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Effects of the Affordable Care Act Dependent Coverage Mandate on Health Insurance Coverage for Individuals in Same-Sex Couples

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ABSTRACT A large body of research documents that the 2010 dependent coverage mandate of the U.S. Affordable Care Act was responsible for significantly increasing health insurance coverage among young adults. No prior research has examined whether sexual minority young adults also benefitted from the dependent coverage mandate despite previous studies showing lower health insurance coverage among sexual minorities. Our estimates from the American Community Survey, using difference-in-differences and event study models, show that men in same-sex couples aged 21–25 experienced a significantly greater increase in the likelihood of having any health insurance after 2010 than older, 27- to 31-year-old men in same-sex couples. This increase is concentrated among employer-sponsored insurance, and it is robust to permutations of periods and age groups. Effects for women in same-sex couples and men in different-sex couples are smaller than the associated effects for men in same-sex couples. These findings confirm the broad effects of expanded dependent coverage and suggest that eliminating the federal dependent mandate could reduce health insurance coverage among young adult sexual minorities in same-sex couples.

KEYWORDS Affordable Care Act • Health insurance • Dependent coverage • Sexual minority • LGBTQ

Introduction and Motivation

Substantial research has documented that sexual minorities (lesbian women, gay men, bisexual individuals, and other nonheterosexual populations) have worse health outcomes, including increased prevalence of mental health and substance use disorders; HIV infection; and risk factors for chronic diseases, such as cigarette smoking and heavy alcohol consumption (Boehmer 2002; Bostwick et al. 2010; Carpenter and Sansone 2021; Cochran et al. 2013; Gonzales and Henning-Smith 2017; Gonzales et al. 2016; Gorman et al. 2015; Hatzenbuehler et al. 2008; Meyer 1995). Despite having greater health care needs, sexual minorities also experience barriers to medical care, given that they are more likely to be uninsured and delay or forgo med-

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ical care because of financial cost (Buchmueller and Carpenter 2010; Dahlhamer et al. 2016; Gonzales and Blewett 2014; Heck et al. 2006; Ponce et al. 2010). These disparities have been identified and targeted for elimination by the National Academy of Medicine (Institute of Medicine 2011) and the National Institutes of Health (Pérez-Stable 2016). Improving health insurance coverage and access to care may be one important lever for reducing sexual orientation-based disparities.

Prior research has examined how LGBTQ-specific policies—such as domestic partnership and same-sex marriage laws—impact private health insurance coverage for sexual minorities (Buchmueller and Carpenter 2012; Carpenter et al. 2021; Dillender 2015; Gonzales 2015), but very little research has examined the impacts of broad population-based health reforms on sexual minorities (Carpenter and Sansone 2021). The Affordable Care Act (ACA) represented one of the most important health insurance reforms in recent history, and a large body of research has documented the effects of the ACA toward reducing rates of uninsurance in the nonelderly adult population. In particular, the 2010 ACA dependent coverage mandate, which allows young adults up to age 26 to enroll as dependents on a parent's private health plan, significantly increased insurance coverage among young adults below age 26 compared with the associated change for slightly older individuals who were not eligible for parental coverage (Antwi et al. 2013; Barbaresco et al. 2015; Mulcahy et al. 2013; Sommers and Kronick 2012; Wallace and Sommers 2016).

In addition, numerous studies have examined the impact of the ACA dependent coverage mandate on racial and ethnic minorities (Chen et al. 2016; O'Hara and Brault 2013; Scott, Salim et al. 2015; Shane and Ayyagari 2014), women (Robbins et al. 2015), rural populations (Look et al. 2017), and young adults with specific medical conditions and disabilities (Ali et al. 2016; Golberstein et al. 2015; Porterfield and Huang 2016; Saloner and Cook 2014; Scott, Rose et al. 2015). To our knowledge, however, no research has specifically examined the causal effects of the ACA dependent coverage mandate on sexual minorities. This study fills that gap by providing the first evidence on how the ACA dependent coverage mandate affected health insurance coverage for sexual minorities cohabiting in same-sex couples as well as how it affected disparities in health insurance coverage between same-sex couples and different-sex couples.

Conceptual Framework

The decision for a young adult to pursue health insurance coverage from a parent depends on the expected costs and benefits of doing so. The ACA dependent coverage provision should have reduced the costs and increased the benefits of parental health insurance coverage for young adults under age 26 without changing the relative costs and benefits for slightly older young adults aged 27–31. Key to our conceptual framework is the idea that these costs and benefits of pursuing parental health insurance coverage are likely to vary by sexual orientation and gender. Specifically, we hypothesize that the effect of the ACA dependent coverage provision on changing the relative costs and benefits of parental coverage likely depends on numerous factors, including the strength of an individual's relationship with their

parents, the presence of alternative nonparental sources of health insurance coverage, and the demand for health insurance.[1]

First, we hypothesize that sexual minority young adults will face higher costs of pursuing parental health insurance coverage under the ACA because of their higher likelihood of poor relationships with parents compared with heterosexual young adults. A large literature in psychology and family development has documented that discrimination and stigma surrounding the process of "coming out" can strain relationships between parents and sexual minority children (Cramer and Roach 1988; D'Augelli et al. 1998; Goldfried and Goldfried 2001; Heatherington and Lavner 2008; Radkowsky and Siegel 1997; Ryan et al. 2010; Savin-Williams 1989; Waldner and Magruder 1999). Sexual minority youth may receive less support and acceptance because of their sexual identity in early adulthood compared with heterosexual youth.[2] Some sexual minority individuals may even be disowned by their parents: family rejection is a leading cause of homelessness among sexual minority youth (Durso and Gates 2012). Thus, strained familial ties would reduce the effectiveness of a dependent coverage mandate at increasing insurance for sexual minority young adults.

Second, we hypothesize that sexual minority young adults will enjoy greater benefits of expanded parental coverage eligibility under the ACA because they are likely to have fewer alternative sources of health insurance coverage than heterosexual individuals. The vast majority of adults in the United States obtain health insurance through their employer (Barnett and Vornovitsky 2016), and strong evidence shows that sexual minorities face potential barriers to employment, including labor market discrimination (Tilcsik 2011). For sexual minorities with employment, their same-sex partners and spouses may lack access to health insurance because employers have historically been less likely to offer health insurance to same-sex partners and spouses of employees compared with different-sex partners and spouses of employees.[3] Even in the presence of an employer offer of health insurance to a same-sex partner or spouse, an employed sexual minority individual with a same-sex partner or spouse may not have felt comfortable outing themselves to their employer for fear of workplace reprisals, especially because most states lacked employment nondiscrimination protections on the basis of sexual orientation over our sample period (Movement Advancement Project 2019). Moreover, the employer's contribution to the health insurance benefits for same-sex spouses (but not different-sex spouses) were taxed

[1] Because we do not directly observe any of these channels, our upcoming reduced-form estimates will necessarily capture a net effect.

[2] A Pew Research Center (2013) report indicated that among a nationally representative sample of lesbian, gay, and bisexual Americans, the median age at which gay men told a close friend or a family member about their sexual orientation was 18; for lesbians, the median age was 21. Our samples focus on individuals in cohabiting same-sex romantic relationships, which is likely to be positively correlated with having come out to family members.

[3] The overwhelming majority of employers cover different-sex spouses under family insurance plans, and all individuals in different-sex couples, of course, had the legal option to marry throughout our primary sample period (2008–2013). The same was not true for individuals in same-sex couples. Nationwide access to legal same-sex marriage was granted in the United States in 2015 in the United States Supreme Court ruling *Obergefell v. Hodges*, and employer surveys have shown that not all employers adopted insurance benefits for legal same-sex spouses even after *Obergefell* (Dawson et al. 2016).

as income to the employee until a 2013 United States Supreme Court decision in *US v. Windsor* (Crandall-Hollick et al. 2015).[4]

Third, we hypothesize that the benefits of expanded eligibility for parental health insurance coverage under the ACA dependent coverage provision are likely to be larger for sexual minorities than for heterosexual young adults due to preexisting differences in health, human development, and socioeconomic status. A large body of research shows that sexual minority adults are more likely to have college and advanced degrees compared with heterosexuals (Black et al. 2007; Carpenter and Gates 2008; Gonzales and Blewett 2014). If sexual minorities are disproportionately more likely to delay employment (where the vast majority of Americans obtain health insurance), they may be more likely to need access to a parent's insurance plan.

Relatedly, a range of health conditions and health behaviors prevalent among sexual minority adults may also differentially influence the demand for dependent coverage by gender. Sexual minority women, for example, are *less* likely to use family planning and contraceptive services as well as health care related to childbirth and labor (i.e., maternity care), and these are leading sources of insurance-related health care for heterosexual women in adulthood (Agénor et al. 2014; Agénor et al. 2017; Charlton et al. 2011, 2014; Ela and Budnick 2017; Kerr et al. 2013; Tornello et al. 2014). On the other hand, sexual minority men may be *more* likely to need health care for conditions prevalent among this population, including sexually transmitted infections and HIV prevention (i.e., pre-exposure prophylaxis [PrEP]), smoking cessation, and substance use disorders (Gonzales et al. 2016; Green and Feinstein 2012; Institute of Medicine 2011; Wolitski and Fenton 2011).

As the discussion about different health profiles makes clear, these costs and benefits of expanded eligibility for parental health insurance coverage could vary not only by sexual orientation but also by gender within the sample of sexual minorities. Although research suggests that gay men and lesbians disclose their sexual identity to parents at approximately similar rates (Savin-Williams 1989), several studies in psychology and family relationships have documented that gay sons had better relationships with their parents than lesbian daughters (Herdt and Boxer 1996; Muller 1987; Savin-Williams 2003). Consistent with this finding, research has also documented deterioration of lesbian daughters' relationships with their parents and an improvement in gay sons' relationships with parents following sexual orientation disclosure (Cramer and Roach 1988; Savin-Williams and Dubé 1998), particularly as it relates to their fathers, which may be particularly relevant for obtaining health insurance through a parent's employer, given that young adults' fathers are more likely to have the types of jobs offering employer-sponsored insurance benefits than their mothers.[5]

[4] The added costs of parental health insurance benefits may also be less expensive than those associated with a partner's or spouse's plan because the pricing of many health insurance plans involves changing tiers when adding a partner/spouse but does not involve changing tiers when adding a child. Also, adding a young adult child to a parent's employer-sponsored insurance plan carries tax advantages for the parents because the ACA included a provision that the value of any employer-provided health coverage for an employee's child is excluded from the employee's income through the end of the taxable year in which the child turns 26 (Antwi et al. 2013). These considerations are unlikely to differ for sexual minorities compared with heterosexuals, but they are additional reasons to expect that expanded eligibility for parental health insurance coverage is likely to be particularly attractive compared with employer-sponsored insurance from a partner or spouse.

[5] There are multiple possible explanations for the differential associations between sexual orientation disclosure and paternal relationships for gay sons versus lesbian daughters (Savin-Williams 2003). For exam-

Regarding the availability of employer-sponsored insurance through own or partner employment, a large body of research in economics has documented that gay men have worse labor market outcomes than similarly situated heterosexual men (possibly due to workplace discrimination), whereas lesbians have stronger labor market outcomes than similarly situated heterosexual women (possibly due to Beckerian household specialization), and this is also true when comparing individuals in same-sex couples with individuals in different-sex couples (Badgett et al. 2021). For these reasons, we hypothesize that expanded eligibility for parental health insurance coverage will have stronger effects at increasing health insurance coverage for men in same-sex couples relative to women in same-sex couples.

The Affordable Care Act Dependent Coverage Provision

The Affordable Care Act (ACA), signed into law by President Barrack Obama in 2010, expanded health insurance to millions of Americans through Medicaid expansions for low-income families, and subsidies to purchase private health insurance for middle-income Americans. One of the first reforms to be implemented was the dependent coverage provision. Starting on September 23, 2010, this provision required employers to extend employer-sponsored health insurance to the dependent children of covered employees until age 26.[6]

Before the implementation of the ACA, more than 30 states enacted similar policies, but the impacts of state-level dependent coverage provisions were small (Cantor, Belloff et al. 2012; Monheit et al. 2011). State-level dependent coverage provisions were often limited to a minority of employers that "fully insured" their employees through an insurance carrier (rather than "self-insured" employers). Numerous studies demonstrated that the federal dependent coverage provision had a relatively large impact on employer-sponsored insurance coverage, finding 6–8 percentage point increases in employer-sponsored insurance for young adults (Barbaresco et al. 2015; Cantor, Monheit et al. 2012; Sommers and Kronick 2012). Unlike many of the pre-ACA state dependent coverage mandates, the ACA dependent coverage provision did not require that the dependent child be enrolled in school, did not require that the dependent be unmarried, and extended the age of dependency until age 26 (which was more generous than many states had implemented). As a result, it is not surprising that previous research has not found differential effects of the ACA dependent coverage provision among states with prior dependent coverage provisions compared with the other states (Antwi et al. 2013; Barbaresco et al. 2015).

The dependent coverage provision of the ACA did not extend to spouses or unmarried partners of the policyholder's dependents, however. Thus, for individuals in

ple, gay sons may have had such poor relationships with their fathers before disclosure that any increase in honesty and communication with fathers would constitute an improvement in parental relationships. It could also be that fathers may be particularly disappointed if they perceive a lesbian daughter's rejection of loving men as a "rejection of the masculinity he represents."

[6] In January 2011, TRICARE (the health insurance program for uniformed military personnel and their families) extended dependent coverage up to age 26, following the ACA dependent coverage provision (Office of the Secretary, Department of Defense 2013). We combine TRICARE with employer-sponsored insurance (described later).

same-sex and different-sex couples that we identify in the American Community Survey, their only route to parental insurance coverage via the ACA was through the individual's *own* parent, not the parent of the spouse or partner.

Data

The American Community Survey

This study uses data from the American Community Survey (ACS), which is publicly available through IPUMS-USA at the University of Minnesota (Ruggles et al. 2020). The ACS is a nationally representative and repeated cross-sectional data set. It contains demographic, economic, social, and housing information on 1% of the U.S. population (approximately 3 million people each year). The large sample sizes available in the ACS facilitate studies on relatively small subpopulations, such as individuals in same-sex couples.

Importantly, the ACS has included a question on current health insurance status since 2008. We can identify whether the individual had any health insurance at the time of the survey as well as the type of health insurance. Specifically, we can identify whether the individual had any of the following types: employer-sponsored insurance (including insurance through an individual's or another family member's current or former employer or union, as well as TRICARE health insurance for active-duty military personnel), direct/privately purchased insurance, Medicaid, and other public insurance (including Medicare and health care through the Department of Veterans Affairs [VA]). It is worth emphasizing that these categories are not mutually exclusive: individuals could be covered by more than one type of insurance (IPUMS 2019). We expect that the ACA dependent mandate primarily increased the likelihood that eligible young adults experienced an increase in employer-sponsored insurance. Unfortunately, the ACS does not ascertain whether a person with employer-sponsored insurance was the policyholder or a dependent on a parent or a spouse's/partner's health plan.[7]

The ACS does not directly ask individuals about their sexual orientation. To identify a subset of sexual minorities, we follow a large body of prior research that uses intrahousehold relationships to identify individuals in same-sex couples (Black et al. 2000; Gonzales and Blewett 2014; Sansone 2019). Specifically, the ACS identifies a primary reference person, defined as "the person living or staying here in whose name this house or apartment is owned, being bought, or rented." For simplicity, we refer to the primary reference person as the household head. The ACS also collects information on the relationship to the household head for all members of the household, and the range of possible relationships includes husband, wife, and unmarried partner (as a different category than roommate). Notably, individuals of the same sex as the household head who described their relationship to the household head as a spouse were recoded to unmarried partners through 2012 in compliance with the federal Defense of Marriage Act (which did not recognize married same-sex couples for all federal purposes).

[7] Other surveys contain this information (e.g., the Annual Social and Economic Supplement [ASEC] to the Current Population Survey), but we need the much larger sample sizes of the ACS to identify meaningful effects for sexual minorities.

Data Quality and Limitations

The ACS is a mandatory survey: although nobody has been prosecuted for not responding to the ACS survey (Selby 2014), this approach significantly increases the response rate (typically above 90%) and data quality (U.S. Census Bureau 2019, 2020). However, one key issue when dealing with same-sex couples is misclassification error: individuals can incorrectly report their sex or relationship to the household head. Because the proportion of different-sex couples is much larger than that of same-sex couples, several same-sex couples could be misidentified as different-sex couples, even when such measurement errors may be rare. The U.S. Census Bureau implemented several changes between 2007 and 2008 to address this issue, which substantially reduced the reported number of same-sex couples between these two years, indicating more reliable estimates (U.S. Census Bureau 2013).

Moreover, observations with imputed sex or relationship to the household head have been dropped to further reduce such measurement errors (Black et al. 2007; DeMaio et al. 2013; Steinberger and Gates 2009). It is also worth mentioning that older respondents in different-sex couples were the most likely to be misclassified as same-sex couples because they were less familiar with the terminology pertaining to same-sex couples (Lewis et al. 2015). Given our focus on younger respondents, we exclude these cases by construction. Another advantage of ACS is that approximately one-third of the households use computer-assisted telephone interviews (CATI) or computer-assisted personal interviews (CAPI). In such interviews, respondents are asked to verify the sex of their same-sex husband/wife, thus reducing such miscoding (Steinberger and Gates 2009).

Notwithstanding these issues, the U.S. Census and the ACS remain the largest and most reliable data on same-sex couples. For example, the across-metropolitan distribution of male same-sex couples in the 1990 census lines up extremely well with AIDS deaths in 1990, a year during which AIDS deaths were predominately concentrated among gay men (Black et al. 2000). Fisher et al. (2018) found similar estimates when comparing economic statistics (such as income distribution) between census and tax data. Using health data, Carpenter (2004) showed that individuals most likely to be in same-sex unmarried partnerships were indeed behaviorally gay, lesbian, or bisexual individuals—that is, they exhibited sexual behaviors that were unlike those of individuals most likely to be in different-sex couples.

Other surveys contain information on sexual orientation or sexual behavior (e.g., the General Social Survey), but these alternative data sources have sample sizes that are too small for our analyses. The main disadvantage of using ACS data is that it is not possible to identify single LGBTQ individuals without a partner or same-sex couples who do not live together.[8] Furthermore, because there is no individual-level information on sexual orientation, researchers cannot identify bisexual individuals (Hsieh and Liu 2019).

[8] A limitation of relying on relationships to the ACS household head to identify same-sex couples is that if an unmarried same-sex couple moved in with one of the couple's parents, it would be very unlikely that we could identify them as a same-sex couple. In that situation, the household head would likely be the parent, not the member of the same-sex couple; one member of the couple would be identified as son or daughter, but the other member of the couple would most likely be identified as "other nonrelative." Moreover, this problem is more severe for sexual minorities than for heterosexuals because if a different-sex couple chose to get married and move in with one of their parents, the different-sex spouse would be identified as son-in-law or daughter-in-law of the household head. A related limitation of our method for identifying

To quantify these limitations, we analyzed data from the 2013–2018 National Health Interview Survey (NHIS; Blewett et al. 2019), which contain information on individual self-reported sexual orientation as well as household structure. Among 21- to 31-year-old adults (excluding those age 26), 19% of self-identified sexual minority men (i.e., men who described themselves as gay, bisexual, or "something else") in the NHIS were in a household with a same-sex unmarried partner or same-sex spouse, whereas 13% of self-identified sexual minority women (i.e., women who described themselves as lesbian, bisexual, or "something else") were in a household with a same-sex unmarried partner or same-sex spouse. Thus, the ACS same-sex couples capture a sizable minority (13% to 19%) of the populations of interest (self-identified sexual minority individuals).

Table 1 presents additional evidence on the representativeness of the characteristics of the young adult sexual minority sample in the NHIS that was in a same-sex couple relative to the associated characteristics of the full young adult sexual minority sample. Although the NHIS has small samples of young adult sexual minorities, it has a key advantage of detailing the sources of private insurance coverage for each individual. Table 1 shows that for 21- to 25-year-old sexual minority men in same-sex couples in the 2013–2018 NHIS, nearly one-half (47.8%) reported that the source of their private insurance coverage was a parent who lived outside the household, thus confirming that parental coverage was common among individuals in our treatment group after the ACA dependent coverage provision.

Table 1 also shows that the characteristics of young adults in same-sex couples in the NHIS are not extremely different from the characteristics of the full population of young adults who self-identified as sexual minorities, which addresses questions about external validity and representativeness of our ACS sample of individuals in same-sex couples. Specifically, the NHIS patterns indicate some degree of positive selection (increased likelihood of being older, White, and college-educated for men in same-sex couples compared with all sexual minority men, as well as increased likelihood of being older and employed for women in same-sex couples compared with all sexual minority women), suggesting that our ACS-based findings are likely to be representative of somewhat positively selected sexual minority young adult men and women.

In addition, we calculated the share of young adults in same-sex couples in the NHIS who described themselves as gay, lesbian, or bisexual when asked about their sexual orientation. Among young people aged 21–31 (excluding those age 26, as explained in the next section), 83% of men in same-sex couples identified as gay or bisexual, whereas 91% of women in same-sex couples identified as lesbian or bisexual. Taken together, these data suggest that the ACS sample of individuals in same-sex couples is likely to capture a sample of individuals who would identify as sexual minorities, and these coupled sexual minorities are demographically broadly similar to the full population of young adult sexual minorities.

Furthermore, Table 1 shows that the ACS sample of individuals in same-sex couples is broadly similar to the associated (much smaller) sample of individuals in same-sex couples who identified as gay, lesbian, or bisexual in the NHIS, where there

individuals in same-sex couples is that it necessarily omits individuals living in group quarters, in which there is no household head and no ability for other individuals to have a relationship to the household head.

Table 1 Comparing 2013–2018 ACS individuals in cohabiting same-sex couples aged 21–31 (excluding age 26) to the same age sample of 2013–2018 NHIS self-identified gay, lesbian, and bisexual individuals

	Men			Women		
	Men in Cohabiting Same-Sex Couples	Gay/ Bisexual in Cohabiting Same-Sex Couples	All Gay/ Bisexual Individuals	Women in Cohabiting Same-Sex Couples	Lesbian/ Bisexual in Cohabiting Same-Sex Couples	All Lesbian/ Bisexual Individuals
	ACS	NHIS	NHIS	ACS	NHIS	NHIS
Main Dependent Variables						
Has any health insurance coverage	.850	.860	.860	.832	.813	.813
Has employer-sponsored insurance	.677	.720	.654	.622	.644	.525
Among individuals aged 21–25, in whose name is main insurance plan						
Own name	—	.522	.358	—	.716	.341
Someone else in the family	—	.000	.207	—	.071	.317
Person not in household, parent	—	.478	.409	—	.136	.288
Person not in household, other	—	.000	.025	—	.077	.055
Individual Controls						
Age	27.30	27.27	25.76	26.90	26.48	25.56
White	.734	.835	.772	.709	.816	.781
Black	.087	.074	.135	.151	.148	.158
Asian	.056	.027	.055	.031	.000	.040
Other races	.123	.065	.038	.108	.036	.021
Hispanic	.214	.205	.180	.179	.314	.194
College education	.415	.533	.372	.333	.327	.282
Other Key Characteristics						
Employed (vs. unemployed/ not in labor force)	.866	.814	.773	.856	.917	.746
Unemployed (vs. employed/ not in labor force)	.044	.104	.085	.048	.025	.096
Work 30 or more hours per week	.827	.691	.632	.810	.830	.593
Work 40 or more hours per week	.693	.585	.559	.642	.728	.438
Number of Observations	6,931	69	517	8,905	90	761

Notes: The sample includes respondents aged 21–25 or 27–31 years. The table presents weighted summary statistics. "Number of Observations" refers to the total number of respondents in the relevant subgroup. "Among individuals aged 21–25, in whose name is main insurance plan" reports for all individuals aged 21–25 with private insurance plans (excluding those aged 27–31, unlike the other statistics in the table) in whose name the first health insurance plan is held ("not in the universe" and "unknown" not included). The number of observations with information on their private insurance plan is 12 for gay/bisexual men in same-sex couples, 184 for gay/bisexual men, 20 for lesbian/bisexual women in same-sex couples, and 232 for lesbian/bisexual women.

Source: ACS and NHIS 2013–2018.

is a more direct signal of minority sexual orientation. For men, the NHIS sample of individuals in same-sex couples is slightly more likely to be White, college-educated, and not working full-time than the ACS sample of individuals in same-sex couples; for women, the NHIS sample of individuals in same-sex couples is more likely to be Hispanic and more likely to be working full-time.

Econometric Framework

We use a standard difference-in-differences approach to examine the impact of the ACA's dependent coverage mandate on young adults in same-sex and different-sex couples. Formally, the estimated difference-in-difference model is as follows:

$$y_{igst} = \alpha + \beta(Treat_{ig} \times Post_t) + \delta_s + \mu_t + \pi_g + \mathbf{x}'_{st}\gamma_1 + \mathbf{x}'_{igst}\gamma_2 + \varepsilon_{igst},$$

where y_{igst} is whether individual i in age group g living in state s at time t had health insurance coverage. Our main outcome is whether an individual had any health insurance coverage, but we also analyze the other insurance types, as described earlier.

The coefficient of interest is β. $Treat_{ig}$ indicates whether an individual was in the treated age group 21–25[9] as opposed to the control group 27–31.[10] $Post_t$ indicates whether an individual was interviewed after or before 2010. Our main estimates focus on the years 2008–2013, before many other salient components of the ACA, such as the marketplaces and most state Medicaid expansions, went into effect. However, we also show results extending the period up to 2018. Because the public-use ACS data do not include information on when during the calendar year the respondents were interviewed, and some insurers chose to comply with the ACA dependent coverage provision sooner than September 2010 (The White House 2010), we exclude 2010 from most specifications given that we cannot accurately determine treatment status. This exclusion also allows us to minimize the likelihood of anticipation effects: young people might have reduced their insurance coverage in the period between the enactment in March 2010 and the implementation of the reform in September 2010 (Antwi et al. 2013). Meanwhile, many employers updated their policies to allow young adults to enroll in the 2010 open enrollment periods for insurance that would begin the following year.

The specification includes state fixed effects (δ_s), year fixed effects (μ_t), age fixed effects (π_g), time-varying state-level controls ($\mathbf{x}'_{st}$), and individual-level controls ($\mathbf{x}'_{igst}$). We do not include $Treat_{ig}$ and $Post_t$ separately in the model because $Treat_{ig}$ is

[9] We exclude individuals age 26 from the main analysis because we do not know whether they were in the treatment group or the control group, although the vast majority of them were likely in the control group. As discussed in the empirical section, coding them as such does not materially change our findings. Strictly speaking, insurers were allowed to remove dependent children on the first day of the month following the month of the child's 26th birthday, although employers could decide to continue coverage for the whole calendar year beyond the child's 26th birthday (The White House 2010).

[10] As discussed in the empirical section, we also test the robustness of our main findings to other reasonable permutations of ages in the treatment and control groups. The results, shown in Table 4, suggest that these choices do not change our conclusions.

perfectly collinear with the age fixed effects π_g, and $Post_t$ is perfectly collinear with the year fixed effects μ_t. The vector of individual controls $\mathbf{x}'_{igst}$ includes race, ethnicity, education (bachelor's degree or higher), and language spoken. The vector of time-varying state controls $\mathbf{x}'_{st}$ includes income per capita; unemployment rate; state population size; racial, ethnic, and age composition; percentage of state population with positive income from any state or local public assistance or welfare program; and cohabitation rate among different-sex couples. All specifications also account for LGBTQ policy changes: constitutional and statutory bans on same-sex marriage, same-sex marriage legalization, same-sex domestic partnership legalization, same-sex civil union legalization, LGBTQ nondiscrimination laws, and LGBTQ hate crime laws. We also include controls for other relevant state policies: ACA Medicaid expansions and Medicaid private options.[11]

This specification is estimated using only the sample of (married and unmarried) cohabiting same-sex or different-sex couples. We estimate each specification separately for men and women. Standard errors are clustered at the level of the treatment: age (Abadie et al. 2017; Bertrand et al. 2004).[12] All specifications are weighted using the ACS person weights computed by the U.S. Census Bureau.

Results

We present a collage of evidence on the effects of the ACA dependent coverage provision on health insurance coverage for individuals in same-sex couples. We begin by showing raw trends in health insurance outcomes, separately by gender and whether the individual was in a same-sex couple. We then turn to difference-in-differences regression results that compare changes in these outcomes for age-eligible (age 21–25) and slightly older (age 27–31) individuals in same-sex couples, and we conduct the same exercise for individuals in different-sex couples. We then present a range of robustness analyses—including event study regression estimates—that confirm the increases in health insurance we document for men in same-sex couples are credible. Finally, we present a range of analyses that shed light on the mechanisms underlying the effects on insurance.

Descriptive Statistics and Trends

Table B1 in the online appendix presents descriptive statistics for young adults in same-sex couples, young adults in different-sex couples, and all young adults in the ACS. The vast majority of cohabiting young adults had health insurance, and a lower share (but still a majority) had employer-sponsored insurance. The majority of the sample was White and employed.

[11] All variables are described in detail in section A of the online appendix.

[12] All reported estimates were computed using Stata 15. Given the small number of clusters, Stata automatically corrects critical values and p values using—instead of a standard normal distribution—a t distribution with degrees of freedom equal to the number of clusters minus 1 (Cameron et al. 2008).

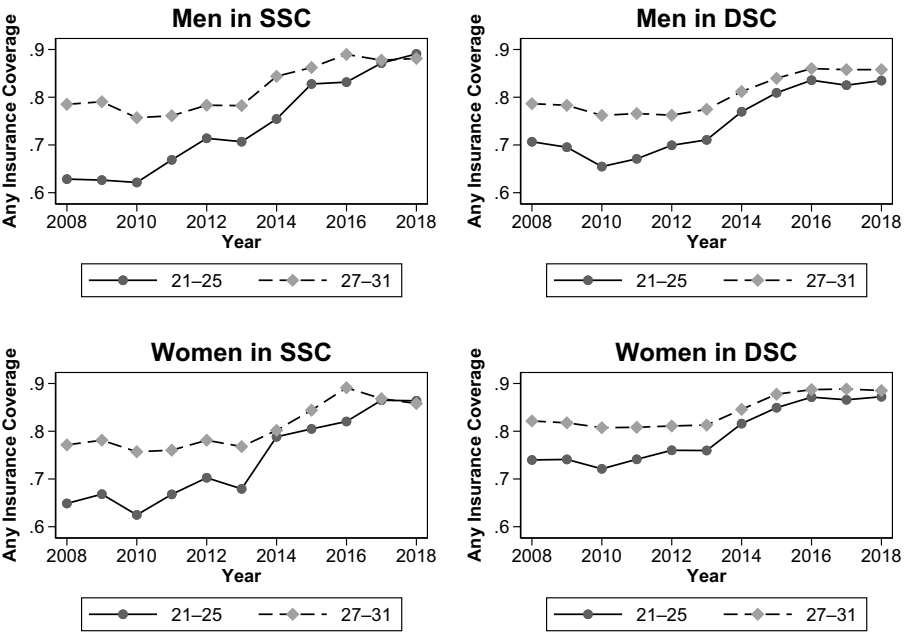

Fig. 1 Trends in health insurance rates for individuals in cohabiting same-sex couples (SSC) and cohabiting different-sex couples (DSC). The dependent variable is whether the respondent had any health insurance coverage. The figure presents weighted summary statistics using person weights. *Source:* ACS 2008–2018.

Figure 1 presents raw trends in the likelihood of any health insurance coverage for young adult men in same-sex couples (upper-left panel), young adult men in different-sex couples (upper-right panel), young adult women in same-sex couples (lower-left panel), and young adult women in different-sex couples (lower-right panel), separately by whether the individual was in the treatment age group or the control age group.

Several patterns are apparent. First, health insurance coverage rates for individuals in same-sex couples were substantially lower than the associated rates for individuals in different-sex couples, especially in the early part of the sample period. This finding supports prior research showing disparities in health insurance coverage by sexual orientation. Second, younger individuals in same-sex couples as well as those in different-sex couples had lower rates of health insurance coverage than their slightly older counterparts in the early part of the sample period. Third, these gaps fell substantially beginning around 2011, consistent with an important role of the ACA dependent coverage provision extending parental employer-sponsored insurance access to young adults. Finally, although there are only two data points before the ACA dependent coverage provision, there are not obviously different pre-treatment trends across the treatment (21- to 25-year-old) and control (27- to 31-year-old) groups.

Figure 2 plots the same rates for employer-sponsored insurance, and the format of Figure 2 is identical to that of Figure 1. The patterns in Figure 2 are broadly similar to those observed in Figure 1, although Figure 2 provides less consistent evidence of a sexual orientation–related difference in employer-sponsored insurance for the younger

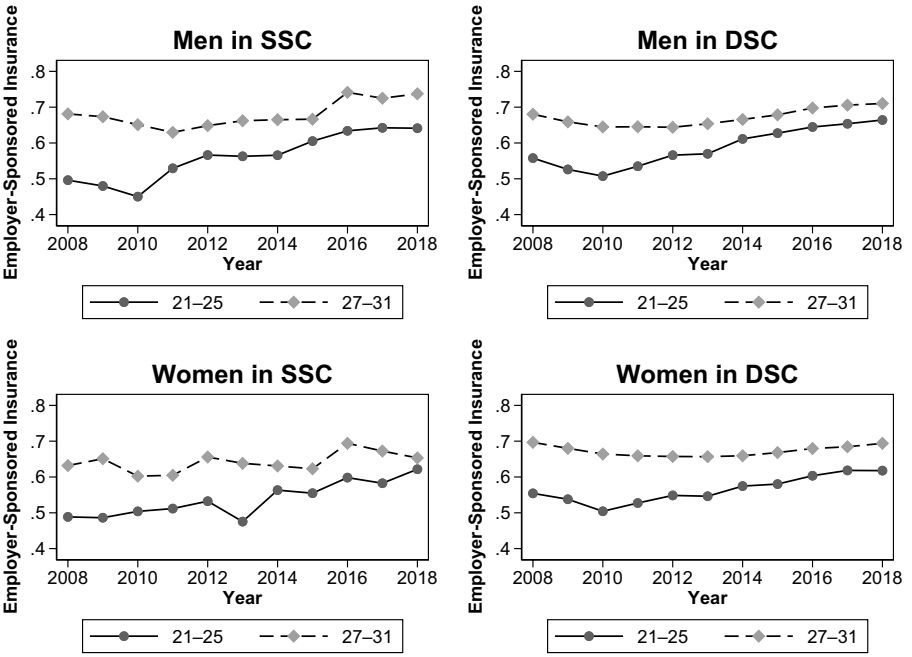

Fig. 2 Trends in employer-sponsored health insurance rates for individuals in cohabiting same-sex couples (SSC) and cohabiting different-sex couples (DSC). The dependent variable is whether the respondent had health insurance through an employer. The figure presents weighted summary statistics using person weights. *Source:* ACS 2008–2018.

individuals than there was in the likelihood of any insurance coverage in Figure 1.[13] Overall, the patterns in Figures 1 and 2 support a visual role for the ACA dependent coverage provision at increasing health insurance coverage for young adults aged 21–25 years in same-sex and different-sex couples. Moreover, there is some visual support for the idea that the ACA dependent mandate helped close gaps in health insurance coverage between adults in same-sex couples and adults in different-sex couples. We formalize and test for these differences in a regression framework in the next section.

Effects of the ACA Dependent Coverage Provision on Individuals in Same-Sex Couples

Table 2 presents our baseline estimates of the effects of the ACA dependent coverage provision on the likelihood of any insurance coverage (columns 1, 3, and 5) and employer-sponsored insurance coverage (columns 2, 4, and 6).[14] We present results

[13] The gap in the likelihood of having any health insurance during the pre-treatment period for 21- to 25-year-old men in same-sex couples compared with men in different-sex couples is driven by a much higher likelihood of reporting Medicaid coverage for men in different-sex couples compared with men in same-sex couples.

[14] Prior research has examined whether the ACA dependent mandate affected household structure and marital status outcomes (Abramowitz 2016). In results not reported but available upon request, we tested

Table 2 Effect of ACA dependent coverage mandate on health insurance for individuals in cohabiting same-sex and cohabiting different-sex couples

	Individuals in Cohabiting Same-Sex Couples		Individuals in Cohabiting Different-Sex Couples		Individuals in Cohabiting Same-Sex and Different-Sex Couples	
	Any Insurance (1)	Employer-Sponsored Insurance (2)	Any Insurance (3)	Employer-Sponsored Insurance (4)	Any Insurance (5)	Employer-Sponsored Insurance (6)
Men						
Age 21–25×Post-2010	0.096**	0.117**	0.017**	0.045**	—	—
	(0.026)	(0.032)	(0.003)	(0.008)		
Age 21–25×Post-2010× Same-sex	—	—	—	—	0.072*	0.061†
					(0.029)	(0.033)
N	3,670	3,670	293,231	293,231	296,901	296,901
Mean of dependent variable for 21–25 pre-2010	0.627	0.487	0.701	0.542	0.627	0.487
Adjusted R^2	.151	.144	.133	.120	.133	.120
Women						
Age 21–25×Post-2010	0.021	0.015	0.028**	0.031**	—	—
	(0.028)	(0.031)	(0.005)	(0.004)		
Age 21–25×Post-2010× Same-sex	—	—	—	—	–0.017	–0.031
					(0.031)	(0.037)
N	4,765	4,765	378,346	378,346	383,111	383,111
Mean of dependent variable for 21–25 pre-2010	0.659	0.487	0.740	0.546	0.659	0.487
Adjusted R^2	.106	.115	.133	.152	.133	.152
Controls						
Age and year fixed effects	X	X	X	X		
State fixed effects	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X
State time-varying policies	X	X	X	X	X	X
Age-by-year, SSC-by-year, age-by-SSC fixed effects					X	X

Notes: The sample includes respondents in either married or unmarried cohabiting different-sex or same-sex couples. Individuals aged 21–25 are compared with those aged 27–31. The mean of the dependent variable refers only to individuals aged 21–25 interviewed in 2008 or 2009 (and only those in cohabiting same-sex couples in columns 5–6). Individual controls are ethnicity, race, language, and education. State controls are income per capita, unemployment rate, population, racial and age composition, percentage of state population with positive welfare income, cohabitation rate among different-sex couples, constitutional and statutory bans on same-sex marriage, same-sex marriage legalization, same-sex domestic partnership legalization, same-sex civil union legalization, LGBTQ anti-discrimination laws, LGBTQ hate crime laws, and Medicaid pre-expansion. Standard errors clustered at the age level are shown in parentheses. The coefficients are from weighted regressions using person weights.

Source: ACS 2008–2013 (excluding 2010).

†$p < .10$; *$p < .05$; **$p < .01$

for men in the top panel and for women in the bottom panel. In each panel, we also report the mean of the dependent variable for the treatment group (age 21–25) before the reform (2008–2009). We present difference-in-differences results for individuals in same-sex couples in columns 1 and 2. These difference-in-differences models include all the individual controls described earlier, as well as the state-/time-varying controls for state demographic and economic characteristics and state LGBTQ policy environments.

The results in the top panel of columns 1 and 2 of Table 2 confirm the trends highlighted in Figures 1 and 2: the ACA dependent coverage provision was associated with a 9.6 percentage point increase in the likelihood that young men in same-sex couples aged 21–25 years reported having any health insurance coverage compared with the associated change for men in same-sex couples who were slightly older (age 27–31), and this estimate is statistically significant at the 1% level. Relative to the mean of the dependent variable for age-eligible men in same-sex couples before the reform, this is approximately a 15.3% effect. The results in the top panel of column 2 of Table 2 indicate that there was an even larger estimated average increase (11.7 percentage points) in the likelihood of employer-sponsored insurance for age-eligible men in same-sex couples, and this estimate is also statistically significant at the 1% level. Relative to the average of employer-sponsored insurance for age-eligible men in same-sex couples before the ACA dependent coverage provision, this is an even larger proportional effect (24%).

Turning to the difference-in-differences results for women in same-sex couples in the bottom panel of Table 2, we find smaller point estimates that are not statistically significant, although they are both positive in sign, consistent with the idea that the ACA dependent coverage provision increased insurance coverage for women in same-sex couples. The point estimate in the bottom panel of column 2 of Table 2, for example, indicates that the ACA dependent coverage mandate increased the likelihood that a woman aged 21–25 in a same-sex couple had employer-sponsored insurance by 1.5 percentage points, or 3% relative to the pre-reform mean for age-eligible women in same-sex couples. Thus, although we lack the precision necessary to identify statistically significant effects for women in same-sex couples, the evidence suggests a beneficial role for the ACA dependent coverage mandate for this group as well.

These estimates are broadly consistent—or somewhat larger for men in same-sex couples—with prior literature on the effects of the ACA dependent coverage mandate. Antwi et al. (2013) estimated that the dependent coverage provision increased

whether the ACA dependent coverage provision affected the likelihood of being in a same-sex couple. It is plausible that age-eligible individuals in dating relationships would have previously formed a cohabiting partnership with their romantic partner in order to gain health insurance (if the partner had a job with generous insurance, for example). After the ACA dependent coverage provision, these individuals might have chosen to get insurance from their parents and delay cohabitation with their romantic partner. If so, this would induce composition bias and affect interpretation of our core difference-in-differences models. We estimated our main difference-in-differences equation in which the outcome is an indicator for being in a same-sex unmarried/married partnership and the sample is individuals in same-sex unmarried/married partnerships and single household heads, separately for men and for women. We found no statistically significant relationship between the ACA dependent coverage provision and this outcome for men or women, suggesting that composition biases are unlikely in our setting.

the likelihood of any insurance coverage by 3.2 percentage points (or 4.8% relative to the mean) and the likelihood of having employer-sponsored dependent insurance by 7 percentage points (or 30%) using the Survey of Income and Program Participation. Barbaresco et al. (2015) found that the ACA dependent coverage provision increased the likelihood of any health insurance coverage by 6.1 percentage points (or 9%) using the Behavioral Risk Factor Surveillance System. Sommers et al. (2013) used data from the NHIS and found increases in private insurance coverage of 5.1 percentage points (or 9%) associated with the ACA dependent coverage provision.

Event Study

We present standard event study estimates in Figures 3 and 4 for any health insurance and employer-sponsored insurance, respectively, for individuals in same-sex couples (men in the top panel and women in the bottom panel). In these models, we replace the indicator for "after 2010" with a series of event-time indicators, interacting each ACS year with an indicator for treatment group observations (i.e., individuals aged 21–25). Formally, we estimate the following model:

$$y_{igst} = \alpha + \sum_{k=2008}^{2018} \beta_k (Treat_{ig} \times Year_k) + \delta_s + \mu_t + \pi_g + \mathbf{x}'_{st}\gamma_1 + \mathbf{x}'_{igst}\gamma_2 + \varepsilon_{igst}.$$

All regressors are defined as in the Econometric Framework section. As usual in the literature, we have normalized the first lead operator (the interaction with $Year_{2009}$) to 0. In line with the main specifications in Table 1, we have continued to exclude observations from 2010 in our analysis.

There is no evidence of differential pre-trends among respondents aged 21–25 relative to those aged 27–31 in any of the figures, thus supporting the parallel trend assumption in our difference-in-differences strategy. Moreover, the effect of the ACA dependent coverage provision appears nearly immediately (by 2011) for men in same-sex couples for both any insurance coverage and employer-sponsored insurance. For men in same-sex couples, several event-time interactions are individually statistically significant.

For women in same-sex couples, we similarly observe no evidence of differential pre-trends in Figures 3 and 4, and there is also visual evidence of an increase in both any insurance coverage and employer-sponsored insurance in the years after 2010. Some of the post-ACA event-time interactions are themselves individually significant.[15]

Effect on Individuals in Different-Sex Couples and Triple Difference Estimates

Columns 3 and 4 of Table 2 present the associated results on individuals in different-sex couples to benchmark the relative magnitudes of the effects of the ACA depen-

[15] Figures B1 and B2 (online appendix) show event studies excluding data from 2014–2018 to address concerns about possible differential effects of Medicaid and Marketplace expansions on the younger adult treatment group.

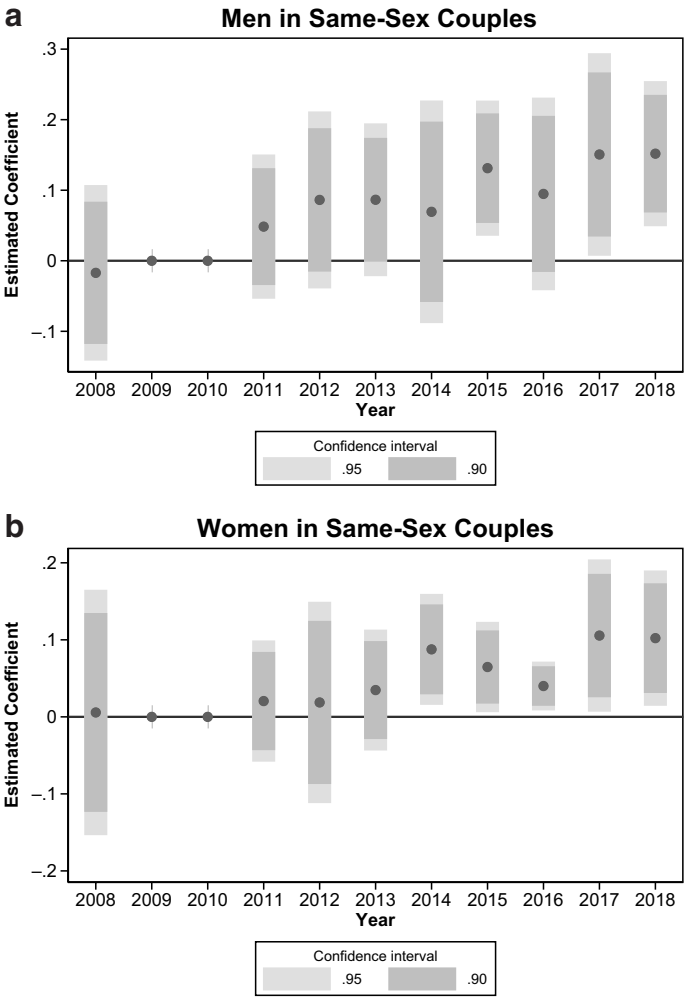

Fig. 3 Event study estimates of the effect of ACA on any health insurance among individuals in cohabiting same-sex couples. The dependent variable is whether the respondent had any health insurance coverage. The sample includes respondents in either married or unmarried cohabiting same-sex couples. Individuals aged 21–25 are compared with those aged 27–31. The fixed effects, individual, and state controls are the same as those used in Table 2. Shaded bars represent the 90% and 95% confidence intervals. The data are from weighted regressions using person weights. *Source:* ACS 2008–2018 (excluding 2010).

dent coverage provision. Notably, in line with the previous literature and the trends in Figures 1 and 2, the pre-reform means for any insurance coverage in column 3 for individuals in different-sex couples are substantially higher than the associated means for individuals in same-sex couples in column 1. For men in different-sex couples, we estimate an increase in any insurance coverage of 1.7 percentage points, with a 4.5 percentage point increase in employer-sponsored insurance. Relative to the pre-reform means, these estimates correspond to 2.4% and 8.3% relative effects, respectively. For women, the corresponding estimates are 2.8 and 3.1 percentage

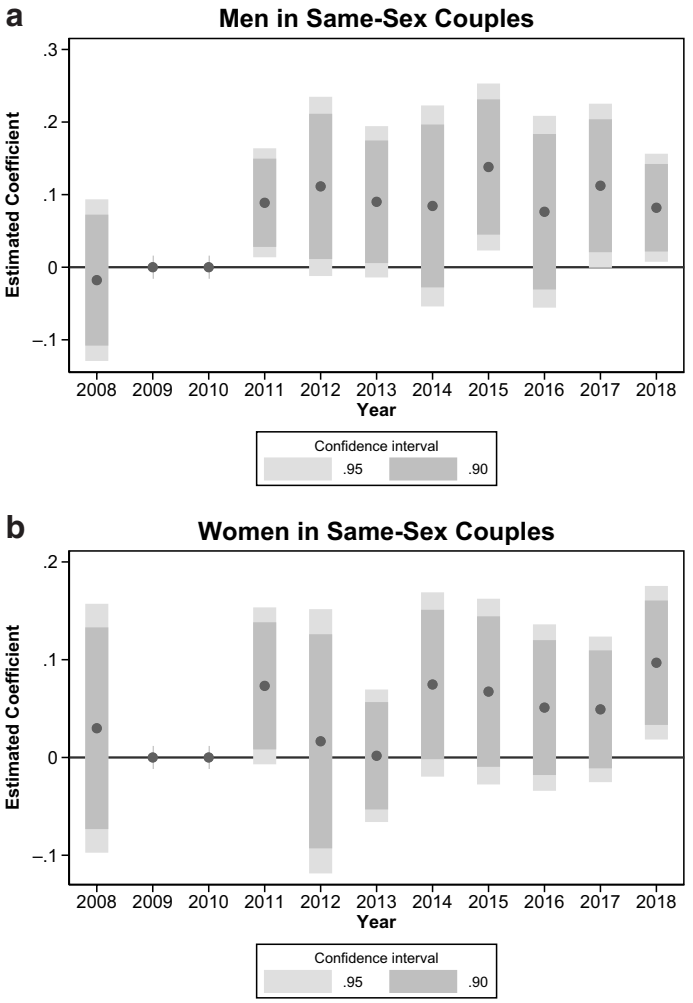

Fig. 4 Event study estimates of the effect of ACA on employer-sponsored insurance among individuals in cohabiting same-sex couples. The dependent variable is whether the respondent had health insurance through an employer or TRICARE. The sample includes respondents in either married or unmarried cohabiting same-sex couples. Individuals aged 21–25 are compared with those aged 27–31. The fixed effects, individual, and state controls are the same as those used in Table 2. Shaded bars represent the 90% and 95% confidence intervals. The data are from weighted regressions using person weights. *Source:* ACS 2008–2018 (excluding 2010).

point increases (3.8% and 5.7% relative effects), respectively. All the difference-in-differences estimates for individuals in different-sex couples in columns 3 and 4 are statistically significant at the 1% level.[16]

Because the magnitude of the insurance increases for men in same-sex couples in the top panel of columns 1 and 2 of Table 2 is much larger than the associated

[16] Although we prefer to examine individuals in different-sex couples as our primary comparison, we also considered an alternative benchmark. Specifically, we examined a sample of all household heads who reported being single. Because we know from other data that the share of individuals who identify as

increases for men in different-sex couples in the top panel of columns 3 and 4 of Table 2, we present triple difference models in columns 5 and 6 to test explicitly whether the increase in health insurance coverage for individuals in same-sex couples associated with the ACA dependent coverage provision was statistically different than the associated change for individuals in different-sex couples. Each entry in columns 5 and 6 is the coefficient on a triple interaction term among the indicators for being the treatment age group (21–25 years), being observed after 2010, and being in a same-sex couple. Formally, we estimate the following model:

$$y_{igstk} = \alpha + \beta(Treat_{ig} \times Post_t \times SameSex_{ik}) + \mu_{gt} + \pi_{kt} + \rho_{gk} + \delta_s + \mathbf{x}'_{st}\gamma_1 + \mathbf{x}'_{igstk}\gamma_2 + \varepsilon_{igstk},$$

where y_{igstk} is whether individual i in age group g living in state s at time t had any health insurance coverage (or employer-sponsored insurance). The subscript k indicates whether an individual was in a same-sex or different-sex couple. The coefficient of interest is β. $Treat_{ig}$ and $Post_t$ are defined as in the Econometric Framework section and interacted with the same-sex couple indicator $SameSex_{ik}$. The specification includes age-specific time effects that are common across couples (μ_{gt}), time-varying effects specific to same-sex couples (π_{kt}), age-specific effects among same-sex couples (ρ_{gk}), state fixed effects (δ_s), state controls ($\mathbf{x}'_{st}$), and individual controls ($\mathbf{x}'_{igstk}$). We do not include the double interactions between $Treat_{ig}$, $Post_t$, and $SameSex_{ik}$ because they are perfectly collinear with the fixed effects μ_{gt}, π_{kt}, and ρ_{gk}.

We emphasize here that these triple difference estimates are presented for descriptive purposes only. That is, we are not arguing that additionally differencing out the effect for individuals in different-sex couples allows us to more accurately estimate the true causal effect of the ACA dependent coverage provision on individuals in same-sex couples, and we recognize that pathways into and out of relationships for sexual minorities and heterosexual individuals may differ for any number of reasons, including the potential roles of social and policy context. Instead, we present these triple difference estimates as another interesting benchmark for understanding the strength and magnitude of the ACA dependent mandate effects on individuals in same-sex couples.

The findings in the top panel of columns 5 and 6 of Table 2 indicate that the increases in the likelihood of any insurance coverage for men in same-sex couples associated with the ACA dependent coverage provision were, in fact, significantly larger than the associated increases for men in different-sex couples. For any health insurance, for example, we estimate that age-eligible men in same-sex couples experienced an increase of 7.2 percentage points greater than what was experienced by age-eligible men in different-sex couples coincident with the ACA dependent coverage provision. We estimate a similarly sized 6.1 percentage point triple interaction for

heterosexual is around 95% in most credible population-based data sets (Gates 2011), the vast majority of single household heads are likely to be heterosexual. We present those estimates in Table B2 (online appendix), which indicate that the ACA dependent coverage provision increased the likelihood of any health insurance coverage among single household heads by about 3.7 percentage points for men and 3.9 percentage points for women, with larger increases in employer-sponsored insurance (5.6 percentage points for both men and women). These estimates are slightly larger than the associated difference-in-differences estimates for individuals in different-sex couples in columns 3 and 4 of Table 2, but the estimates for single men are notably smaller than the difference-in-differences estimates for men in same-sex couples in the top panel of columns 1 and 2 of Table 2.

employer-sponsored insurance in the top panel of column 6, statistically significant at the 10% level. For women (presented in the bottom panel of Table 2), we find much smaller triple difference estimates that are negative in sign, and neither is statistically significant.

Extensions and Robustness Checks

In Table 3, we present the associated results for outcomes reflecting the other types of health insurance. We present results from the same specification estimated in columns 1–4 of Table 2 with the main effects, individual controls, and state-/time-varying controls; we present the coefficient on the interaction term between the indicators for ages 21–25 years and after 2010. As in Table 2, we present results for men in same-sex couples in the top panel and the results for women in same-sex couples in the bottom panel. We reprint the estimates for having any health insurance and for having employer-sponsored insurance (including TRICARE) in columns 1 and 2, respectively; we present results for other direct/privately purchased insurance in column 3, for Medicaid in column 4, and for other public insurance (Medicare and Veterans Affairs coverage) in column 5.

The results in the top panel of Table 3 suggest that apart from the increase in employer-sponsored insurance, there were no other statistically significant changes in other types of insurance coverage for young adult men in same-sex couples associated with the ACA dependent coverage provision. For women in same-sex couples, we continue to find no evidence of statistically significant changes in health insurance coverage associated with the ACA dependent coverage provision for any type of insurance, as shown in the bottom panel of Table 3.

In Table 4, we present the results of robustness checks in which we vary the ACS years used in the analysis (columns 1–3) and the age-based definitions of treatment and control groups (columns 4–6) for the outcome of any health insurance. We restrict attention to individuals in same-sex couples, and we present results for men in the top panel and for women in the bottom panel. Each column header describes the sample restriction that we impose. The patterns in Table 4 confirm that the finding of increased health insurance for men in same-sex couples associated with the ACA dependent coverage provision is highly robust to reasonable alternative choices about which years of the ACS to include and which ages should constitute treatment and control groups. In every case, we find that the ACA dependent mandate is associated with large and statistically significant increases in the likelihood of having health insurance for men in same-sex couples.[17] This pattern is reassuring given that some prior research on the ACA dependent coverage provision documented sensitivity of findings on health insurance coverage to these alternative choices (Slusky 2017). For women, we do not find evidence of statistically significant increases in health insurance coverage associated with the ACA dependent coverage provision except for the full period, 2008–2018, which does return a

[17] The larger estimates we obtained when including respondents in later years could be due to the fact that until 2014, some insurance plans (e.g., grandfathered employer plans) were allowed to refuse coverage to age-qualified dependent children whose own employers offered them health insurance (Antwi et al. 2013).

Table 3 Effect of ACA on health insurance among cohabiting same-sex couples, by type of coverage

	Any Coverage (1)	Employer Sponsored Insurance (2)	Other Private (3)	Medicaid (4)	Other Public (5)
Men					
Age 21–25×Post-2010	0.096**	0.117**	–0.002	–0.012	0.001
	(0.026)	(0.032)	(0.030)	(0.015)	(0.011)
N	3,670	3,670	3,670	3,670	3,670
Mean of dependent variable for 21–25 pre-2010	0.627	0.487	0.099	0.078	0.012
Adjusted R^2	.151	.144	.029	.046	.004
Women					
Age 21–25×Post-2010	0.021	0.015	0.007	–0.015	–0.008
	(0.028)	(0.031)	(0.017)	(0.022)	(0.009)
N	4,765	4,765	4,765	4,765	4,765
Mean of dependent variable for 21–25 pre-2010	0.659	0.487	0.098	0.129	0.013
Adjusted R^2	.106	.115	.023	.077	.017
Controls					
Age, state, and year fixed effects	X	X	X	X	X
State time-varying policies	X	X	X	X	X
Individual controls	X	X	X	X	X

Notes: The sample includes respondents in either married or unmarried cohabiting same-sex couples. Individuals aged 21–25 are compared with those aged 27–31. The mean of the dependent variable refers only to individuals aged 21–25 interviewed in 2008 or 2009. The fixed effects, individual, and state controls are the same as those used in Table 2. Standard errors clustered at the age level are shown in parentheses. The coefficients are from weighted regressions using person weights.

Source: ACS 2008–2013 (excluding 2010).

**$p < .01$

marginally significant increase in insurance coverage of 6.3 percentage points (or 9.6% of the pre-reform mean for the treatment group).[18]

In Table 5, we present a series of additional robustness checks and extensions for our main results for men in same-sex households. We vary the format of Table 5 slightly in that we focus only on men in same-sex households—the group for whom we find the most consistent evidence of protective effects of the ACA dependent coverage mandate—and present results for any insurance coverage in the top panel and for employer-sponsored insurance in the bottom panel. In column 1 of Table 5, we show results from a model in which, instead of controlling for time-varying state charac-

[18] As a placebo test, we also compared changes in insurance coverage between individuals aged 27–31 and those aged 32–36 before and after 2010. The estimated difference-in-differences coefficient in Table B3 (online appendix) is small and statistically insignificant for both men and women in same-sex couples when looking at either the probability of having any insurance coverage or employer-sponsored insurance, thus supporting our identification strategy and the claim that the estimated increase in health insurance coverage among respondents aged 21–25 is causal and not the result of a spurious relationship.

Table 4 Robustness of the effect of ACA on health insurance among cohabiting same-sex couples with respect to sample years and treatment/control group ages

	Year Range			Age Range		
	2008–2014 (1)	2008–2016 (2)	2008–2018 (3)	19–25 vs. 27–33 (4)	20–25 vs. 27–32 (5)	22–25 vs. 27–30 (6)
Men						
Treated age group×Post-2010	0.090*	0.100*	0.118*	0.105**	0.091**	0.064*
	(0.033)	(0.034)	(0.037)	(0.024)	(0.023)	(0.020)
N	4,611	6,950	9,712	4,816	4,278	2,971
Mean of dependent variable for treated age pre-2010	0.627	0.627	0.627	0.612	0.627	0.653
Adjusted R^2	.132	.133	.125	.150	.150	.150
Women						
Treated age group×Post-2010	0.041	0.042	0.063†	0.026	0.025	0.027
	(0.027)	(0.027)	(0.031)	(0.023)	(0.026)	(0.032)
N	6,048	8,922	12,519	6,339	5,585	3,862
Mean of dependent variable for treated age pre-2010	0.659	0.659	0.659	0.653	0.656	0.681
Adjusted R^2	.107	.100	.093	.107	.109	.102
Controls						
Age, state, and year fixed effects	X	X	X	X	X	X
State time-varying policies	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X

Notes: The dependent variable is whether the respondent had any health insurance coverage. The sample includes respondents in either married or unmarried cohabiting same-sex couples. Individuals aged 21–25 are compared with those aged 27–31 in columns 1–3. Column 4 compares individuals aged 19–25 with those aged 27–33. Column 5 compares individuals aged 20–25 with those aged 27–32. Column 6 compares individuals aged 22–25 with those aged 27–30. The mean of the dependent variable refers only to individuals in the treated age group interviewed in 2008 or 2009. The fixed effects, individual, and state controls are the same as those used in Table 2. Standard errors clustered at the age level are shown in parentheses. The coefficients are from weighted regressions using person weights.

Source: ACS 2008–2014 (column 1), 2008–2016 (column 2), 2008–2018 (column 3); 2008–2013 (columns 4–6). All specifications exclude 2010.

†$p<.10$; *$p<.05$; **$p<.01$

teristics, we include a full set of state-by-year fixed effects. In this flexible model, we continue to find that the ACA dependent coverage provision was associated with even larger and statistically significant increases in health insurance coverage and employer-sponsored insurance for men in same-sex couples.

In column 2 of Table 5, we show results from a sample that excludes the handful of states that had legal access to same-sex marriage before 2010; in column 3 of Table 5, we show results from a sample that excludes states that had legal access to same-sex marriage at any time between 2004 and 2012. Neither sample restriction meaningfully changes the core finding, which is important and suggestive that young men in same-sex couples were enrolled in a parent's employer-sponsored insurance plan rather than a spouse's plan. This robustness is not particularly surprising given that the research design hinges on over-time comparisons across slightly younger and

Table 5 Further robustness tests of the effect of ACA on health insurance among men in cohabiting same-sex couples

	Control for State-Year Fixed Effects (1)	Exclude States With SSM 2004–2009 (2)	Exclude States With SSM 2004–2012 (3)
Any Health Insurance Coverage			
Age 21–25×Post-2010	0.094*	0.088*	0.076†
	(0.030)	(0.029)	(0.038)
N	3,670	3,519	3,040
Mean of dependent variable for 21–25 pre-2010	0.627	0.621	0.610
Adjusted R^2	.173	.151	.149
Employer-Sponsored Insurance			
Age 21–25×Post-2010	0.109*	0.105**	0.105*
	(0.034)	(0.029)	(0.038)
N	3,670	3,519	3,040
Mean of dependent variable for 21–25 pre-2010	0.487	0.484	0.469
Adjusted R^2	.168	.144	.129
Controls			
Age, state, and year fixed effects	X	X	X
State time-varying policies		X	X
Individual controls	X	X	X
State-year fixed effects	X		

Notes: The sample includes male respondents in either married or unmarried cohabiting same-sex couples. Individuals aged 21–25 are compared with those aged 27–31. The mean of the dependent variable refers only to individuals aged 21–25 interviewed in 2008 or 2009. The individual and state controls are the same as those used in Table 2. Column 1 includes state-year fixed effects. Column 2 excludes states that had legalized same-sex marriage between 2004 and 2009. Column 3 excludes states that had legalized same-sex marriage between 2004 and 2012. Standard errors clustered at the age level are shown in parentheses. The coefficients are from weighted regressions using person weights.

Source: ACS 2008–2013 (excluding 2010).

†$p<.10$; *$p<.05$; **$p<.01$

slightly older young adults, and thus it is difficult to think about confounding factors that differentially affected these two groups.[19]

[19] The online appendix reports the results of several other robustness tests we performed on the main results reported in columns 1 and 2 of Table 2. Table B4 shows that our main results are robust to clustering standard errors at the state level (as in Antwi et al. 2013), to estimating heteroskedasticity-robust standard errors, to estimating *p* values using the wild cluster bootstrap procedure (MacKinnon and Webb 2018; Roodman et al. 2019), to estimating *p* values using the effective number of clusters (Carter et al. 2017; Lee and Steigerwald 2018), to estimating models without the ACS person weights, and to estimating models using the ACS replication weights. Table B5 shows that our main results are also robust to excluding same-sex spouses from the 2012 estimation sample and examining only individuals in same-sex unmarried partnerships to address concerns about misclassification errors being more common among married couples (O'Connell and Feliz 2011), to including 2010 ACS data and counting that year as treated by the ACA dependent coverage provision, to including 2010 ACS data and coding that year as untreated, to including 26-year-old respondents as part of the control group, and to restricting attention to individuals aged 23–25 versus those aged 27–29 as suggested by Slusky (2017). Table B6 (online appendix) shows that our main results for men are robust to excluding each individual state one at a time. Related to this, Table B7 (online

Evidence on the Mechanisms

Having documented a robust increase in the likelihood of having any health insurance coverage and employer-sponsored insurance for men in same-sex couples associated with the ACA dependent coverage provision, which in some cases is significantly larger than the same effect enjoyed by men in different-sex couples, we turn the focus of our analysis in Table B8 (online appendix) to several exploratory tests designed to shed light on mechanisms and plausibility. The format of Table B8 follows that of Table 5 in that we concentrate on men in same-sex couples and report results for any health insurance coverage in the top panel and for employer-sponsored insurance in the bottom panel. In columns 1 and 2 of Table B8, we show results separately for individuals whose state of residence at the time of the interview was equal or not equal to their reported state of birth, respectively.[20] Although out-of-state migration is correlated with many important unobservable characteristics (including, presumably, sexual orientation), we note that pre-reform means of the outcome variables are similar across these two groups and certainly smaller than the differences between individuals in same-sex couples and individuals in different-sex couples in Table 2. We hypothesize that individuals who had not migrated from their state of birth were more likely to be physically proximate to their parents, thus reducing the cost of accessing dependent coverage. Health insurance plans with preferred networks based on geography may also result in sharply different costs for young adults depending on their distance to their parents. Finally, nonmigration since birth may also signal stronger family relationships. The bottom panel of columns 1 and 2 of Table B8 returns larger effects for nonmigrants than for migrants, although we cannot reject that the estimates are equal. Because migration is possibly related to many other factors relevant for insurance coverage (especially job status), we view the patterns in columns 1 and 2 of Table B8 as suggestive but not definitive.

In columns 3 and 4 of Table B8, we present results separately for individuals who are the household head (i.e., the primary reference person in whose name the property is owned or rented) versus the partner or spouse of the household head, respectively. A stark pattern emerges: we note much larger effects of the ACA dependent coverage provision on insurance coverage for partners of household heads, with smaller estimated effects that are not statistically significant for the household heads themselves.[21] There are several possible explanations for these results. First, perhaps household heads had employer-sponsored insurance that did not cover family members. Second, perhaps household heads had employer-sponsored insurance that covered some family members but did not cover same-sex partners. Although large firms over this period were increasingly offering health insurance benefits to same-sex unmarried partners, coverage was far from universal. In fact, Dawson et al. (2016) found that in 2016—by which time nationwide, legal same-sex marriage existed—only 43% of firms offering spousal benefits had extended such coverage to same-sex spouses. Third, perhaps household heads did not want to effectively out themselves to their

appendix) shows that our results are robust to excluding controls for all time-varying state characteristics and policies. Because our key identifying variation is at the age group by time level, this is not surprising but is reassuring.

[20] This analysis is necessarily limited to U.S.-born individuals.

[21] Results of event studies, shown in Figures B3 and B4 in the online appendix, confirm these differences by household head status for both any insurance coverage and employer-sponsored insurance, respectively.

Table 6 Effect of ACA on additional outcomes for individuals in cohabiting same-sex couples

	Employed (1)	Unemployed (2)	In the Labor Force (3)	40 or More Hours per Week (4)	Number of Hours per Week (5)	Student (6)
Men						
Age 21–25×Post-2010	–0.032	0.032†	0.001	–0.005	–0.351	0.018
	(0.039)	(0.015)	(0.038)	(0.040)	(1.467)	(0.027)
N	3,670	3,670	3,670	3,670	3,670	3,670
Mean of dependent variable for 21–25 pre-2010	0.792	0.074	0.867	0.600	34.38	0.246
Adjusted R^2	.048	.030	.039	.070	.077	.041
Women						
Age 21–25×Post-2010	–0.039†	0.023*	–0.016	–0.075†	–3.916**	0.023
	(0.018)	(0.008)	(0.017)	(0.036)	(0.725)	(0.027)
N	4,765	4,765	4,765	4,765	4,765	4,765
Mean of dependent variable for 21–25 pre-2010	0.807	0.088	0.895	0.543	34.29	0.265
Adjusted R^2	.053	.048	.019	.070	.069	.033
Controls						
Age, state, and year fixed effects	X	X	X	X	X	X
State time-varying policies	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X

Notes: The dependent variable is whether an individual was employed in column 1, whether an individual was unemployed in column 2, whether an individual was in the labor force in column 3, whether an individual usually worked at least 40 hours per week in column 4, the number of hours usually worked per week in column 5, and whether an individual was attending school in the three months preceding the interview in column 6. The sample includes male or female respondents in either married or unmarried cohabiting same-sex couples. Individuals aged 21–25 are compared with those aged 27–31. The mean of the dependent variable refers only to individuals aged 21–25 interviewed in 2008 or 2009. The fixed effects, individual, and state controls are the same as those used in Table 2. Standard errors clustered at the age level are shown in parentheses. The coefficients are from weighted regressions using person weights.

Source: ACS 2008–2013 (excluding 2010).

†$p<.10$; *$p<.05$; **$p<.01$

employers as being sexual minorities, which they would have had to do to claim same-sex partners as dependents for health insurance purposes. Without additional data, we cannot directly test which of these channels was driving this pattern.[22]

In Table 6, we further explore mechanisms by examining other possible margins of adjustment. Specifically, we examine employment and student status. We hypothesize that the increased access to parental health insurance coverage via the ACA

[22] We investigated heterogeneity in the results for men in same-sex couples with respect to education and race, respectively; the results are shown in Tables B9 and B10 (online appendix). Table B9 shows that the increases in insurance coverage experienced by men in same-sex couples associated with the ACA dependent coverage mandate were observed primarily for individuals without a bachelor's degree. Table B10 shows that the increases in insurance coverage are statistically significant only for White men in same-sex couples, although the point estimates for the other race groups are in some cases large and positive even when they are not statistically significant.

dependent coverage mandate allowed individuals to reduce employment (if they were working primarily to obtain health insurance) and/or increase schooling. We report these results in Table 6, with effects for men in same-sex couples in the top panel and for women in same-sex couples in the bottom panel. Each column shows the results from the standard difference-in-differences specification for various indicator variables: being employed (in the prior week; column 1), being unemployed (column 2), being in the labor force (either employed or unemployed; column 3), working at least 30 hours per week (column 4), working at least 40 hours per week (column 5), and being a student within the past three months (column 6).

The patterns in Table 6 reveal that the ACA dependent coverage provision had little effect on employment or labor force attachment or school enrollment for men in same-sex couples (top panel). All estimates are small in magnitude, and most are statistically insignificant (with the exception of a marginally significant 3.2 percentage point increase in the likelihood of being unemployed). In contrast, for women in same-sex couples (bottom panel), we estimate that the ACA dependent coverage provision was associated with statistically significant reductions in the likelihood of being employed (column 1), increases in the likelihood of being unemployed (column 2), reductions in the likelihood of working at least 40 hours per week (column 4), and reductions in total work hours of about 3.9 hours (column 5). These patterns are consistent with the lack of an overall change in employer-sponsored insurance for women in same-sex couples and suggest that women in same-sex couples may have traded their own employer-sponsored insurance for parental coverage in response to the ACA dependent coverage mandate.

Discussion and Conclusion

A large body of prior research has documented that the dependent coverage provision of the ACA was associated with meaningful increases in health insurance coverage for young adults after it took effect in 2010. We provide the first examination of whether young adults in same-sex couples—the vast majority of whom are likely to be gay, lesbian, bisexual, and queer—also benefitted from this reform. We provide a conceptual framework linking the costs and benefits of pursuing parental health insurance coverage to relationships with parents, availability of other types of insurance, and demographic/health profiles; we hypothesize that these characteristics may vary both by sexual orientation and by gender. We find that young adults in same-sex couples who were age-eligible for the ACA dependent mandate experienced significant increases in health insurance coverage after 2010 compared with the associated change for their slightly older counterparts who were not eligible to gain parental coverage. This increase was driven by large improvements in the likelihood of having employer-sponsored insurance. The effects we identify were consistently observed for young men in same-sex couples, with smaller effects that were not always statistically significant for young women in same-sex couples.

How large are the effects we identify? Consider that from 2008–2018, the share of young men in same-sex couples aged 21–25 years who reported employer-sponsored insurance increased by about 24 percentage points (upper-left panel of Figure 1). When measuring effects over the full sample period, we estimate that the ACA depen-

dent mandate significantly increased the likelihood of employer-sponsored insurance by 11.8 percentage points (top panel of column 3 of Table 3). Thus, we estimate that the ACA dependent coverage provision can account for about one-half of the increase in overall health insurance coverage for young men in same-sex couples over this period.

We also find that the increase in health insurance we identify for men in same-sex couples is significantly larger than the associated increase for men in different-sex couples. Why might this be the case? There are several possibilities, although we do not have data to adjudicate among them. First, as noted earlier, men in same-sex couples who were not the household head may have had a greater need for parental health insurance coverage due to lack of access to the employer-sponsored insurance of their partners/spouses. Even if they did have partners/spouses with employer-sponsored insurance coverage that would have extended to same-sex partners, they might have feared employer-based discrimination or other reprisals by taking it up. Second, men in same-sex couples may have had higher demand for health insurance because of the differential burden of some health conditions within the sexual minority male community, including HIV and poor mental health. These factors may have contributed to the larger effects of the ACA dependent coverage mandate on insurance coverage for men in same-sex couples compared with men in different-sex couples.

Regarding women in same-sex couples, we find weaker evidence of increases in health insurance associated with the ACA dependent coverage provision. This pattern matches findings from the existing literature: Antwi et al. (2013) and Barbaresco et al. (2015) also found larger effects for men than for women associated with the ACA dependent coverage provision, even though they did not specifically examine individuals in same-sex couples. What might be driving these differences? There are several possibilities, many of which link back to our conceptual framework. First, perhaps women in same-sex couples suffer from worse relationships with their parents than men in same-sex couples, as suggested by some prior research in psychology and family relationships. We have no way to measure this directly, but it is notable that in our sample, a slightly larger share of women in same-sex couples did not migrate from their birth state compared with the associated share of men in same-sex couples (57.7% vs. 52.6%), which is broadly inconsistent with this hypothesis. Second, gay men might face greater labor market discrimination than lesbians, as some economic research has suggested (Badgett et al. 2021), and thus the value of non-employment-based sources of insurance (including parental coverage) is particularly high for men in same-sex couples compared with women in same-sex couples. Third, perhaps the health conditions facing young adult sexual minority men (e.g., PrEP, STI treatment, mental health care, and smoking cessation) are more prevalent or require more health services utilization than those conditions facing young adult sexual minority women, resulting in greater demand for parental coverage and thus larger estimated effects of the ACA dependent coverage provision. Finally, as suggested in Table 6, some women in same-sex couples appear to have reduced labor supply in response to the ACA dependent coverage provision. This finding is consistent with a substantial effect of the ACA on the take-up of parental health insurance coverage for women in same-sex couples (although, again, we do not know the source of employer-sponsored insurance). It is possible that women in same-sex couples were what economists refer to as *job locked* (Buchmueller and Valletta 1996)—that is, working in a poorly matched

job or working more hours than desired for the primary purpose of obtaining health insurance, and the ACA dependent coverage provision "unlocked" them and induced them to reduce work hours or select out of employment altogether. If women in same-sex couples suffered from job lock more than men in same-sex couples, this could explain the difference in estimated effects. More research is needed to explore these interesting differences in outcomes between men and women in same-sex couples.

Our study is subject to several limitations. First and most important, although the ACS permits us to identify different types of health insurance, for employer-sponsored insurance, we do not know in whose name that policy is written (i.e., the policyholder). Thus, we can speculate that unmarried partner men aged 21–25 in same-sex couples are gaining health insurance from their own parent, but we cannot directly confirm this. Of course, we can think of no other confounding policy and no other variable that would differentially affect individuals aged 21–25 compared with those aged 27–31 coincident with the 2010 ACA dependent mandate, and so we are leaning heavily on the difference-in-differences design in this case. Thus, if there were sharp increases in the availability of same-sex domestic partner health insurance benefits exactly at the same time as the ACA dependent coverage provision, and if these increases were differentially large for the same-sex partners of individuals aged 21–25 compared with the associated change for the same-sex partners of individuals aged 27–31, our estimate of the effect of the ACA dependent coverage provision would be biased upward.[23]

Second, because the ACS does not include direct questions about sexual orientation at the individual level, we cannot identify effects of the ACA dependent coverage provision on health insurance coverage of single sexual minorities. Perhaps being in a same-sex couple signals some positive relationship with family members (i.e., sexual minorities who have difficult relationships with parents may be less likely to be coupled). Related to this limitation, despite documented disparities in health for transgender individuals (Lagos 2018), we have no information on gender identity, and so we cannot address the effects of the ACA on transgender populations, who may also have strained relationships with their parents and unique health care needs.

Third, the ACS lacks information on access to care, health services utilization, and health outcomes, and so we can examine only the effects on health insurance coverage. We leave the examination of these other health outcomes to future research.

Despite these limitations, our findings confirm the broad effects of expanded dependent coverage and suggest that eliminating the federal dependent mandate could reduce health insurance coverage among young adult sexual minorities in same-sex couples. In so doing, our study also provides one of the literature's first quasi-experimental examinations of how a population-targeted (i.e., not LGBTQ-specific) health policy affected sexual minorities, including whether it had differential effects relative to heterosexual populations. Social science and public health literatures have made important advances in documenting heterogeneous treatment effects by age, gender, race/ethnicity, and edu-

[23] Although we think that an increase in the age-specific nature of expanded same-sex domestic partner health insurance benefits is unlikely, we are not aware of any publicly available data that include consistently measured information on these benefits that would allow us to adjudicate this alternative hypothesis directly. The National Compensation Survey, for example, did not begin reporting on same-sex domestic partner health insurance benefits until 2011.

cation across a range of important health and social policies. Our results highlight the importance of adding sexual orientation to that standard list of demographic characteristics in order to monitor and achieve health equity for LGBTQ people in the United States. ■

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