Gender Gap Among Same-Sex Couples*

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Abstract

An estimate of the effect of gender on wages obtained from a population sample is biased if there are differences in productivity correlated with gender and wages that can not controlled for. Since gender cannot be manipulated experimentally, there are two other natural ways to go about this issue: one can try to get richer data, or try to work with a randomly selected subpopulation with less acute problem of differences in unobserved characteristics. I pursue this side-stepping strategy and argue that gays and lesbians are such an interesting subpopulation. The estimated raw gender gap in hourly earnings among same-sex couples from 2008 American Community Survey is 11.3 log points (s.e. 0.036), which is about one third of the gap among heterosexual couples, and is similar to the gap among singles. Estimates of the same-sex gender-earnings gap are insensitive to controls for human capital characteristics or occupations and industries. Most of the gap, however, evaporates when geographic location is controlled for. The point estimate is zero in some specifications (s.e. 0.032). Geography has no effect on the gap among singles, while children explain about one half of it.

1 Introduction

"What is the definition of a lesbian? Yet another damm woman trying to do a man's job."[1] In this paper I exploit the idea that, compared heterosexual men and women, gays and lesbians are more alike in their (unobserved) productivity-related characteristics and argue that estimates of gender-wage gap for this subpopulation

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[1]Cohl, H. A. and King, A. *The Friars Club Encyclopedia of Jokes: Over 2,000 One-Liners, Straight Lines, Stories, Gags, Roasts, Ribs, and Put-Downs.* New York: Black Dog & Leventhal Publishers, 1997. Page 230.

are cleaner than estimates based on entire population. Specifically, gays and, to a lesser extent, lesbians are less likely to have children compared heterosexuals. If (an expectation of having) children affect men's and women's productivity differently, their wages will differ even in the absence of discrimination, and, as a consequence, if productivity is imperfectly measured in the data, estimates of gender-pay gap will be biased.[2] Second, because gays and lesbians are likely to be coupled with a partner of the same sex, specialization in household or market production can not be determined by their gender, so decisions on human capital investments, occupation, etc. are less likely to be influenced by that.[3] And, even if partners living in same-sex relationships do specialize, the effects on wages must cancel out within households and therefore within each gender.

To make it work, I need two assumptions. First, estimating the effect of gender on wages using comparison of wages of gays and lesbians is valid under the assumption that homophobia does not differentially affect gays and lesbians. While there seem to be more stereotypes held against gays (Herek, 2000, 2002) there are reasons to believe this may not be fully reflected in wages. Unlike gender or skin color, sexual orientation is generally unobserved, unless one decides to reveal it. Also, if not all employers are homophobic, gays may find comparable job matches in non-discriminatory firms.[4] Finally, across empirical studies, gays earn less than heterosexual men and lesbians earn more than heterosexual women, while household incomes of same-sex couples are on par with income of heterosexual households, this makes severe differential effects of discrimination against gays and lesbians unlikely.[5] Second, the results speciffic to same-sex couples extend to the population if assignment of sexual orientation is independent of wages. Since, by concensus, sexual

[2]See Bertrand et al. (2010) for a recent study that does a very good job in addressing the issue.

[3]Surely, socialization of children is unlikely to be affected by their sexual preferences, weakening this argument somewhat. Effects of gender-speciffic socialisation, however, are likely to go against hypothesis of this study making it more robust.

[4]The correlation between homophobia, or bigotry, and wages is *a priori* ambiguous. Such attitudes can be negatively correlated with intelligence and education, thus productivity and wages. On the other hand, competitive, or macho, environment can exhibit both high productivity and strong preferences about other people's sexuality.

[5]On average, the base sample of gays I work with earns the same wages as married men in 2008 ACS data, and have about 25 log points higher income per partner (see Table 2).

orientation is not a choice, validity of this assumption depends on whether gays and lesbians identified in the data are representative of their populations. Actually, this is one of the central themes studied in the previous research on sexual orientation and earnings, which I review in section 3;[6] reading of the literature suggests that it is possible to identify gays and lesbians and make meaningful statements about their population from data.

I use the 2008 American Community Survey (ACS) to obtain a sample of individuals living in same-sex households and draw a sample of 30,000 households from the rest of the data. Apart from being very recent, 2008 ACS data is also preferable since fuller sample of same-sex couples can be studied than in previous years.[7] I then select a subset of healthy, white, working individuals between 25 and 55 years of age, who were born in the United States and who's partners also satisfy this criteria.

The estimated raw gender gap in hourly earnings among same-sex couples is approximately 11 log points, which is about one third of the gap among heterosexual couples and it is similar to gender-earnings gap among singles. Estimates of the same-sex gender-earnings gap are insensitive to standard controls for human capital, or occupations and industries, supporting the claim that gays and lesbians do compare in their (measured) productivity related characteristics.

Notably, most of the same-sex gap in hourly earnings evaporates when geographic location, or cost of housing, are controlled for. The point estimate is zero in some specifications (s.e. 0.032). This is because gays tend to locate in different places (they more often live in large, high wage-high cost cities) than lesbians. There are reasons to expect that these differences in location choices are caused by factors that are unrelated to labor markets and wages; in particular the lower presence

[6]See also section 4 and Appendix where I address issues specific to data used in this paper and survey relevant literature.

[7]This is because the U.S. Census Bureau, in reaction to research showing problems with identification of same-sex couples in ACS and Census data, introduced an improved questionnaire and changed its data processing routines for 2008 ACS. The main change is that same-sex couples who describe their relationship as marriage are better identified; whereas in the previous years of ACS (and 2000 US Census) data, about 40% of such couples were likely different sex couples who mis-checked the box identifying sex. I overview this in detail in the Appendix.

of children in gays' households implies different trade-offs regarding spending on adult and child-related amenities (Black et al., 2002b). Also, any gender-related differences in preferences over living environment could be easily accommodated among same-sex couples resulting in geographic sorting.

Controlling for geography or housing costs has no effect on the estimated gender-earnings gap among singles, which speaks to the concern that the "geography effect" is just the plain reverse causality and suggests that the sources of the gap across the two groups differ. At the same time, presence of children "explains" about half of the gap among singles but not among same-sex couples (estimates actually rise a bit); each child is associated with about 9% decrease of single mums' wages, whereas wages of lesbians and single fathers rise by about 6% with each child, and gays' wages do not change. I suggest this is consistent with the theory that specialization is behind the gap among heterosexuals, whereas differences in choice of geographic location explain the gap in hourly earnings among gays and lesbians.

I check my results by restricting the earnings concept to wages and salary workers, by restricting the sample to full time-full year workers, and finally by relaxing the sample restrictions to people aged between 18 and 65, including all non-whites and individuals from households in which only one of the partners works. I am not forced to alter my conclusions after doing so.

I interpret these findings as suggesting that an important part of gender-related differences in pay reflect individual choices and household specialization effects, rather than factors related to labor market failure such as systematic discrimination against women. A possible interpretation of these results is that the existence of a gender-pay gap is in question. A more benign interpretation can be that the effect of gender on wages exists but is smaller than the population estimates would suggest.

The rest of the paper is structured as follows: Next section develops a simple model of consumption-effort trade-off in a family, section 3 surveys the existing literature on sexual orientation and earnings, section 4 describes the 2008 ACS data and presents summary statistics, and section 5 presents empirical model and the

results. I conclude in section 6. Finally, I also include an Appendix that details issues related to identification of same-sex couples in ACS data and the related research.

2 A one-page model of consumption-effort trade-off in a family

Consider a parent, u, with a dependent child,[8] deciding on how much to work, e, and how to split the consumption of x between herself, xs, and her child, $x(1-s)$, where $0 \leq s \leq 1$. e can be thought of as a proxy for weekly hours, weeks worked, work effort, etc. It can also represent decisions on investments in human capital that reflect one's probability of becoming a parent with a dependent child. The problem can be written as

$$max\ u = u^o(xs, e) + u^d(x(1-s)), \quad s.t.\ x = w(e), \tag{1}$$

where o stands for own, d for dependent's, and the us are usual utility functions $(u^o_1 > 0, u^o_{11} < 0, u'^d > 0, u''^d < 0)$[9], work effort is obviously unpleasant so that $u^o_e < 0, u^o_{ee} < 0$. To keep things simple, let's also have $u_{1e} = 0$.[10] Lastly, wage income increases in e, albeit at a decreasing rate, in other words, $w' > 0, w'' < 0$.

First order conditions for the problem (1) are

$$(u^o_1 s + u'^d(1-s))w' = -u^o_e \tag{2}$$

and

$$u^o_1 = u'^d. \tag{3}$$

[8]This could also be a son/daughter taking care of parents, or any other setting in which one person earns but two consume. The model straightforwardly accommodates to a divorced parent paying alimony.

[9]Subscripts signify partial derivatives where the number reflects the position of the argument that is allowed to vary.

[10]Alternatively, one could plausibly expect that $u_{1e} > 0$, this would not change model's predictions.

Note that in equilibrium $0 < s < 1$ as long as $x > 0$. Plugging (3) into (2) and rearranging yields

$$u_1^o w' = -u_e^o.$$

Now consider another agent, v, who faces the same decision as (1), except she has no dependent to spend cash on. This is the same as restricting $s = 1$ in problem (1). Since $u_{1e} = 0$, we can say that, after both agents have optimized, it will hold that

$$u_1^o(xs)w' = -u_e^o(e) > v_1(x)w' = -v_e(e),$$

implying

$$e^u > e^v$$

and

$$x^u s < x^v,$$

where superscripts refer to agents u and v, respectively.

In other words, being responsible for a dependent person increases the cost of leisure and should result in greater work effort, or displeasure, devoted to obtaining an income. Similarly, expectation of being responsible for a dependent in the future should alter decisions on current e to the extent this may influence future returns to e (as in Becker 1962). If for instance women are on average less likely to be responsible for the larger part family's income than men, one would expect their optimal choice of e will be different and so will be their wages.[11] Since we want to understand why women earn on average less than men, we would like to know how big is the part of the difference, which can be explained by gender-differences in optimum e. The fact that this is hard to do in a population sample, since e is absent from the data, is what motivates this study.

Analogous reasoning as above can be applied to the choices made by gays. Among gay couples the probability of being the household's main earner is 0.5, which is

[11] Note that the source of that may be inborn differences in comparative advantages or discrimination, for instance. Same conclusion applies, however. See Becker (1985) for a more elaborate model.

presumably smaller (larger) than among coupled heterosexual men (women). This should have two effects. First, the lower expectation of being the main earner should affect investments in human capital and related choices[12] as well as their choice of current e. The fact that gays are less likely to have children, will also imply lower optimal e. Second, irrespective of whether individual gay couples divide their household and market work, effects of that will cancel out within each household and therefore within gender.

In the case of lesbian couples the two factors play in the opposite dirrection. Lesbians are less likely to be dependents (or secondary earners) compared to heterosexual women, indeed the probability among coupled lesbians is the same as among gays, 0.5. This should imply their optimal e and related choices will differ from heterosexual women's, and as in the case of gays any effects of household division of labor should cancel out within households and therefore within gender. Compared to gays, lesbians are more likely to have a child and be responsible for him or her, a factor potentially threatening the similarity of the two groups with regard to e. Yet, lesbians' kids have fathers who may contribute and two mothers so lesbians' situation likely differs from that of fathers' in heterosexual families.

Apart from the children issue, this discussion suggets that optimal es of gays and lesbians are more similar than those of heterosexual men and women. If indiosyncratic discrimination against gays is not a large driving force suppressing their wages, as argued above, comparing wages of gays and lesbians is valuable in order to estimate gender-wage gap because unobservables, sexual division of labor, and other choices are less of a problem here. Still, any remaining gap cannot be attributed to taste-based discrimination (Becker, 1957) against women *per se*. It can come from differences in preferences, differences in inborn skill structure (e.g. physical strength, social intelligence) and their differential market valuation, or from statis-

[12]This do not need to imply fewer years of education, rather it may imply choice of different subjects. To the contrary, if education is a consumption good itself or allows cosumption of goods such as status, interesting job, work environment, or flexible hours, gays may be motivated to get more years of education than would be optimal for heterosexual men. This may be an alternative explanation for why are gays more educated than heterosexuals and why many of them work in academia, for instance; the conventional wisdom being that academia is more tolerant.

tical discrimination (Arrow, 1971, Phelps, 1972), if employers do not fully observe sexual orientation of lesbians, for instance.[13]

All in all, one would expect that household specialization effects would result in choices of e and therefore wages that differ across genders and across sexual orientations. To the extent that e is not observed in the data, one is not able to say what part the observed gender-wage differences should be attributed to differences in individual choices and what part goes to other suspects, like effects of discrimination on labor market outcomes. This is of course the main concern in any study of wages and gender or sexual orientation. The claim that this problem is less severe when we look at gays and lesbians is what motivates this paper. Explaining the sources of gender-pay differences is important from the policy viewpoint too. If discrimination is the culprit, government (or other entities) may want to, and may be able to, improve market outcomes. If it is choices, government's action will be a waste of effort at best. Without pretending that I am able to solve this policy issue here, I claim that comparison wages of gays and lesbians offers some more structure and insight into the extent and possible sources of the gender-pay gap.

3 Sexual orientation and earnings literature

Since it's inception in 1995 by M.V. Lee Badgett's study, empirical literature looking at the effects of sexual orientation on labor market outcomes mushroomed. Because Elmslie and Tebaldi (2007), Schmitt (2008), Ahmed and Hammarstedt (2009), and Baumle (2009) already overview the body in some detail and Black et al. (2007b) provide a very good background article, I will only briefly summarize the most relevant upshots in here.

The main challenge, in addition to the standard ones, a study of earnings effects

[13]The distinction between taste-based and statistical discrimination is often not appreciated enough. In fact, these are completely different species, similarly as misunderstanding and intention are. True, the material effect in which they result may be the same and the affected person may be bothered in either case. Nevertheless, the concepts point to different *causes.* In the case of taste-based discrimination, the issue is purely ethical, whereas in the case of statistical discrimination it relates to information and commitment problems. Different cause may imply different cures. It is however possible that the two kinds are in reality mixed and may influence one another.

of sexual orientation faces is the identification of sexual orientation itself in data. First, there is no obvious definition of what constitutes a sexual orientation, second, data that contain any possibility to identify sexual orientation are sparse, third, respondents' willingness to identify sexual orientation may not be purely random, last, identification in a survey does not imply that an individual's sexual orientation is known to his or her surroundings. Indeed, as Badgett (1995) already discussed, since sexual orientation is generally unobserved, "coming out" is a decision that has its cost benefit structure and can be correlated with various things including earnings, the sign of the correlation is uncertain, nevertheless.

Researchers studying sexual orientation and earnings are of course aware of these issues and the main strategy to address them is to vary the criteria that identify sexual orientation and test stability of previous findings.[14] Thus, one of the main properties of the literature is a hunt for alternative datasets. Then, the usual strategy employed in the literature is to regress wages on a set of human capital controls and a dummy variable for sexual orientation, separately for men and women. The main structure of the findings, however, seems to be constant across definitions, datasets, and as recent studies confirm, also across countries. That is, gays seem to earn less per hour than heterosexual men, and lesbians earn more than heterosexual women. For the United States this is found by Allegretto and Arthur (2001), Clain and Leppel (2001), Berg and Lien (2002), Black et al. (2003), Blandford (2003), Carpenter, 2004, Carpenter (2007), and Elmslie and Tebaldi (2007), for Canada by Carpenter (2008), for the Netherlands by Plug and Berkhout (2004), for Sweden by Ahmed and Hammarstedt (2009), and for the United Kingdom by Arabsheibani et al. (2005). No study I am aware of finds statistically significant results in the opposite directions.[15]

[14]The three main possibilities to define and identify sexual orientation are behavioral criteria (gender of sexual partners), self-identification, and household structure.

[15]Badgett (1995) found wage penalty for both gays and lesbians in pooled 1989–91 General Social Survey data, but her estimates were not significant in the case of lesbians. Black et al. (2003) analyze the same data and show that her estimates are an artifact of the definition of homosexuality she used (she defined homosexuality as having more same-sex sexual partners since the age of 18). More appropriate definitions of homosexuality (based on recent sexual behavior) yield results in line with the rest of the literature. Thus the first study is also an exception in this

While wage regressions provide authors with considerable flexibility in interpreting results, the two most popular stories develop around discrimination (Becker, 1957) and household specialization (Becker, 1985). Sure, both factors may play a role simultaneously. However, unless one is willing to accept that the differences in discriminatory attitudes towards gays and lesbians[16] are large enough to explain these patterns, the household specialization explanation seems to have an edge. The main objection to this explanation are the better observed xs of gay men, whereas household specialization model, would predict that gays would underinvest into human capital relative to heterosexual men. In reality, xs are imperfect proxies of human capital for variety of known reasons, also, gays may want to overinvest in measurable human capital characteristics such as years of education, diplomas etc., if these are source of additional utility (such as prestige, better working environment, less oversight) apart from increased income. Although, part of the motivation to overinvest may be driven by an attempt to avoid social structures that are hostile to gays, the point is that it may obtain even in the absence of such hostility.

There is yet another reason why wage regressions comparing heterosexual and gay men may give biased results that has been omitted in the literature so far, despite it rests on probably the most popular textbook example of model mis-specification: the education-ability story. If the distributions of inborn ability in populations of gays and straights are the same, education is positively correlated with ability, and gays are more educated than straights, a sample of highly educated gay men will have lower average ability. If ability is rewarded by labor markets and it is not controlled for, as usual, I would expect estimates of gays' returns to education to be biased downwards. This would translate into downward bias on the gay dummy in a pooled Mincer regression, as well as, into lower returns on education in separate regressions for gays and straights, making Blinder-Oaxaca decomposition to find a discrimination even in data from a society where nobody cares about sexual behavior of others.

respect.

[16]See Herek (2000 and 2002).

4 Data and decriptive statistics

4.1 The data

Data in this paper come from 2008 American Community Survey (ACS) Public Use Microdata Sample (PUMS) files. The ACS is a survey of households and groupquarters conducted continuously[17] by the U.S. Census Bureau. Approximately 3 million housing units are selected each year, and their inhabitants are asked to fill up a questionnaire similar to the decennial Census form. A sample of the data is made publicly available through the PUMS files, which include most population and housing characteristics. Files have been edited by the Bureau to protect the confidentiality of individuals and households, identifiable geographic areas (Public Use Microdata Areas - PUMAs) have a minimum population of 100,000. Thus the data are not a pure random sample, however the datafiles contain sampling weights that allow consistent population estimates.

The ACS 2008 PUMS files contain data for 2,918,165 individuals from 1,267,843 households. Same-sex couples can be identified through a household member's relationship to the householder and their sex.[18] If a household member identified him/herself as either husband/wife or unmarried partner (UP) of the householder, and the two are of the same sex, I label the two as a same-sex couple. [19] I label different-sex households those where the householder and his/her UP or wife/husband are of different sexes, and unpartnered households (singles) those where only the householder, without partner, is present.

There are three immediate issues with this way of identiffying same-sex couples. First, only coupled gays and lesbians may be identified.[20] Second, some same-sex

[17] So that data reflect the period, in our case the year of 2008, rather than a point in time.

[18] The relevant part of the questionnaire is shown in Figure A.1 in the Appendix.

[19] In the former case the U.S. Census Bureau changes the partnership status and marital status to UP, since the latter change is flagged the subset of same-sex couples who identified their relationship as marriage can still be identified in the data.

[20] However, I believe that there is an advantage in working with same-sex couples because household arrangements are better observable on the job market than sexual orientation itself. Thus it is more likely that members of same-sex households are "out" and perceived as members of sexual minorities by their friends, neighbors, employers, coworkers, or customers.

couples may select a different description of their relationship (roomer or nonrelative, for instance). Third, and most importantly, if one of heterosexual partners makes a mistake and selects wrong sex, the couple will end up among same-sex couples. And because the number of same-sex households is quite small (less than 1% of households), even a small proportion of mistakes in sex identification may result in substantial contamination of same-sex households in the data by *de facto* heterosexual couples.

Fortunately, these issues have been known and subject to research since 1990 US Census first allowed same-sex couples to identify as UPs. For brevity, I relegate a detailed overview of the literature and history of identification of same-sex couples in US Census Bureau's data to the Appendix. The upshot is that vast majority of same-sex couples who identify themselves as UP are true gay and lesbian couples (Black et al., 2000, 2002a, and 2007a), also their characteristics are similar to unpartnered homosexuals (Black et al., 2000, Carpenter, 2004). Second, the US Census Bureau reflected the research pointing out large number of misclassificatios among same-sex couples who originally identified as husband/wife,[21] and starting in 2008 it introduced an improved ACS questionnaire as well as new editing rules that should lower the contamination of same-sex couples by misclassified heterosexuals (US Census Bureau, 2009). Thus, unlike previous datasets, the ACS 2008 data allow to include same-sex couples who stated they are married together with the sample of same-sex UPs.[22]

In order to obtain a workable datafile, I select all of the 6275 same-sex UP households, take a random sample[23] of 30,000 households from the remainder of the data, and adjust weights of the sampled observations accordingly.[24] Because

[21]Black et al. (2002a, 2007a) find that over 40% of same-sex unmarried partners were likely misclassified different sex married couples in 2000 US Census data. Similar magnitude of misclassicfication existed in 200-2007 ACS data. As result of that all observations of same-sex UPs that originally identified as married had to be dropped.

[22]In empirical analysis I, nevertheless, always include a dummy to allow the two groups to differ.

[23]I sample without replacement so that household identifiers remain unique. The ratio of sample to the data is approximately 0.03 so that this procedure does not affect representativeness of the sample.

[24]Denote $\boldsymbol{W}$ the vector of sampling weights of length N and denote n the size of a random sample drawn from N. The vector of sampling weights for the subsample n is $\boldsymbol{w} = \boldsymbol{W}\frac{N}{n}$.

the size of the resulting sample allows for some convenience, I select a sample of healthy, white population that was born in the US, is out of school, aged between 25 and 55 years, with 4 kids at maximum, and earned between $1 and $200 per hour. The relatively tight age selection criteria is meant to further minimize effects of classification error described above, since this type of error is more likely to be committed by older respondents, and to focus the sample on people who's sexual behavior is settled, as relationships among younger people may differ from those among grown-ups. I restrict the sample to households in which both partners satisfy this criteria. As a robustness check I relax these restrictions, and results remain qualitatively similar, I report and discus this in section 5.4.

The outcome of interest, hourly wage, is not measured directly in ACS data, but it can be obtained from yearly income and the information on weeks worked and usual weekly hours.[25] While such a concept of wage is noisy because yearly amounts and averages may be misestimated by respondents, measurement error would be of concern only if the patterns of misreporting were different for men and women, I assume this is unlikely to be a serious issue, in which case only the precision of estimates is affected.[26] Thus my main measure of hourly pay is the total person's earned income (wage, salary, or income from self-employment) divided by weeks worked during past 12 months and usual hours worked per week during past 12 months. Restricting the definition to salary and wage income alters results only minimally and in the direction supporting my conclusions. Similarly if the sample is restricted to full time-full year workers.

4.2 Descriptive statistics by household type

The discussion above, and brevity concerns, seem to justify the use of the term gays for males living in same-sex households and the term lesbians for women in

[25] Weeks worked are measured in 6 intervals (0-14, 14-26, 27-39, 40-47, 48-49, 50-52), and income is top-coded at $999,999. I code weeks worked as the middle of respective interval and multiply top-codes by 1.2.

[26] However, see Lemieux, 2006a for an important discussion of nontrivial effects of measurement error on the estimates of changes in income inequality over past few decades in the United States.

same-sex households. Table 1 presents characteristics of the sample of households in ACS 2008 by household type and marital status. Sample sizes and population estimates are at the bottom of the table. There were about 400,000 gay and lesbian UP households in the US in 2008 plus additional 80,000 gay and 90,000 lesbian couples who characterized their relationship as marriage.

Gay couples, especially UPs, disproportionately often live in certain cities such as San Francisco, Los Angeles, New York, Washington D.C., or Chicago; this much less true for lesbians who live in these places even less often than singles.[27] The second row shows proportions of households located in the three states in which same-sex marriage was legal at some point in 2008,[28] almost 30% of gay and lesbian couples who identified themselves as married live in one of these three states. Both gays and lesbians are more likely to live in metropolitan areas than different sex couples, and especially gays are more likely to live in large cities (PMSAs). These geographical patterns are consistent with the existing literature.[29] As a consequence, same-sex couples, gays in particular, live in areas with higher housing costs, and it is also somewhat true for singles.

The following rows of Table 1 reveal some household characteristics that would be hidden if we looked at mean individual characteristics only. Mean age of the older partner among gay and lesbian couples is similar or slightly higher than among married heterosexual couples. Singles and heterosexual UPs are younger. Somewhat surprisingly, however, the age differences within couples are larger among gays and lesbians than among heterosexual couples, this is especially pronounced in the case of gay UP households. The average number of years of education among the more educated of partners is always higher among same-sex couples than heterosexual

[27]Other cities that belong to the top 10 by their gay population are: Dallas, Philadelphia, Boston, Seattle, and Houston. 34% of gay UP households live in these cities, for lesbian UPs, married different sex couples and singles, the proportions are 18, 10, and 15-18%, respectively.

[28]Marriages between same-sex couples have been legal in Massachusetts from 2004 and from June to November 2008 in California, when a constitutional amendment banning same-sex marriages was passed in referendum. The state supreme court in Connecticut also ruled in October 2008 that excluding same-sex marriages was unconstitutional. Iowa, and Vermont allow same-sex marriages since 2009, New Hampshire since January 2009.

[29]See Black et al. (2000, 2002b, and 2007b).

Table 1: Summary statistics - Households

	Same-sex				Different sex		Single	
	Men		Women				Men	Women
	UP	Married	UP	Married	UP	Married		
% living in S.F., L.A., N.Y.,D.C., Chicago	16.97	11.77	4.44	3.79	2.63	1.62	5.40	5.01
% living in CA, MA, CT	18.58	27.48	14.93	29.08	10.92	9.44	10.61	14.28
% living in IA, NH, VT	0.51	0.88	1.54	6.23	2.61	3.66	2.57	1.84
lives in MSA	89.80	84.26	87.74	83.87	72.66	76.12	79.78	82.72
lives in PMSA	48.69	46.78	41.95	38.40	32.28	28.62	32.29	37.51
log of mean costs p/bedroom (by PUMA)	6.33	6.24	6.13	6.09	5.93	5.92	6.00	6.01
age (max)	44.30	43.70	43.91	44.93	39.10	43.79	40.78	41.69
- diff	5.49	3.49	4.53	3.79	4.15	2.95	-	-
yrs of education (max)	16.26	15.77	16.24	16.15	14.37	15.20	14.13	14.41
- diff	1.87	1.80	1.66	1.58	1.63	1.54	-	-
weekly hours worked (max)	47.95	48.22	46.46	46.11	45.79	46.79	45.22	41.62
- diff	7.42	9.57	8.39	10.58	8.42	11.96	-	-
weeks worked (max)	50.91	50.77	50.45	50.16	50.29	50.69	48.46	48.20
- diff	3.35	3.59	3.32	6.04	5.88	4.99	-	-
both work full time	78.91	72.71	71.27	56.32	59.90	57.54	-	-
income per partner (in USD)	147,932.71	142,374.39	119,604.07	108,776.20	83,850.15	108,960.54	55,966.10	47,057.20
main earner's share on hh income	64.78	65.31	63.45	67.28	66.86	68.88	100.00	100.00
main earner's hourly earnings (in USD)	41.21	40.85	34.31	32.66	26.73	34.03	24.71	21.41
- diff (in USD)	18.40	18.30	13.65	13.40	12.69	16.07	-	-
N-subsample	663	158	653	176	304	3,472	1,405	1,529
subpopulation	61,042	15,638	63,227	14,204	1,247,358	12,298,876	6,526,922	6,455,813
N-full sample	2,138	826	2,187	1,124	1,277	15,634	4,662	8,041
population	194,484	78,028	203,166	89,822	5,651,872	55,589,684	20,147,491	31,896,485

couples and singles, while the differences in within-couple differences in education across household types are trivial. We also see that the mean of weekly working hours of the partner who works more is higher among gays than married heretosexual couples, lesbians, and single men. Looking at main earners in households, weeks per year seem to be similar across partered househol types, single men and women work about two weeks per year less. Differences between men and women become slightly pronounced if we look at partners who work less in respective household types. Finally, with the exception of married lesbians, it is more likely that both partners work full time in same-sex than in heterosexual households.

Yearly income per partner is the highest among gays and the difference is substantial, lesbians have income comparable to married different sex couples and single men, heterosexual UPs have the lowest income per partner. The main earner's share is lower among same-sex couples, and heterosexual UPs, than married different sex couples, but these differences are rather small. Similarly, hourly earnings are the highest among main earners in gay households, main earners in lesbian households earn about the same amount per hour as the main earners in married heterosexual couples.

These patterns suggest that intra-household division of labor and specialization may play a role among same-sex couple. Although household specialization is not the main theme of this paper I note that this is somewhat surprising, as one's hunch would rather be that intra-household differences in characteristics like age or education should be smaller among same-sex couples than heterosexual pairs, if these were related to different biological properties of men and women, child rearing, and the like. I suggest that these patterns support Becker's (1985) model where household specialization is a result of increasing returns from specialized human capital, something that does not require different sexes or presence of children in order to occur.

The descriptive statistics also suggests that people living in same-sex relationships are not facing substantial earnings disadvantages, in facts gays seem to be

relatively wealthy compared to all other types of households. However, this may in part reflect the fact that gays concentrate in cities and states that are characterized by higher wages, at the same time these places are likely to have higher cost of living, so part of the income differences may be spurious and do not directly translate into living standards.

4.3 Summary statistics of individuals

Tables 2 and 3 present summary statistics for men and women by type of household in which they live. Gays' hourly wages as well as yearly income are on average the same as married men's. Single men and men living in UPs have wages about 25 and 35 log points below gays' and married men's, respectively, and also their total earnings are substantially smaller. When we look at combined income of the two partners in a household, it is about 25 log points higher for gays compared to married opposite sex couples.

Gays are slightly less often covered by health insurance compared to married men, but more often than single men and heterosexual men living in UPs. On average, gays work about the same number of weeks per year and about 1 to 2 hours less per week than married men, but they work about 1 hour and one week per year more than men living in opposite sex UPs. Married men are full time workers with a higher frequency than any other group in the table. On the other hand, partners of heterosexual married men are the least likely to be full time workers. Heterosexual men living in UPs are younger and the least educated, whereas gays, married and unmarried, and have on average more years of education than any other group. A small fraction of UP gays have children, whereas about 40 percent of married gays have their own child. Gays are less likely to have served in the military. Finally, gays are slightly less likely to work in a for-profit company, and more likely to work in a non-profit company, they are about as likely to work for government (perhaps except federal government) and about as likely to be self-employed as an average man.

Table 2: Summary statistics - Men, by type of househod

		Same-sex		Different sex		
	All	UP	Married	UP	Married	Single
log hourly earnings	3.11	3.22	3.22	2.94	3.21	2.97
log earned income	10.77	10.86	10.84	10.54	10.87	10.60
log total income	10.79	10.90	10.86	10.56	10.90	10.64
log i's+i's partner's income	11.16	11.69	11.67	11.18	11.43	10.64
% receiving soc. sec. income	0.48	1.13	0.91	-	0.27	0.95
% health insurance	88.33	90.60	91.99	74.31	94.72	78.84
weeks worked	48.93	49.23	48.99	47.91	49.28	48.46
hours worked per week	45.26	44.27	43.57	43.88	45.43	45.22
% full time workers	88.97	88.34	85.81	83.69	91.39	85.41
% partner works full time	43.32	88.58	85.26	68.45	63.17	-
i is the main-earner	0.62	0.50	0.50	0.66	0.68	0.50
i's share on hh income	0.74	0.50	0.50	0.58	0.63	1.00
age	42.01	41.54	41.99	37.88	43.08	40.78
years of education	14.21	15.32	14.84	13.30	14.33	14.13
% witch childern	42.66	5.23	42.21	35.67	60.43	11.11
number of own children	0.77	0.08	0.74	0.58	1.12	0.17
number of times married	1.01	0.15	0.46	0.59	1.26	0.63
served in military	12.08	6.25	7.22	11.86	12.20	12.04
Works in a:						
- private for profit c.	69.56	66.44	63.70	74.75	67.55	72.48
- private non profit c.	4.14	10.76	6.13	3.27	4.51	3.45
- local government	6.26	5.05	7.56	5.86	7.41	4.17
- state government	3.66	2.71	4.41	3.05	3.78	3.56
- federal government	3.43	2.48	3.50	0.51	3.37	4.12
- self-employed/not incorporated	7.00	7.10	7.49	7.12	6.39	8.11
- self-employed/incorporated	5.96	5.46	7.21	5.45	6.99	4.11
time of travel to work (minutes)	24.27	24.30	23.85	23.91	25.41	22.19
N-subsample	6,823	1,322	320	304	3,472	1,405
subpopulation	20,249,808	122,456	31,580	1,232,587	12,336,262	6,526,922
N-full sample	42,582	4,274	1,654	1,277	15,634	4,662
population	144,879,418	392,009	156,108	5,752,206	56,067,223	20,147,491

Shifting attention to women's characteristics summarized in Table 3, we see that lesbians are the highest earners among women, with hourly earnings about 25 log points higher than single and married women and more than 40 log points higher than heterosexual women living in UPs. They also have higher personal income and the combined income of lesbian partners is slightly higher than the income of heterosexual married couples. Lesbians are slightly less likely to have a health insurance than married women, but more likely to have it than single women and women living in UPs, they also work more hours and more weeks compared to other women, except singles, who work slightly more than married lesbians. Consistent with that, lesbians and single women are most likely to be full time workers, but lesbians are

Table 3: Summary statistics - Women, by type of househod

		Same-sex		Different sex		
	All	UP	Married	UP	Married	Single
log hourly earnings	2.85	3.10	3.04	2.66	2.85	2.87
log earned income	10.24	10.67	10.52	10.09	10.17	10.41
log total income	10.29	10.73	10.57	10.16	10.20	10.49
log i's+i's partner's income	11.11	11.52	11.42	11.17	11.43	10.49
% receiving soc. sec. income	1.32	0.70	2.17	1.38	0.57	2.73
% health insurance	90.59	91.08	94.19	75.23	95.38	84.45
weeks worked	47.46	48.74	47.29	46.67	47.13	48.20
hours worked per week	38.22	42.29	40.86	39.45	36.25	41.62
% full time workers	69.05	82.88	76.73	69.82	62.77	80.46
% partner works full time	61.47	83.12	76.82	84.30	91.39	-
i is the main-earner	0.38	0.50	0.50	0.34	0.32	0.50
i's share on hh income	0.58	0.50	0.50	0.42	0.37	1.00
age	41.24	41.69	42.91	36.18	41.52	41.69
years of education	14.45	15.40	15.35	13.81	14.53	14.41
% witch childern	49.69	20.92	38.81	37.43	60.63	31.98
number of own children	0.90	0.35	0.67	0.61	1.13	0.53
number of times married	1.10	0.27	0.69	0.62	1.28	0.87
served in military	1.92	4.22	3.02	1.02	1.51	2.81
Works in a:						
- private for profit c.	63.03	58.22	54.02	76.05	60.14	66.12
- private non profit c.	11.77	12.43	15.60	6.55	12.93	10.56
- local government	10.45	11.19	10.77	6.56	11.53	9.14
- state government	5.47	6.14	4.74	3.77	5.27	6.18
- federal government	1.53	3.19	3.49	0.42	1.18	2.35
- self-employed/not incorporated	5.03	4.97	6.01	3.42	5.70	4.06
- self-employed/incorporated	2.72	3.86	5.37	3.23	3.25	1.59
time of travel to work (minutes)	20.73	24.30	23.85	22.31	19.84	22.04
N-subsample	6,963	1,303	355	304	3,472	1,529
subpopulation	20,058,850	126,032	29,073	1,244,173	12,203,759	6,455,813
N-full sample	45,887	4,339	2,283	1,277	15,634	8,041
population	150,925,629	403,038	183,605	5,509,295	55,005,004	31,896,485

slightly less likely to have a partner who works full time than partnered heterosexual women. Similarly to gays, lesbians are more educated than other women. They are also less likely to have children than married women, but married lesbians are about as likely to have kids as single women and women living in UPs. Lesbians and singles are more likely to have served in the military than women with a male partner. Regarding employment, lesbians are slightly less likely to work in a for-profit company than married women and are more likely to own an incorporated business. They are also more likely to work for state or federal government, or work as self-employed. Whereas gays seem to have slightly shorter travel times to work than married heterosexual men, lesbians take longer routes compared to other women.

Summing up the descriptive evidence, there seem to be few signs supporting the notion that partnered gays and lesbians currently suffer from large income penalties due to their sexual orientation. Nor is there a strong case for the expectation that gay men are exposed to such penalties disproportionately. This is not to say that homophobia and discrimination of sexual minorities are nonexistent, but rather that these may not play the central role in the wage determination process. Importantly for us, since gays and lesbians seem to differ less in their observable human capital and work related characteristics compared to heterosexual couples, it is reasonable to expect that gays and lesbians are also more similar in unobservable characteristics relative to heterosexual men and women. This is suggested by propensities of having a partner who works full time, years of education, employment, military service, travel time to work, etc.

Among substantial differences between gays and lesbians, geographic location and propensity of having children may be important. While it is possible that the two are unrelated, gays may prefer to live in places with good non-child related amenities, whereas lesbians, who are more likely to have their own children, may rather opt for more child-friendly places.[30] The smaller probability of having children may also make homosexuals, but mainly gays, more independent of their families, as proximity of grandparents may be an important advantage for families with children. The tendency of gays and lesbians to live in urban areas can be partially driven by more friendly environment towards minorities and greater anonymity, which may reflect job market discrimination. However, choice of urban areas is also likely to be driven by factors with no relation to labor markets whatsoever. Marriage markets may be too shallow or nonexistent in small towns, while cities may offer much more opportunities to socialize and have fun. Also, if men and women had on average different preferences as to the environment they want to live in, one would expect that lesbians would chose different locations to live in than gays, and both groups would make choices that differ from heterosexuals.

[30] See Black et al. (2002b) who find that amenities predict choice of location of gays better than gay-friendliness.

5 Empirical model and results

5.1 Model

The base empirical model I employ is the standard Mincer wage equation augmented according to recommendations of Lemieux (2006b):

$$y_i = \alpha_0 + \alpha_1 woman_i + \sum_{k=1}^{2} \beta_k educ_i^k + \sum_{l=1}^{4} \beta_l exper_i^l + \sum_{k(5)} \delta_k coh_{ki} + \boldsymbol{\delta' x_i} + \epsilon_i, \quad (4)$$

where y_i is log of hourly earnings of a person i computed from yearly earned income divided by weeks worked per year and weekly hours, α_o is the intercept, $woman_i$ is a dichotomous variable that equals 1 for women and 0 for men, $educ_i^k$ is a vector consisting of i's education (in years) and its square, $exper_i^k$ is a quartic vector in i's potential experience defined as $exper_i = (age_i - educ_i - 6)$, and coh_{ki} is a vector of 5-year cohort dummies taking on value of 1 if i was born in that cohort and 0 otherwise (1965-1970 is the omitted cohort), $\boldsymbol{x_i}$ is a vector of additional control variables, and ϵ_i is the unexplained error term that may or may not be correlated with right hand side variables.

The coefficient of interest is α_1, and if ϵ_i is not correlated with right hand side variables, it captures the effect of sex on wages. There are of course good reasons to believe that this is not the case, and this concern is the main reason why the gender gap and its sources remain in dispute. The dispute can be described as to whether or not a regression such as (4) really controls for all differences between men and women that may be related wages; or in the framework of the simple model discussed in section 2, whether e is accurately controlled for. At the same time, if an individual's choice of e, or the right hand side variables in (4), reflect existing wages, or if they are measured with an error which is correlated with gender (as in the case of potential experience), estimated coefficients will be biased, and as a consequence the effect of sex on wages will be misestimated. There is no doubt that these problems are present in this paper too. Yet, the claim that this problem is less

severe when we look at gays and lesbians is what motivates this work. As stressed above, this holds under the assumption that effects of differential discrimination on gays' and lesbians' wages are small.

5.2 Base results

Base set of results is reported in Table 4, which presents estimates of gender gap in hourly earnings for individuals living in three types of households: same-sex couples, different sex couples, and singles. Specifications (1), (5), and (9) present estimates of raw gap, controlling for marital status only so that UPs are the reference category in cases of couples. Raw gender gap in hourly earnings among same-sex couples, captured by the coefficient on variable *woman*, is about 11 log points, or about 2/5 of the estimated raw gap among heterosexual UPs (27.4 log points) and less than 1/3 of gender gap among heterosexual married couples (35.4 log points, obtained after adding up the coefficients on woman dummy and the two interaction terms), while it is statistically similar to the gender-gap among singles. Coefficients on interactions of marital status with dummies for gays and lesbians are close to zero and similar across specifications so combining the samples of same-sex UPs and married couples does not influence the results.

Columns (2), (6), and (10) report results of model defined in equation (4), and the following specifications add employment type[31], 2 digit occupations, and 2 digit industry dummies, the last set of estimates augments model (4) with dummies capturing differences in geographic location. Adding human capital variables causes small but statistically insignificant decrease in the same-sex gap and increase of the gap among heterosexual couples and singles. At the same time, comparing column (5) and (6), coefficients on interactions between marriage and dummies for men and women lose most of their value and the estimated difference between gender-earnings gaps among heterosexual UPs and married couples decreases. Adding dummies for job characteristics leads to a decrease in the estimated gender gap across

[31] As listed at the bottom of Table 1.

Table 4: Gender-earnings gap by respondents' household type

	Same-sex couples				Different-sex couples				Singles			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
constant	3.218*	1.750*	1.868*	1.616*	2.939*	1.482*	1.776*	1.377*	2.971*	1.497*	1.421*	1.366*
	(0.026)	(0.631)	(0.536)	(0.573)	(0.048)	(0.287)	(0.303)	(0.282)	(0.022)	(0.435)	(0.437)	(0.422)
woman	-0.113*	-0.105*	-0.097*	-0.056	-0.274*	-0.289*	-0.240*	-0.281*	-0.102*	-0.130*	-0.107*	-0.140*
	(0.036)	(0.031)	(0.028)	(0.028)	(0.052)	(0.052)	(0.050)	(0.052)	(0.029)	(0.027)	(0.030)	(0.026)
married*man	0.005	0.053	0.031	0.057	0.267*	0.088+	0.047	0.104+	-	-	-	-
	(0.060)	(0.051)	(0.048)	(0.048)	(0.049)	(0.045)	(0.037)	(0.044)				
married*woman	-0.061	-0.055	-0.071	-0.068	0.187*	0.058	0.034	0.070	-	-	-	-
	(0.053)	(0.048)	(0.046)	(0.045)	(0.044)	(0.038)	(0.037)	(0.036)				
part time		-0.218*	-0.108*	-0.219*		-0.145*	-0.055+	-0.156*		-0.232*	-0.111*	-0.250*
		(0.040)	(0.039)	(0.039)		(0.024)	(0.023)	(0.024)		(0.043)	(0.042)	(0.042)
years of education		0.018	-0.014	0.002		0.056+	0.016	0.053+		-0.013	-0.034	-0.007
		(0.066)	(0.048)	(0.059)		(0.028)	(0.028)	(0.027)		(0.032)	(0.031)	(0.030)
(years of education)^2/10		0.030	0.031+	0.031		0.024+	0.028*	0.021+		0.047*	0.045*	0.041*
		(0.021)	(0.015)	(0.019)		(0.009)	(0.010)	(0.009)		(0.011)	(0.011)	(0.010)
potential experience		0.111	0.128+	0.128+		0.039	0.045	0.046		0.117+	0.126*	0.106+
		(0.058)	(0.058)	(0.056)		(0.031)	(0.031)	(0.030)		(0.046)	(0.040)	(0.045)
(potential experience)^2/10		-0.077	-0.089	-0.091		-0.019	-0.027	-0.025		-0.069	-0.074+	-0.058
		(0.050)	(0.049)	(0.047)		(0.025)	(0.024)	(0.024)		(0.041)	(0.035)	(0.040)
(potential experience)^3/10^3		0.212	0.242	0.258		0.044	0.078	0.064		0.179	0.191	0.137
		(0.174)	(0.167)	(0.163)		(0.077)	(0.075)	(0.075)		(0.140)	(0.119)	(0.137)
(potential experience)^4/10^6		-2.005	-2.268	-2.548		-0.261	-0.761	-0.510		-1.597	-1.704	-1.091
		(2.107)	(1.994)	(1.967)		(0.814)	(0.790)	(0.793)		(1.630)	(1.397)	(1.603)
lives in MSA				0.190*				0.129*				0.149*
				(0.042)				(0.022)				(0.034)
lives in PMSA				0.122*				0.126*				0.163*
				(0.030)				(0.021)				(0.033)
lives in S.F., L.A., N.Y.,D.C., Chicago				0.238*				0.172+				0.123
				(0.051)				(0.069)				(0.065)
lives in CA, MA, CT				0.151*				0.096*				0.014
				(0.037)				(0.031)				(0.042)
5-year cohorts	-	yes	yes	yes	-	yes	yes	yes	-	yes	yes	yes
job characteristics	-	-	yes	-	-	-	yes	-	-	-	yes	-
R-squared	0.009	0.220	0.321	0.274	0.075	0.230	0.334	0.255	0.006	0.201	0.316	0.236
N	3,300	3,300	3,282	3,300	7,552	7,552	7,498	7,552	2,934	2,934	2,912	2,934
Sub-population	309,141	309,141	307,212	309,141	27,016,781	27,016,781	26,779,883	27,016,781	12,982,735	12,982,735	12,876,151	12,982,735
Full sample	12,550	12,550	12,532	12,550	33,822	33,822	33,768	33,822	12,703	12,703	12,681	12,703
population	1,134,760	1,134,760	1,132,831	1,134,760	122,333,728	122,333,728	122,096,830	122,333,728	52,043,976	52,043,976	51,937,392	52,043,976

Note: Standard errors are in parentheses: $^+$ $p < 0.05$, * $p < 0.01$.

all household types. Of course, there are good reasons to believe that human capital characteristics (especially potential experience) are mismeasured in ways that are correlated with gender, while job characteristics may reflect differences in preferences, household specialization effects, as well as discrimination, for instance. I however note that estimated coefficients change only slightly across specifications and the smallest changes occur in the case of same-sex couples. This is consistent with the hypothesis that gays and lesbians are quite similar in their productivity-related characteristics.

When geographical location is controlled for, in specifications (4), (8), and (12), the gender earnings gap among gays and lesbians loses more than half of its value and is no longer statistically significant; there is no such effect among heterosexual couples or singles, as can be seen in comparison with specifications (2), (6), and (10). This result reflects the fact that lesbians do not locate in large urban areas to the extent gays do as discussed in section 4. Since wages and living costs are higher in these areas, this choice should result in relatively high gays' pay compared to lesbians'.

5.3 The role of geography and children

It would be however naive to state that the choice of geographic location *causes* differences in wages because the reverse causality may also be at work. People with lower earnings are likely to live in different areas than high earners, and housing costs are likely to be correlated with income in a similar fashion. To the extent that wages are correlated with gender, it would not be a surprise that gender gap among same-sex couples may be "explained away" by differences in geographic location.

Table 5 picks this issue and attempts to explore to what extent is the gender gap among same-sex couples simply a result of a different choice of household location by comparison with singles. Since single men and women, unlike different-sex couples, can also systematically locate in ways reflecting their means and/or preferences, they constitute a natural counter-factual to same sex-couples in this respect. Unlike

same-sex couples, however, choices of single men and women are not completely independent of choices of the opposite sex. This is because marriage markets would create a natural drag to geographic sorting of singles. As result the comparison of same-sex couples with singles is not perfect. Still, if wages determine geographic location, one should expect the estimate of gender-gap among singles should be lowered in specifications controlling for geography.

Estimates of raw gender-earnings gap (controlling for cohort effects only) are reported in columns (1) and (6) for same sex couples and singles, respectively. Adding dummies for living in metropolitan and central metropolitan areas, unrestricted set of dummies for living in one of the five cities with highest presence of gays, states in which same-sex marriage was legal at some point in 2008, and dummies for states in which it became legal later, results in the point estimate of same-sex gender-earnings gap losing 60 percent of its value, while the estimate barely changes in the case of singles (columns 2 and 7). Importantly, coefficients on geographic location in specifications (2) and (6) are highly statisticaly significant and of comparable size for both groups. Allowing for unrestricted set of dummies for MSAs and PMSA results in the same-sex gender-earnings gap evaporating completely, while, again, the point estimate of gap among singles does not change, comparing specifications (3), (4), (8), and (9). The fact that gender gap among singles is completely resistant to controling for geographic location supports the claim that differences in preferences on geographic location between gays and lesbians explain part of differences in their wages and not vice versa.

In last specifications, columns (5) and (9), I drop all geographic dummies and include the log of mean costs per bedroom (rent or mortgage payment) computed within each PUMA area to control for the average living costs of areas in which people live. Since each PUMA identifies an area with population slightly over 100,000, there is approximately 3000 PUMAs across the United States and 630 of them in the data. The relatively small size of PUMAs may allow for people to work in a different PUMA in which they live, so one may expect that if wages determine geographic

Table 5: The importance of an address

	Same-sex couples					Singles				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
constant	3.267*	2.850*	2.809*	2.797*	0.345	2.993*	2.746*	2.740*	2.740*	0.253
	(0.035)	(0.048)	(0.048)	(0.048)	(0.186)	(0.044)	(0.049)	(0.047)	(0.047)	(0.190)
woman	-0.108*	-0.043	-0.001	-0.000	-0.016	-0.111*	-0.125*	-0.120*	-0.115*	-0.116*
	(0.035)	(0.032)	(0.032)	(0.032)	(0.032)	(0.029)	(0.028)	(0.028)	(0.028)	(0.027)
married*man	-0.000	0.026	0.059	0.053	0.043	-	-	-	-	-
	(0.059)	(0.049)	(0.051)	(0.051)	(0.049)					
married*woman	-0.073	-0.080	-0.070	-0.075	-0.057	-	-	-	-	-
	(0.053)	(0.049)	(0.049)	(0.048)	(0.048)					
lives in MSA		0.282*					0.198*			
		(0.046)					(0.037)			
lives in PMSA		0.150*	0.356^{+}				0.188*	0.268		
		(0.034)	(0.177)				(0.036)	(0.190)		
log of mean costs p/bedroom (by PUMA)					0.460*					0.455*
					(0.030)					(0.032)
S.F., L.A., N.Y.,D.C., Chicago	-	yes	yes	yes	-	-	yes	yes	yes	-
CA, MA, CT	-	yes	yes	yes	-	-	yes	yes	yes	-
MSAs & CMSAs	-	-	yes	yes	-	-	-	yes	yes	-
PMSAs	-	-	-	yes	-	-	-	-	yes	-
5-year cohorts	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	0.054	0.156	0.228	0.249	0.163	0.030	0.098	0.197	0.229	0.130
N	3,300	3,300	3,300	3,300	3,300	2,934	2,934	2,934	2,934	2,934
Sub-population	309,141	309,141	309,141	309,141	309,141	12,982,735	12,982,735	12,982,735	12,982,735	12,982,735
Full sample	12,550	12,550	12,550	12,550	12,550	12,703	12,703	12,703	12,703	12,703
population	1,134,760	1,134,760	1,134,760	1,134,760	1,134,760	52,043,976	52,043,976	52,043,976	52,043,976	52,043,976

Note: Standard errors are in parentheses: $^{+}$ $p < 0.05$, * $p < 0.01$.

location, this variable would capture some sorting of single men and women. The coefficients on the living costs variable are, of course, highly statistically significant and the point estimates are virtually the same for both groups, however, it is not correlated with gender in the case of singles, whereas the the estimate of gender earnings-gap among gays and lesbians is again close to zero. Different choices of geographic location of gay and lesbian households seem to explain all if not the entire same-sex gender-earnings gap. As it is unlikely, that marriage markets completely prevent geographic sorting of single men and women, I propose that gender-earnings gap has different sources in the case of same-sex couples and singles.

As argued above, the difference in likelihood of having children between gays and lesbians may be one of the reasons why same-sex couples would make different choices of housing location in a way that is systematically related to gender. It should also increase lesbians relative incentives to work hard as opposed to gays. At the same time, if household specialization among heterosexuals implies sexual division of labor, one may expect this would also happen among singles with children. Unfortunately, there is no data that would allow identification of peoples' lifetime plans over children, however if having children is correlated with such plans, we can partially control for this effect by including the number of children interacted with male and female dummies as regressors.

Table 6 reports the results. Looking at singles first, the estimates confirm that having children affects men's and women's earnings differently, each child is estimated to take about 9% of women's wage, whereas the effect on men is positive and of similar magnitude, albeit smaller and not statistically significant; as a result the estimated gender-earnings gap among singles loses about one half of its value. The picture is quite different among same-sex couples, here it is women who earn more with each child and the effect compares well with that for single men, the effect is stronger and significant if geography is controlled for. There is very little effect of children on gays' earnings, the sign is actually not even determined here. While the estimate of same-sex gender gap is now systematically negative, we see

Table 6: The importance of an address & children

	Same-sex couples					Singles				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
constant	3.270*	2.850*	2.805*	2.787*	0.328	2.989*	2.730*	2.734*	2.732*	0.267
	(0.035)	(0.048)	(0.047)	(0.047)	(0.184)	(0.044)	(0.049)	(0.047)	(0.047)	(0.189)
woman	-0.129*	-0.063	-0.025	-0.020	-0.039	-0.040	-0.057	-0.061+	-0.058	-0.054
	(0.035)	(0.032)	(0.032)	(0.033)	(0.033)	(0.031)	(0.030)	(0.030)	(0.030)	(0.030)
married*man	0.034	0.035	0.061	0.030	0.051	-	-	-	-	-
	(0.065)	(0.054)	(0.053)	(0.055)	(0.053)					
married*woman	-0.089	-0.098+	-0.086	-0.092	-0.079	-	-	-	-	-
	(0.054)	(0.050)	(0.049)	(0.048)	(0.049)					
number of children*man	-0.053	-0.014	-0.003	0.039	-0.013	0.052	0.085+	0.061	0.064	0.091*
	(0.039)	(0.034)	(0.039)	(0.040)	(0.033)	(0.037)	(0.037)	(0.037)	(0.038)	(0.035)
number of children*woman	0.049	0.053+	0.066+	0.068+	0.065*	-0.117*	-0.099*	-0.092*	-0.088*	-0.086*
	(0.027)	(0.025)	(0.027)	(0.027)	(0.025)	(0.021)	(0.021)	(0.021)	(0.020)	(0.021)
lives in MSA		0.282*					0.203*			
		(0.045)					(0.036)			
lives in PMSA		0.145*	0.340+				0.185*	0.263		
		(0.034)	(0.165)				(0.036)	(0.185)		
log of mean costs p/bedroom (by PUMA)					0.463*					0.450*
					(0.029)					(0.032)
S.F., L.A., N.Y.,D.C., Chicago	-	yes	yes	yes	-	-	yes	yes	yes	-
CA, MA, CT	-	yes	yes	yes	-	-	yes	yes	yes	-
MSAs & CMSAs	-	-	yes	yes	-	-	-	yes	yes	-
PMSAs	-	-	-	yes	-	-	-	-	yes	-
5-year cohorts	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	0.057	0.158	0.230	0.252	0.167	0.043	0.109	0.204	0.236	0.140
N	3,300	3,300	3,300	3,300	3,300	2,934	2,934	2,934	2,934	2,934
Sub-population	309,141	309,141	309,141	309,141	309,141	12,982,735	12,982,735	12,982,735	12,982,735	12,982,735
Full sample	12,550	12,550	12,550	12,550	12,550	12,703	12,703	12,703	12,703	12,703
population	1,134,760	1,134,760	1,134,760	1,134,760	1,134,760	52,043,976	52,043,976	52,043,976	52,043,976	52,043,976

Note: Standard errors are in parentheses: $^{+}$ $p < 0.05$, * $p < 0.01$.

again that most of it can still be attributed to geographic location, whereas in the case of singles no such effect is apparent. These results suggest that differences in choice of geographic location can be the cause of gender-earnincgs gap among gays and lesbians, whereas household specialization causes the gap among singles, and presumably also heterosexual couples.

5.4 Checks

As a robustness check, I re-estimate Table 5 relaxing the age restriction to 18-65 years, including nonwhites, and individuals from households in which only one of the partners works. Remaining restriction for both partners thus are: born in the US, out of school, no disability. As can be seen in Table 7 the sample size almost doubles, but the results stay similar. Although the estimated same-sex earnings gap in specifications that control for geographic location is no longer zero, it loses 50 to 80 percent of its value as a result of that, and remains substantively much smaller than the usual estimates of gender-wage gap. Expanding the sample has no discernible effect on estimates of gender gap among singles, and controlling for location does not change the estimate on the women's dummy as previously.

I also checked whether the results hold when estimated for employees only or only full time-full year workers. Dropping same-sex couples who identified as married changed results neither. The point estimates of same-sex gender gap rise by additional 3 log points after inclusion of immigrants (by 1 log point for singles), and become statistically significant, however the sensitivity to controls for geographic location follows the pattern from Table 7. While there are complicated selection issues that drive immigration, and also gender related differences in relevant characteristics may be different among immigrants and natives,[32] it is necessary to note that broadening the sample results in same-sex gender-earnings gap that is systematically negative. What remains robust is the low estimate of gender pay gap among

[32]For instance, male productivity characteristics may be the driving selection mechanism for immigration so that male immigrants may be disproportionately positively selected compared to female immigrants. Also, gender roles and stereotypes may be different among immigrants.

Table 7: The importance of an address - broad sample

	Same-sex couples					Singles				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
constant	3.249*	2.876*	2.852*	2.845*	0.495*	2.947*	2.694*	2.692*	2.690*	0.274+
	(0.029)	(0.040)	(0.039)	(0.040)	(0.144)	(0.038)	(0.042)	(0.040)	(0.040)	(0.139)
woman	-0.108*	-0.055+	-0.038	-0.041	-0.027	-0.129*	-0.136*	-0.138*	-0.136*	-0.126*
	(0.026)	(0.025)	(0.025)	(0.025)	(0.025)	(0.023)	(0.022)	(0.022)	(0.022)	(0.022)
married*man	0.003	0.034	0.063	0.055	0.053	-	-	-	-	-
	(0.044)	(0.040)	(0.041)	(0.041)	(0.039)					
married*woman	-0.029	-0.034	-0.019	-0.022	-0.024	-	-	-	-	-
	(0.039)	(0.037)	(0.037)	(0.037)	(0.036)					
lives in MSA		0.252*					0.193*			
		(0.037)					(0.028)			
lives in PMSA		0.123*	0.262+				0.183*	-0.132		
		(0.026)	(0.130)				(0.026)	(0.195)		
log of mean costs p/bedroom (by PUMA)					0.435*					0.444*
					(0.023)					(0.023)
S.F., L.A., N.Y.,D.C., Chicago	-	yes	yes	yes	-	-	yes	yes	yes	-
CA, MA, CT	-	yes	yes	yes	-	-	yes	yes	yes	-
MSAs & CMSAs	-	-	yes	yes	-	-	-	yes	yes	-
PMSAs	-	-	-	yes	-	-	-	-	yes	-
races*cohorts	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-squared	0.134	0.205	0.254	0.264	0.217	0.084	0.136	0.205	0.225	0.170
N	5,592	5,592	5,592	5,592	5,592	5,206	5,206	5,206	5,206	5,206
Sub-population	520,266	520,266	520,266	520,266	520,266	23,051,265	23,051,265	23,051,265	23,051,265	23,051,265
Full sample	12,070	12,070	12,070	12,070	12,070	12,052	12,052	12,052	12,052	12,052
population	1,093,531	1,093,531	1,093,531	1,093,531	1,093,531	49,420,856	49,420,856	49,420,856	49,420,856	49,420,856

Note: Standard errors are in parentheses: $^{+}$ $p < 0.05$, * $p < 0.01$.

same-sex couples (and singles) compared to coupled heterosexuals, and sensitivity of the estimates to controls for geography, unlike in the case of singles.

6 Conclusions

This paper stands on a simple idea that gender-related differences in productivity related characteristics should be smaller among gays and lesbians compared to heterosexuals. I argue that this is because same-sex couples are less likely to have children and because specialization in market and home production in gays' and lesbians' households is not determined by gender. Thus, even if partners living in same-sex relationships may specialize, effects of specialization on work effort, human capital invetments, and related choices that influence earnings cancel out within households and consequently within each gender.

This approach works under the assumption that discrimination based on sexual orientation does not affect gays and lesbians differentially. Although, possibilities to empirically ascertain the validity of this assumption are sparse, there are reasons to believe such a differential effect should not be overwhelming. First, sexual orientation (unlike gender or color of one's skin) is generally unobserved unless one decides so. Second, since gays and lesbians are small minorities, they may be able to avoid bigotic employers. Third, previous research surveyed in section 3 systematically shows that gays earn slightly less than heterosexual men and lesbians earn more than heterosexual women, this is robust across time, datasets, and countries. On the average, the base sample of gays I work with earns the same wages as married men in the 2008 ACS data, and has about 25 log points higher income per partner compared to married heterosexuals (see Table 2). Such pattern is more consistent with effects of household specialization rather than effects of discrimination.

I define the base sample as including white healthy working individuals, aged between 25 and 55 years, who were born in the United States, and whose partner satisfies the same criteria. The estimated raw gender gap in hourly earnings among same-sex couples is approximately 11 log points, which is about one third of the gap

among heterosexual couples, and it is similar to gender gap among singles. Estimates of same-sex gender gap are insensitive to standard controls for human capital characteristics (based on Lemieux, 2006b, I use quadratic in years of education, quartic in potential experience, and cohort effects), or employment/employer type, occupations, and industries. Most of the same-sex gender-earnings gap, however, evaporates when geographic location or housing costs are controlled for. The point estimate is zero in some specifications. This is because gays more often live in high wage-high cost places, mainly large cities, compared to lesbians and heterosexuals. [33] I propose that different choices of living environment between gays and lesbians likely reflect different propensities for having children (see also Black et al., 2002b); also, if women and men simply differed in their preferences about where to live, this would easily feed into geographic sorting of gays and lesbians (and differences from heterosexuals).

To address the reverse causality problem, I show that controlling for geographic location or housing costs has no effect whatsoever on the estimates of gender-earnings gap among singles. At the same time, children explain about one half of the gap among singles but have little (increasing) effect on the estimated gap among same-sex couples. This is because single women with children earn less, while single men's and lesbians' wages rise with children. I propose that these results suggest that gender-earnings gap has different sources in the cases of singles and same-sex couples. Rather than labor market related factors exogenous to people such as discrimination, the effects of sexual division of labor and gender-related differences in choice of geographic location seem to be the best explanations for the two gaps, respectively.

Finally I run a couple of robustness checks. Restricting the sample to wage earners or full-time workers does not change the results. Relaxing the sample inclusion

[33] Both, gays and lesbians, are more likely to live in metropolitan areas than heterosexuals, which may reflect factors related to discrimination, but also the fact that greater population density may produce better marriage markets and other advantages for sexual minorities compared to remote villages and towns. Lesbians and mainly gays and may also be more independent of their families as the result of lower propensity to have children.

criteria to people aged between 18 and 65 years, nonwhites, and couples in which only one of the partners work results in statistically similar estimates, although the most striking zero effect of gender on hourly earings no longer obtains.

A possible interpretation of results in this paper is that existence of gender-pay gap is in doubt. A more benign interpretation suggests that the effect of gender exists but is smaller than standard population estimates suggest.

References

Ahmed, A. M. and Hammarstedt, M. (2009). Sexual orientation and earnings: a register data-based approach to identify homosexuals. *Journal of Population Economics*, pages 1–15.

Allegretto, S. A. and Arthur, M. M. (2001). An empirical analysis of homosexual/heterosexual male earnings differentials: unmarried and unequal? *Industrial and Labor Relations Review*, 54(3):631–646.

Arabsheibani, G. R., Marin, A., and Wadsworth, J. (2005). Gays' pay in the UK. *Economica*, 72(286):333–347.

Arrow, K. (1971). Some models of racial discrimination in the labor market. Rand Corporation.

Badgett, M. V. (1995). The wage effects of sexual orientation discrimination. *Industrial and Labor Relations Review*, 48(4):726–739.

Baumle, A. K. (2009). The cost of parenthood: Unraveling the effects of sexual orientation and gender on income. *Social Science Quarterly*, 90(4):983–1002.

Becker, G. S. (1957). *The Economics of Discrimination*. University of Chicago Press.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *The Journal of Political Economy*, 70(S5):9.

Becker, G. S. (1985). Human capital, effort, and the sexual division of labor. *Journal of labor economics*, 3(S1).

Berg, N. and Lien, D. (2002). Measuring the effect of sexual orientation on income: evidence of discrimination? *Contemporary Economic Policy*, 20(4):394–414.

Bertrand, M., Goldin, C., and Katz, L. F. (2010). Dynamics of the gender gap for young professionals in the financial and corporate sectors. *American Economic Journal: Applied Economics*, 2(3):228–255.

Black, D., Gates, G., Sanders, S., and Taylor, L. (2000). Demographics of the gay and lesbian population in the united states: Evidence from available systematic data sources. *Demography*, 37(2):139–154.

Black, D., Gates, G., Sanders, S., and Taylor, L. (2002a). Unmarried partner couples in census 2000: How many are gay and lesbian? *Unpublished paper, Syracuse University.*

Black, D., Gates, G., Sanders, S., and Taylor, L. (2002b). Why do gay men live in san francisco? *Journal of Urban Economics*, 51(1):54–76.

Black, D., Gates, G., Sanders, S., and Taylor, L. (2007a). The measurement of same-sex unmarried partner couples in the 2000 US census. *California Center for Population Research at the UCLA - Working Paper Series.*

Black, D. A., Makar, H. R., Sanders, S. G., and Taylor, L. J. (2003). The earnings effects of sexual orientation. *Industrial and Labor Relations Review*, 56(3):449–469.

Black, D. A., Sanders, S. G., and Taylor, L. J. (2007b). The economics of lesbian and gay families. *Journal of Economic Perspectives*, 21(2):53–70.

Blandford, J. M. (2003). The nexus of sexual orientation and gender in the determination of earnings. *Industrial and Labor Relations Review*, 56(4):622–642.

Carpenter, C. S. (2004). New evidence on gay and lesbian household incomes. *Contemporary Economic Policy*, 22(1):78–94.

Carpenter, C. S. (2007). Revisiting the income penalty for behaviorally gay men: Evidence from NHANES III. *Labour Economics*, 14(1):25–34.

Carpenter, C. S. (2008). Sexual orientation, work, and income in canada. *Canadian Journal of Economics*, 41(4):1239–1261.

Clain, S. H. and Leppel, K. (2001). An investigation into sexual orientation discrimination as an explanation for wage differences. *Applied Economics*, 33(1):37–47.

Elmslie, B. and Tebaldi, E. (2007). Sexual orientation and labor market discrimination. *Journal of Labor Research*, 28(3):436–453.

Gates, G. (2008). Same-sex spouses and unmarried partners in the american community survey. *The Williams Institute, UCLA School of Law*.

Herek, G. M. (2000). Sexual prejudice and gender: do heterosexuals' attitudes toward lesbians and gay men differ? *Women's Sexualities: New Perspectives on Sexual Orientation and Gender*, 56(2):251–266.

Herek, G. M. (2002). Gender gaps in public opinion about lesbians and gay men. *Public Opinion Quarterly*, 66(1):40.

Lemieux, T. (2006a). Increasing residual wage inequality: Composition effects, noisy data, or rising demand for skill? *The American Economic Review*, 96(3):461–498.

Lemieux, T. (2006b). The mincer equation thirty years after schooling, experience, and earnings. In Grossbard, S., editor, *Jacob Mincer, A Pioneer of Modern Labor Economics*. Springer.

Phelps, E. S. (1972). The statistical theory of racism and sexism. *The American Economic Review*, 62(4):659–661.

Plug, E. and Berkhout, P. (2004). Effects of sexual preferences on earnings in the netherlands. *Journal of Population Economics*, 17(1):117–131.

Schmitt, E. D. (2008). Discrimination versus specialization – a survey of economic studies on sexual orientation, gender and earnings in the united states. *Journal of Lesbian Studies*, 12(1):17.

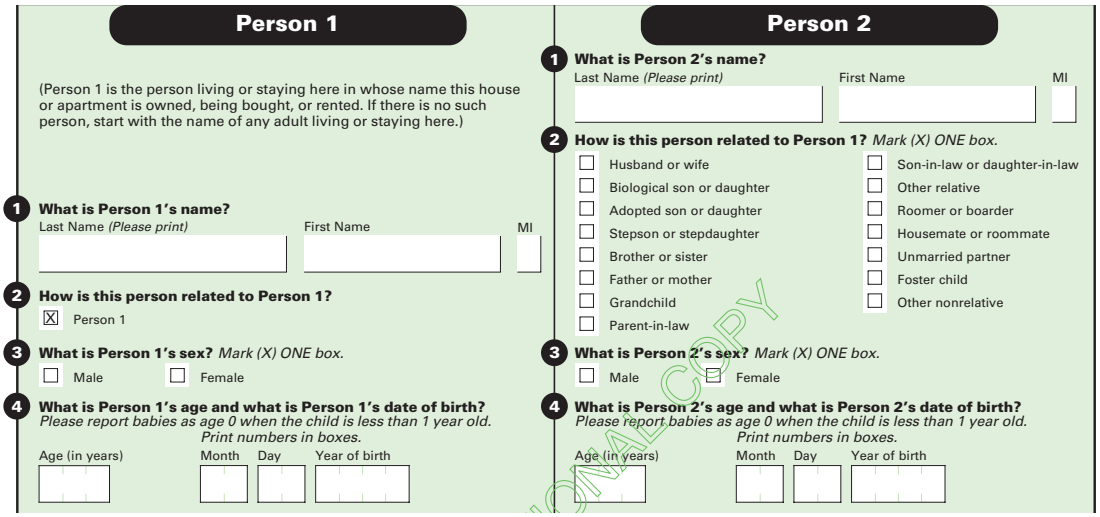
US Census Bureau (2009). Changes to the american community survey between 2007 and 2008 and their potential effect on the estimates of same-sex couple households.

Appendix

Who are same-sex households in 2008 ACS data?

Same-sex couples in the American Community Survey (ACS) are identified through household member's relationship to the householder and their sex. In particular, same-sex couples are those where a household member identifies him/herself as either as husband/wife or unmarried partner (UP) of the householder and the two are of the same sex. The relevant part of ACS 2008 questionnaire is shown in Figure A.1, all household members are answering the same question as to their relationship to the householder. However there are several issues to be thought of before using same-sex couples from ACS data as data on homosexual population.

Figure A.1: Identification of relationships between household members in 2008 ACS questionnaire



First, it is obvious that ACS data does not allow identification of unpartnered homosexuals. Some of them will be pooled with singles, some may live in different-sex households. Second, there are other possible labels same-sex couples may chose instead (roomer, housemate, other non-relative), and there are stories on how this may be correlated with outcomes, with the sign of the correlation undetermined (Badgett, 1995). The more serious issue, however, relates to the question whether the same-sex households are true gays and lesbians or whether a significant portion of them are in fact different-sex couples with mislabeled sex of one of the partners.

All mistakes in sex identification made by heterosexuals will result in same-sex couples sample being contaminated by different sex couples.[34] And because same-sex couples constitute a small fraction (less than 1%) of households, even a small number of mistakes in identification of respondents' sex can cause high contamination of same-sex couples sample with *de facto* heterosexual couples. Fortunately, previous researchers devoted considerable effort to address these questions for the 1990 and 2000 US Census data, as well as the ACS data, so we can anchor our discussion with their work.

To understand the magnitude of this problem, we need to briefly enter the history of how identification of same-sex couples was tackled in the US Census and ACS data. Black et al. (2000) were the first take on this issue thoroughly by studying demographic characteristics of same-sex couples in the 1990 US Census[35] and comparing the data with alternative sources in which homosexuals can be identified. They conclude that mis-classification is not a serious issue in the 1990 US Census, and that almost all identified same-sex couples are homosexuals. However they estimate that only about one third of all same-sex couples identified themselves as UP in that data - about 0.1% of households (145,130) were same-sex couples in 1990 US Census (it is 0.34%-0,49%, 397,650-565,500, in 2008 ACS PUMS data, depending on whether same-sex households who originally identified as husband/wife are included). Carpenter, 2004 analyzes the 1996-2000 data from the Centers of Disease Control, that suffer from less severe under-reporting of same-sex couples than the 1990 US Census and contain questions that allow him to inspect their behavior on margins relevant to double-checking of sexual orientation of partners living in same-sex relationships. He also concludes that sexual behavior of same-sex couples systematically differs from married couples and from different-sex UP couples and is consistent with health literature on homosexual men and women. He also shows that economic outcomes of same-sex couples are similar to results based on the 1990

[34] I abstract from the unlikely and unimportant case in which both partners select wrong sex in the form.

[35] This was the first time same-sex couples could identify as unmarried partners in the Census form.

Census data.

An importan change occured in between the 1990 and 2000 US Censuses: if a couple identified themselves as same-sex and married (i.e. not UP) in the 1990 US Census, such response was treated as a logical contradiction and sex of one of the partners was changed so that these couples were counted as different sex couples. This has led to under-count of same-sex couples. However, in 2000 the Census Bureau changed the relationship status to UP instead, so that these couples were enumerated as same-sex UPs. Because of this new handling of same-sex couples who identified themselves as husband/wife, Black et al. (2002a, 2007a) find that over 40% of same-sex unmarried partners were likely misclassified different sex married couples in the 2000 US Census data. While the change of relationship status itself was not flagged, the Bureau also edited response to marital status which was flagged, so that households in which two partners originally indicated that they are in marital relationship and of same-sex could be dropped. The resulting sample of same-sex couples would again contain only those who indicated themselves as UP, a sample of mostly true same-sex couples Black et al. (2000, 2002a, and 2007a).

The situation was analogous in ACS data form 2000 through 2007. In 2008 though, in response to Black et al.'s research, the Census Bureau implemented a set of changes to achieve better identification of same-sex couples. The changes introduced between 2007 and 2008 ACS were of two types, changes in processing and editing and changes in the questionnaire format (for more detail see US Census Bureau, 2009). Whereas the latter were expected to decrease the probability of mistakes in responses, the former were introduced to better identify and correct such mistakes. As result, the estimated total number of same-sex households dropped from 750,000-780,000 in 2005-2007 ACS datafiles to 565,000 in 2008 ACS data. The whole decline is however attributable to the decrease in number of unmarried same-sex couples who were originally recorded as same-sex spouses, while the number of same-sex couples who identified themselves as UP remained statistically the same between 2007 and 2008 ACS, 413,000 and 415,000, (US Census Bureau, 2009).

The estimate of 150,000 same-sex partners who indicated themselves as married exceeds the number of about 35,000 legally married same-sex couples in the US in 2008 plus another 80,000 of same-sex partners living in civil unions or domestic partnerships who may have reported themselves as married (US Census Bureau, 2009; Gates, 2008). Some other same-sex partners may regard their relationship as marriage and identify as such in the survey even if there is no legal basis for it.[36] Nevertheless, it remains to be established what is the role of mis-classification error in this sub-sample, nonetheless these couples can be identified in the 2008 ACS data and thus studied independently.

[36]Which is a perfectly legitimate and sensible thing to do as from an individual perspective the concept of *marriage* does not need to be restricted to the one-dimensional institution that rests on being OKyed by the legislator, and may have an independent meaning without this. Treatment of respondents' marital status in this paper is respects self-identification and not its legality.