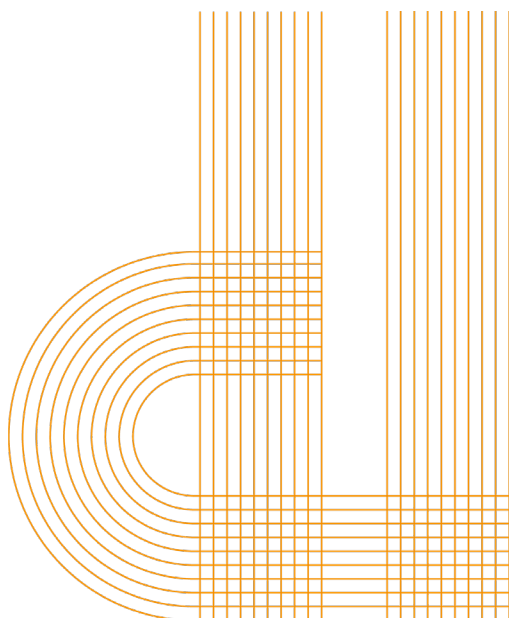


*Occupational Achievements of Same-Sex Couples
in the U.S. by Gender and Race*

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Abstract

Using the 2010-2014 5-year sample of the American Community Survey, this paper investigates the roles that sexual orientation, gender, and race/ethnicity play in explaining occupational achievements and earnings. By combining the approach of Del Río and Alonso-Villar (2015) with the counterfactual method of DiNardo et al. (1996) and Gradín (2013), the authors offer a framework that allows for the simultaneous comparison of all sexual orientation–gender–race/ethnicity groups whereas controlling for characteristics. The analysis suggests that occupations matter in explaining earnings differences among groups. The sexual orientation wage premium of lesbians is quite small for blacks and much higher for Hispanics and Asians than for whites. The high magnitude of the gender wage gap in an intersectional framework is also displayed. For men, departing from the white heterosexual model involves a substantial punishment; the racial penalty is larger for heterosexuals whereas the sexual orientation penalty is greater for whites.

JEL Classification: D63; I31; J15; J16

Keywords: Sexual orientation; gender; race; occupational segregation; wage penalty

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1. Introduction

Since the mid-1990s, there has been increasing economic literature on the association between sexual orientation and position in the U.S. labor market. Most studies identify a wage penalty for gay men and a wage premium for lesbian women compared with their heterosexual peers (Alegretto and Arthur, 2001; Badgett, 2007; Klawitter, 2015). Regarding occupations, scholars provide evidence of a high concentration of homosexual workers in certain kinds of jobs (Badgett and King, 1997; Antecol et al., 2008; Baumle et al., 2009; Ueno et al., 2013). Some of these investigations find that lesbian women (and gay men) have a higher (and lower, respectively) representation in highly masculinized occupations than straight women (and men). However, the few studies dealing with the occupational sorting of homosexual workers have undertaken their analyses using broad classifications of occupations with few categories or have focused only on a few detailed titles. Contrary to segregation by gender (or race), there is little research on the extent of occupational segregation by sexual orientation and its effects on earnings (Antecol et al., 2008).

The magnitude of segregation by sexual orientation has been recently quantified. Using a fine occupational classification and distinguishing among four groups—women and men living in same-sex and different-sex couples—Del Río and Alonso-Villar (2018) showed that partnered lesbians in the U.S. are the most evenly distributed group across occupations whereas their straight counterparts represent the group most unevenly distributed (i.e., it is the group experiencing more overrepresentation in some occupations and underrepresentation in others). The levels of unevenness for gay and heterosexual men, which are similar to one another, are between the levels for lesbian and heterosexual women. Despite this, the study reveals that occupational sorting brings more earnings advantages to partnered gay men than to partnered heterosexual men. The occupational distribution of partnered lesbians is much less beneficial than that of either gay or heterosexual men, although it is better than that of heterosexual partnered women. However, the occupational attainments of partnered gay men and lesbians decrease dramatically when controlling for characteristics (education, mainly).

This paper aims to contribute to the ongoing literature by adding a new factor into the analysis of occupational segregation by sexual orientation in the U.S. and its effects on wages: individuals' race/ethnicity. There is abundant empirical work that shows that

apart from gender, race affects how people fare in the labor market and, in particular, the occupations they enter (King, 1992; Cotter et al., 2003; Reskin et al., 2004; Del R o and Alonso-Villar, 2015; Alonso-Villar and Del R o, 2017). Gender and race interplay to privilege some demographic groups and disadvantage others (Darity and Mason, 1998; Browne and Misra, 2003; Branch, 2007), and in this hierarchical system white men are the group at the top of the ranking. Little is known, however, about how gender and race interact with sexual orientation, as the scarcity of surveys that accurately account for the gay and lesbian population in all its diversity has been an obstacle in undertaking these kinds of studies.

Evidence exists that the racial composition of the gay and lesbian population plays a non-negligible role in explaining these men and women's occupational achievements and earnings (Del R o and Alonso-Villar, 2018). We also know that the magnitude of lesbians' wage premiums and gay men's wage penalties, compared with their heterosexual peers, vary across races/ethnicities (Douglas and Steinberger, 2015). However, not much knowledge exists about the occupational achievements of gay men and lesbians of different races/ethnicities and how gender, race, and sexual orientation interplay to benefit some groups and harm others. Most research dealing with sexual orientation analyzes women and men separately, which implies that the effect of gender is not fully explored. On the other hand, the few studies that also take race into account use broad occupational classifications because their approaches involve considering a dummy for each occupation (Douglas and Steinberger, 2015).

The aim of this paper is a) to explore how sexual orientation affects the occupational sorting of the various gender–race/ethnicity groups; b) to quantify the role that occupations have in explaining the earnings of sexual orientation–gender–race/ethnicity groups using a detailed occupational classification; and c) to disentangle the effects of gender, race, and sexual orientation in explaining the occupational achievements and earnings of each group.

The methodology we follow, which differs from that used so far to study these groups (Douglas and Steinberger, 2015), allows us to address our questions easily, as the monetary advantages or disadvantages that the groups derive from their occupational sorting, and their total earnings, are expressed as a proportion of the average wage of the economy before and after controlling for characteristics.

To that end, we study the 16 mutually exclusive demographic groups that result from combining sexual orientation and gender with the 4 main racial/ethnic groups (whites, blacks, Hispanics, and Asians). We quantify the segregation level of each group and compute the pecuniary effects that occupational sorting brings to each of them by taking occupations' wages into account. In addition, we determine the extent to which occupations play an important role in explaining these groups' earnings. Given that these 16 groups differ in terms of basic characteristics that may affect their occupational sorting, we explore how the groups' situation changes when controlling for characteristics.

For undertaking the analysis, we use the 2010-2014 5-year sample of the American Community Survey (ACS). Despite the fact that this database does not offer information about individuals' sexual orientation, it allows us to identify people living in same-sex couples, who are the only gay men and lesbians we study in this investigation (as is standard practice when using the ACS or the census).¹ Notwithstanding this limitation, this data set is suitable for this kind of study due to its large size (Tilcsik et al., 2015). This allows us to study the relatively small group of gay and lesbian workers while taking race/ethnicity into account.

To quantify the occupational segregation of each of our 16 target groups, the occupational sorting of each group is compared to the occupational structure of the economy using the indices proposed in Alonso-Villar and Del Río (2010). Measuring the segregation of each target group—rather than overall segregation by gender, race, and sexual orientation—seems especially convenient when working with small demographic groups. As these authors show, a group's contribution to overall segregation depends on its size. Therefore, what happens to small groups will not be captured well by overall multi-group segregation measures.

To assess the occupational sorting of each group when a large number of occupations are considered in the analysis, this paper uses the Γ index put forward by Del Río and Alonso-Villar (2015). This index takes into account whether the underrepresentation and overrepresentation of a group occurs in occupations with wages above or below the average wage of the economy. The decomposition proposed by these authors to quantify the effect that occupational sorting has in the earnings of a group is used as well.

¹ See Antecol et al. (2008), Douglas and Steinberger (2015), and Schneebaum and Badgett (2018).

To explore whether some groups may find more difficulties when integrating into the labor market than others once we control for basic characteristics, we follow the counterfactual approach proposed by DiNardo et al. (1996), as adapted by Gradín (2013) to explore occupational segregation. An advantage of the decomposition of the latter, which is based on the Shapley value, is that the contribution of each factor to explain an indicator's change between its conditional and unconditional value does not depend on the factors' sequence.

By combining the approach of Del Río and Alonso-Villar (2015)—which allows for the simultaneous comparisons of all female and male groups—with the counterfactual method of DiNardo et al. (1996) and Gradín (2013), this paper offers new insights on the roles that sexual orientation, gender, and race play in explaining a group's position in the labor market in terms of occupational achievements and earnings.

The paper is structured as follows. Section 2 provides a brief background on the relationship between sexual orientation and position in the labor market. Section 3 presents the indices used, whereas Section 4 shows the extent of occupational segregation for each target group and explores whether the occupational sorting of each group brings it earnings advantages or disadvantages. Given that the groups may differ in terms of basic characteristics, Section 5 undertakes a counterfactual analysis. Finally, Section 6 presents the main conclusions.

2. Literature Review: Wages and Occupations

The literature exploring the effect of sexual orientation on the position of individuals in the U.S. labor market has mainly focused on wages. Badgett's (1995) seminal work showed that gay and bisexual men face an important and statistically significant wage penalty compared to their straight counterparts, but the penalty found for lesbian women was not statistically significant. Using other sexual orientation definitions and even employing alternative datasets, subsequent studies confirmed the wage penalty for gay men (*vis-à-vis* heterosexual men) and most of them identified a wage premium for

lesbians (*vis-à-vis* heterosexual women), as the meta-analysis undertaken by Klawitter (2015) concluded.²

The fact that sexual orientation does not affect the wages of lesbians and gay men in the same manner suggests that sexual orientation interacts with gender roles. Although race is also a basic trait that influences people's opportunities in the labor market, the literature has barely explored racial issues within homosexual workers. We know that the penalty and premium mentioned above are also found when the analysis is restricted to the white population (Antecol et al., 2008). Things become more complicated when working with gay men and lesbians of racial minorities due to smaller sample sizes, which explains why the literature is so scarce.

Using the 2000 Census, Saunders et al. (2006) found that, after controlling for characteristics, black men living in same-sex couples earn less than their straight counterparts (and much less than their white peers). Their analysis also reveals that black lesbian women, who earn less than their male or white counterparts, make less than black straight women in some model specifications but not in others, suggesting that this finding is not as robust as the others. Douglas and Steinberger (2015) undertook a comprehensive analysis on sexual orientation and race—also based on the 2000 Census—and found that not only white and black gay men but also Hispanic and Asian gay men have wage penalties compared to their heterosexual (married) peers. According to the magnitude of the unexplained term of the Oaxaca-Blinder decomposition used in the study, the penalties for black and white gay men are similar, although they are larger (lower) than that of Hispanic (and Asian) gay men. These authors also documented a sexual orientation wage premium for white, black, and Hispanic lesbians compared with their heterosexual female (either married or cohabiting) peers. The premium is higher for white and Asian lesbians than it is for black and Hispanic lesbians. It seems, therefore, that sexual orientation does not affect men and women of different races equally.

Distinguishing among 5 broad occupational categories, Douglas and Steinberger (2015) also explored whether occupations play a role in explaining the earnings of these

² However, using the 2013–2015 National Health Interview Survey, Carpenter and Spink (2017) found an earning premium for self-identified gay men compared with their heterosexual peers. This suggests that things may have changed for gay men in recent years.

groups. Using both the Oaxaca-Blinder and DiNardo-Fortin-Lemieux decompositions, they found that the occupational sorting of white and Hispanic gay men has a positive influence on these groups' earnings. For black gay men, though, the result varies with the decomposition used. The role played by occupations in explaining the earnings of white lesbians also seems to depend on the decomposition method. However, both Hispanic and black lesbians tend to be concentrated in occupations that do not benefit them (at least compared to their married, straight peers), although the effect is small for the latter.

The literature does not explain, though, the role that occupational segregation may play in explaining the earnings of these groups using a fine occupational classification or the extent to which the distributions of lesbians and gay men across these occupations differ across races. However, there is strong evidence that occupational segregation explains a large part of the gender wage gap and the racial wage gap (Petersen and Morgan, 1995; Cotter et al., 2003, Blau and Kahn, 2017), which suggests that occupations may be important in explaining the earnings of the various sexual orientation–gender–race groups. Thus, distinguishing among 453 occupational categories, Del Río and Alonso-Villar (2018) showed that occupational sorting plays an important role in explaining the earnings differentials between homosexual and heterosexual workers. The higher educational achievement of gay men and lesbians makes it possible for them to access highly paid occupations, especially gay men, which results in earnings that are higher than those of their straight peers. Racial/ethnic composition is also claimed to play a role in explaining the occupational sorting (and earnings) of homosexual workers. In fact, these authors suggest that racial minorities living in same-sex couples have an occupational sorting more beneficial than racial minorities in different-sex couples. The study does not explore each race separately, however.

It seems, therefore, convenient to explore the occupational sorting of our sexual orientation–gender–race groups using an occupational classification more detailed than the ones used so far to study these groups. Due to sample size limitations for gay men and lesbians in some racial minorities, we choose an occupational classification that distinguishes among 99 categories (rather than 453). This classification allows us to analyze the role of occupations in a more accurate way than in previous studies dealing with these same demographic groups.

3. Methodology and Data

This paper addresses two aspects of segregation: 1) unevenness in the distribution of a group across occupations (which is what we mean by a group’s segregation) and 2) the pecuniary consequences of that unevenness.

3.1 Segregation Level of Each Group

Occupational segregation is a phenomenon that can be tackled from different perspectives, although the most common is the one focusing on whether demographic groups are evenly or unevenly distributed across occupations. This paper also follows this perspective but departs from the most popular approaches by measuring each group’s segregation (or unevenness) rather than overall segregation (which would involve comparing the occupational sorting of all sexual orientation–gender–race groups simultaneously and would not allow us to singularize what happens to each group).

To that end, we use the indices proposed by Alonso-Villar and Del Río (2010) in a multi-group context. The way a group’s segregation is quantified does not require pairwise comparisons among groups and is consistent with how overall segregation in a multi-group context is measured. This is so because, as these authors showed, if the economy is partitioned into several mutually exclusive demographic groups, the weighted average of the segregation of these groups using their measures (with weights equal to the groups’ demographic shares) is equal to the overall segregation of the economy according to measures proposed in the literature.

Following this approach, a group is said to be segregated when its occupational sorting departs from the occupational structure of the economy. On the contrary, if a group represents, for example, 20% of workers, we say that it has no segregation as long as it accounts for 20% of each occupation’s employment. To measure the segregation of group g , we use the following indices:

$$D^g = \frac{1}{2} \sum_j \left| \frac{c_j^g}{C^g} - \frac{t_j}{T} \right| \quad (1)$$

$$G^g = \frac{\sum_{i,j} \frac{t_i t_j}{T T} \left| \frac{c_i^g}{t_i} - \frac{c_j^g}{t_j} \right|}{2 \frac{C^g}{T}} \quad (2)$$

$$\Phi_\alpha^g = \begin{cases} \sum_j \frac{c_j^g}{C^g} \ln \left(\frac{c_j^g / C^g}{t_j / T} \right) & \alpha=1 \\ \frac{1}{\alpha(\alpha-1)} \sum_j \frac{t_j}{T} \left[\left(\frac{c_j^g / C^g}{t_j / T} \right)^\alpha - 1 \right] & \alpha \neq 0,1 \end{cases} \quad (3)$$

where c_j^g stands for the number of workers that group g has in occupation j , $C^g = \sum_j c_j^g$ is the group's size, t_j is the size of occupation j , and $T = \sum_j t_j$ is total employment. The reason we use several indices rather than one is to check the robustness of our findings.

Index D^g , which ranges between 0 (no segregation) and 1 (complete segregation), has a clear economic interpretation, which is why we pay special attention to it in our empirical section. It measures the proportion of group g 's members who would have to shift occupations to have no segregation (without altering the occupational structure of the economy). Index G^g is also bounded between 0 and 1, but the indices of the family Φ_α^g are unbounded. Parameter α stands for segregation aversion, i.e., aversion toward the overrepresentation of the group in some occupations and its underrepresentation in others. In this study, we use three values of this parameter (0.5, 1, and 2) which are standard values in the literature on income distribution from which these indices were adapted.

3.2 Pecuniary Consequences of Segregation for Each Group

Above and beyond the lack of integration that an uneven distribution across occupations implies for the group that experiences it, special attention should be paid to the pecuniary consequences of that unevenness. This is why we are interested in the loss or gain that each group g faces for being unevenly distributed across occupations, taking into account that occupations pay differently. In doing so, we use the Γ^g index proposed by Del Río and Alonso-Villar (2015):

$$\Gamma^g = \sum_j \left(\frac{c_j^g}{C^g} - \frac{t_j}{T} \right) \frac{w_j}{\bar{w}}, \quad (4)$$

where $\frac{c_j^g}{C^g}$ is the share of group g in occupation j , $\frac{t_j}{T}$ is the employment share accounted for by occupation j , w_j represents the (average) wage of occupation j , and $\bar{w} = \sum_j \frac{t_j w_j}{T}$ is the average wage of the economy.

Index Γ^g has a clear economic interpretation: It quantifies the per capita monetary loss (or gain) that group g derives from its occupational sorting, expressed as a proportion of the economy's average wage.

The earnings advantages/disadvantages of a group may arise not only from its occupational sorting but also from what happens to the group within occupations given that it can be paid below or above other groups. By denoting the earning differential between g 's average wage and the average wage of the economy divided by the latter using EGap^g , Del Río and Alonso-Villar (2015) proved that EGap^g can be decomposed in two terms, one denoting group g 's monetary loss or gain due to segregation (Γ^g) and the other standing for its loss or gain within occupations (Δ^g):

$$\text{EGap}^g = \underbrace{\sum_j \left(\frac{c_j^g}{C^g} - \frac{t_j}{T} \right) \frac{w_j}{\bar{w}}}_{\Gamma^g} + \underbrace{\left[\sum_j c_j^g (w_j^g - w_j) \right]}_{\Delta^g} \frac{1}{C^g \bar{w}}, \quad (5)$$

where w_j^g stands for the average wage that group g receives in occupation j . By using expression (5), one can easily determine whether segregation is important in explaining a group's earnings. This decomposition can be used to explore the situation of each group in the actual economy and in the counterfactual economy built to account for characteristics. Given that the EGap^g and its two components are expressed as a proportion of the economy's average wage, we can simultaneously compare our 16 groups. We can do it not only before but also after controlling for attributes, which makes this approach especially convenient for disentangling the effects of sexual orientation, gender, and race, as we explain later on.

3.3 Data

The data set comes from the 2010-2014 5-year sample of the ACS provided by the Integrated Public Use Microdata Series (IPUMS; Ruggles et al., 2017). The ACS, which replaced the census long form from 2000 onward, includes occupation and provides a wide range of economic and demographic characteristics of individuals and households. We use an occupational classification that accounts for 99 categories and proxy the wage of each occupation by the average hourly wage (calculated from the information available from IPUMS).³

As mentioned earlier, individuals living in same-sex couples are the only population that can be identified in this data set as homosexual. This limitation is offset by the fact that the sample is much larger than that of alternative data sets, which is especially convenient when one wants to explore racial disparities as well. The fact that we only identify homosexual workers based on the sex of the householder and her/his partner determines our empirical strategy of reducing the economy to individuals living in couple partnerships. We have 27,158 lesbians and 25,874 gay men in the sample.

With respect to race/ethnicity, our analysis focuses on the three major single-race groups that do not have a Hispanic origin, plus Hispanics of any race: whites, blacks, Asians, and Hispanics. The size of each demographic group and basic characteristics are given in the Appendix (Table A1 and Figure A1).⁴

4. Occupational Segregation: Extent and Pecuniary Consequences

We start this section quantifying the extent of occupational segregation for each of our 16 sexual orientation–gender–race groups. Then we explore its effects on the groups' earnings.

4.1 Segregation by Sexual Orientation, Gender, and Race/Ethnicity

As explained earlier, a group is said to be segregated if it tends to be overrepresented in some occupations and underrepresented in others, i.e., if it is unevenly distributed across occupations.

³ We trim the tails of the hourly wage distribution to prevent data contamination from outliers. We compute the trimmed average in each occupation, eliminating all workers whose wage is zero, missing, or situated below the first or above the 99th percentile of positive values in that occupation.

⁴ We do not analyze Native Americans and other races due to their small size in the sample.

Table 1 shows that white lesbians have lower segregation than white straight women, i.e., the former have a more even occupational sorting. According to index D^g , 18% of white lesbians would have to switch occupations to achieve zero segregation, whereas for white straight women the ratio reaches 27%.

	$\Phi_{0.5}^g$	Φ_1^g	Φ_2^g	D^g	G^g
White lesbian women	0.134	0.125	0.126	0.181	0.266
White straight women	0.289	0.244	0.220	0.274	0.378
Black lesbian women	0.221	0.196	0.198	0.247	0.342
Black straight women	0.312	0.280	0.306	0.278	0.399
Hispanic lesbian women	0.132	0.122	0.123	0.202	0.272
Hispanic straight women	0.338	0.306	0.315	0.311	0.430
Asian lesbian women	0.393	0.320	0.331	0.304	0.428
Asian straight women	0.357	0.305	0.322	0.285	0.410
White gay men	0.164	0.162	0.177	0.238	0.317
White straight men	0.181	0.157	0.134	0.216	0.296
Black gay men	0.140	0.129	0.133	0.199	0.276
Black straight men	0.216	0.215	0.249	0.267	0.359
Hispanic gay men	0.105	0.103	0.113	0.172	0.246
Hispanic straight men	0.390	0.381	0.450	0.375	0.478
Asian gay men	0.336	0.318	0.373	0.321	0.434
Asian straight men	0.302	0.311	0.416	0.291	0.416

Table 1. Segregation levels according to several indices

On the contrary, white gay men tend to be more unevenly distributed across occupations than their straight peers,⁵ although the gap is small.⁶ The differences by sexual orientation are stronger among Hispanics, and they work in the same direction for both women and men. Hispanic lesbians and gay men tend to have much lower segregation than their straight counterparts and are among the groups with the lowest segregation levels. Thus, according to index D^g , only 20% and 17%, respectively, of Hispanic lesbians and gay men would have to switch occupations to achieve zero segregation, whereas the ratios for their straight peers rise to 31% and 38%. The segregation levels for black lesbians and gay men are also lower than those for black straight women and men, although the gaps are lower than those for Hispanics (D^g is equal to 25% and 28%

⁵ The exception is $\Phi_{0.5}$, which is an index that pays special attention to the extent of the underrepresentation of the group in occupations.

⁶ Although not shown in this paper, the patterns for whites would remain the same if we had used a more detailed occupational classification that accounts for 453 titles. That classification would not be suitable to explore racial minorities due to their smaller sizes in the sample. This is why this study is based on a broader classification.

for lesbian and straight women, respectively, and 20% and 27% for gay and straight men, respectively). On the contrary, Asian gay men and lesbians tend to have slightly higher segregation levels than their heterosexual counterparts.⁷

Therefore, in exploring the occupational sorting of a demographic group, a racial-based effect interacts with sexual orientation and gender. For whites and Asians, homosexual men are more unevenly distributed across occupations than heterosexual men, whereas for blacks and Hispanics, the pattern is the reverse, the gap being especially large for Hispanics. In the case of lesbians, all races except Asians have lower segregation levels than their heterosexual counterparts. The gap is particularly intense for Hispanics and less so for blacks.

4.2 Quantifying the Pecuniary Consequences of Segregation

We now analyze whether an uneven distribution across occupations brings a group monetary advantages or disadvantages, which depends on occupations' wages. We also explore whether each group has earnings advantages within occupations compared with other groups. By knowing these two components, we can determine the role that occupational sorting plays in explaining the earnings losses/gains of each group with respect to the average wage of workers living with a partner.

Figure 1 reveals that, on the one hand, white lesbians have monetary gains associated with their occupational sorting of about 4.7% of the average wage of workers living with a partner ($\Gamma^g = 4.7$), whereas their straight counterparts have losses of 3.2% of the average wage ($\Gamma^g = -3.2$).⁸ This means that white lesbians tend to concentrate in highly paid occupations to a higher extent than other groups do whereas white straight women are mainly in low-paid occupations. On the other hand, both groups of women have losses within occupations compared with other (mainly male) groups and these earnings disadvantages are much larger for straight women than they are for lesbians (Δ^g is equal to -10.1 and -1.7, respectively). Consequently, the earnings of white lesbians are 3% above the average wage of workers living with a partner ($E_{gap}^g = 4.7 - 1.7 = 3$) whereas

⁷ The exception is Φ_2 for gay men, which is an indicator very sensitive to the degree of overrepresentation of the group in occupations.

⁸ The values of the indices are shown in the Appendix (Table A2).

the earnings of their straight counterparts are 13.3% below that average ($Egap^g = -3.2 - 10.1 = -13.3$).

The chart also displays that the gains Asian women have arising from their sorting are larger for lesbians than they are for straight women (7.1% vs. 5.4%). Note that Asian lesbians have even wage advantages within occupations, whereas the others instead have losses (4% vs. -2.8%).⁹ On the contrary, Hispanic women have losses associated with their sorting, which are larger for straight women than for lesbians (-19.4% vs. -9%). The wage disadvantage of this ethnicity within occupations follows the same pattern. Although black women also have losses due to segregation, these losses do not seem to be affected by sexual orientation (Γ^g is -11% for heterosexuals and -11.8% for homosexuals). The earnings disadvantage of black women within occupations is slightly larger for lesbians. All this supports black lesbians having the lowest earnings (the $Egap^g$ is -25.2%) after Hispanic straight women (-34.2%).

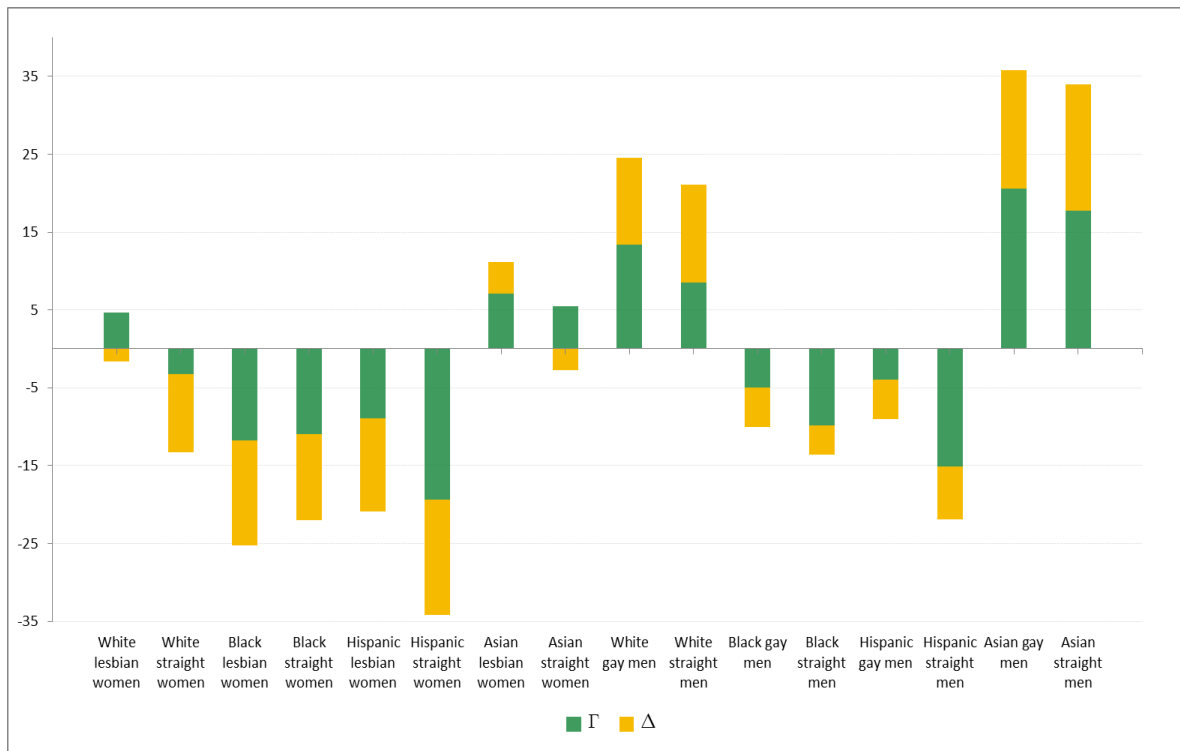


Figure 1. $Egap^g$ of each group and its two components: occupational sorting (Γ^g) and wage advantages/disadvantages within occupations (Δ^g)

⁹ The wage advantage of a group within occupations could arise from working in different suboccupations that a classification with 99 categories cannot capture. As already mentioned, the sample size of gay men and lesbians in some racial minorities does not allow us a finer occupational classification, and the extent of segregation and its economic effects are likely to be underestimated.

To conclude, the occupational sorting of lesbians is more beneficial than that of their straight counterparts, except for black women for whom sexual orientation plays almost no role. However, only white and Asian lesbians have occupational distributions capable of giving them earnings above the average wage of workers living with a partner. The situation within occupations seems to be more harmful for straight women of any race but black. The analysis also illustrates that, except in the case of white straight women, for whom Δ^g is much more important, occupational sorting explains a large part of the earnings of female groups.¹⁰

With respect to men, the group with the greatest gains associated with their occupational sorting is that of Asian gay men (Γ^g is equal to 20.6% of the average wage of workers living with a partner), followed by their straight counterparts (17.7%). White gay men also have higher gains associated with their sorting than heterosexuals (13.4% vs. 8.5%, respectively). However, both Asian and white gay men have (slightly) lower gains within occupations than their straight counterparts.

Black gay men instead have losses associated with their occupational sorting, although they are lower than those of black straight men (-5% vs. -9.8%). The male group with the largest losses due to segregation is that of Hispanic straight men (-15.1%), who far overcome the losses of their gay counterparts (-4%). The analysis also reveals that the losses of Hispanic and black gay men due to segregation are quite similar to one another, but the discrepancies in the losses of Hispanic and black heterosexual men are remarkable.

Finally, note that regardless of the race/ethnicity and sexual orientation, occupational sorting plays an important role in explaining the position of male groups in the labor market. Most of the earnings gains of white gay men and Asian straight and, especially, gay men come from their concentration in highly paid occupations. On the contrary, white straight men obtain most of their advantage from having higher wages within occupations than other (male and, mainly, female) groups have.

In summary, the occupational sorting of gay men seems to be better than that of their straight counterparts, independent of their race/ethnicity. In addition, regardless of the race/ethnicity and sexual orientation, women tend to concentrate in low-paid

¹⁰ Perhaps their occupational sorting would have a more important role if a finer occupational classification were used.

occupations to a higher extent than their male peers and have much higher wage disadvantages within occupations (or much lower wage advantages in the case of Asian lesbians). The fact that all groups of women fare much worse than their male peers does not seem justified by their education achievements (Figure A1).

5. Controlling for Basic Characteristics

The gains and losses that the groups have due to their occupational sorting and the wages they receive within occupations vis-à-vis other groups may depend on the education achievements of the groups or their age structure. On the other hand, the size of some occupations may vary with the population size of the local economy. Some occupations tend to be larger in large metropolitan areas, and if some demographic groups are more likely to be found there, as is the case of Asians and gay men, the opportunities that groups may face can differ by location. In addition, the (average) wage of a group could be higher than that of another group simply because the former is mainly located in large cities and these cities tend to pay higher wages. In this section we undertake a counterfactual analysis, based on a propensity score procedure, which will allow us to control for education, age, and city size.¹¹

5.1 Propensity Score Method

To build the counterfactual economy (DiNardo et al., 1996; Gradín, 2013), we start by separating each target group g into mutually exclusive subgroups categorized by the values of the variables involving education, age, and city size (i.e., we follow a tabulation process that gives rise to 30 cells in each group). We then observe the distribution of each subgroup across our 99 occupations and keep it unchanged. We change, however, the subgroup weight according to the weight the corresponding subgroup has in the reference group. White straight men are the reference group. Using these weights, we build a counterfactual economy in which the sexual orientation–gender–race groups no longer differ in terms of observed characteristics.

The original observations of each subgroup in the sample have to be reweighted by Ψ_z ,

¹¹ We consider 5 educational levels (less than high school, high school diploma, some college, bachelor's degree, and Master's or Doctoral degree), 3 age groups (younger than 30, between 30 and 54, and 55 or older), and 2 city sizes (less than 1 million people or equal to or above that threshold). The sample size of some groups does not recommend including additional individuals' characteristics. This is why we select only the most important ones, taking into account that other groups' traits can be captured by or be associated with their race/ethnicity or gender, factors based on which the groups are defined.

$$\Psi_z = \frac{\frac{\Pr(W = 1|z)}{\Pr(W = 1)}}{\frac{\Pr(W = 0|z)}{\Pr(W = 0)}} = \frac{\Pr(W = 0)}{\Pr(W = 1)} \frac{\Pr(W = 1|z)}{\Pr(W = 0|z)},$$

where $z \equiv (z_1, z_2, z_3)$ is the vector of our 3 covariates describing the attributes of each subgroup, and W is a dummy variable standing for sexual orientation–gender–race membership, where the variable is equal to 1 in the case of white straight men and 0 in the case of the group under consideration. The first term of the right hand side of the above expression can be approximated by the ratio between the population samples of both demographic groups, and the second term can be obtained by estimating the probability of an individual with attributes z belonging to the group of white straight men (rather than to her/his own group) using a logit model over the pool sample with observations from both groups:

$$\Pr(W = 1|z) = \frac{\exp(z\hat{\beta})}{1 + \exp(z\hat{\beta})},$$

where $\hat{\beta}$ is the associated vector of estimated coefficients. The logit estimation allows computing the decomposition of the change between the conditional and the unconditional analysis straightforwardly.

Note that although we built a counterfactual economy in terms of DiNardo et al. (1996), as in Douglas and Steinberger (2015), we do it in a different way. First, compared to their study, in which occupations are a characteristic of the groups, as is education, age, and so on, in this investigation, occupation is not a variable that we use to define the subgroups (cells) into which each of our sexual orientation–gender–race groups are divided. In building the counterfactual economy, we keep the occupational sorting that we observe in the actual data for each subgroup and reweight each subgroup to make it have the same weight that that subgroup has in the reference group. Second, the contribution that each factor has in explaining the difference between the conditional and the unconditional analysis is determined using the Shapley decomposition (Gradín, 2013). This decomposition improves that proposed in DiNardo et al. (1996), as the sequence in which the variables are included in the analysis does not affect the outcome. Another difference with respect to Douglas and Steinberger (2015) is that we use the same reference group, white heterosexual men, for either male or female groups, which allows us to easily explore the gender effect.

5.2 Counterfactual Analysis: An Overview

Figure 2 illustrates the conditional earnings advantages/disadvantages that each group has relative to the average wage of the (counterfactual) economy and its two components.¹² The analysis reveals that earnings differences among groups decrease when controlling for characteristics. In other words, education, age, and city size help explain part of the discrepancies that we observed in Figure 1. However, important differences still persist. White straight men are now at the top of the ranking—with an earning advantage of 19.2% of the average wage of individuals living with a partner—followed at a significant distance by Asian straight men, white gay men, and, last, Asian gay men. Men of other racial/ethnic groups have either wages that do not differ much from the average wage of workers living with a partner (Hispanic gay and, especially, straight men) or have wages below that average (black gay and straight men). At the bottom of the ranking we find Hispanic straight women—whose earnings are 23.5% below the average wage—closely followed by black straight and lesbian women. The earnings disadvantage of white straight women, whose wages are 15.2% below the average, is also remarkable.

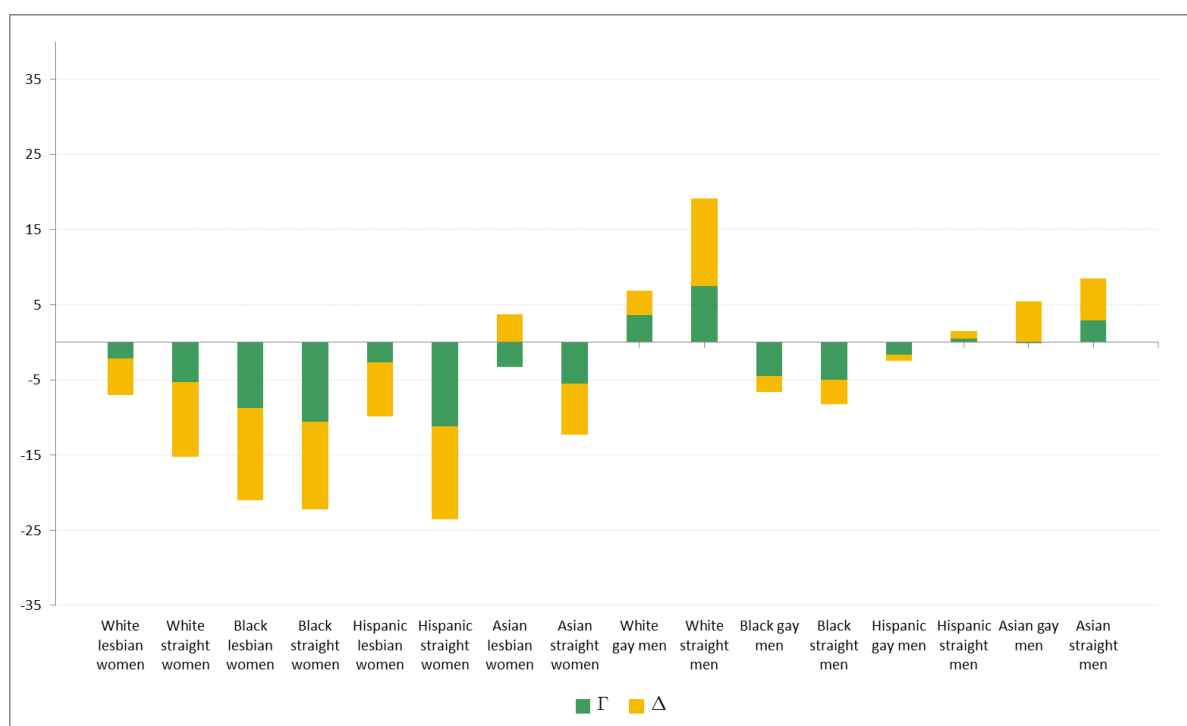


Figure 2. Conditional $Egap^g$ of each group and its two components: occupational sorting (Γ^g) and wage advantages/disadvantages within occupations (Δ^g)

¹² The results for Asian homosexuals should be taken with caution due to their small sample size.

The counterfactual analysis also suggests that the earnings disadvantage of Hispanic straight men detected in Figure 1 results from differences in characteristics. In fact, as Figure 3 shows, if Hispanic straight men had the same attributes as white straight men, mainly the same educational attainments, the earnings of the former would increase substantially (age and metropolitan area play a minor role). The conditional earnings of Hispanic straight men are far from those of white straight men but they are higher than those of any female group. For Hispanic gay men, education also explains part of their earnings disadvantages, although their younger age penalizes them more. Note too that the earnings of Hispanic gay men would be substantially lower if they did not tend to live in large metropolitan areas. Once the effects of these characteristics are removed, the average wage of Hispanic men (either heterosexual or homosexual) barely differs from the average wage of the counterfactual economy, although wages for homosexuals are below the average (Figure 2).

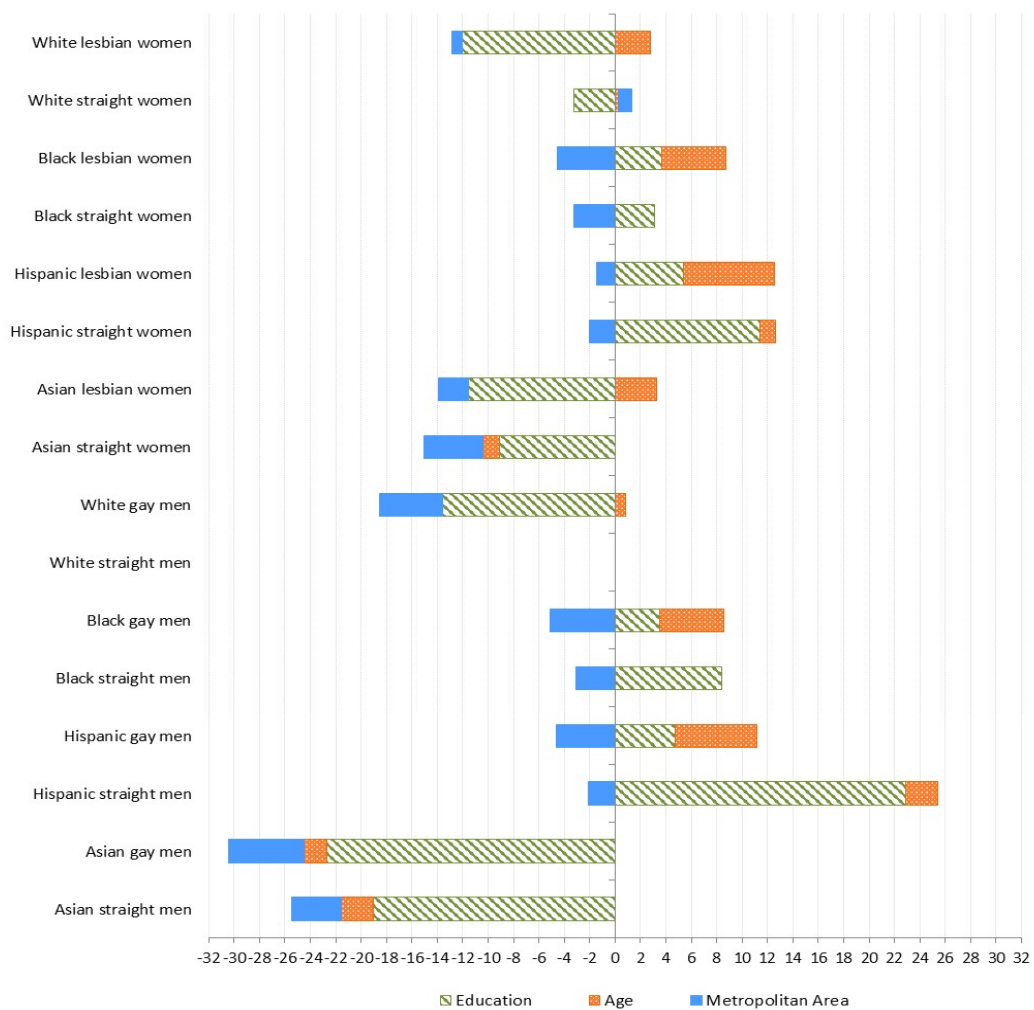


Figure 3. Conditional $Egap^g$ minus actual $Egap^g$ and factors' contributions

The earnings advantage of white and Asian gay men shown in Figure 1 also comes from their characteristics (mainly education, although living in a large metropolitan area plays a non-negligible role). When we control for characteristics, white and Asian gay men no longer have higher wages than their straight peers, although they still have earnings above the average (Figure 2).¹³ Things are different, however, for black men. They have earnings below the average in the unconditional analysis (basically due to education in the case of straight men whereas age is also an important penalty for gay men, an effect that is partially offset by them living in large metropolitan areas). However, as opposed to other male groups, black men also get wages substantially below the average after controlling for characteristics. Moreover, for this race, the wages of heterosexuals are slightly lower than those of homosexuals. We can, therefore, conclude that sexual orientation does not affect men of different races/ethnicities equally.

Figure 3 also illustrates that education explains most of the earnings gain of white lesbians and Asian straight and lesbian women shown in Figure 1. Education also helps explain part of the earning losses of Hispanic women, especially heterosexuals. For Hispanic and black lesbians, their earnings disadvantages also arise from their youth (relative to white straight men). Note that things for black women, regardless of their sexual orientation, would be worse off if the proportion of them living in large metropolitan areas was lower (and similar to that of white straight men).

Importantly, after controlling for characteristics, all groups of women have wages well below the average wage of workers living with a partner (except Asian lesbians, whose wage is equal to the average). Moreover, the earning disadvantages of these female groups are larger than that of any group of men (except white lesbians, whose gap is slightly lower than that of black straight men).

With respect to the role that occupations have in explaining the earnings of the groups, Figure 2 illustrates that a large share of the wage advantage of white straight men is

¹³ Given that white straight men is the group with respect to which we adjust the characteristics of the other groups, none of these characteristics may explain the difference between the counterfactual E_{gap}^g and the actual E_{gap}^g for this group. This is why there is no value for white straight men in Figure 3. The E_{gap}^g of this group changes slightly in Figure 2, compared with Figure 1, because in the counterfactual economy the average wage of the economy changes and the E_{gap}^g of a group always represents the earnings of the group expressed in terms of the average wage of the economy.

explained by the group's occupational sorting (this share, roughly 40%, would be likely larger if a finer occupational classification could be used). This group tends to concentrate in highly paid occupations with more intensity than other groups, and this fact cannot be explained by education, age, or location. Occupational sorting is also beneficial for white gay men and Asian straight men.



The advantageous occupational distributions of these groups come at the expense of other groups. Occupational sorting harms all groups of women and black men (regardless of their sexual orientation). Note that the earnings advantage that white lesbians have in Figure 1 associated with their occupational sorting completely vanishes when controlling for characteristics (Figure 2). The same pattern occurs in the case of Asian straight and lesbian women. Basically, their high educational achievements allow them to enter highly paid occupations and earn higher wages.¹⁴ When controlling for characteristics, all female groups have disadvantages associated with their occupational sorting, which suggests that they tend to concentrate in low-paid occupations to a higher extent than other (male) groups. This pattern is particularly intense for Hispanic straight women and black women (straight and lesbian).

5.3 The Role Played by Sexual Orientation, Gender, and Race/Ethnicity

The methodology followed in this paper is very convenient because it allows comparing the 16 sexual orientation–gender–race/ethnicity groups after controlling for characteristics. Given that the wages of all groups are expressed as a proportion of the (counterfactual) economy's average wage, we can easily determine the role that sexual orientation, gender, and race/ethnicity play in explaining the earnings of any group vis-à-vis white straight men, who is the “privileged” group in the labor market (as Figure 2 illustrates). Because the analysis is undertaken in the counterfactual economy, a group's earnings below (and above, respectively) that of another group implies a penalty (and a premium, respectively) with respect to that group in terms of sexual orientation, gender, race, or a combination of these. Moreover, the total penalty (or premium) of a group with respect to white straight men will be equal to the sum of a racial, a sexual

¹⁴ See Figure A2 in the Appendix, which shows the role of each factor in explaining the changes in Γ^g when one controls for characteristics. This chart barely differs from Figure 3. The factors that explain the changes between the counterfactual and actual economy are basically the same in terms of E_{gap}^g and Γ^g .

orientation, and a gender penalty (or premium) using a consistent sequence of comparisons.

Figure 4 allows to explore these penalties/premiums easily (the numbers are calculated using Table A2). For example, we see that black gay men earn 1.5 percentage points of the average wage (p.p. hereafter) more than black straight men. However, black gay men earn 13.5 p.p. less than white gay men. Note that to compare black gay men with white straight men, we can follow two different paths, depending on whether the intermediate group we use is black straight men or white gay men (i.e.,  or ). Regardless of the path we take, the wage differential between black gay men and white straight men is the same ($1.5 - 27.4 = -13.5 - 12.4$). If we follow the first path, the sexual orientation gap refers to black men and the racial gap to straight men. If we take instead the second path, the racial gap is specific for gay men and the sexual orientation gap is that of white men. In both cases, we follow a complete and compatible sequence of comparisons. The sexual orientation and racial/ethnic effects have to be quantified in different groups because the former (or latter) effect might differ among races (or sexual orientation groups).



Observe that this approach differs from that followed by Douglas and Steinberger (2015). They first compare black gay men with white gay men and black gay men with black straight men to explore, respectively, the racial and sexual orientation effects for that group. Then, they compare black gay men with white straight men to deal with the joint effect and explore whether it is greater than the sum of the racial and sexual orientation effects. Because they estimate wage equations, they need to keep a common group in these three pairwise comparisons—black gay men—to determine the effects of sexual orientation and race on wages. Their steps do not actually allow us to follow a complete and compatible sequence of comparisons, which explains why the total effect is not equal to the sum of the racial and sexual orientation effects for black gay man.

As in Douglas and Steinberger (2015), we find a sexual orientation penalty for white, Hispanic, and Asian men. However, counter that study, we do not find a sexual orientation penalty for black gay men, and the penalty for whites happens to be much higher than for Hispanics and Asians.¹⁵

¹⁵ The characteristics of gay men and lesbians in our sample differ from those in Douglas and Steinberger (2015). Homosexuals of racial minorities have lower educational achievements in our sample, which may help explain the differences in some of our results.



Figure 4. $Egap^s$ differences between groups in the counterfactual economy

Figure 4 also illustrates that the racial/ethnic penalty is much higher for straight men than for gay men. Consequently, for any racial minority homosexual male group, the sum of that group's sexual orientation and racial/ethnic wage gaps () is lower than the wage gap that group has relative to white straight men (). For example, in the case of Hispanic gay men, the sum of their two wage gaps is -13.2 (= -3.9 - 9.3), whereas their wage gap with respect to white straight men is -21.7. Although one may be tempted to interpret this discrepancy as an “interaction” effect between sexual orientation and race, in line with Douglas and Steinberger (2015), it actually shows that departing from the white heterosexual male model in a single direction, either in race or sexual orientation, is much more highly penalized than departing from other male groups based on the same characteristic.

For women, who earn much less than white straight men (Figure 2), the penalties may arise not only from race/ethnicity and/or sexual orientation but also gender. In fact, white straight women earn 34.4 p.p. less than white straight men, which is the largest gap shown in Figure 4. This explains why, for example, white lesbians earn 26.2 p.p. less than white straight men, despite having an earning advantage of 8.2 p.p. with respect to white straight women. The gender wage gap is negative for all groups of women and is of a greater magnitude than the race/ethnicity penalty for black and Hispanic women. The racial penalty is higher for black lesbians, followed at a certain distance by that of Hispanic heterosexual women. However, Asian women do not seem to have a racial penalty with respect to white women.

On the other hand, our results indicate that all lesbian groups have a sexual orientation premium, but this premium is much higher for Hispanics and Asians than for whites. Moreover, the premium for Hispanic lesbians is large enough to surpass the ethnic penalty of Hispanic straight women. Consequently, not only Asian but also Hispanic lesbians earn more than white straight women. Also, note that the premium for black lesbians is quite small (the magnitude of this premium is similar to the one black gay men have). Hence, for lesbians, the sexual orientation premium is clearly racialized; it ranges from 13.7 p.p. for Hispanics to 1.2 p.p. for blacks.

Therefore, as in Douglas and Steinberger (2015), we find a sexual orientation premium for white, Hispanic, and Asian lesbians. However, contrary to that work, we show that black lesbians do not have an earning advantage compared with white straight women (regardless of the path we take, the racial penalty is greater than the sexual orientation

premium) and the premium for Hispanic and Asian lesbians is much higher than for white lesbians.

6. Final Comments

In an intersectionality framework where categories according to which individuals are classified by society overlap, social and economic stratification becomes a complex phenomenon. The advantages of a person as a member of a category may be reduced, or may even disappear, due to disadvantages as a member of another category. There is no doubt that gender, race/ethnicity, and sexual orientation shape labor settings (Ragins et al., 2003). However, there is still scarce literature on the topic. The reason lies not only on data availability but also on methodological issues that arise when dealing with intersectionality.

The methodology used in this paper allows us to overcome some of the difficulties that usually appear in empirical studies. The fact that any group's wage is expressed in terms of the average wage of the actual and, especially, counterfactual economy facilitates comparisons among groups. It allows us to account for not only the effects of race and sexual orientation but also gender, something unexplored in previous works that study women and men separately. In addition, this makes it possible to decompose the total penalty (or premium) of a group with respect to white straight men in a gender, a racial, and a sexual orientation effect. This decomposition is exact, which improves what has been done in the literature so far.

Distinguishing among 99 occupational categories and focusing only on workers who live with a partner, this paper has shown that, except for Asians, lesbians are more evenly distributed across occupations than their same-race/ethnicity heterosexual peers. This supports lesbians having occupational achievements (and wages) that are larger than those of same-race heterosexual women (except in the case of black women, for whom sexual orientation has almost no effect).

Black and Hispanic men in same-sex couples also have less segregation than their heterosexual counterparts because the former have a lower presence than the latter in low-paid occupations. On the contrary, the occupational sorting of white and Asian gay men seems to be slightly more uneven than that of their heterosexual peers. Concentration in highly paid occupations is an especially intense phenomenon for these

two groups. Overall, the occupational attainments (and wages) of gay men are greater than those of their heterosexual male peers and than those of lesbians of the same race/ethnicity.

When controlling for characteristics, the wage differentials among the 16 sexual-orientation–gender–race/ethnicity groups fall, although important disparities remain. White heterosexual men stand out as the group with the highest wage (about 19.2% above the average wage of workers living with a partner) and gay men of any race earn much less (between 6.8% and -6.7% of the average wage). On the other hand, all female groups have wages below the average (except Asian lesbians, whose wage is around the average). The wage gap of women, with respect to the average wage of the economy, ranges between -7% for white lesbians and -23.5% for Hispanic heterosexual women. Moreover, the wages of heterosexual women of any race and that of black lesbians are much lower than the wages of any male group. All of this suggests that the gender penalty extends beyond race and sexual orientation (although it is usually stronger for heterosexual women) and is higher than the sexual orientation penalty of gay men (with respect to same-race heterosexual peers).

This paper has also shown that the sexual orientation premium of lesbians (with respect to same-race heterosexual women) is plainly racialized: It is quite small for blacks and much higher for Hispanics and Asians than for whites. Moreover, the sexual orientation premium of Hispanic lesbians is large enough to surpass the ethnic penalty of Hispanic heterosexual women, implying that Hispanic lesbians earn more than white heterosexual women. On the contrary, the racial penalty faced by black heterosexual woman is much larger than the sexual orientation premium of black lesbians, which makes black lesbians have lower wages than white heterosexual women. Therefore, both groups of black women earn less than their white peers, which evidences the difficulties faced by black women. In the case of black men (either homosexual or heterosexual), the racial penalty is larger than the sexual orientation penalty of any other male group, which makes plain the disadvantage of black men.

Our results also suggest that departing from the white heterosexual model involves a substantial punishment for men. The racial penalty appears to be larger for heterosexual men than for gay men, whereas the sexual orientation penalty is greater for white men than for other races. Differing from the most privileged group—white heterosexual men—in a single characteristic conveys a severe penalty in terms of wages. The

consequences of losing any of these attributes are not so intense for sexual orientation or racial minority men.

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Appendix

	Whites	Blacks	Hispanics	Asians	Others	Total
Lesbian women	21,328	1,685	2,722	690	733	27,158
Straight women	1,459,107	116,441	193,618	106,998	37,506	1,913,670
Gay men	20,135	1,131	2,995	1,050	563	25,874
Straight men	1,752,645	136,421	272,357	116,937	43,179	2,321,539
Total	3,253,215	255,678	471,692	225,675	81,981	4,288,241

Table A1. Number of observations in the sample by sexual orientation, gender, and race/ethnicity

	Actual Economy			Counterfactual Economy		
	Γ^g	Δ^g	$EGap^g$	Γ^g	Δ^g	$EGap^g$
White lesbian women	4.69	-1.65	3.04	-2.14	-4.90	-7.04
White straight women	-3.22	-10.07	-13.29	-5.33	-9.88	-15.21
Black lesbian women	-11.79	-13.41	-25.20	-8.79	-12.22	-21.01
Black straight women	-11.00	-11.01	-22.01	-10.55	-11.63	-22.19
Hispanic lesbian women	-8.96	-11.88	-20.85	-2.68	-7.13	-9.81
Hispanic straight women	-19.41	-14.76	-34.17	-11.13	-12.41	-23.54
Asian lesbian women	7.12	4.03	11.15	-3.31	3.77	0.47
Asian straight women	5.44	-2.77	2.67	-5.50	-6.83	-12.33
White gay men	13.37	11.16	24.53	3.65	3.18	6.82
White straight men	8.51	12.62	21.13	7.50	11.69	19.19
Black gay men	-4.97	-5.06	-10.04	-4.47	-2.19	-6.66
Black straight men	-9.79	-3.77	-13.56	-5.03	-3.17	-8.20
Hispanic gay men	-3.96	-5.02	-8.98	-1.65	-0.81	-2.46
Hispanic straight men	-15.12	-6.75	-21.88	0.45	1.03	1.48
Asian gay men	20.56	15.21	35.77	-0.07	5.42	5.34
Asian straight men	17.73	16.19	33.92	2.94	5.52	8.46

Table A2. $EGap^g$ and its two components, Γ^g and Δ^g : Unconditional and conditional values

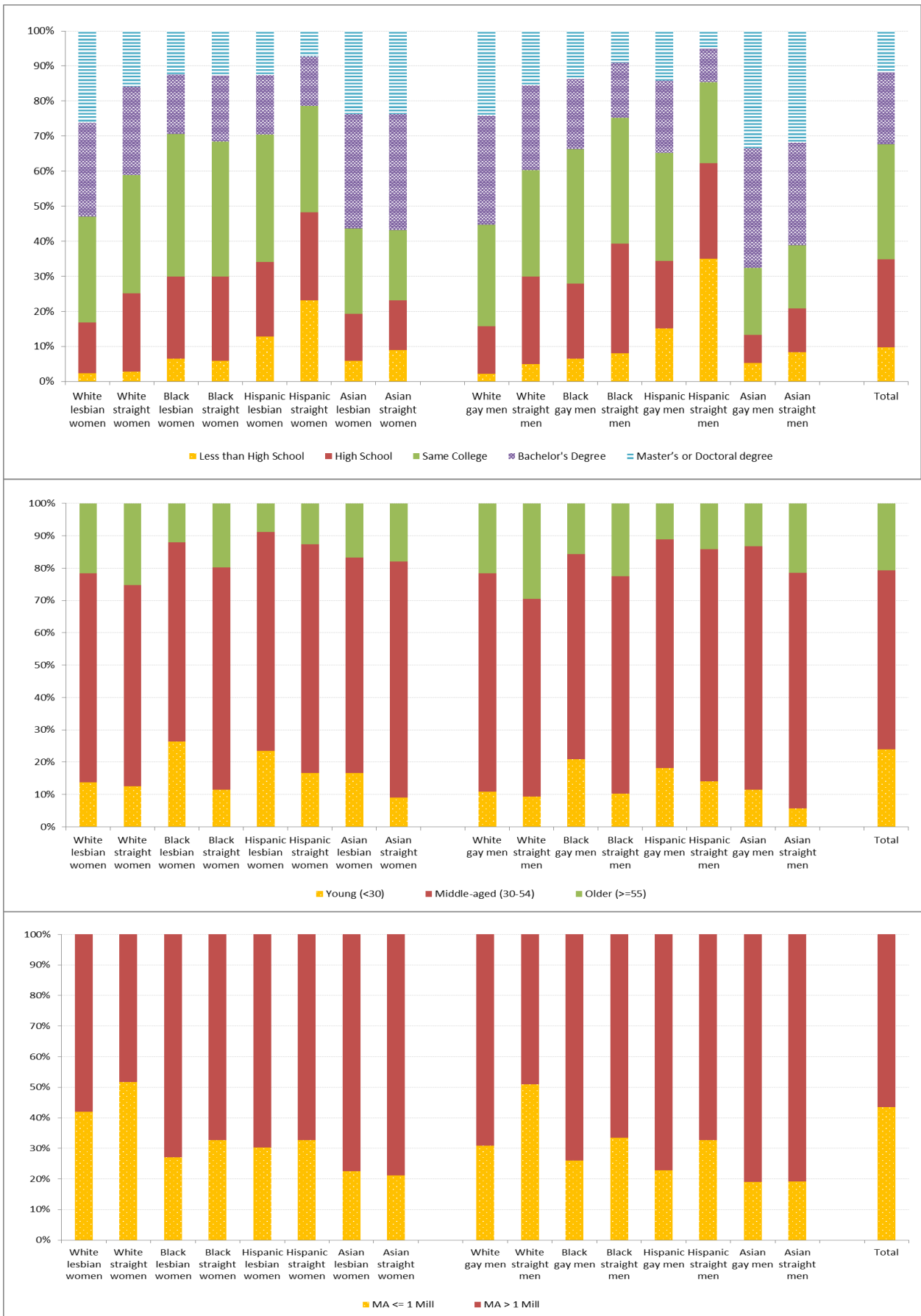


Figure A1. Basic characteristics of the groups: Educational attainments, age, and location

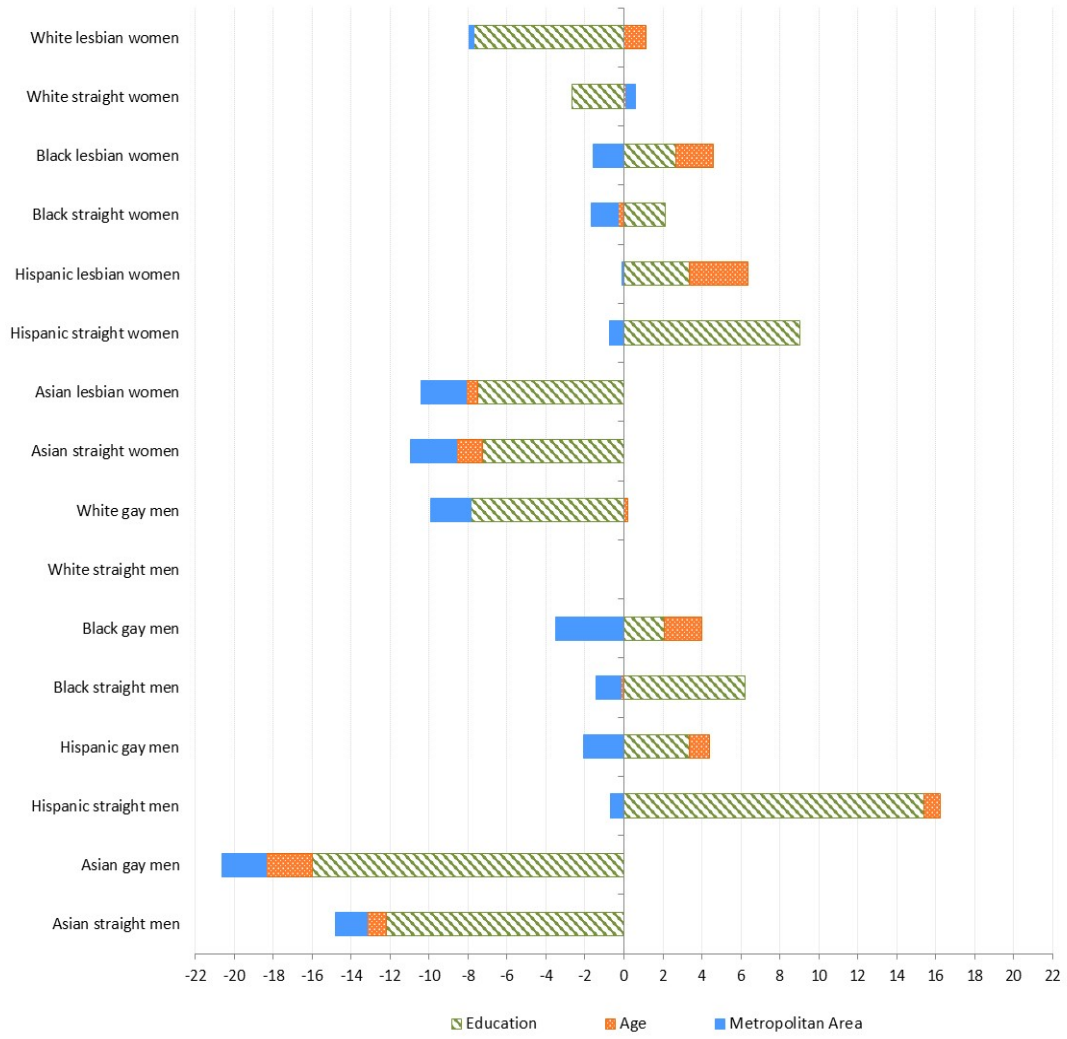


Figure A2. Conditional Γ^g minus actual Γ^g and factors' contributions