A labor of love: The impact of same-sex marriage on labor supply

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Abstract

We study how gay men and lesbian women respond to the legalization of same-sex marriage in the United States. Because legalizing same-sex marriage increases the return to joint investment and reduces the risk associated with specializing in home production, we focus on the labor supply response. We exploit variation in the timing of legalization across states, and we use a difference-in-differences strategy. Data come from the Current Population Survey. On average, gay men do not alter hours in paid work in response to legalization, but lesbian women do. On average, women who are partners in a lesbian couple reduce annual labor supply by 6-8% in response to legalization. The effect is largest for women with children. Though both partners in a lesbian couple work fewer hours after legalization, the woman with lower earnings decreases hours of work 2.5 times more than her partner does. Supplementary results using the American Time Use Survey show that lesbian partners reallocate work hours primarily to care labor.

JEL: J18, D13, J10 **Keywords**: Same-sex marriage, Labor supply, Time Use, Public Policy

1 INTRODUCTION

For activists in the U.S., marriage equality for same-sex couples was an important goal. Although some states had offered alternative forms of recognition since 2000, within the span of a decade, the alternatives came to be seen–if not by the public, then by the courts–as "separate and unequal" (Badgett 2010). Perhaps the speed of the marriage equality movement took social scientists by surprise. The impact of marriage equality has not yet been widely studied. Further, most of the existing work on its impact focuses on people in *different*-sex marriages. Legalizing same-sex marriage does not harm different-sex relationships (Dillender 2014; Langbein and Yost 2009; Trandafir 2015). In fact, when states had constitutional bans on same-sex marriage, both same-sex and different-sex relationships were *less* stable (Manning et al. 2016).

We are among the first to study the impact of the legalization of same-sex marriage on gay and lesbian couples, whose history of socio-economic disadvantage is well documented.[1] The benefits of marriage, such

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[1]Gay and bisexual men earn nearly 20 percent less than their heterosexual counterparts (see, for example, Klawitter, 2015; Martell, 2013). In the past, lesbians have fared better than gay men, but in the years during and following the 2008 recession,

as the right to joint income and assets, are important because they have the potential to improve economic well-being through several channels (Chauncey 2009; Ribar 2004).

We study the period from 2003 to 2015, inclusive. In addition to allowing more time for the legal change to affect behavior, we have more observations of gay and lesbian couples who reside in states with marriage equality than any previous study of the institution. We use a difference-in-differences approach to exploit variation in the timing of legalization across states. In our main results, we document the impact of legalization on the labor supply response of different groups. In supplementary results, we look more broadly at the lives of gays and lesbians, and we measure the extent to which marriage equality changes the way gay and lesbian couples divide their time between market work, care work, other household work, and leisure.

The legalization of marriage decreases annual hours of paid work among lesbians. Legalization has no effect on time spent on paid labor among gay men. Lesbians with children and lesbians who are "secondary earners," defined as the partner with lower annual earnings, work much less after legalization. Changes in daily time use are consistent with changes in labor supply. Marriage equality increases time spent on unpaid care labor among lesbians, particularly secondary earners. This pattern suggests that the legalization of same-sex marriage increases specialization within lesbian couples by decreasing the vulnerability of individual members of the couple.

Our results build on social science research on same-sex households in the U.S. by showing how the fast-changing legal landscape has affected the daily lives of lesbian couples. The responsiveness of lesbians, in contrast to the lack of responsiveness of gay men, indicates that policy-makers should pay careful attention to the intersection of gender and sexual orientation when considering policies that affect the welfare of vulnerable persons.

2 BACKGROUND AND FRAMEWORK

In 2004, Massachusetts became the first state in the U.S. to legalize same-sex marriage. More than four years passed before Connecticut joined Massachusetts. Between 2009 and 2011, five additional states legalized same-sex marriage (see **Table 1**). In 2013, the number of states with legal same-sex marriage almost doubled. By June 26, 2015, when the Supreme Court decision in *Obergefell v. Hodges* legalized same-sex marriage throughout the country, 35 states had same-sex marriage.

lesbians earned less than heterosexual women (Martell and Hansen 2017). Households comprised of cohabiting lesbians also earn significantly less than heterosexual households earn, and they are more likely to be in poverty than heterosexual households (Badgett et al. 2013). Employment and wage discrimination on the basis of sexual orientation or sexual identity decreases the incentive to invest in a career. Employment anti-discrimination laws, which give workers limited workplace rights, encourage gay men to work more (Martell 2014).

The legalization of same-sex marriage in most states was accomplished by judicial order. State legislatures took action in just 11 states. In December 2012 and January 2013, Maine and Maryland legalized same-sex marriage by voter referendum. In the minority of states, then, marriage equality may have been preceded by a change in expectations, legalization through judicial order was more likely a surprise, an exogenous shock. Even if not a shock, the timing of legalization, which is important to identification of the causal effect, likely was.

The legalization of marriage for same-sex couples gives gays and lesbians access to many rights and privileges previously enjoyed only by different-sex couples. One of the privileges is access to spousal health insurance (Dillender 2015).[2] While insurance may matter in the U.S. context, where employer-based health insurance persists, it is not likely to be the most universal or important channel through which legal marriage affects the lives of same-sex couples. (Evidence is scarce, but see Alden et al. (2015) for a description of the Swedish case.) Likely to be more important is having legal recourse to a share of spousal income and joint assets in the event that the partners dissolve the relationship. Simpler inheritance, in the event that one partner dies, may also matter on the margin. Through these channels, the legalization of marriage between same-sex partners is likely to incentivize investment in relationships. Indeed, 72% of individuals of same-sex marriages report that marriage increased their commitment to each other (Badgett 2010).

Legalization is also likely to cause changes in the intra-household allocation of time. To see why, first consider the relationship between alimony and time in market work. While it is typical for one partner in a gay or lesbian couple to work more than the other (Giddings et al. 2014; Antecol et al. 2008), the pattern of specialization in market work is significantly less pronounced among same-sex couples than among their different-sex counterparts (Jepsen and Jepsen 2015). Access to alimony, like access to spousal health insurance, reduces the risk of specialization in non-market work and incentivize home production. Dillender (2015) estimates that about one in ten lesbian couples switch to complete specialization when they get access to some form of legal recognition for their relationship; he attributes a significant portion of the effect to the insurance channel. However, he does not distinguish between the particularly influential impact of marriage from health insurance that accompanies other forms of recognition. These findings are consistent with a decrease in the likelihood of full-time employment among lesbians following the acquisition of spousal health insurance benefits (Buchmueller and Carpenter 2012). Indeed, legal relationship recognition appears

[2]Dee (2008) studies the impact on marriage equality on rates of sexually transmitted diseases in Europe, and Hatzenbuehler et. al (2002) study its impact on health care use and expenditure among single gay men in Massachusetts. The ability to file taxes jointly may also matter to same-sex couples. However, before the *Obergefell* decision, the ability to file state and local taxes jointly did not carry over to federal taxes because of the Defense of Marriage Act. Similarly, state marriage equality did not confer eligibility for federal benefits such as Social Security (Badgett 2010).

to increase the share of lesbian and gay people–and their children–with health insurance (Gonzales and Blewett 2014; Buchmueller and Carpenter 2012; Gonzales and Blewett 2013). More generally, if, in response to legalization, the secondary earner decreases hours of paid work and the primary earner maintains the same hours, the average hours of paid work falls. Even if the couple maintains the same level of income, the required increase in hours by the primary worker is smaller than the decrease in hours by the secondary worker, so average hours in paid work falls.

Now consider the relationship between the treatment of assets in divorce and time in market work while the relationship persists. The protections of marriage increase the return to investment in joint assets and incentivize investment in tangible assets. For example, after the legalization of same-sex marriage, mortgage applications by same-sex partners increased by at least six percent (Miller and Park 2016). Investment in tangible or financial assets may require higher income and may therefore increase the average hours of paid labor by the couple. Legal marriage also lowers the institutional and economic costs of parenthood for same-sex couples (Badgett 2010). Investment in (or consumption of) children requires both time and money. The effect of legalizing same-sex marriage on hours of market work through the parenthood channel is therefore ambiguous. Finally, marriage encourages an increase in investment in other intangible household assets. These require primarily more time and are likely to decrease average hours of market work.

To sum up, economic theory alone cannot predict the effect of marriage equality on hours of market work. It is an empirical question. Although previous work shows no meaningful difference in time in care labor or other household labor between most same-sex and different-sex couples (Martell and Roncolato 2016), if marriage equality changes the hours of market work, by construction it must create an offsetting change in hours in care labor, other household labor, or leisure. We investigate these nuances.

Of course, other forms of legal recognition, including domestic partnership and more piecemeal legislation, can confer some of the legal benefits of marriage. For example, same-sex registered partnerships in Sweden made family formation more feasible for lesbian couples and encouraged resource pooling among gay couples (Aldén et al. 2015). However, the historic, social, and symbolic benefits of marriage, which are distinct from other forms of recognition, confer greater social benefits because people perceive the alternatives as inferior to marriage (Badgett 2010; Chauncey 2009). Furthermore, marriage equality promotes relationship stability, which has the potential to compound its positive effects. Marriage, therefore, is more likely than alternatives to have any effect, to have a larger effect, and to have a more enduring effect. For this reason, and in contrast to Dillender (2015), we specifically investigate the impact of marriage equality.

3 DATA AND DESCRIPTIVE STATISTICS

We utilize the March Annual Socio-Economic Supplement (ASEC) of the Current Population Survey (CPS) from 2003-2015 and the American Time Use Survey (ATUS). The March CPS includes detailed information on respondent and household characteristics and on hours of participation in the paid labor market from a nationally representative sample of households in the United States. Although the CPS has fewer observations than the main alternative data source, the American Community Survey, we use it because a random subset of the CPS households is selected to participate in the ATUS. On the ATUS, one member of each selected CPS household, but not necessarily the CPS respondent, provides a rich and detailed report on how he or she spent time, both inside and outside the paid labor market for one 24-hour period. The ATUS contains the only nation-wide, detailed time-use data available for the U.S. Together, the CPS and the ATUS are uniquely well-suited to a nuanced investigation of the consequences of the legalization of same-sex marriage within gay and lesbian households.

No surveys by the U.S. Census Bureau ask about sexual orientation. All work using these data identifies respondents as gay or lesbian based upon reported sex and the sex of a cohabiting but unmarried partner (see, among many, Dillender (2015), and Gates and Steinberger (2015)). Consequently, the analysis is restricted to cohabiting partners; non-cohabiting adults are excluded. Note also that, prior to 2010, the Census Bureau interpreted the so-called Defense of Marriage Act as requiring the recoding of the sex of respondents who reported their relationship status as "married" to a member of the same sex. To avoid contaminating the sample of same-sex households with erroneously coded different-sex households, we follow standard practices and omit respondents for whom sex, marital status, or relationship information was allocated by the data administrators (Gates and Steinberger 2015; Dillender 2015).[3]

Following Blau and Kahn (2007), who also study labor supply over a long time period, we focus mainly on couples with at least one partner between 25 and 54 years old, inclusive. This age group has the highest labor market attachment, and it generally excludes people considering full-time school or retirement. Estimation based on a sample where one, but not necessarily both, partners are between 25 and 54 allows our CPS sample to align with the ATUS sample.[4] After restricting the CPS sample in these ways, our main estimation sample includes 1,908 gay men, 270,305 heterosexual men, 1,956 lesbians, and 270,305 heterosexual women, all who

[3] "Cohabiting" relationships exclude roommates and non-romantic partners. Before 2007 we must identify same-sex couples through the variable indicating relationship to the head of the household. Of course, that requires one partner to be the head of the household. From 2007 onward, we can identify same-sex couples through the reported line number of cohabiting partners; neither has to be head of the household. We also exclude observations in which either partner's hours of work or weeks worked (two variables used to create dependent variable) was allocated.

[4] Our results are robust when relaxing this restriction to include individuals up to age 64.

are living with a partner. Of course, the sample size of the ATUS is much smaller than the CPS. There are only 152 lesbians and 99 gay men living with a partner in states that legalized marriage between 2003 and 2015. Although small, about 25 percent of gays and lesbians in the CPS sample live in a state where same-sex marriage is legal and are therefore "treated." About 18 percent of heterosexual couples are treated. (For some estimations, we also report results for a smaller sample in which both partners in each couple are between 25 and 54.)

That same-sex couples are more likely than different-sex couples to live in states where same-sex marriage is legal raises concerns about sample selection. Positive selection may occur through migration, which we discuss below, or through a greater disclosure of same-sex relationships in states where those relationships are eligible for legal recognition. It is known that as many as ten percent of same-sex households did not disclose their relationships in the 2010 Census (Gates 2010). However, the Census Bureau's recoding of same-sex married couples as different-sex couples results in the loss of observations, which generates offsetting and time-varying sample selection. If recoded observations were more likely in states with legalized same-sex marriage, same-sex couples are undercounted before 2010 in our data.

Figure 1 shows the gay/lesbian share of the men/women cohabiting with partners over the study period. The trend in states that never legalized same-sex marriage is the solid line; the trend in states that legalized it at some point before the 2015 *Obergefell* decision is the dashed line. Among cohabiting couples, same-sex couples were slightly, but not statistically significantly, more common in states that eventually implemented same-sex marriage than in states that did not. The trend is upward and generally parallel in both groups of states during the period. The trend is consistent with the trend in the proportion of the population that reported believing homosexuality is "always" or "almost always" wrong, which is parallel and declining in states with and without marriage equality (Burn 2017). To investigate further, we estimate a linear probability model of the likelihood of being in a same-sex couple. We include a dummy variable that equals one if same-sex marriage was legal in the state and year and a dummy variable that equals one if there was an alternative form of recognition (for example, domestic partnership). We also include state fixed effects and year fixed effects. The presence of legal same-sex marriage does not influence the likelihood of being a member of a same-sex couple for either women or men in our main estimation samples.[5]

The descriptive statistics for the main CPS estimation sample of men are shown in **Table 2**. Descriptive statistics for the ATUS estimation samples appear in Appendix Tables A8 and A9. Again, the CPS sample

[5]Results available upon request. If we include all states, we find that state legalized same-sex marriage is associated with a 0.1 percent lower likelihood of being a member of a gay (male) couple for the full sample of states; however, the association is not significant in the sample of states that eventually legalized same-sex marriage. Dillender (2015) finds the same pattern.

includes couples in which at least one partner is of prime working age. Gay men report working approximately 150 fewer hours in the previous year than heterosexual men. There is no change with legalization.[6] Gay men have actual and imputed hourly wages that are about $1.50 more than heterosexual men before legalization. After legalization, there is no change in the relative wage, although the difference is not statistically significant after legalization. The demographic differences between gays and heterosexual men are consistent with previous studies (Black et al. 2007; Martell and Roncolato 2016). Gay men are more likely to live in a state with an Employment Non-Discrimination Act (ENDA), less likely to have children, and less likely to be homeowners. Gay men live in states with, on average, higher unemployment rates and are more likely to live in a state with an alternative legal recognition prior to the legalization of same-sex marriage. Gay men are younger, more educated, and more likely to live in an urban area, than heterosexual men are. The spouses or partners of gay men have higher incomes than those of heterosexual men, a difference explained by the gender wage gap. Gay men have higher non-labor income than heterosexual men.[7]

Descriptive statistics for women are in **Table 3**. Before the legalization of same-sex marriage, lesbian women report working approximately 380 more hours the previous year than heterosexual women. They work about 290 more hours after legalization. The wages of lesbians, including imputed hourly wages of women who do not work, are more than $2.50 greater than heterosexual women on average when same-sex marriage is not legal. When same-sex marriage is legal, there is no statistically significant difference in the wages of lesbians and heterosexual women. Demographic differences between lesbian and heterosexual women are similar to the results for men and consistent with previous findings (Martell and Roncolato 2016; Black et al. 2007). Lesbians are more likely to live in a state with an ENDA, less likely to have children, and less likely to be homeowners than their heterosexual counterparts. Before legalization of marriage, lesbians are more likely than heterosexual women to live in a state with alternative legal recognition and to live in states with higher unemployment rates. Lesbians are, on average, more educated and have higher non-labor income than heterosexual women. Spouses/partners of lesbians have lower incomes than spouses/partners of heterosexual women.[8]

[6]For gay men, there is not a statistically significant difference in average hours worked before and after legalization. Heterosexual men worked a little less after same-sex marriage was legalized.

[7]We adjust all income and wage data to 1999 dollars using the Consumer Price Index (CPI-U). Note that the CPS allows for the reporting of negative income. When we exclude individuals with negative non-labor income from the empirical specifications that follow, the results are similar.

[8]In our sample, lesbians are more likely to report a race of "black only" or "partly black" than heterosexual women. Previous research finds the reverse. The difference is caused by our inclusion of more recent data and it disappears when we limit the sample to respondents from 2003 to 2011 (that is, the sample used in Dillender (2015)).

4 METHOD

We begin by comparing the labor supply of members of same-sex couples before and after legalization of same-sex marriage, and then proceed to the difference-in-differences analysis of daily time use. To eliminate potential bias introduced by differences between states that did and did not legalize before the *Obergefell* decision, we restrict our estimation sample to the states that legalized prior to June 2015. This strategy is standard in the literature on the impact of public policies on gay and lesbian people (Martell 2014; Dillender 2015).

We measure labor supply in two ways. From the CPS we calculate annual hours of work, which is equal to usual hours worked in a week multiplied by the number of weeks worked last year. The ATUS contains a more precise measure: minutes spent in paid work. Because both hours and minutes of paid work are truncated at zero, we use a tobit model. We estimate the latent variable, time in paid work, y_{ist}, for individual i living in state s in year t:

$$y_{ist} = \beta_0 + \beta_1 S_i + \beta_2 M_{st} + \beta_3 (S_i * M_{st}) + \gamma X_{ist} + \alpha R_{st} + \omega_s + \nu_t + \epsilon_{ist} \tag{1}$$

The indicator S_i takes a value of one if the respondent is identified as a partner in a same-sex couple. M_{st} is an indicator that takes a value of one for respondents living in states that have legalized same-sex marriage at the time of the survey. Our coefficient of interest is β_3, which measures the impact of same-sex marriage on labor supply of coupled gays and lesbians.

We control for the individual characteristics, X_{ist}, that are standard in the study of labor supply and the economic experiences of LGB individuals (Giddings et al. 2014; Jepsen and Jepsen 2015). Demographic controls include age and its square, the number of children in the household, and indicators for the following: the presence of a child under the age of five in the household, race (black, Asian, other), ethnicity (Hispanic), home ownership, an urban residence, and educational attainment (high school diploma, some college, bachelor's degree, graduate degree). The reference group is white, non-Hispanic respondents with less than a high school diploma. We also control for non-labor income, which is equal to total income minus the sum of income from wages, salary, non-farm business, and farming.

The vector X_{ist} includes the natural log of the respondent's hourly wage. We include the natural log of hourly wages as well as non-labor income to control for the well-known income and substitution effects of labor supply (Blau and Kahn 2007). Including these effects allows us to more precisely estimate labor supply. Since wages are correlated with sexual orientation (Klawitter 2015), excluding this variable would

bias estimates of the causal effect of same-sex marriage. For those not working, we impute the wage using the observations of the employed in the sample and ordinary least squares. The wage equation includes all the covariates in equation (1) as well as partner's education. We note that partner's education will be correlated with individual wages if there is assortative mating, which has been documented in both same-sex and different-sex couples (Jepsen and Jepsen 2015). In the wage equation, we use partner's education instead of partner's wage because partner's education is the more closely correlated with own wages of the two. Further, Jepsen and Jepsen (2015) find that there are no differences in the correlation coefficient between partner's education by sexual orientation, suggesting it is an equally valid predictor of wages for individuals in same-sex and different-sex couples.

In the equation estimating hours or minutes at work, we also include a vector of controls, R_{st}, which are specific to the state and year. We include the state unemployment rate in a given year to account for heterogeneity in labor market conditions and a control for whether the state had an alternative form of legal recognition for same-sex couples, such as civil unions or domestic partnerships, in a given year.[9] We also include a control for whether a state has an Employment Non-Discrimination Act (ENDA) to protect gays and lesbians in the labor market. Twenty-three states passed ENDAs during the study period (Martell 2014; Movement Advancement Project 2018). Finally, we also include state effects, ω_s, and year effects, ν_t, to account for other unobserved geographic and temporal factors.

Identification of the causal effect of same-sex marriage on labor supply in the difference-in-differences framework rests on two assumptions. First, there should be a common trend in hours of paid work for members of same-sex couples and different-sex couples. In Appendix Figure A1 we plot average annual hours of work by calendar year and relative to the year that same-sex marriage was legalized in the state. Because of the small sample sizes, there are significant fluctuations in the average hours of work for gays and lesbians. Moreover, the Great Recession had heterogeneous effects on subgroups in the population. Nonetheless, trends in the treatment and control groups are not very different.

A second assumption is that the composition of the population does not change with the policy. In this case, the legalization of same-sex marriage could induce migration of gays and lesbians. However, **Figure A2** shows that there is not a meaningful increase in the portion of the sample that is gay or lesbian immediately following the legalization of same-sex marriage. Indeed, the share of gays and lesbians decreases in the years immediately before and after legalization.[10] And, as discussed above, legalization does not predict being

[9]For this control we code New York as not having a previous alternative and use 2005 for California and 2013 for Colorado as the effective date for the alternative. Our results are robust to using a definition of legal recognition that treats the effective date as 1997 for New York, 2000 for California and 2009 for Colorado (see table 1).

[10]Patterns of the size of the gay and lesbian population are similar when we exclude individuals who moved in the previous

part of a same-sex couple.

5 RESULTS: ANNUAL AND DAILY SUPPLY OF LABOR

Table 4 shows the coefficients of interest from the baseline regressions (full regression results appear in Appendix Tables A1 and A2). Results for men in the sample are in the top panel; results for women are in the bottom panel. Column (1) of each panel shows the impact of legalization on annual hours of paid work using the sample in which at least one partner in a couple is prime working age of 25 to 54. Column (2) shows results for annual hours, and uses the smaller, restricted sample in which both partners are prime age. Column (3) shows the impact of legalization on minutes of paid work per day. Again, the sample used in the column (3) is comparable to the sample used column (1). Throughout the tables, we present coefficient estimates. Because the models are nonlinear, the discussion focuses on marginal effects. We consider both the extensive and intensive margins.

Consider first the diff-in-diff estimator. There is no evidence of an impact of legalizing same-sex marriage on the annual labor supply of gay men, but legalizing same-sex marriage decreases the annual labor supply of lesbians relative to heterosexual women by 104 to 144 hours per year, or 6-8 percent. The effect for women has two sources. Legalizing same-sex marriage causes a 1.5 percent decrease in the likelihood of working, and it causes about an 80 hour decrease in annual labor supply among workers.[11]

The results for daily minutes of paid labor are similar. Legalizing same-sex marriage has no effect on gay men's paid labor (top panel), but it decreases paid work by lesbian couples. The reduction in work by lesbians is large–about two hours per day–and statistically significant.

Now consider the main effect of being gay or lesbian. Gay men work about 110 fewer hours per year than heterosexual men, and lesbians on average work 230 *more* hours per year than heterosexual women after controlling for other characteristics. This is consistent with the literature and reflects, in part, the fact that the average gay man or lesbian woman is not representative of the average heterosexual person of the same sex, as discussed above and shown in **Table 2** and **Table 3**. We address the issue of representativeness in the next section.

year from calculations, see bottom panel of **Figure A2**.

[11] Complete marginal effects available upon request. When we estimate equation (1) in semi-log form, we also get an 8 percent decrease in the annual hours worked of working lesbians relative to working heterosexual women, see Appendix Table A3.

5.1 Robustness

The higher educational attainment and lower incidence of parenthood among gay and lesbian individuals may make their *average* labor supply response smaller than the baseline estimate suggests. We test the robustness of the baseline results by implementing inverse-propensity weighting (IPW), which adjusts for systematic differences in characteristics. IPW is a two-step procedure. First, we predict the probability that an individual cohabits with a member of the same-sex using a logit specification and controlling for the demographic and educational variables in X_{ist}, plus state and year fixed effects. Next, the predicted probabilities, p_i, from the logit model are used to create inverse propensity weights. In their standard form, the weights are calculated as $\omega_i = [\frac{S_i}{p_i} + \frac{1-S_i}{1-p_i}]$, where S_i is an indicator variable equal to one for those who cohabit with a member of the same-sex. These weights are normalized to sum to one and applied in the difference-in-differences estimation.

Estimates using standard-form IPW are sensitive to the inclusion of influential observations that have predicted probabilities of being gay or lesbian that are very high or very low. For this reason, we implement IPW using weight stabilization and weight trimming (for examples, see Kost and Lindberg (2015); Thoemmes and Ong (2016)). We stabilize weights by multiplying the standard IPWs by the unconditional probability of cohabiting with a same-sex or different-sex partner, $\bar{p}$.[12] We trim the weights by topcoding them. All weights at or above the 99th percentile are set equal to the value of the weight of the observation at the 99th percentile.

Adjusting for differences in the characteristics of gays and lesbians relative to heterosexuals does not materially affect the results; compare columns 1 and 2 of **Table 5** to **Table 4**. Further, the inclusion of state and year fixed effects adjusts for any differential patterns in the location of same-sex and different-sex couples. Policy-induced migration, if it exists, does not appear to bias our results.[13]

The effect of legalizing same-sex marriage could be attenuated if a state already had some form of alternative recognition. This would be the case if same-sex marriage affects labor supply through the establishment of the rights also granted with civil unions and domestic partnerships. If a state had no prior form of recognition, it may be more plausible to view legalization as an exogenous shock. **Table 1** shows the states that previously had alternatives; we drop these states in the specifications in column (3) of the top panel of **Table 5**.[14] When a state jumps directly from having no form of relationship recognition for

[12] Specifically, the stabilized IPWs, used in the results presented below, are calculated as $\omega_i = \frac{S_i\bar{p}}{p_i} + \frac{(1-S_i)(1-\bar{p})}{1-p_i}$.

[13] As a final robustness check related to policy-induced migration, we note that our estimate in column (1) of **Table 4** is not materially affected when we exclude individuals who moved in the previous year from our estimation sample.

[14] In addition to states with civil unions and domestic partnerships, this specification also excludes New York state. New York City legalized same-sex domestic partnerships in 1997 and the legally recognized on a state-wide basis marriages from

same-sex couples to having same-sex marriage, the average work hours of *both* gays and lesbians falls. The point estimate is the same for men and women: about 200 hours per year. The impact of same-sex marriage for lesbian is twice as large in this specification as in the baseline results.

To separate the impact of alternative legal recognition from the impact of marriage equality, we interact whether a legal recognition was available in a given state and year with being a member of a same-sex couple. Results are in Appendix Table A4. Gay men increase their hours of work after legal recognition becomes available.[15] This may explain why we do not find an impact of marriage equality for men except when we exclude states with previous alternatives. Still, we find it curious that gay men would respond to legal recognition by increasing their hours and respond to marriage (in states that had no previous alternative) by decreasing their hours. We leave further exploration of this puzzle to future work.

The story for women, however, is quite clear. The negative impact of marriage on lesbians' work hours remains significant, and is larger in size, when we control for access to an alternative form of legal recognition. This suggests that marriage, distinct from other forms of legal recognition, matters for lesbians. Badgett (2010) reports that same-sex couples were much less likely to pursue legal recognition through civil unions and domestic partnerships than through marriage. Thus, while same-sex couples had access to new economic and legal rights through previous alternatives, a lower portion of the population took advantage of these alternatives. Additionally, and perhaps more importantly, we agree with Badgett (2010) that marriage comes with additional distinct benefits, such as increased family support, social acceptance, and relationship commitment. It appears that these mechanisms of marriage impact lesbians' labor supply in ways that the previous alternatives, emphasized in the existing literature (for example, Dillender (2015), did not.

As noted above, the legalization of same-sex marriage through a judicial decision may be more of a surprise than legalization through legislation or referendum.[16] Estimates from a sample including only states that implemented same-sex marriage judicially are consistent with the baseline estimate: gay men do not have a labor supply response; lesbian women reduce their labor hours, see column 4 of **Table 5**.

The estimates, and the difference between results for men and women, are robust to specifications that exclude respondents from Massachusetts, which is the only state that legalized marriage before 2007 (column 5 of **Table 5**).[17] Results are also robust to the exclusion of potentially influential states with large gay and lesbian populations: New York, California and Massachusetts. Finally, we find no discernible effect when we

other states or countries prior to allowing same-sex couples to issuing licenses.

[15]This result is only statistically significant when using the broad definition of legal recognition, meaning New York is considered as having a previous alternative since 1997, California since 2000 and Colorado since 2009 (see table 1).

[16]Only Idaho and Minnesota had a legislative decision but did not have an alternative form of legal recognition prior to legalization of marriage.

[17]The p-value on the interaction term in the specification excluding Massachusetts is .101.

only include respondents to surveys taken in the years in which DOMA was still in effect, 2003-2013 (column 6 of **Table 5**). When we estimate hours of work for the sample of states that did not legalize marriage before the *Obergefell* decision and include 2016 in our data (not shown here but available upon request), we do not find a significant impact of the Supreme Court decision for either gay men or lesbians, suggesting that the impact of marriage equality on labor supply is not immediate but takes time.

In Appendix Table A5, we show results from two additional robustness checks. First, we conduct a placebo test to verify that the estimate is not spuriously capturing an unobserved state-level characteristic associated with legalization. To do this, we interact the indicator for legalized same-sex marriage with the indicator for being unmarried (as opposed to married) and cohabiting with different-sex partner. There is no meaningful impact. Second, identification using the diff-in-diff relies on the assumption that the timing of legalization of same-sex marriage is not correlated with unobservable characteristics, such as tolerance of homosexuality, that may affect labor supply of members of same-sex couples. To investigate, we add leads of one, two, and three years before legalization, as well as the interaction of each lead with the gay/lesbian indicator. Only the two-year in the equation for men matters. As an alternative, we considered years since legalization, but it also had no effect. Lastly, in Appendix Table A6 we consider more complex state-year controls. Neither linear, quadratic state-specific trends nor state-year fixed effects alter the baseline results substantively.

5.2 Heterogeneous Response

As noted in the Background section above, marriage equality may affect parters in a relationship in different ways. We first consider primary and secondary earners.[18] Recall that primary earners are individuals who have annual income that is greater than the income of the spouse/partner; secondary earners are the partners who have lower income.[19] If legalizing same-sex marriage induces specialization, then the labor supply of the primary earner may rise and the labor supply of the secondary earner may fall. Also, the secondary earner is more likely to be affected than the primary earner.

For men, the signs of the diff-in-diff estimators for both primary and secondary earners are as expected, but the coefficients, shown columns 1-2 of **Table 6**, and marginal effects are small (-11 to 16 hours) and not statistically different from zero. For women, the estimated impact of legalized marriage is negative for *both* primary and secondary earners. The size of the effect is two and half times larger for lesbians

[18] In this paper, we do not address the issue of whether or not same-sex marriage affected any selection into primary and secondary earner status within households. Because the characteristics in Tables A8 and A9 do not differ after legalization, we do not believe these results suffer from composition bias.

[19] We exclude individuals that reported exactly the same earnings as the spouse/partner.

who are secondary earners, who decrease hours of work by approximately 85 hours for lesbians who work, than for their partners. Because there are so few "treated" lesbians in the partitioned sample, the diff-in-diff estimators are statistically significant only at the 24 percent level, but the size of the effect is large: approximately 5 percent lower hours at the intensive margin for secondary earners who are lesbian. When we estimate using only prime age workers, and when we estimate using stabilized IPWs, the effect for primary earners remains relatively small, while the effect for secondary earners is both larger and more precisely estimated.[20] Because secondary earners' work hours fall by so much more than primary earners' hours, these results suggest that marriage equality leads to an increase in specialization among lesbian households. However, as we shall show, the specialization supports primarily investments in intangible households assets – a labor of love.

One type of investment is children. Columns 3-4 of **Table 6** compare the results for couples with children[21] to couples without children. Again, men are unaffected, but legalizing same-sex marriage causes lesbian parents who work to decrease their work hours by an average of 140 per year compared to heterosexual women with children.[22] This suggests that the institution of marriage is particularly salient for households with stricter time constraints and higher unpaid work burdens. Marriage equality does not have a short run impact on the incidence of motherhood. Among lesbians, there is no positive effect of marriage equality in a linear probability model of the likelihood of having a child in the household nor in an ordered linear probability model of the number of children in the household (not shown).[23] Instead, marriage equality seems to impact the labor supply of lesbians who are already mothers.

6 RESULTS: TIME USE OUTSIDE PAID LABOR

In this section, we explore how women who are partners in lesbian couples reallocate their time outside of paid labor after legalization of same-sex marriage. As noted above, data cover one 24-hour period. The ways people report spending their time are aggregated into categories according to a detailed time-use lexicon (US BLS, 2017). We consider three major categories: household labor, care labor, and leisure. Household labor is defined as unpaid household maintenance activities including cooking, cleaning, and yard work. Care labor

[20] Using the sample in which both partners are prime age, the diff-in-diff estimators remain large. The marginal effects of same-sex marriage include a reduction of 168 hours among working lesbians and a 4.5 percent reduction in the likelihood of working at all. The diff-in-diff estimates using stabilized IPWs include a larger decrease of 294 hours among lesbians who work as well as a 7 percent decrease in the likelihood of working at all, see Appendix Table A7. We also considered the impact of legalization on the absolute gap in annual labor supply between partners. Legalizing same-sex marriage increases the gap in hours between lesbian partners. The estimate is statistically significant at the 5 percent level when calculated using stabilized IPWs. Results available on request.

[21] Children who are under the age of 18 living in the household.

[22] Same-sex marriage also causes lesbian parents to become 2.6 percent less likely to work at all.

[23] One and two-year lags of marriage also do not have show a positive impact on incidence of motherhood for lesbians.

is unpaid work related to the care of children and adults in the household. Leisure is time spent resting and relaxing. The results shown here are for care labor listed as a primary activity. That is, we do not consider hours spent "keeping an eye on the children" while, for example, working from home. In our analysis, total hours do not add up to 24 because we do not consider other uses of time such as personal care, eating and drinking, exercise, and volunteering (US Bureau of Labor Statistics 2017).

Appendix Tables A8 and A9 compare the time allocations of gay men and lesbians to their heterosexual counterparts in *minutes* per day. The large differences in time spent on care labor are driven by the lower probability of gay men and lesbians to have children present in the home, and child care comprises much - but not all - of care labor. Although there are small differences in the characteristics of individual respondents, most demographics are qualitatively similar to those in the previous analysis because the underlying sampling frame is the same.

The methodology follows Kimmel and Connelly (2007) and Martell and Roncolato (2016). We estimate household labor, care labor, and leisure using least squares.[24] We jointly estimate time use as a conditional mixed process, which allows the errors for each time use equation to be correlated (Roodman 2011). The technique is similar in spirit to seemingly unrelated regression approach that is typically found in time-use research.

Elements of the vector of controls are the same as in the previous section with the following exceptions: weekly earnings replaces the wage; education is measured in years; the presence of a small child and a school-age child are included rather than the presence of a small child and number of children; spouse's weekly earnings is included; and whether the survey day was in the summer or on a weekend is included. We include controls for state-level unemployment rates, whether the state had a previous legal alternative to marriage, and whether the state passed an ENDA. We also include state and year fixed effects.

Legalizing same-sex marriage leads to an increase of approximately 40 minutes per day of care labor among lesbians. This is again driven by secondary earners, who increase care labor by about 70 minutes per day (results not shown here, but available upon request).[25] Secondary earners who are lesbians also increase time in household labor by about an hour per day following legalized same-sex marriage.[26]

[24]See Stewart (2013) for justification for using OLS rather than tobit, even though some people may spend no time on some activity.

[25]When we included time spent on child care as secondary activity, the results are qualitatively similar.

[26]In gay couples, the secondary earners decrease daily time spent on household labor after legalization. This needs more study. Perhaps legalization decreases economic vulnerability and leads to greater purchases of market substitutes for household labor.

7 DISCUSSION AND CONCLUSION

Legalizing same-sex marriage leads to meaningful reductions in labor supply among lesbians. Secondary earners and lesbians with children exhibit the largest labor supply responses. This result holds whether we measure labor supply as annual hours of work (from the CPS) or as daily time (from the ATUS). Lesbians shifted their time from market work to care work.

Dillender (2015) finds that any kind of legal recognition of same-sex relationships decreases the probability that both lesbians partners will be in the labor force. He focuses on a channel that is specific to the context of the United States: relationship recognition allows partners to access employer-provided health insurance. Our findings are more general: not only does the probability of work decline, but hours of work amongst those who remain in the labor force also decline. We also find that the impact of marriage on lesbian works hours persists even when we control for previous access to alternative forms of legal recognition. This pattern suggests that access to the legal institution of marriage increases the ability of lesbian partners to take advantage of the gains from intra-household specialization that heterosexual couples have long enjoyed. Marriage enables couples to make joint investments and lowers the risk of specializing in non-market activities. Even for couples who are not married, the possibility of marriage enables one partner to consider employment that may be less secure and have fewer hours.

Of course, the green light to marry must be followed by a yellow light of caution. Historically, in different-sex relationships, women's extra investments in the household resulted in poor bargaining positions and decreased exit options. One implication of the observed increase in specialization within lesbian households is that the secondary earner in the lesbian couple may become more vulnerable. In the short run, this may not be a major concern because lesbian women work much more than heterosexual women. However, the more closely same-sex relationships come to resemble different-sex relationships, the more concerning it is likely to be. The effect will also be more concerning should the characteristics of individual lesbians more closely resemble those of heterosexual women. Researchers have documented greater educational attainment and labor market experience among lesbians since Badgett (1995). The educational advantage may arise as an attempt to offset the effects of sexual orientation based discrimination in the labor market (Martell and Hansen 2017). The greater labor market experience may arise due to legal barriers to parenthood that marriage alleviates (Badgett 1995). In our specifications that balance the covariates of lesbian and heterosexual women, we find the reduction in paid labor to be twice as large as the in specifications that do not. As such, the increase in specialization among lesbian households may get larger over time, thereby

increasing the vulnerability that may result.[27]

The patterns we find suggest several additional questions for future research. Perhaps most pressing is the need to investigate what happens to the wages of lesbians after the legalization of same-sex marriage.[28] The lesbian wage premium, a standard finding in early research on gay and lesbian labor market outcomes, has been declining (Martell and Hansen 2017). If marriage weakens the labor market attachment of lesbians, and if employers recognize this as a possibility, then legalization of same-sex marriage may explain this puzzling finding. On the other hand, suppose that the lesbian wage premium makes a comeback. If increases in the wages of lesbians precede marriage, while decreases in their wages precede divorce, it will provide additional evidence in support of recent research that indicates the heterosexual marriage premium is caused by selection into marriage, not marriage itself (Killewald and Lundberg 2017).

Finally, because the legalization of marriage is associated with an increase in lesbians' time spent on unpaid care labor, future work should investigate the impact of marriage on child well-being in same-sex households.

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[27] While these same trends in demographic characteristics also apply to gay men, we find little evidence that the effect of marriage may grow over time.

[28] See Burn and Jackson (2017) as well as Zavodny (2008) for early work on the marriage premium among gay men.

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Table 1: Timing of Legalization of Same-Sex Marriage by States, Method of Legalization, and Pre-existing Alternatives

State	**Effective Date**	**Method**	**Alternatives**
Massachusetts	May 17, 2004	Judicial	
Connecticut	November 12, 2008	Judicial	Civil Unions, 2005
Iowa	May 25, 2009	Judicial	
Vermont	September 1, 2009	Legislative	Civil Union, 2000
New Hampshire	January 1, 2010	Legislative	Civil Union, 2008
District of Columbia	March 3, 2010	Legislative	Domestic Partnerships, 2002
New York	July 24, 2011	Legislative	Recognition of Marriages, 2010^{+}
Washington	December 9, 2012	Legislative*	Domestic Partnerships, 2007
Maine	December 29, 2012	Referendum	Domestic Partnerships, 2004
Maryland	January 1, 2013	Referendum	Domestic Partnerships, 2008
California	June 28, 2013	Judicial	Domestic Partnerships, 2000/2005
Delaware	July 1, 2013	Legislative	Civil Unions, 2012
Minnesota	August 1, 2013	Legislative	
Rhode Island	August 1, 2013	Legislative	Civil Union, 2011
New Jersey	October 21, 2013	Judicial	Civil Union, 2007^{v}
Hawaii	December 2, 2013	Legislative	Civil Union, 2012
New Mexico	December 19, 2013	Judicial	
Oregon	May 19, 2014	Judicial	Domestic Partnerships, 2008
Pennsylvania	May 20, 2014	Judicial	
Illinois	June 1, 2014	Legislative	Civil Union, 2011
Oklahoma	October 6, 2014	Judicial	
Utah	October 6, 2014	Judicial	
Virginia	October 6, 2014	Judicial	
Colorado	October 7, 2014	Judicial	Designated beneficiary, 2009 Civil Unions, 2013
Indiana	October 7, 2014	Judicial	
Wisconsin	October 7, 2014	Judicial	Domestic Partnerships, 2009
Nevada	October 9, 2014	Judicial	Domestic Partnerships, 2009
West Virginia	October 9, 2014	Judicial	
North Carolina	October 10, 2014	Judicial	
Idaho	October 15, 2014	Legislative	
Alaska	October 17, 2014	Judicial	
Arizona	October 17, 2014	Judicial	
Wyoming	October 21, 2014	Judicial	
Montana	November 19, 2014	Judicial	
South Carolina	November 19, 2014	Judicial	

Notes: *Affirmed by a referendum. $^{+}$New York City recognized same-sex partnerships since 1997. ^{v}Since 2004 same-sex domestic partnerships have been possible for couples over the age of 62.
Sources:National Center for Lesbian Rights (2017); Yardly (2005); CNN Wire Staff (2011); Ariosto (2011); Wolf (2015); McKinely Irvin Family Law (2017); Movement Advancement Project (2017)

Table 2: Descriptive Statistics from the CPS Subsample of Married and Cohabiting Men

	Not Legal		**Legal**	
	Heterosexual	Gay	Heterosexual	Gay
Hours of paid worked last year	2033.71	1887.64***	2008.55	1849.21***
Wage rate (inc. imputed)	22.49	23.89***	28.50	30.15*
Unemployment rate (state)	6.90	7.58***	6.52	7.48***
Alternative legal recognition	0.29	0.48***	0.00	0.00
ENDA state	0.61	0.77***	0.89	0.94***
No. of own children in HH	1.56	0.11***	1.54	0.00***
Children in HH	0.76	0.07***	0.76	0.07***
Child under 5 in HH	0.26	0.02***	0.25	0.01***
Home owner	0.77	0.66***	0.73	0.62***
Age	42.50	41.77***	42.99	41.03***
Years of education	13.65	14.97***	14.00	15.41***
Less than high school diploma	0.11	0.04***	0.09	0.04***
High school diploma	0.29	0.16***	0.28	0.12***
Some college	0.26	0.26	0.23	0.22
College graduate	0.21	0.29***	0.24	0.33***
Graduate Degree	0.12	0.25***	0.16	0.29***
Urban residence	0.80	0.90***	0.83	0.93***
Spouse/partner income	22355.49	48186.28***	31566.40	57925.22***
Non-labor income	3008.18	4333.41***	4175.89	5711.95
White only	0.84	0.86**	0.83	0.80
Black or partly black	0.07	0.06	0.07	0.09
Asian only	0.06	0.05	0.07	0.08
Other race	0.03	0.03	0.02	0.03
Hispanic	0.16	0.16	0.15	0.18
Observations	221401	1456	48904	452

Notes: Asterisks indicate statistically significant difference between gay and heterosexual respondents. * Difference significant at 10 % ** Difference significant at 5 % *** Difference significant at 1 %

Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table 3: Descriptive Statistics from the CPS Subsample of Married and Cohabiting Women

	Not Legal		**Legal**	
	Heterosexual	Lesbian	Heterosexual	Lesbian
Hours of paid worked last year	1337.24	1721.72***	1374.31	1666.57***
Wage rate (inc. imputed)	15.90	18.46***	21.31	22.09
Unemployment rate (state)	6.90	7.51***	6.52	6.59
Alternative legal recognition	0.29	0.40***	0.00	0.00
ENDA state	0.61	0.72***	0.89	0.91*
No. of own children in HH	1.56	0.57***	1.54	0.53***
Children in HH	0.76	0.33***	0.76	0.32***
Child under 5 in HH	0.26	0.09***	0.25	0.09***
Home owner	0.77	0.62***	0.73	0.63***
Age	40.14	40.48	40.67	41.89***
Years of education	13.73	14.58***	14.25	14.65***
Less than high school diploma	0.10	0.06***	0.08	0.07
High school diploma	0.27	0.20***	0.23	0.17***
Some college	0.29	0.29	0.26	0.26
College graduate	0.24	0.25	0.27	0.27
Graduate Degree	0.11	0.21***	0.17	0.23***
Urban residence	0.80	0.85***	0.83	0.85
Spouse/partner income	46345.01	32725.63***	60769.11	38168.12***
Non-labor income	1897.69	3803.53***	2458.10	4146.59***
White only	0.84	0.84	0.82	0.83
Black or partly black	0.06	0.08***	0.07	0.08
Asian only	0.07	0.02***	0.09	0.04***
Other race	0.03	0.05***	0.03	0.05***
Hispanic	0.16	0.14*	0.15	0.13
Observations	221401	1474	48904	482

Notes: Asterisks indicate statistically significant difference between lesbian and heterosexual respondents. * Difference significant at 10 % ** Difference significant at 5 % *** Difference significant at 1 %

Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table 4: Impact of Same-Sex Marriage on Annual Hours of Paid Work and Daily Minutes of Paid Work

MEN	(1) Annual Hrs *Main*	(2) Annual Hrs *Restricted*	(3) Daily Mins *Main*
Gay	-110.61^{***}	-93.52^{***}	37.94
	(29.59)	(26.17)	(46.40)
Same-sex marriage	−4.27	−3.82	−11.97
	(7.38)	(7.45)	(9.62)
Gay × Same-sex marriage	−11.50	−5.06	−84.81
	(62.96)	(39.87)	(130.48)
Observations	272213	243619	16596

WOMEN	(1) Annual Hrs *Main*	(2) Annual Hrs *Restricted*	(3) Daily Mins *Main*
Lesbian	231.34^{***}	271.13^{***}	81.33^{**}
	(23.73)	(27.09)	(40.49)
Same-sex marriage	10.72	10.81	−16.03
	(14.87)	(14.63)	(12.39)
Lesbian× Same-sex marriage	-103.88^{*}	-144.16^{**}	-134.04^{**}
	(58.52)	(70.76)	(61.87)
Observations	272261	257393	18162

Notes: *Main* sample includes couples with at least one partner between 25 & 54. *Restricted* sample has both partners between 25 & 54. *Main* (in column 3) includes individuals between 25 & 54 (data for both partners is not collected in ATUS). Standard errors clustered by state. *Significant at 10% **Significant at 5% ***Significant at 1%.
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey and the American Time Use Survey from 2003-2015.

Table 5: Robustness Checks on Impact of Same-Sex Marriage on Annual Hours of Paid Labor: Inverse Propensity Weights and Subsample Comparisons

MEN	(1) IPW_{Stab}	(2) IPW_{Trim}	(3) $ExPrevAlt$	(4) $Judicial$	(5) $ExMA$	(6) $DOMA$
Gay × Same-sex marriage legal	−83.66	−11.84	−191.76***	−65.56	2.41	81.63
	(200.42)	(62.71)	(66.13)	(69.86)	(59.95)	(80.16)
Observations	272213	272213	105356	171696	266017	67448
WOMEN	(1) IPW_{Stab}	(2) IPW_{Trim}	(3) $ExPrevAlt$	(4) $Judicial$	(5) $ExMA$	(6) $DOMA$
Lesbian × Same-sex marriage legal	−155.88**	−103.73*	−196.07**	−132.71**	−107.67	−82.27
	(62.08)	(58.45)	(85.78)	(52.25)	(65.59)	(77.63)
Observations	272261	272261	105552	171848	266017	67356

Notes: All specifications use sample which includes couples with at least one partner between 25 & 54. IPW_{Stab} is specification with stabilized IPWs. IPW_{Trim} is specification with trimmed IPWs. $ExPrevAlt$ excludes states that had an alternative legal recognition for same-sex couples prior to legalizing marriage. $Judicial$ sample only includes states that legalize via judicial order. $ExMA$ sample excludes Massachusetts. $DOMA$ only includes years 2003-2013 and states that legalized during the period in which DOMA was in effect. Standard errors clustered by state. *Significant at 10% **Significant at 5% ***Significant at 1%.
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table 6: Impact of Same-Sex Marriage on Annual Hours of Paid Work for Primary/Secondary Earners and Parenthood Status

MEN	(1)	(2)	(3)	(4)
	Primary	*Secondary*	*HasKids*	*NoKids*
Gay × Same-sex marriage	16.32	−11.01	−8.04	2.15
	(34.40)	(97.59)	(221.15)	(51.10)
Observations	183139	68721	205383	66830
WOMEN	(1)	(2)	(3)	(4)
	Primary	*Secondary*	*HasKids*	*NoKids*
Lesbian × Same-sex marriage	−46.17	−123.57	−173.40*	−43.04
	(43.67)	(103.06)	(91.30)	(79.09)
Observations	68730	183148	206367	65894

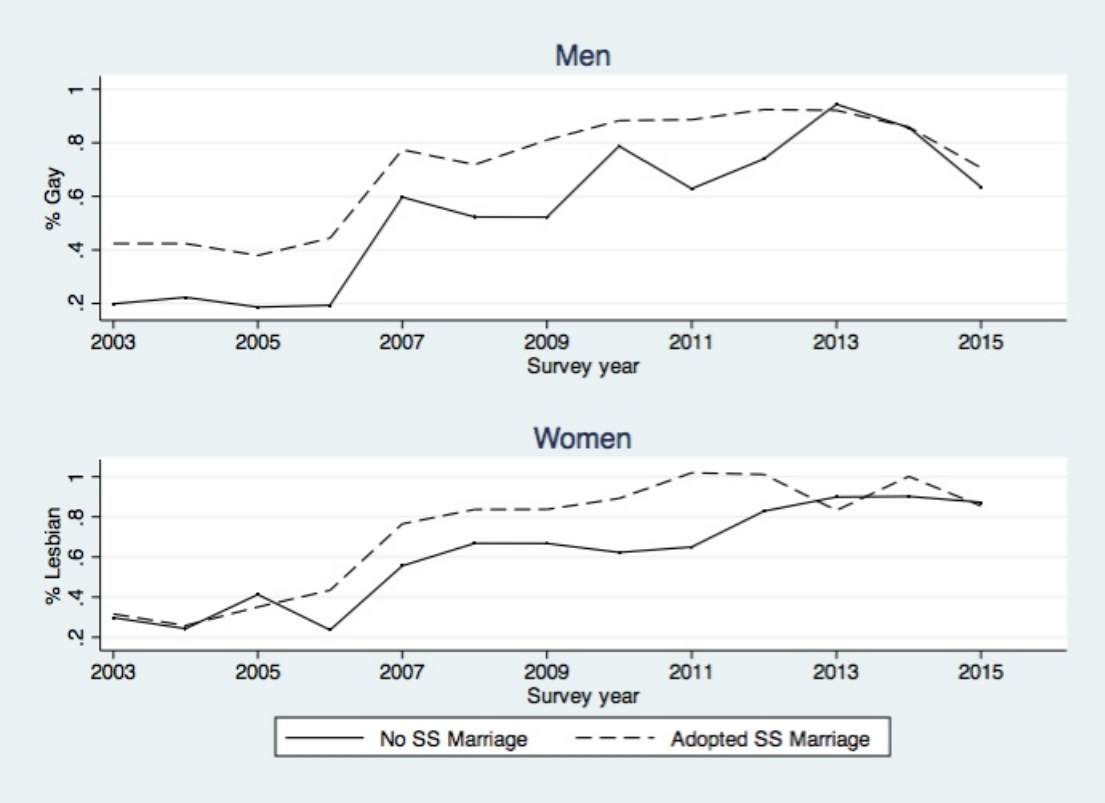
Notes: *Primary* (*Secondary*) indicates individuals who have higher (lower) yearly income than their partners/spouses. Excludes partners/spouses with equal income. *HasKids* only includes individuals with a child under the age of 18 in the household. *NoKids* only includes individuals with no children in the household. Standard errors clustered by state. *Significant at 10% **Significant at 5% ***Significant at 1%.
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table 7: Impact of Same-Sex Marriage on Allocation of Time Outside of Paid Labor in Minutes per Day

Men			
	Household Labor	Care Labor	Leisure
Gay	20.12	−9.80	−6.33
	(18.38)	(6.84)	(15.27)
Same-sex marriage	−1.70	−4.55	3.46
	(4.62)	(3.76)	(4.88)
Gay × Same-sex marriage	−48.42	−4.19	40.52
	(30.03)	(11.66)	(44.86)
Observations	16596		
Women			
	Household Labor	Care Labor	Leisure
Lesbian	−15.91	−18.44**	−4.04
	(11.71)	(7.46)	(14.63)
Same-sex marriage	6.91*	1.38	10.16*
	(3.79)	(3.03)	(5.88)
Lesbian × Same-sex marriage	13.68	42.57**	−7.39
	(22.82)	(18.45)	(29.99)
Observations	18162		

Note: Standard errors clustered by state. *Significant at 10% **Significant at 5% ***Significant at 1%.
Source: Authors' calculations from the American Time Use Survey from 2003-2015.

Figure 1: Percent of Population in Same-sex Households



Source: Authors' calculations from the CPS for 2003-2015.

Table A1: Impact of Same-Sex Marriage on Labor Supply among Men

	(1)	(2)
	Main	*Restricted*
Gay	−110.61***	−93.52***
	(29.59)	(26.17)
Same-sex marriage	−4.27	−3.82
	(7.38)	(7.45)
Gay × Same-sex marriage	−11.50	−5.06
	(62.96)	(39.87)
Alternative legal recognition	−14.48**	−12.90*
	(6.81)	(7.11)
Unemployment rate	−13.58***	−14.00***
	(2.60)	(2.75)
ENDA state	12.64	15.25
	(11.74)	(13.41)
Ln wage rate	18.13	8.00
	(18.86)	(16.42)
Non-labor income	−0.02***	−0.02***
	(0.00)	(0.00)
Spouse/partner income	−0.00***	−0.00***
	(0.00)	(0.00)
Age	73.67***	28.72***
	(2.40)	(3.00)
Age squared	−0.95***	−0.37***
	(0.03)	(0.04)
Hispanic	−8.18	−13.25
	(11.28)	(10.10)
No. of own children in HH	32.71***	35.58***
	(2.40)	(2.52)
Child under 5 in HH	−3.57	3.36
	(3.88)	(3.73)
Home owner	231.71***	234.77***
	(8.91)	(9.80)
Urban residence	20.62	16.19
	(13.73)	(12.71)
Race controls	*yes*	*yes*
Education controls	*yes*	*yes*
Year fixed effects	*yes*	*yes*
State fixed effects	*yes*	*yes*
Observations	272213	243619

Notes: Coefficient estimates and standard errors based for unweighted regressions. Standard errors clustered by state. *Significant at 10% **Significant at 5% ***Significant at 1%based

Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table A2: Impact of Same-Sex Marriage on Labor Supply among Women

	(1)	(2)
	Main	*Restricted*
Lesbian	231.34***	271.13***
	(23.73)	(27.09)
Same-sex marriage	10.72	10.81
	(14.87)	(14.63)
Lesbian × Same-sex marriage	−103.88*	−144.16**
	(58.52)	(70.76)
Alternative legal recognition	−4.58	−5.14
	(11.80)	(11.10)
Unemployment rate	−2.15	−1.38
	(4.11)	(4.43)
ENDA state	5.05	5.87
	(10.55)	(11.78)
Ln wage rate	192.44***	210.19***
	(20.84)	(20.30)
Non-labor income	−0.02***	−0.02***
	(0.00)	(0.00)
Spouse/partner income	−0.00***	−0.00***
	(0.00)	(0.00)
Age	52.19***	37.12***
	(3.45)	(5.44)
Age squared	−0.71***	−0.52***
	(0.04)	(0.07)
Hispanic	−23.80	−16.62
	(15.48)	(16.48)
No. of own children in HH	−133.03***	−132.62***
	(6.03)	(5.91)
Child under 5 in HH	−400.23***	−400.84***
	(11.52)	(11.67)
Home owner	248.45***	256.12***
	(10.09)	(9.99)
Urban residence	−20.68	−24.34
	(17.04)	(17.36)
Race controls	*yes*	*yes*
Education controls	*yes*	*yes*
Year fixed effects	*yes*	*yes*
State fixed effects	*yes*	*yes*
Observations	272261	257393

Notes: Coefficient estimates and standard errors based for unweighted regressions. Standard errors clustered by state. *Significant at 10% **Significant at 5% ***Significant at 1%based

Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table A3: Impact of Same-Sex Marriage on Log of Hours Worked among Working Population

WOMEN	
	Log of hours worked last year
Lesbian	0.08^{***}
	(0.02)
Same-sex marriage	0.01
	(0.01)
Lesbian× Same-sex marriage	-0.08^{**}
	(0.04)
Observations	208615

Notes: Includes only observations with non-zero work hours. Dependent variable is the natural log of hours worked in previous year. Standard errors clustered by state. * Significant at 10 % ** Difference at 5 % *** Significant at 1 %
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table A4: Impact of Same-Sex Marriage Independent of Impact of Alternative Legal Recognition of Relationships

MEN	(1)	(2)
Gay	−139.60***	−165.83***
	(40.48)	(45.61)
Same-sex marriage	−4.41	−8.03
	(7.38)	(7.78)
Gay × Same-sex marriage	17.77	43.75
	(60.96)	(66.37)
Alternative legal recognition	−15.01**	
	(6.95)	
Gay × Alternative legal recognition	60.07	
	(55.03)	
Alternative legal recognition (broad)		−17.14**
		(6.88)
Gay × Alternative legal recognition (broad)		98.07*
		(56.83)
Observations	272213	272213

WOMEN	(1)	(2)
Lesbian	264.55***	247.36***
	(35.05)	(38.08)
Same-sex marriage	11.01	17.95
	(14.77)	(14.88)
Lesbian× Same-sex marriage	−137.09**	−119.86*
	(63.10)	(66.12)
Alternative legal recognition	−3.84	
	(11.58)	
Lesbian × Alternative legal recognition	−82.88	
	(70.58)	
Alternative legal recognition (broad)		6.09
		(12.71)
Lesbian × Alternative legal recognition (broad)		−33.47
		(66.23)
Observations	272261	272261

Note: Alternative legal recognition treats New York as not having a previous alternative and uses 2005 for California and 2013 for Colorado as the effective date of the alternative (see table 1). Alternative legal recognition (broad) treats New York as having an alternative in 1997 when New York City offered alternative and uses 2000 for California and 2009 for Colorado as the effective date of the alternative. Standard errors clustered by state. * Significant at 10 % ** Significant at 5 % *** Significant at 1 %
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table A5: Robustness of Impact of Same-Sex Marriage to Timing of Legalization

MEN	(1) *Validity*	(2) *Length*	(3) *Leads*
Unmarried (different-sex) × Same-sex marriage	−29.63*		
	(15.39)		
Gay × Same-sex marriage		−18.78	32.12
		(71.08)	(58.79)
Gay × Length of legalization		4.51	
		(18.29)	
Gay × One year before same-sex marriage			69.48
			(93.66)
Gay × Two years before same-sex marriage			174.19**
			(77.77)
Gay × Two years before same-sex marriage			90.28
			(72.87)
Observations	272213	272213	272213
WOMEN	(1) *Validity*	(2) *Length*	(3) *Leads*
Unmarried (different-sex) × Same-sex marriage	−32.85		
	(27.24)		
Lesbian × Same-sex marriage		−130.60**	−127.52**
		(65.67)	(59.15)
Lesbian × Length of legalization		13.40	
		(16.69)	
Lesbian × One year before same-sex marriage			−95.33
			(99.95)
Lesbian × Two years before same-sex marriage			−30.16
			(84.36)
Lesbian × Three years before same-sex marriage			−57.89
			(96.19)
Observations	272261	272261	272261

Note: *Validity* tests for spurious impact of timing of same-sex marriage legalization on different-sex households. *Length* tests for duration (in years) of legalization. *Leads* controls for lead indicators of legalization. Standard errors clustered by state. * Significant at 10 % ** Significant at 5 % *** Significant at 1 %
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table A6: Impact of Same-Sex Marriage Conditional on Linear and Quadratic Time Trends

MEN	(1) Trend	(2) Trend and Trend Sq
Gay× Same-sex marriage	−17.05	−17.61
	(61.97)	(61.61)
Observations	272213	272213
WOMEN	(1) Trend	(2) Trend and Trend Sq
Lesbian × Same-sex marriage	−109.33*	−109.44*
	(58.86)	(58.81)
Observations	272261	272261

Note: Standard errors clustered by state. * Significant at 10 % ** Significant at 5 % *** Significant at 1 %
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table A7: Impact of Same-Sex Marriage on Labor Supply among Secondary Earner Women

	(1) IPW_{Stab}	(2) *Restricted*
Lesbian × Same-sex marriage	−372.05***	−225.73*
	(112.39)	(119.65)
Observations	183148	172977

Note: IPW_{Stab} is specification with stabilized IPWs and the sample includes couples with at least one partner between 25 & 54. *Restricted* is an unweighted estimation and the sample has both partners between 25 & 54. Standard errors clustered by state. * Significant at 10 % ** Significant at 5 % *** Significant at 1 %
Source: Authors' calculations from the Annual Socio-Economic Supplement of the Current Population Survey from 2003-2015.

Table A8: Descriptive Statistics within Time Use Data: Men

	Not Legal		**Legal**	
	Heterosexual	Gay	Heterosexual	Gay
Paid	252.43	258.17	247.01	236.00
Household	99.95	127.32*	102.21	72.67
Care	54.07	26.84**	58.22	21.72
Leisure	250.85	264.48	249.91	293.00
Age	41.83	41.73	42.09	46.33**
Years Education	14.14	15.23***	14.58	16.11**
Weekly Earnings	1030.01	1001.79	1208.88	905.03
Spouse's Earnings	509.17	1008.81***	655.09	1129.68***
Number of Children	1.48	0.38***	1.49	0.39***
Child Under 6	0.36	0.06***	0.37	0.11**
Child between 6 and 18	0.54	0.12***	0.55	0.11***
White	0.86	0.91	0.83	0.83
Non-Hispanic	0.85	0.90	0.85	0.83
Urban Residence	0.84	0.95***	0.89	0.94
Summer	0.24	0.30	0.25	0.11
Other Adults Present	0.16	0.09*	0.19	0.06
Weekend	0.51	0.52	0.52	0.28**
Home Owner	0.79	0.75	0.77	0.83
Unemployment rate (state)	6.98	7.42*	6.64	6.72
Alternative legal recognition	0.25	0.33*	0.00	0.00
ENDA state	0.58	0.74***	0.85	0.72
Observations	13712	81	2785	18

Note: * Difference significant at 10 % ** Difference significant at 5 % *** Difference significant at 1 %.
Source: Authors' calculations from the American Time Use Survey from 2003-2015.

Table A9: Descriptive Statistics within Time Use Data: Women

	Not Legal		**Legal**	
	Heterosexual	Lesbian	Heterosexual	Lesbian
Paid	152.56	226.89***	154.51	173.56
Household	161.55	124.81***	159.08	133.58
Care	89.41	33.19***	97.62	84.49
Leisure	220.66	226.7	215.66	220.00
Age	39.34	40.15	39.52	40.47
Years Education	14.19	15.38***	14.84	16.00**
Weekly Earnings	523.26	812.67***	649.93	1038.06***
Spouse's Earnings	989.59	818.48**	1168.15	842.38***
Number of Children	1.51	0.72***	1.52	0.72***
Child Under 6	0.37	0.116***	0.39	0.19***
Child between 6 and 18	0.54	0.29***	0.55	0.33***
White	0.86	0.90	0.83	0.91
Non-Hispanic	0.84	0.84	0.85	0.88
Urban Residence	0.84	0.91*	0.88	0.93
Summer	0.24	0.27	0.25	0.16
Other Adults Present	0.17	0.05***	0.17	0.07*
Weekend	0.51	0.56	0.51	0.65*
Home Owner	0.79	0.68***	0.76	0.65
Unemployment rate (state)	6.95	7.53***	6.66	7.05*
Alternative legal recognition	0.24	0.32*	0.00	0.00
ENDA state	0.58	0.67*	0.85	0.88
Observations	14954	109	3056	43

Note: * Difference significant at 10 % ** Difference significant at 5 % *** Difference significant at 1 %.
Source: Authors' calculations from the American Time Use Survey from 2003-2015.

Table A10: Impact of Same-Sex Marriage on Time Use among Men

	Paid	*Household*	*Care*	*Leisure*
Gay	37.94	20.12	−9.80	−6.33
	(46.40)	(18.38)	(6.84)	(15.27)
Same-sex marriage	−11.97	−1.70	−4.55	3.46
	(9.62)	(4.62)	(3.76)	(4.88)
Gay× Same-sex marriage	−84.81	−48.42	−4.19	40.52
	(130.48)	(30.03)	(11.66)	(44.86)
Alternative legal recognition	4.56	−0.31	0.44	−2.02
	(10.19)	(2.84)	(2.84)	(3.53)
Unemployment rate	−0.78	−0.32	0.76	−1.46
	(3.77)	(1.34)	(1.20)	(1.68)
ENDA state	16.71	−3.68	−0.68	−5.99
	(13.91)	(3.54)	(2.72)	(7.28)
Weekly Earnings	0.11***	−0.01***	−0.01***	−0.04***
	(0.01)	(0.00)	(0.00)	(0.00)
Age	6.59**	1.88***	1.95***	−3.54**
	(2.99)	(0.60)	(0.42)	(1.38)
Age × Age	−0.12***	−0.01	−0.02***	0.06***
	(0.03)	(0.01)	(0.01)	(0.02)
White	−1.20	21.68***	5.71**	−10.75*
	(7.91)	(3.53)	(2.23)	(5.63)
Non-Hispanic	−40.93***	12.94***	8.25***	29.08***
	(7.92)	(2.73)	(2.19)	(3.10)
Urban Residence	−18.94*	−3.63	3.01	7.72**
	(9.91)	(3.96)	(2.21)	(3.63)
Summer	−7.94	5.58**	−6.34***	−8.06***
	(5.39)	(2.32)	(1.93)	(3.04)
Other Adults Present	11.95	−3.00	−6.85***	−3.32
	(9.77)	(2.63)	(1.62)	(3.68)
Years Education	−0.84	0.26	2.28***	−4.31***
	(1.11)	(0.57)	(0.25)	(0.66)
Spouse's Earnings	−0.02***	0.01***	0.01***	−0.01**
	(0.00)	(0.00)	(0.00)	(0.00)
Weekend	−487.96***	60.92***	13.54***	120.09***
	(6.86)	(2.68)	(1.69)	(2.54)
Child Under 6	−14.22*	−0.71	69.44***	−34.41***
	(7.49)	(2.06)	(2.32)	(3.00)
Child between 6 and 18	−7.76	5.05***	11.74***	−21.36***
	(5.19)	(1.84)	(1.56)	(2.93)
Non-own Child Present	−16.44	12.13**	22.41***	−8.94
	(28.40)	(6.00)	(4.83)	(8.46)
Home Owner	−19.08***	29.12***	4.23	−10.91***
	(6.47)	(2.45)	(3.33)	(3.20)
Observations	16596			

Note: Standard errors clustered by state. * Significant at 10 % ** Significant at 5 % *** Significant at 1 %
Source: Authors' calculations from the American Time Use Survey from 2003-2015.

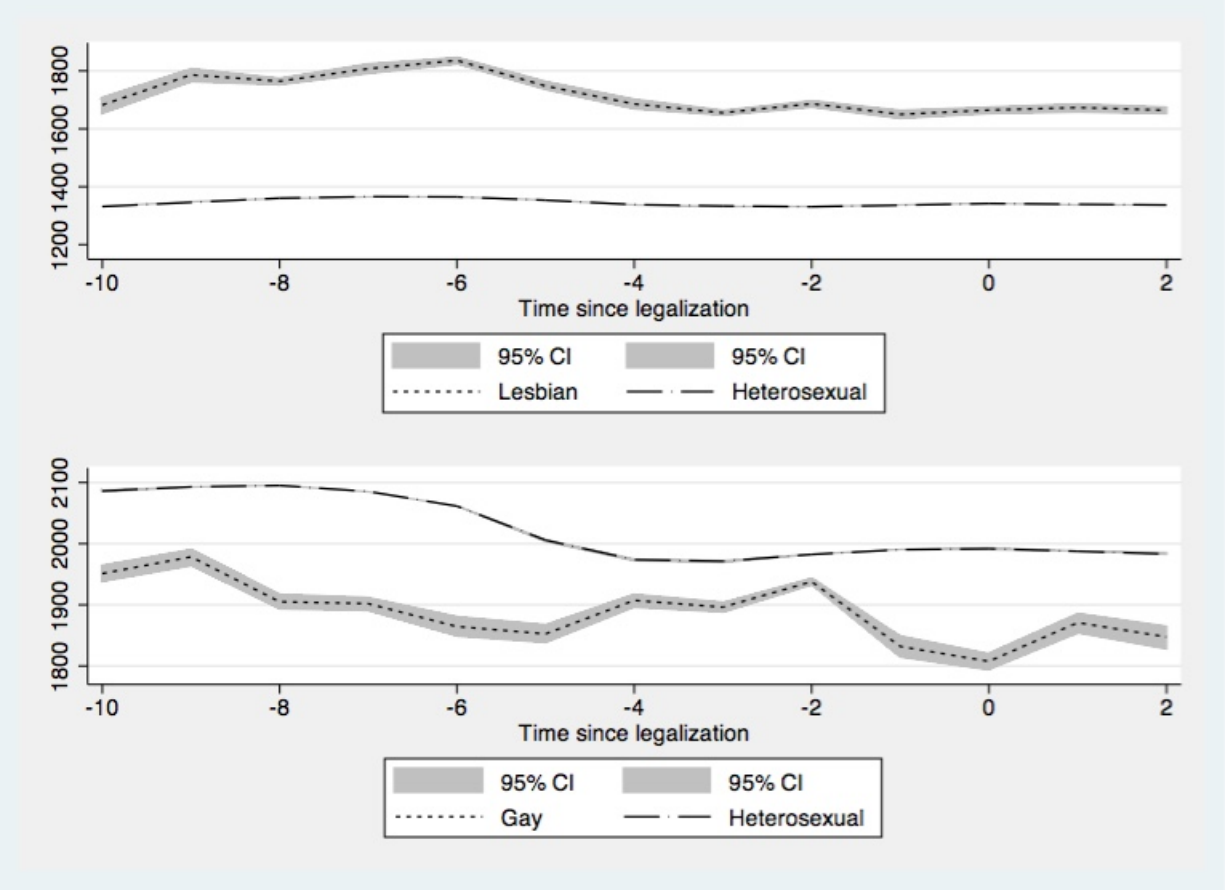
Table A11: Impact of Same-Sex Marriage on Time Use among Women

	Paid	*Household*	*Care*	*Leisure*
Lesbian	81.33**	−15.91	−18.44**	−4.04
	(40.49)	(11.71)	(7.46)	(14.63)
Same-sex marriage	−16.03	6.91*	1.38	10.16*
	(12.39)	(3.79)	(3.03)	(5.88)
Lesbian × Same-sex marriage	−134.04**	13.68	42.57**	−7.39
	(61.87)	(22.82)	(18.45)	(29.99)
Alternative legal recognition	−29.48***	7.09**	0.48	4.04
	(8.10)	(3.55)	(2.06)	(4.03)
Unemployment rate	0.94	−1.65	1.05	1.12
	(3.18)	(1.11)	(0.73)	(1.29)
ENDA state	0.49	−9.45***	5.42	−0.05
	(10.88)	(3.12)	(4.96)	(6.99)
Weekly Earnings	0.25***	−0.03***	−0.03***	−0.03***
	(0.01)	(0.00)	(0.00)	(0.00)
Age	1.06	5.38***	5.04***	−5.62***
	(2.91)	(0.93)	(0.73)	(1.39)
Age × Age	−0.05	−0.04***	−0.07***	0.08***
	(0.03)	(0.01)	(0.01)	(0.02)
White	−11.94	9.99***	9.41***	5.24
	(8.65)	(3.10)	(1.35)	(4.41)
Non-Hispanic	−3.30	−21.19***	17.46***	30.28***
	(12.36)	(5.46)	(2.28)	(4.17)
Urban Residence	−32.18***	−2.62	4.76**	0.65
	(8.18)	(3.58)	(1.89)	(4.35)
Summer	−22.29***	6.73**	−7.02***	3.59
	(6.93)	(2.82)	(1.75)	(2.29)
Other Adults Present	26.16***	4.09	−11.12***	−2.28
	(7.12)	(2.74)	(1.51)	(3.08)
Years Education	1.74	−2.57***	2.49***	−3.51***
	(1.21)	(0.44)	(0.34)	(0.56)
Spouse's Earnings	−0.05***	0.01***	0.01***	−0.01***
	(0.01)	(0.00)	(0.00)	(0.00)
Weekend	−391.17***	32.75***	−16.44***	82.47***
	(7.49)	(2.53)	(1.85)	(2.29)
Child Under 6	−101.06***	15.76***	109.34***	−41.00***
	(6.34)	(1.80)	(3.07)	(2.47)
Child between 6 and 18	−17.48***	20.71***	10.28***	−22.20***
	(6.08)	(1.47)	(2.06)	(2.56)
Non-own Child Present	−27.12	9.31	28.29***	−9.31
	(18.86)	(10.74)	(4.83)	(8.02)
Home Owner	15.46*	2.15	4.88**	−18.72***
	(8.08)	(2.19)	(2.31)	(4.34)
Observations	18162			

Note: Standard errors clustered by state. * Significant at 10 % ** Significant at 5 % *** Significant at 1 %

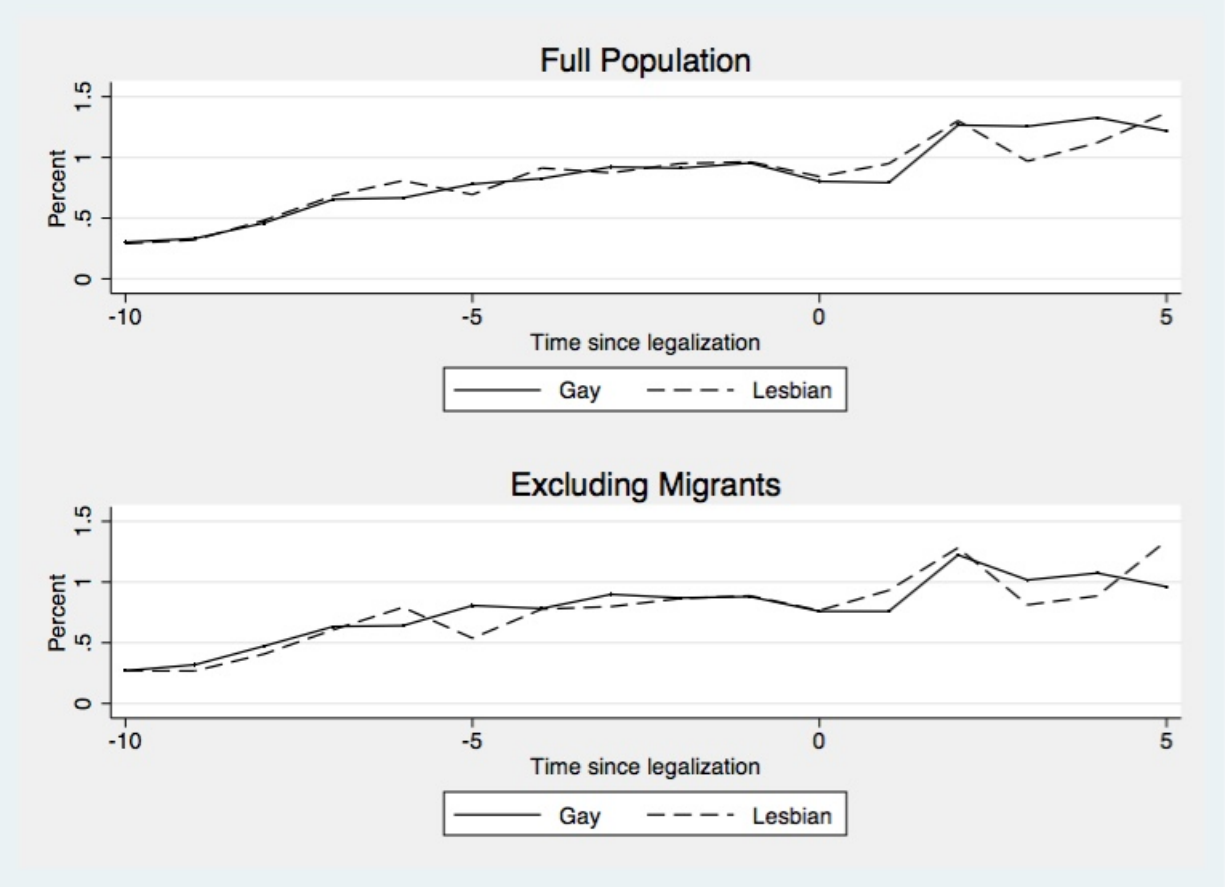
Source: Authors' calculations from the American Time Use Survey from 2003-2015.

Figure A1: Average Annual Hours of Work Relative to Legalization of Same-Sex Marriage



Source: Authors' calculations from the CPS for 2003-2015.

Figure A2: Percent of Population in Same-Sex Households Relative to Legalization of Same-Sex Marriage



Note: Top panel displays percent of CPS subsample of married and cohabiting men and women that is comprised of same-sex households. Bottom panel displays same calculation but excludes individuals who moved in the previous year from sample.
Source: Authors' calculations from the CPS for 2003-2015.