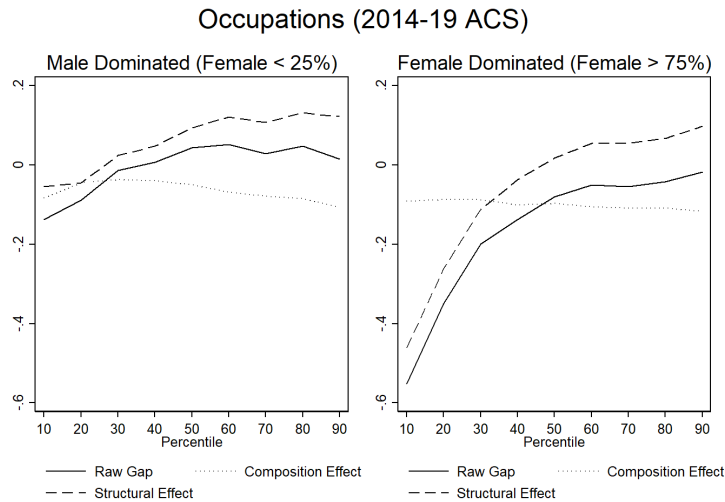
Occupations (2014-19 ACS)

Figure 7: Sexual Orientation Wage Gap across the Wage Distribution (2014-19)
Method: Oaxaca-Blinder Decomposition

When comparing Panel A results and Panel B results, we find that the sexual orientation wage gap is of a smaller magnitude in female-dominated occupations regardless of the income group and the survey year. For instance, the 2000 Census results indicate that heterosexuals, on average, earn 0.9% more than their homosexual counterparts in female-dominated occupations; while heterosexuals earn 11.6% more in male-dominated occupations, which is around ten times larger than the wage gap in female-dominated occupations. The re-

sults indicate that male heterosexual employees face a better working environment in the female-dominated occupations. There are two possible implications. First, compared to heterosexuals, the skill set of homosexuals is more adaptable to female-dominated occupations. However, since we do not hold major choice data of heterosexuals, we cannot test this hypothesis empirically at the current stage. Second, if we assume that homosexuals do not differ significantly regarding the skill set from heterosexuals, the results might indicate that females, instead of males, demonstrate a more accepting attitude towards homosexuals.

Despite of the better overall working environment in female-dominated occupations, we find that homosexuals face a stronger glass ceiling in female-dominated occupations when looking at the quantile level decomposition results. The raw gap results suggest that the gay wage gap changes in both direction and magnitude as the income level increases. Take the 2000 Census results as an example. For the low-income group, the average sexual orientation wage gap is -0.175, which indicates that heterosexuals earn 17.5% less than their homosexual counterparts. For the middle-income group, heterosexuals, however, earn 8.2% more; while for the high-income group, the wage gap further increases to 16.5%, twice as large as the one of middle-income group. The 1990 Census result is similar to the one of 2000 Census that the sexual orientation wage gap is widest for the high-income group. For the 2014-19 ACS result, though homosexuals earn more than heterosexuals regardless of the income group, we find that the magnitude of the wage advantage narrows as the income level increases, while that of the structural effect increase. Consistent with previous results, the sexual orientation wage gap is more related to structural effect whose magnitude reaches its maximum at the top end of the wage distribution. The detailed analysis suggests the key role of different wage structure in shaping the glass ceiling in female-dominated occupations.

Although this research cannot give a clear answer regarding the cause of this glass ceiling, I believe the results imply interesting interactions between female and male workers. We can expect that compared to male dominated occupations, in female dominated occupations, female workers' preferences affects the labor market outcomes of male workers to a larger extent. The gay glass ceiling might infer that high-income heterosexual males are still privileged even in female-dominated occupations. However, it still requires further investigation to explain this effect.

Table 20: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Occupations

1990 Census, Method: Quantile Oaxaca-style Decomposition

	mean	10	20	30	40	50	60	70	80	90
Subsample: Female Dominated										
Raw Gap	0.118	-0.202	0.055	0.107	0.173	0.230	0.236	0.230	0.216	0.246
	(0.005)	(0.013)	(0.009)	(0.008)	(0.006)	(0.005)	(0.006)	(0.005)	(0.005)	(0.007)
			-0.013			*0.213*			*0.231*	
Composition Effect	0.035	0.020	0.024	0.036	0.050	0.052	0.030	0.035	0.051	0.043
	(0.004)	(0.009)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
			0.027			*0.044*			*0.043*	
Structural Effect	0.083	-0.221	0.031	0.071	0.123	0.178	0.205	0.195	0.165	0.203
	(0.006)	(0.016)	(0.010)	(0.009)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.008)
			-0.040			*0.169*			*0.188*	
Subsample: Male Dominated										
Raw Gap	0.209	0.100	0.215	0.209	0.215	0.215	0.217	0.219	0.228	0.231
	(0.008)	(0.020)	(0.012)	(0.013)	(0.010)	(0.009)	(0.008)	(0.008)	(0.008)	(0.010)
Composition Effect	0.042	-0.012	0.093	0.094	0.021	0.034	0.041	0.024	0.008	-0.007
	(0.006)	(0.014)	(0.009)	(0.009)	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)
Structural Effect	0.167	0.111	0.122	0.116	0.194	0.180	0.176	0.195	0.220	0.239
	(0.008)	(0.023)	(0.014)	(0.014)	(0.011)	(0.009)	(0.008)	(0.008)	(0.008)	(0.011)

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 21: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Occupations

2000 Census, Method: Quantile Oaxaca-style Decomposition

Income Group		Low Income			Middle Income			High Income		
	mean	10	20	30	40	50	60	70	80	90
Subsample: Female Dominated										
Raw Gap	0.009	-0.376	-0.112	-0.037	0.030	0.082	0.133	0.135	0.161	0.199
	(0.003)	(0.006)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Average by Income Group			*-0.175*			*0.082*			*0.165*	
Composition Effect	-0.022	-0.034	-0.039	-0.029	-0.022	-0.015	-0.010	-0.012	-0.009	-0.012
	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Average by Income Group			*-0.034*			*-0.016*			*-0.011*	
Structural Effect	0.031	-0.343	-0.073	-0.008	0.052	0.097	0.144	0.146	0.170	0.211
	(0.003)	(0.006)	(0.005)	(0.004)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.004)
Average by Income Group			*-0.141*			*0.097*			*0.176*	
Subsample: Male Dominated										
Raw Gap	0.116	0.011	0.089	0.142	0.163	0.171	0.137	0.126	0.097	0.110
	(0.004)	(0.009)	(0.006)	(0.006)	(0.006)	(0.005)	(0.004)	(0.006)	(0.005)	(0.005)
Average by Income Group			*0.080*			*0.157*			*0.111*	
Composition Effect	0.026	0.026	0.036	0.044	0.040	0.033	0.028	0.033	0.015	0.008
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
Average by Income Group			*0.035*			*0.034*			*0.019*	
Structural Effect	0.090	-0.015	0.053	0.098	0.123	0.138	0.109	0.093	0.082	0.102
	(0.004)	(0.009)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)
Average by Income Group			*0.045*			*0.124*			*0.092*	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 22: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Occupations

2014-19 ACS, Method: Quantile Oaxaca-style Decomposition

Income Group		Low Income			Middle Income			High Income		
	mean	10	20	30	40	50	60	70	80	90
Subsample: Female Dominated										
Raw Gap	-0.173	-0.552	-0.350	-0.199	-0.138	-0.080	-0.051	-0.055	-0.042	-0.018
	(0.003)	(0.007)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Average by Income Group			*-0.367*			*-0.089*			*-0.038*	
Composition Effect	-0.102	-0.092	-0.087	-0.088	-0.101	-0.097	-0.106	-0.109	-0.109	-0.117
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Average by Income Group			*-0.089*			*-0.101*			*-0.112*	
Structural Effect	-0.071	-0.460	-0.262	-0.112	-0.037	0.017	0.055	0.055	0.067	0.098
	(0.003)	(0.007)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Average by Income Group			*-0.278*			*0.012*			*0.073*	
Subsample: Male Dominated										
Raw Gap	-0.017	-0.137	-0.089	-0.013	0.007	0.044	0.052	0.029	0.047	0.015
	(0.004)	(0.012)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)
Average by Income Group			*-0.080*			*0.034*			*0.030*	
Composition Effect	-0.066	-0.083	-0.045	-0.037	-0.040	-0.050	-0.069	-0.079	-0.085	-0.107
	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Average by Income Group			*-0.055*			*-0.053*			*-0.090*	
Structural Effect	0.049	-0.054	-0.045	0.024	0.047	0.094	0.121	0.107	0.132	0.122
	(0.004)	(0.012)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)
Average by Income Group			*-0.025*			*0.088*			*0.120*	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

5.2 Marital Status

In Figures 8 - 10 and Tables 23 - 25, we investigate the sexual orientation wage gap in the married group and non-married group. In the married group, we compare homosexual workers with married heterosexuals. Note that since 2014 - 19 ACS allows us to identify married homosexuals, we compare married homosexuals with married heterosexuals in Figure 10 and Table 25. In the non-married group, we compare homosexual workers with unmarried heterosexuals. And for the 2014 - 19 ACS, we compare only unmarried homosexual workers with unmarried heterosexuals.

Figures 8 - 10 provide us with a straightforward observation that there exists a gay sticky floor in the married group that both the raw wage gap and the structural effects take the largest magnitude in the low-income group.
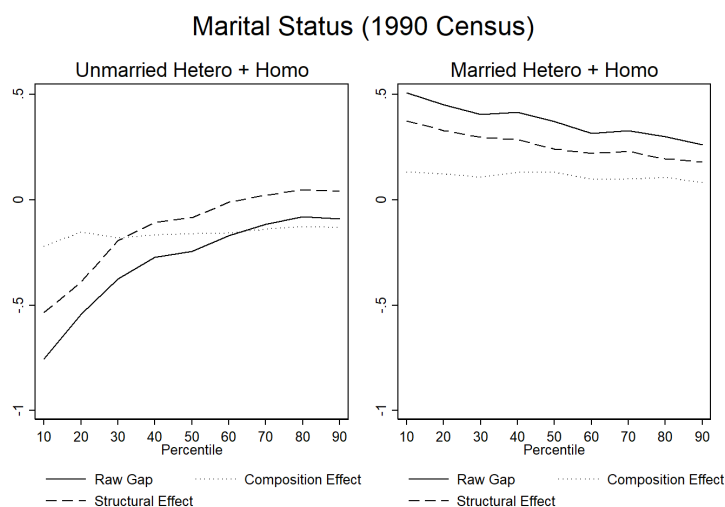

Figure 8: Sexual Orientation Wage Gap across the Wage Distribution (1990)
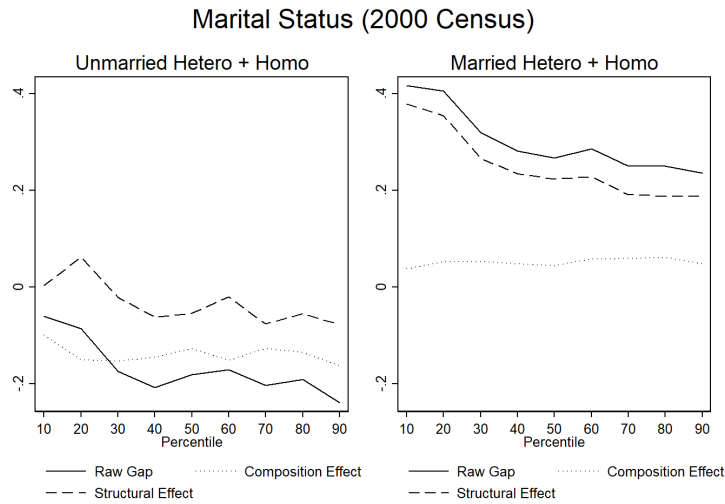Method: Oaxaca-Blinder Decomposition

Figure 9: Sexual Orientation Wage Gap across the Wage Distribution (2000)
Method: Oaxaca-Blinder Decomposition
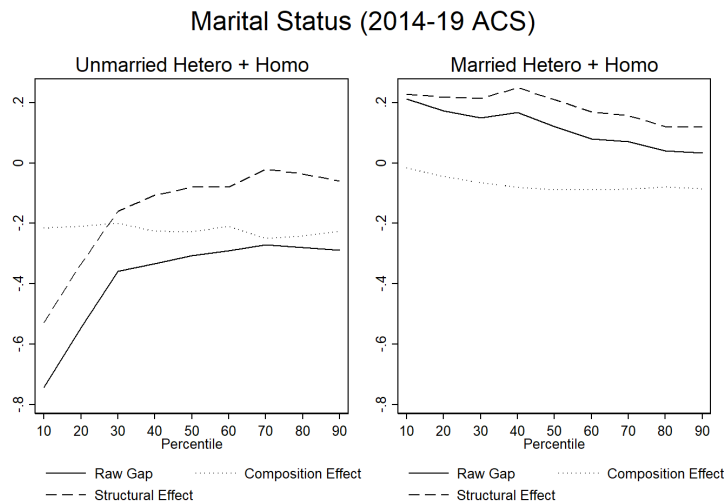
Figure 10: Sexual Orientation Wage Gap across the Wage Distribution (2014-19)
Method: Oaxaca-Blinder Decomposition

In Panel A of Table 23, Table 24 and Table 25, we find that when comparing homosexual workers and married heterosexual workers, the gay wage gap is larger at the bottom end of the wage distribution compared to the top, which implies that low-income gays face a sticky floor in the labor market. As the composition effects across the wage distribution are not dramatically different in magnitude, the sticky floor effect is more related to the structural effect at the bottom of the wage distribution than to the composition effect.

Since we are comparing married heterosexuals with homosexuals, it might be argued that the sticky floor effect is caused by marriage rather than discrimination. In employers' eyes, marriage could be a sign that shows life stability and less likelihood of job switching. Employers are therefore more inclined to promote married men, which can only be heterosexuals because the United States didn't legalize same-sex marriage until 2000. When homosexuals lose the chance to send a signal to employers by getting married, they are more likely to find themselves stuck in low-paying jobs. However, we believe that it is due to the legal constraint that impedes gay men to get married that gay men cannot use marital status to send a signal. There is also the claim that married heterosexuals are more motivated to perform well than homosexuals in the workplace because they shoulder more family responsibilities. Admittedly, since the structural effect is a "black box", it may contain other factors that I am unable to measure, for example, motivation. Marriage may simply increase a man's dedication to his job, so the sticky floor may actually be an indication of motivation. Despite of that, we would like to argue that the prohibition of same-sex marriage prevents gay men from carrying out certain family responsibilities that may help set the tone for a better working attitude. In addition, we still find a sticky floor when comparing married heterosexuals and homosexuals using the 2014-2019 ACS data, indicating that getting married does not have a considerable influence on low-income homosexual workers' working conditions. Hence, we suggest that married heterosexuals are more privileged on the labor market, and will thus be more likely to get promoted and leave the low-income job.

In Panel B of Table 23, Table 24 and Table 25, we find that homosexual males earn more than their heterosexual counterparts. This gay wage premium is more related to homosexual workers' productivity advantages because the magnitude of the composition effect is much larger than that of structural effect. This is consistent with Table 2, Table 3 and Table 4 that the educational level of homosexuals is higher than that of heterosexuals. Overall, Table 23, Table 24 and Table 25 indicate that married heterosexuals are more privileged in the labor market.

Table 23: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Marital Status

1990 Census, Method: Quantile Oaxaca-style Decomposition

	mean	10	20	30	40	50	60	70	80	90
Panel A - Subsample: Marreid Hetero + Gay										
Raw Gap	0.390	0.508	0.453	0.405	0.417	0.373	0.317	0.330	0.301	0.263
	(0.003)	(0.008)	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Composition Effect	0.112	0.132	0.123	0.107	0.130	0.131	0.098	0.099	0.106	0.082
	(0.004)	(0.010)	(0.006)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Structural Effect	0.278	0.376	0.330	0.297	0.286	0.242	0.220	0.231	0.195	0.181
	(0.004)	(0.012)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.006)
Panel B - Subsample: non-Marreid Hetero + Gay										
Raw Gap	-0.288	-0.756	-0.543	-0.374	-0.273	-0.245	-0.170	-0.116	-0.080	-0.089
	(0.003)	(0.008)	(0.005)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Composition Effect	-0.165	-0.221	-0.153	-0.181	-0.167	-0.161	-0.158	-0.139	-0.128	-0.131
	(0.003)	(0.006)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Structural Effect	-0.124	-0.535	-0.390	-0.193	-0.106	-0.084	-0.011	0.023	0.048	0.042
	(0.003)	(0.010)	(0.006)	(0.005)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.005)

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 24: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Marital Status

2000 Census, Method: Quantile Oaxaca-style Decomposition

	mean	10	20	30	40	50	60	70	80	90
Panel A - Subsample: Marreid Hetero + Gay										
Raw Gap	0.320	0.416	0.405	0.319	0.281	0.267	0.286	0.250	0.250	0.235
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Composition Effect	0.057	0.038	0.052	0.053	0.048	0.044	0.058	0.059	0.061	0.048
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
Structural Effect	0.263	0.378	0.354	0.266	0.234	0.223	0.228	0.191	0.188	0.187
	(0.002)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Panel B - Subsample: non-Marreid Hetero + Gay										
Raw Gap	-0.163	-0.096	-0.086	-0.174	-0.207	-0.181	-0.171	-0.203	-0.191	-0.239
	(0.002)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Composition Effect	-0.149	-0.099	-0.150	-0.153	-0.145	-0.127	-0.151	-0.127	-0.135	-0.162
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Structural Effect	-0.014	0.003	0.064	-0.021	-0.062	-0.054	-0.020	-0.076	-0.055	-0.077
	(0.002)	(0.005)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 25: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Marital Status

2014-19 ACS, Method: Quantile Oaxaca-style Decomposition

	mean	10	20	30	40	50	60	70	80	90
Panel A - Subsample: Marreid Hetero + Married Gay										
Raw Gap	0.132	0.212	0.173	0.149	0.167	0.121	0.079	0.070	0.040	0.033
	(0.002)	(0.006)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Composition Effect	-0.067	-0.017	-0.045	-0.066	-0.081	-0.089	-0.089	-0.087	-0.080	-0.086
	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Structural Effect	0.199	0.228	0.218	0.214	0.249	0.210	0.169	0.157	0.120	0.119
	(0.003)	(0.007)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Panel B - Subsample: non-Marreid Hetero + non-Married Gay										
Raw Gap	-0.396	-0.743	-0.544	-0.359	-0.333	-0.307	-0.290	-0.271	-0.279	-0.288
	(0.002)	(0.005)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
Composition Effect	-0.219	-0.215	-0.210	-0.200	-0.226	-0.228	-0.210	-0.250	-0.242	-0.227
	(0.002)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Structural Effect	-0.176	-0.528	-0.333	-0.159	-0.107	-0.080	-0.080	-0.020	-0.036	-0.060
	(0.003)	(0.007)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

5.3 Race

Figures 11 - 13 and Tables 26 - 28 present the sexual orientation wage gaps across the wage distribution of white workers and non-white workers, respectively. There are two major messages from these results. Our first finding from the 2000 Census and the 2014-19 American Community Survey is that the wage gap based on sexual orientation is much smaller among non-white workers than among white workers. In the 2000 Census, the mean wage gap of white workers was 0.075, which was nine times larger than the wage gap of non-white workers (0.008). Secondly, non-white workers face a glass ceiling in the labor market, despite the smaller sexual orientation wage difference. In Table 27, the average raw wage gap of the high-income group is 0.084, which is twice as large as that of the middle-income group (0.046). We saw that our detailed decomposition results are similar to previous ones in that the wage gap is mostly due to the structural effect, not the composition effect, thus indicating that the difference in wage structure plays an important role. In summary, although the overall working condition for non-white gay workers is better than it is for their white counterparts, they face a glass ceiling in the labor market. We infer that for white workers, heterosexuals hold greater privilege in the workplace than homosexuals irrespective of the income group; as for non-white workers, heterosexuals, though not as privileged as white heterosexuals, have a greater chance of reaching high-level positions.
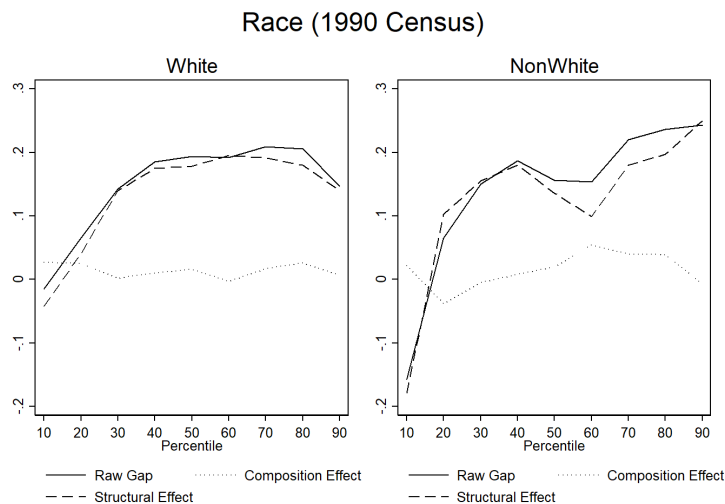

Figure 11: Sexual Orientation Wage Gap across the Wage Distribution (1990)
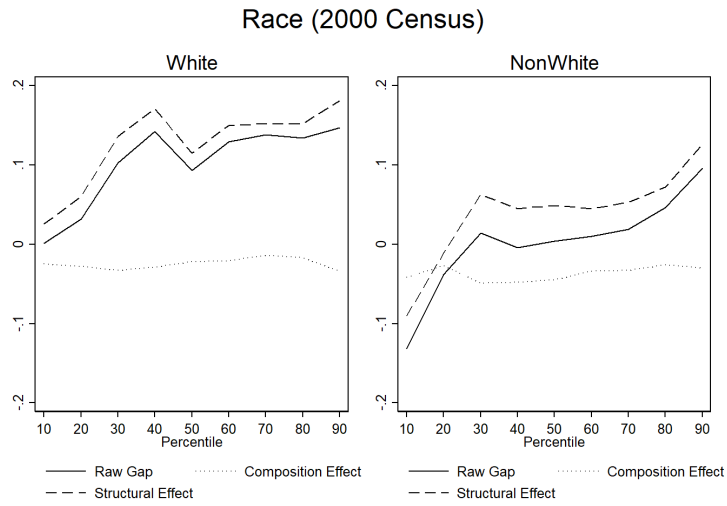Method: Oaxaca-Blinder Decomposition

Figure 12: Sexual Orientation Wage Gap across the Wage Distribution (2000)
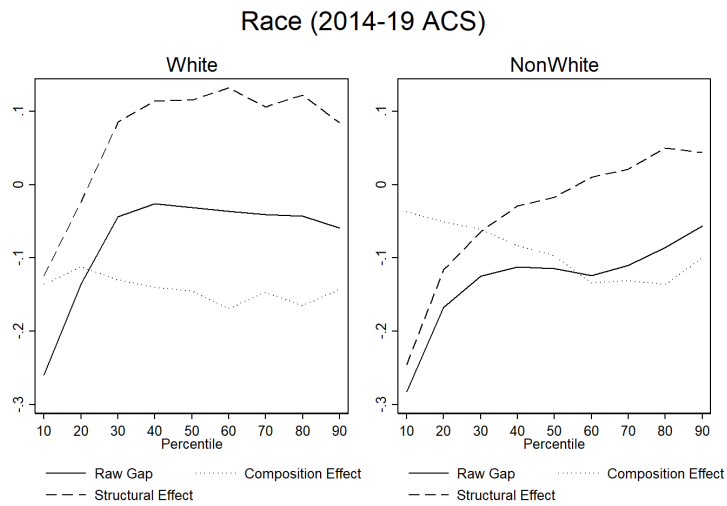Method: Oaxaca-Blinder Decomposition

Figure 13: Sexual Orientation Wage Gap across the Wage Distribution (2014-19)
Method: Oaxaca-Blinder Decomposition

Table 26: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Race

1990 Census, Method: Quantile Oaxaca-style Decomposition

Income Group		Low Income			Middle Income			High Income		
	mean	10	20	30	40	50	60	70	80	90
SubSample: White										
Raw Gap	0.139	-0.015	0.066	0.143	0.185	0.194	0.192	0.209	0.206	0.147
	(0.003)	(0.009)	(0.006)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
Average by Income Group			*0.065*			*0.190*			*0.187*	
Composition Effect	0.011	0.027	0.025	0.002	0.010	0.016	-0.003	0.017	0.026	0.007
	(0.003)	(0.009)	(0.007)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Average by Income Group			*0.018*			*0.008*			*0.017*	
Structural Effect	0.128	-0.042	0.041	0.140	0.175	0.178	0.195	0.192	0.180	0.140
	(0.004)	(0.013)	(0.009)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)	(0.006)
Average by Income Group			*0.046*			*0.183*			*0.171*	
Subsample: Non-white										
Raw Gap	0.148	-0.157	0.065	0.150	0.187	0.156	0.154	0.220	0.236	0.243
	(0.008)	(0.023)	(0.010)	(0.009)	(0.009)	(0.008)	(0.008)	(0.007)	(0.007)	(0.009)
Average by Income Group			*0.019*			*0.166*			*0.233*	
Composition Effect	0.024	0.022	-0.038	-0.005	0.008	0.020	0.054	0.040	0.039	-0.007
	(0.006)	(0.019)	(0.008)	(0.007)	(0.008)	(0.007)	(0.007)	(0.006)	(0.006)	(0.007)
Average by Income Group			*-0.007*			*0.027*			*0.024*	
Structural Effect	0.124	-0.179	0.103	0.155	0.180	0.136	0.099	0.180	0.197	0.250
	(0.009)	(0.027)	(0.012)	(0.010)	(0.011)	(0.010)	(0.009)	(0.008)	(0.009)	(0.010)
Average by Income Group			*0.026*			*0.138*			*0.209*	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 27: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Race

2000 Census, Method: Quantile Oaxaca-style Decomposition

Income Group		Low Income			Middle Income			High Income		
	mean	10	20	30	40	50	60	70	80	90
SubSample: White										
Raw Gap	0.075	0.001	0.032	0.103	0.142	0.093	0.129	0.138	0.134	0.147
	(0.002)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Average by Income Group			*0.046*			*0.121*			*0.139*	
Composition Effect	-0.025	-0.025	-0.028	-0.033	-0.029	-0.022	-0.021	-0.014	-0.017	-0.034
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
Average by Income Group			*-0.029*			*-0.024*			*-0.022*	
Structural Effect	0.100	0.026	0.060	0.136	0.171	0.115	0.150	0.152	0.152	0.181
	(0.002)	(0.005)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Average by Income Group			*0.074*			*0.145*			*0.161*	
Subsample: Non-white										
Raw Gap	0.008	-0.132	-0.038	0.014	-0.004	0.004	0.010	0.019	0.046	0.096
	(0.004)	(0.011)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.006)
Average by Income Group			*-0.052*			*0.004*			*0.054*	
Composition Effect	-0.032	-0.042	-0.027	-0.049	-0.048	-0.045	-0.034	-0.033	-0.026	-0.030
	(0.003)	(0.006)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Average by Income Group			*-0.040*			*-0.043*			*-0.030*	
Structural Effect	0.040	-0.090	-0.011	0.063	0.045	0.049	0.045	0.053	0.072	0.126
	(0.004)	(0.012)	(0.007)	(0.006)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)	(0.007)
Average by Income Group			*-0.013*			*0.046*			*0.084*	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

Table 28: Sexual Orientation Wage Gap Decomposition across the Wage Distribution by Race

2014 - 19 ACS, Method: Quantile Oaxaca-style Decomposition

Income Group		Low Income			Middle Income			High Income		
	mean	10	20	30	40	50	60	70	80	90
SubSample: White										
Raw Gap	-0.095	-0.259	-0.135	-0.044	-0.026	-0.031	-0.036	-0.041	-0.043	-0.059
	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Average by Income Group			*-0.146*			*-0.031*			*-0.048*	
Composition Effect	-0.143	-0.136	-0.112	-0.130	-0.140	-0.145	-0.169	-0.147	-0.165	-0.143
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Average by Income Group			*-0.126*			*-0.151*			*-0.152*	
Structural Effect	0.047	-0.124	-0.023	0.085	0.114	0.115	0.132	0.106	0.122	0.084
	(0.002)	(0.005)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)
Average by Income Group			*-0.020*			*0.120*			*0.104*	
Subsample: Non-white										
Raw Gap	-0.148	-0.282	-0.167	-0.125	-0.112	-0.114	-0.124	-0.110	-0.086	-0.056
	(0.003)	(0.007)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Average by Income Group			*-0.192*			*-0.117*			*-0.084*	
Composition Effect	-0.089	-0.037	-0.051	-0.061	-0.083	-0.097	-0.134	-0.131	-0.136	-0.100
	(0.002)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Average by Income Group			*-0.050*			*-0.105*			*-0.122*	
Structural Effect	-0.059	-0.245	-0.116	-0.064	-0.029	-0.017	0.010	0.021	0.050	0.044
	(0.003)	(0.009)	(0.006)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Average by Income Group			*-0.142*			*-0.012*			*0.038*	

Note: (1) The sample used is the whole sample that includes both gay men and heterosexual men of 2008-13 ACS; (2) Raw Gap = straight wage - gay wage, Composition Effect is attributed to endowment difference, while Structural Effect is attributed to difference in wage structure; (3) Results are all significant at the 1% significance level; (4) the average row reports the average of estimates at the bottom end (10 - 30 percentile), the median (40 - 60 percentile), and the top end (70 - 90 percentile); (5) robust standard errors are in parenthesis; (6)

6   Conclusion

This paper investigates the sexual orientation wage gap across the wage distribution to understand whether there exists a glass ceiling or a sticky floor in the US labor market. To trace the pattern of sexual minority working environment across time, we use 1990 5% US Census, 2000 5% US Census, and 2014-2019 5% American Community Survey (ACS). Our work complements existing the current literature on sexual orientation wage gap, especially contributes to answering the rarely studied question, that is, whether homosexual workers are harder to reach high-income positions. Results are three folds.

First, homosexual male workers suffer a gay wage penalty though the wage difference disappears over time, and homosexual female workers experience a lesbian wage premium with an approximately constant magnitude over time. Second, homosexual male workers continuously face a gay glass ceiling in the labor market. Detailed decomposition results suggest that the increasing sexual orientation wage gap is more linked to a homosexual disadvantaged wage structure, instead of productivity difference, implying discrimination against homosexuals in the labor market. Third, a heterogeneity analysis leads us to find a gay glass ceiling in female-dominated occupations and among non-white workers. When comparing homosexual male workers with married heterosexual workers, we find a sticky floor in the labor market.

Due to the increasing social acceptance towards and same-sex marriage legislation, the public may hold that the labor market has already provided an LGBT-friendly working environment. Our research suggests that there is still room for improvement.

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7 Appendix

7.1 Descriptive Results

Table 29: Occupations by Male Density (2000 US Census)

Occupation	Male Density	Homosexual%	Homosexual% within Occupation
Construction/Extraction	97.20%	3.66%	0.12%
Install/Repair	95.29%	2.95%	0.12%
Architecture/Engineer	86.34%	1.66%	0.15%
Transportation	83.54%	5.00%	0.15%
Protective	80.10%	1.38%	0.13%
Computer/Math	69.14%	3.61%	0.35%
Production	67.71%	7.43%	0.19%
Maintenance	62.06%	3.01%	0.27%
Science	59.90%	1.09%	0.32%
Management	59.53%	10.96%	0.37%
Art	51.46%	3.30%	0.71%
Sales	48.13%	11.93%	0.40%
Legal	42.54%	1.18%	0.57%
Business/Finance	42.20%	5.04%	0.49%
Food/Serving	40.45%	5.38%	0.46%
Social Service	39.90%	1.61%	0.41%
Education	25.62%	5.48%	0.56%
Office Admin	24.08%	15.55%	0.65%
Personal Care	23.66%	2.76%	0.98%
Healthcare	20.80%	4.93%	0.87%
Healthcare Support	11.14%	2.10%	1.47%

Note:

7.2 OLS

Table 30: OLS Estimation (1990 Census): Different Heteroseuxal Marital Statuses

Outcome Variable: ln(incwage), Sample: 1990 Census

	Married			**Unmarried**		
	Total	w Children	w/o Children	Total	Cohabiting	Non-Cohabiting
SubSample: Male						
Gay	-0.346***	-0.388***	-0.274***	-0.034**	-0.016	-0.036**
	(0.010)	(0.010)	(0.011)	(0.015)	(0.012)	(0.015)
Constant	10.436***	10.654***	10.096***	9.958***	10.009***	9.953***
	(0.195)	(0.204)	(0.201)	(0.208)	(0.900)	(0.210)
N(obs)	31,213,996	21,688,900	9,587,587	18,373,408	886,617	17,549,282
SubSample: Female						
Lesbian	0.114***	0.212***	-0.052***	0.050***	0.036**	0.054***
	(0.019)	(0.023)	(0.019)	(0.014)	(0.018)	(0.014)
Constant	7.088***	7.354***	6.865***	7.537***	8.112***	7.542***
	(0.231)	(0.263)	(0.262)	(0.193)	(0.633)	(0.194)
N(obs)	24,668,802	16,040,891	8,673,041	19,480,452	1,105,244	18,420,338
Controls						
Productivity	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES
FE						
State	YES	YES	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 31: OLS Estimation (2000 Census): Different Heteroseuxal Marital Statuses

Outcome Variable: ln(incwage), Sample: 2000 Census

	Married			**Unmarried**		
	Total	w Children	w/o Children	Total	Cohabiting	Non-Cohabiting
SubSample: Male						
Gay	-0.300***	-0.335***	-0.227***	-0.043***	-0.036***	-0.043***
	(0.014)	(0.014)	(0.014)	(0.009)	(0.010)	(0.009)
Constant	8.972***	8.984***	8.969***	8.182***	8.688***	8.171***
	(0.169)	(0.173)	(0.181)	(0.116)	(0.253)	(0.115)
N(obs)	33,175,524	22,144,544	11,219,743	21,977,209	1,539,391	20,626,581
SubSample: Female						
Lesbian	0.114***	0.165***	-0.004	0.050***	0.056***	0.054***
	(0.008)	(0.009)	(0.008)	(0.008)	(0.007)	(0.008)
Constant	8.269***	8.299***	8.376***	7.544***	7.867***	7.548***
	(0.141)	(0.152)	(0.122)	(0.116)	(0.177)	(0.118)
Observations	27,885,862	17,513,639	10,562,218	22,979,149	1,720,385	21,448,759
Controls						
Productivity	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES
FE						
State	YES	YES	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 32: OLS Estimation (2014 -19 ACS): Different Heteroseuxal Marital Statuses

Outcome Variable: ln(incwage), Sample: 2014-19 Census

	Married			**Unmarried**		
	Total	w Children	w/o Children	Total	Cohabiting	Non-Cohabiting
SubSample: Male						
Gay	-0.234***	-0.260***	-0.172***	0.015	-0.020	0.018
	(0.020)	(0.020)	(0.019)	(0.017)	(0.017)	(0.017)
Constant	10.002***	10.101***	9.926***	8.431***	9.050***	8.402***
	(0.199)	(0.202)	(0.214)	(0.127)	(0.161)	(0.133)
N(obs)	34,347,458	22,239,241	12,250,468	31,116,008	2,601,478	28,654,390
SubSample: Female						
Lesbian	0.117***	0.145***	0.058***	0.135***	0.044***	0.144***
	(0.015)	(0.015)	(0.014)	(0.013)	(0.013)	(0.013)
Constant	9.627***	9.652***	9.641***	8.066***	8.578***	8.064***
	(0.137)	(0.131)	(0.158)	(0.102)	(0.198)	(0.102)
N(obs)	29,535,787	17,947,024	11,748,560	32,206,527	2,430,820	29,915,668
Controls						
Productivity	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES
FE						
State	YES	YES	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 33: OLS Estimation (1990 Census): Occupations of Different Men Density

Outcome Variable: ln(incwage), Sample: 1990 Census

Female Density	> 75%	< 25%	< 50%	> 50%
SubSample: Male				
Gay	-0.095***	-0.123***	-0.141***	-0.138***
	(0.020)	(0.036)	(0.021)	(0.019)
Constant	14.442***	2.168***	8.677***	12.358***
	(0.216)	(0.470)	(0.207)	(0.282)
N(obs)	6,488,384	17,313,046	34,641,283	14,883,630
SubSample: Female				
Lesbian	0.137***	0.214***	0.077***	0.135***
	(0.023)	(0.052)	(0.022)	(0.022)
Constant	7.227***	-3.047**	8.525***	6.676***
	(0.170)	(1.252)	(0.298)	(0.190)
N(obs)	21,928,119	2,061,763	12,435,061	31,669,063
Controls				
Productivity	YES	YES	YES	YES
City	YES	YES	YES	YES
FE				
State	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 34: OLS Estimation (2000 Census): Occupations of Different Men Density

Outcome Variable: ln(incwage), Sample: 2000 Census

Female Density	> 75%	< 25%	< 50%	> 50%
SubSample: Male				
Gay	-0.119***	-0.110***	-0.137***	-0.154***
	(0.020)	(0.018)	(0.013)	(0.017)
Constant	11.685***	7.637***	7.413***	10.184***
	(0.344)	(0.102)	(0.098)	(0.200)
N(obs)	7,982,460	18,766,771	36,247,155	18,716,815
SubSample: Female				
Lesbian	0.093***	0.189***	0.087***	0.098***
	(0.015)	(0.025)	(0.012)	(0.009)
Constant	8.313***	6.765***	7.007***	8.124***
	(0.127)	(0.249)	(0.190)	(0.114)
N(obs)	25,799,926	2,190,722	12,044,009	38,631,007
Controls				
Productivity	YES	YES	YES	YES
City	YES	YES	YES	YES
FE				
State	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 35: OLS Estimation (2014-19 ACS): Occupations of Different Men Density

Outcome Variable: ln(incwage), Sample: 2014 -19 ACS

Female Density	> 75%	< 25%	< 50%	> 50%
SubSample: Male				
Gay	-0.035	-0.081***	-0.077***	-0.080***
	(0.025)	(0.019)	(0.015)	(0.019)
Constant	12.728***	8.005***	7.936***	10.578***
	(0.386)	(0.097)	(0.094)	(0.214)
N(obs)	10,233,234	21,123,465	40,897,201	24,566,265
SubSample: Female				
Lesbian	0.115***	0.214***	0.109***	0.122***
	(0.012)	(0.030)	(0.013)	(0.009)
Constant	9.555***	7.321***	7.632***	9.085***
	(0.129)	(0.213)	(0.097)	(0.116)
N(obs)	29,989,589	2,937,767	14,531,142	47,211,172
Controls				
Productivity	YES	YES	YES	YES
City	YES	YES	YES	YES
FE				
State	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 36: OLS Estimation (1990 Census) with Occupation Fixed Effect

Outcome Variable: ln(incwage), Sample: 1990 Census

	Whole	**Marital Status**		**Occupation**		**Race**	
		Married	Cohabiting	Female	Male	White	NonWhite
SubSample: Male							
Gay	-0.115***	-0.294***	-0.001	-0.088***	-0.105***	-0.123***	-0.067**
	(0.014)	(0.011)	(0.016)	(0.019)	(0.035)	(0.015)	(0.033)
Constant	9.336***	9.838***	8.769***	10.871***	4.677***	9.575***	8.639***
	(0.152)	(0.183)	(0.152)	(0.228)	(0.359)	(0.106)	(0.558)
N(obs)	49,524,913	31,213,996	18,373,408	6,488,384	17,313,046	41,359,416	8,165,497
SubSample: Female							
Lesbian	0.124***	0.111***	0.046***	0.125***	0.201***	0.128***	0.080
	(0.013)	(0.015)	(0.014)	(0.021)	(0.049)	(0.014)	(0.049)
Constant	4.414***	4.286***	5.436***	2.016***	0.349	4.426***	4.308***
	(0.214)	(0.267)	(0.181)	(0.249)	(1.157)	(0.238)	(0.251)
N(obs)	44,104,124	24,668,802	19,479,470	21,928,119	2,061,763	36,116,636	7,987,488
Controls							
Productivity	YES	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES	YES
FE							
State	YES	YES	YES	YES	YES	YES	YES
Occupation	YES	YES	YES	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 37: OLS Estimation (2000 Census) with Occupation Fixed Effect

Outcome Variable: ln(incwage), Sample: 2000 Census

	Whole	Marital Status		Occupation		Race	
		Married	Cohabiting	Female	Male	White	NonWhite
SubSample: Male							
Gay	-0.101***	-0.207***	0.001	-0.082***	-0.074***	-0.110***	-0.053***
	(0.010)	(0.012)	(0.008)	(0.018)	(0.018)	(0.013)	(0.019)
Constant	9.010***	9.346***	8.917***	8.493***	8.717***	9.105***	8.715***
	(0.083)	(0.090)	(0.094)	(0.108)	(0.071)	(0.081)	(0.102)
N(obs)	54,963,970	33,175,524	21,977,209	7,982,460	18,766,771	44,374,026	10,589,944
SubSample: Female							
Lesbian	0.086***	0.089***	0.026***	0.092***	0.131***	0.086***	0.077***
	(0.006)	(0.008)	(0.006)	(0.015)	(0.026)	(0.007)	(0.020)
Constant	8.692***	9.147***	8.443***	8.223***	8.233***	8.764***	8.275***
	(0.108)	(0.112)	(0.111)	(0.132)	(0.178)	(0.093)	(0.106)
N(obs)	50,675,016	27,885,862	22,979,149	25,799,926	2,190,722	40,181,853	10,493,163
Controls							
Productivity	YES	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES	YES
FE							
State	YES	YES	YES	YES	YES	YES	YES
Occupation	YES	YES	YES	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.

Table 38: OLS Estimation (2014 -19 ACS) with Occupation Fixed Effect

Outcome Variable: ln(incwage), Sample: 2000 Census

	Whole	Marital Status		Occupation		Race	
		Married	Cohabiting	Female	Male	White	NonWhite
SubSample: Male							
Gay	-0.077***	-0.195***	0.051***	-0.043	-0.049***	-0.100***	0.007
	(0.015)	(0.019)	(0.016)	(0.026)	(0.016)	(0.014)	(0.022)
Constant	9.475***	10.291***	8.950***	10.529***	8.848***	9.669***	9.195***
	(0.108)	(0.127)	(0.097)	(0.280)	(0.080)	(0.117)	(0.115)
N(obs)	65,463,466	34,347,458	31,116,008	10,233,234	21,123,465	48,321,805	17,141,661
SubSample: Female							
Lesbian	0.133***	0.108***	0.137***	0.118***	0.201***	0.137***	0.119***
	(0.009)	(0.013)	(0.014)	(0.011)	(0.030)	(0.009)	(0.014)
Constant	9.147***	9.926***	8.676***	8.887***	8.412***	9.327***	8.789***
	(0.101)	(0.112)	(0.100)	(0.136)	(0.198)	(0.126)	(0.070)
N(obs)	61,742,314	29,535,787	32,206,527	29,989,589	2,937,767	44,475,016	17,267,298
Controls							
Productivity	YES	YES	YES	YES	YES	YES	YES
City	YES	YES	YES	YES	YES	YES	YES
FE							
State	YES	YES	YES	YES	YES	YES	YES
Occupation	YES	YES	YES	YES	YES	YES	YES

Notes: (1) The used sample is that of 2000 Census; (2) Column 3 focuses on the sample of gay and married heterosexual males who do not have children, Column 4 focuses on the sample of gay and cohabiting heterosexual males who do not have children; Column 5 focuses on the sample of males in female dominated occupations (the percentage of females is greater than 50%), Column 6 focuses on the sample of males in male dominated occupations(the percentage of males is greater than 50%); (3) robust standard errors are clustered at the state level; (4) the sample is weighted by PERWT, which is the population represented by each individual in the sample; (5) *, **, and *** respectively indicates significance at the 10%, 5%, and the 1% significance level.