Equally Married, Equally Benefited: Same-sex Marriage, Health Insurance, Labor Market, and Social Security

Yiqiu Liu

yiqiul3@illinois.edu

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Abstract. This paper analyzes the economic impacts of same-sex marriage (SSM) legalization in the United States through an analysis of the Supreme Court decisions in United States v. Windsor (2013) and Obergefell v. Hodges (2015). Employing a difference-in-differences approach, I evaluate changes in health insurance coverage, labor market outcomes, and social security benefits among same-sex couples (SSCs). Relative to opposite-sex couples, results indicate that federal recognition increased SSCs' overall insurance coverage by 2.63%, primarily via improved coverage in employer-sponsored insurance by 5.01%. At the same time, social security benefits increase following the ruling by 13.4%. The study highlights the economic benefits of understudied United States v. Windsor (2013), even in states without legalization prior to Obergefell v. Hodges (2015). Relative to SSCs in SSM-already-legal states, SSCs in not-yet-legal states responded with an increase in insurance coverage by 8.02% and in employer-sponsored insurance by 4.75% post-2013. A 1.934-hour reduction in weekly working hours, and a 15.2% less social security income received are also recorded. The results underscore the profound implications of marriage policy interactions between state and federal levels on minority behaviors in insurance and labor markets.

Keywords: same-sex marriage; health insurance; labor market; social security

JEL Codes: D10; I13; I18

1 Introduction

> *Marriage responds to the universal fear that a lonely person might call out only to find no one there. It offers the hope of companionship and understanding and assurance that while both still live there will be someone to care for the other.*
>
> – Justice Anthony M. Kennedy, *Majority Opinion in Obergefell v. Hodges (2015)*

Marriage has been described "the most important relation in life" and "the foundation of the family and society, without which there would be neither civilization nor progress" (Maynard v. Hill, 1888). In additional to its moral and philosophical significance, marriage in the modern world is also associated with certain spousal responsibilities and benefits as a martial contract (Piano et al., 2024). Historically, not all forms of relationship were accepted in society, nor eligible for the recognition of marriage. For instance, interracial marriage was not legal in the U.S. until Supreme Court's ruling in Loving v. Virginia (1967), despite the first recorded interracial marriage occurring in 1565. Same-sex marriage (SSM) also underwent a prolonged process before being completely legalized across the United States, and this paper aims to quantify how legislation on SSM reshaped sexual minority families economically beyond an expanded access to marriage.

The federal recognition of SSM, each state's definition of marriage, cross-state recognition, and the shifts in public attitudes all contributed differently to how same-sex couples (SSCs) were treated and accepted in society. Prior to most of the SSM legalization in the United States, several studies have examined the differences in health insurance coverage, healthcare access, and healthcare utilization between individuals in SSCs and opposite-sex couples (OSCs). Historically, SSCs were less likely to have insurance, have seen a doctor recently, have a usual source of healthcare, and have unmet medical needs (Heck et al., 2006; Buchmueller & Carpenter, 2010; Blosnich et al., 2016; Clift & Kirby, 2012; Xu et al., 2023). Most notably, this gap in health and access to healthcare services remains even after entering in SSM (Xu et al., 2023).

SSM legalization helps amend the gap by offering more insurance coverage, improving both physical and mental health for SSCs (Francis et al., 2012; Wight et al., 2013; Kail et al., 2015; Downing & Cha, 2020; Carpenter et al., 2021a,b; Mann et al., 2023). And one

of the potential channels of these effects is through improved public attitude towards minorities and reduction in discrimination especially in the workplace (Hooghe & Meeusen, 2013; Aksoy et al., 2020; Nikolaou, 2022). As a result, in the labor market, SSCs' labor supply changed since the legislation (Dillender, 2015; Sansone, 2019; Hansen et al., 2020; Martell & Nash, 2020). This paper fits in these areas of the literature, and provides additional evidence in how SSM legalization helps narrow the gap, especially on health insurance coverage.

Piano et al. (2024) argued that if we view marriage as standard contract provided by the states, and the benefits associated are value added to the contracts, then the same-sex marriage legalization is an increase in the supply of such contracts. How policies related to marriage change the marital contract market, and how these changes affect the "consumers" in the market are the major questions this paper aims to answer.

Taking a closer look at the impact of SSM legalization on SSCs' health insurance coverage of different types, receipt of social security benefits, and labor market outcomes, I divide the SSM legalization into two layers using the variations at both the state and federal level, building on the previous work. This study concentrates on examining policy shifts related to the federal recognition of same-sex marriages and nationwide marriage equality in the United States, utilizing the Supreme Court rulings in United States v. Windsor (2013) and Obergefell v. Hodges (2015) as key events representing these policy changes.

The 2013 United States v. Windsor ruling, which required federal recognition of same-sex marriages in states where it was already legal, had several notable effects. Among same-sex couples in these early legalization states, I found a 2.63% and 5.01% higher take-up of overall insurance coverage, and employer-sponsored insurance (ESI). Additionally, SSCs received 13.4% more social security income compared to opposite-sex couples after 2013.

Examining same-sex couples in later legalized states specifically, I estimated a 8.02% and 4.75% increase in insurance coverage and ESI through federal recognition of SSM. In the labor market, the estimates showed a significant decrease of 1.934 hours of working per week for those same-sex couples following federal recognition, though changes in unemployment, and total wage income remained unchanged. At the same-time, 15.2% less social security income was claimed by them.

Regarding the 2015 Obergefell v. Hodges decision, which legalized same-sex marriage nationwide in states that had not yet adopted it, I find that the treatment effects materialized even before the ruling in 2015. This is indeed supported by my estimations on the 2013 rulings, showing a spill-over from the earlier rulings. This evidence indicates that prior studies that assume homogeneous treatment across states are potentially flawed.

Most notably, when studying national legislation, it is imperative to account for the possible bias from other contemporary policies. A series of robustness checks reexamined the baseline results by excluding the interference of the Affordable Cares Act (ACA) and Medicaid expansion. I again find the same significant effects, even after restricting my sample to households not affected by ACA.

This paper contributes to a growing literature focusing on marriage, marriage equality and sexual minorities. Firstly, an often-overlooked ruling (United States v. Windsor, 2013) on SSM is emphasized, and this contributes to the SSM literature by a detailed impact evaluation in health insurance, labor market outcomes and social security. Compared with the landmark ruling on marriage equality in 2015, estimation indicates that the 2013 ruling significantly affected SSCs, if not more, prior to the most-discussed one in 2015. Prior literature on same-sex marriage legalization in the US is summarized in Table 1.

The second contribution of this paper is an expansion on the concept of same-sex marriage legislation in the health economics literature. Instead of using homogeneous legalization in the states, I relaxed the underlying assumption in the prior studies and allowed for heterogeneous treatments. The results in this paper prove that according to the time of state-wise legalization relative to the Supreme Court rulings, different responses are captured in the treated couples of the same gender.

More generally, the findings in this study add on to the research efforts in the marriage market. The policy variation in SSM legislation emulates many changes in other parts of the law-making realm, both may change the supply of marital contracts, or the value associated to them. On a different note, similar logic can be applied to any policy that adds benefits to a marital contract. In this way, this paper fits in a bigger and more important field of literature.

This paper proceeds as follows. Section 2 provides a timeline and introduction of the institutional and legislative background of SSM legalization. Data and the descriptive statistics are summarized in Section 3, as Section 4 presents two empirical designs under the Difference-in-Differences framework. Next, Section 5 provides the empirical results in the two rulings. Lastly, Section 6 discusses some robustness check to the baseline setting, and conclusions are outlined in Section 7.

2 Institutional Background

In the United States, the definition of marriage has primarily fallen under the jurisdiction of individual states. Therefore, SSM legalization tends to start inside each states, and when the argument becomes more heated, the congress and Supreme Court might step in and intervene.

2.1 State Legislation

The civil rights movement for SSM began in the 1970s, most notably with the appeal to the Minnesota Supreme Court's ruling on Baker v. Nelson in 1972, which was subsequently dismissed by the US Supreme Court "for want of a substantial federal question"[1]. It was more than thirty years later when Massachusetts became the first U.S. state to legalize SSM in 2003[2].

In 2008, the Supreme Court of California decided to legalize SSM in the state, but this was later overturned by Proposition 8, a state constitution amendment that banned SSM after less than six months of legalization, but it did not stop there. Before Obergefell v. Hodges (2015) on Jun 26th of 2015, a total of thirty-five states and the District of Colombia had legalized SSM through court rulings, legislation, and/or referendums. A detailed timeline is provided in Table 2.

[1] Baker v. Nelson, 409 U.S. 810 (1972).

[2] Even though numerous attempts have been made in-between those years, for example, Jones v. Hallahan, 501 S.W.2d 588 (Ky. 1973), Frances B. v. Mark B., 78 Misc.2d 112 (1974), Singer v. Hara, 522 P.2d 1187 (Wash. Ct. App. 1974), De Santo v. Barnsley, 476 A.2d 952 (Pa. Super. Ct. 1984), Dean v. District of Columbia, 653 A.2d 307 (D.C. 1995), Storrs v. Holcomb, 645 N.Y.S.2d 286 (App. Div. 1996), Frandsen v. County of Brevard, 828 So. 2d 757 (Fla. 2001), Burns v. Burns, 560 S.E.2d 47 (Ga. Ct. App. 2002), Standhardt v. Superior Court ex rel. County of Maricopa, 77 P.3d 451 (Ariz. Ct. App. 2003) etc.

2.2 The Supreme Court

As of December 31 of 2003, there were 1,138 federal statutory provisions classified to the United States Code in which marital status is a factor in determining or receiving benefits, rights, and privileges (United States General Accounting Office, 2004). To receive these federally-provided benefits, the marriage must be valid under federal law. For example, the combined income of married partners is considered when applying for Medicaid benefits, as well as for the Supplemental Security Income (SSI) program.

United States v. Windsor (2013)[3] repealed the Defense of Marriage Act (DOMA), which had defined the term "marriage" under federal law as a "legal union between one man and one woman". This decision required the federal government to recognize same-sex marriage performed in states where it was legal (hereafter, legal states). This marked the start of federal recognition of SSM, and many federal agencies began applying equal benefits to legally wedded same-sex couples since then.

Perhaps the most significant development is the landmark ruling Obergefell v. Hodges (2015)[4], which determined that the Fourteenth Amendment's Due Process Clause protects the fundamental right to marry, applying equally to same-sex and opposite-sex couples. This ruling marked the complete legalization of SSM in the United States, making it universally legal and recognized nationwide.

2.3 Heterogeneity in Treatments

Striking down parts of DOMA, USvW requires the federal government to recognize same-sex marriages performed in states where it was legal, leading to the federal recognition of SSM - the first treatment discussed later. In contrast, OvH did not greatly change how existing SSMs were recognized, but instead provided access to marriage for many SSCs in the United States. This change is subsequently referred to as marriage equality[5].

[3]Hereafter, USvW.
[4]Hereafter, OvH.
[5]Despite federal recognition is explicit in OvH, given it's ruled in 2015, two years after USvW, the Supreme Court essentially granted the access to same-sex marriage and the federal recognition simultaneously.

By the timing of state SSM legalization relatively to two Supreme Court rulings, states can be categorized into three types corresponding to the nature of treatment it received, explained in the Figure 1.

A progressive state is one that legalized SSM prior to both USvW in 2013 and OvH in 2015, such as Massachusetts (2004). Progressive states should receive only the treatment of federal recognition in 2013 after USvW, and no further treatment in 2015[6].

Between USvW in 2013 and OvH in 2015, those that allowed SSM are conforming states, which followed the growing national consensus on SSM legislation and eventually implemented the legalization on their own. Conforming states were treated by both federal recognition and marriage equality when their SSM law took effect.

Lastly, like conforming states, some states legalized SSM only in compliance with the OvH ruling, called dissenting states. The treatment they received in 2015 is theoretically the same as conforming states, but the treatment is more exogenous. The variation in timing and exposure to treatments enabled me to estimate the treatment effects using a DiD framework. Panel (a) of Figure 2 is a map showing the geographical distribution of the three types of states under this framework.

3 Data and Empirical Design

3.1 American Community Survey (ACS)

The American Community Survey (ACS) is an ongoing nationwide survey conducted by the U.S. Census Bureau. It collects detailed demographic, economic, social, and housing information from a representative sample of households across the United States and Puerto Rico. The ACS essentially serves as a more frequent version of the decennial census long-form questionnaire that was previously used to gather similar community-level data.

One of the key advantages of the ACS over the decennial census long-form is that it provides more timely data, with information being collected on an annual basis rather

[6]Although one could also argue that the cross-state recognition as a result of OvH in 2015 had its effects on outcomes of interest, cross-state migration can reasonably be omitted in the short window between 2013 and 2015.

than once every ten years. This allows for the tracking of yearly changes and emerging trends in communities across the country.

The survey samples around 3.5 million housing unit addresses each year, making it a very large and statistically robust source of data at multiple geographic levels - including states, counties, cities, towns, and even neighborhoods. The comprehensive nature of the ACS questionnaire provides crucial information for allocating government program funding, defining legislative districts, and making decisions about community services and infrastructure investments.

3.1.1 Public use microdata

ACS provides public use micro-data files that contain anonymized records for a sample of housing units and group quarters residents. This micro-data allows researchers and data users to access the individual responses to the ACS questionnaire, enabling much more detailed and customized analyses compared to just using the pre-tabulated summary data products.

The ACS micro-data files contain the full range of responses collected through the survey, including data on demographic characteristics, housing details, employment, income, education, health insurance coverage and other topics. Crucially, the records have indicators for whether each householder is in a same-sex or opposite-sex relationship, allowing the micro-data to be used for studying outcomes related to sexual orientation.

3.1.2 Timing of legalization

Given the data in annual frequency, if a state implemented legalization later than October, I only consider observations in that state from the following year as treated. For instance, the SSM law took effect in the state of Washington on December 6th, 2012. However, classifying all SSC observations from 2012 in Washington as part of the treatment group would bias the estimation. Consequently, only SSCs in Washington from 2013 onward are regarded as treated.

Adhering to this rule, the adjusted timing of legalization in each state is summarized in Table 3. States that did not legalize SSM prior to OvH are listed separately (hereafter,

OvH states). And a map of the variation in timing with the adjustment is shown in panel (b) of figure 2.

3.1.3 Data quality and limitation

The time horizon of the data is limited to be from year 2008 because of a data quality concern on the identification of same-sex couples. To mitigate the inaccuracy issue, there were formatting changes to the questionnaire of ACS since 2008. The layout of the gender question was edited, making it more difficult to accidentally mark both male and female. The drop in the reported number of same-sex couples between 2007 and 2008 can be attributed to these changes, which have resulted in a more reliable estimate of same-sex couple households.

The second limitation is that between 2005 and 2012, all SSCs regardless of marital status were coded as same-sex unmarried partners in ACS, even when they had legally married in their cohabitating states. Therefore, I am not able to determine if SSCs in my sample between 2005 and 2012 are married or not. As a result, the estimation below on the effects of SSM should be taken as a lower bound of the actual effects.

3.1.4 Identification of SSC

To accurately identify SSCs and OSCs, observations in Group Quarters[7] are excluded. Next, a same-sex family needs to meet the following conditions to be identified:

- Criteria 1: Households (HHs) with at least two persons whose age is between 18 and 60.
- Criteria 2: Married-couple HHs or unmarried-partner HHs.
- Criteria 3: There is one member in the HH with a relationship to the reference person as "Husband/wife" or "Unmarried partner"[8].

[7]The Census Bureau classifies all people not living in housing units as living in group quarters. A group quarters is a place where people live or stay, in a group living arrangement, that is owned or managed by an entity or organization providing housing and/or services for the residents. Examples are college residence halls, residential treatment centers, skilled nursing facilities, group homes, military barracks, correctional facilities, and workers' dormitories.

[8]The reference person is the person to whom the relationship of other people in the household is recorded. The household reference person is the person listed as the householder. The subfamily reference person is either the single parent or the husband/wife in a married-couple situation. Also see https://www.census.gov/programs-surveys/cps/technical-documentation/subject-definitions.html#referenceperson.

After cleaning, I have a total sample size of 5,385,474 families, including 73,161 SSCs (1.36%). 37,793 of them are female-female families, and 35,368 male-male families.

3.1.5 Compositional change

The number of same-sex couple households increased from approximately 5,000 to 7,500 annually, whereas the number of opposite-sex couple households decreased from around 470,000 to 430,000 annually. The percentage of same-sex couples rose from around 1% to 1.7%, which does not appear to constitute a substantial compositional shift.

3.1.6 Variables of interest

The primary outcome variables of interest are health insurance coverage, labor market outcomes, and social security. The data provides information on different types of health insurance coverage for individuals within families, including general health insurance, employer-sponsored insurance (ESI), private insurance, and Medicaid[9]. I excluded Medicare since the study is confined to non-elderly adults. I generated indicators for each type of insurance coverage by examining how many individuals in the couples are insured. As a result, the indicator equals to 1 when both partners are covered, 0.5 when either partner is insured, and 0 when neither partner has coverage.

In the labor market, I measured SSCs and OSCs' labor force participation using the proportion of family members unemployed, and the total weekly hours worked by the whole family. Additionally, total wage and salary income is also acquired. Finally, the dataset includes information on total social security income as well as income from the Supplemental Security Income (SSI) program.

Since two Supreme Court rulings, United States v. Windsor (2013) and Obergefell v. Hodges (2015), each created different treatment effects, and the treatment varies by the states, I will estimate these effects separately. Table 4 summarizes the pre- and post-treatment outcome variables of interest along with controls in progressive states, and table 5 gives the descriptive statistics of the sample in dissenting states.

[9]In ACS definition, it contains "Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability". For simplicity, I refer to this group of public-sponsored health insurance plans as "Medicaid".

4 Difference-in-differences

4.1 Same-sex couple vs. opposite-sex couple

The first specification of Difference-in-difference model is used to identify the treatment effect of the Supreme Court rulings using OSCs as the control group. Therefore, the estimated treatment effect represents the change in outcomes of SSCs relatively to OSCs. It takes the form:

$$Y_{ist} = \alpha + \beta(Post13_t * SSC_i) + \tau_s + \mu_t + X'_{ist}\gamma + \epsilon_{ist} \quad (1)$$

$$Y_{ist} = \alpha + \beta(Post15_t * SSC_i) + \tau_s + \mu_t + X'_{ist}\gamma + \epsilon_{ist} \quad (2)$$

where Y_{ist} is the outcomes of interest. $Post13_t$ and $Post15_t$ are indicators of whether the observation is surveyed after the USvW or the OvH ruling, SSC_i is an indicator for same-sex couple, τ_s is state fixed effect, μ_t is year fixed effect. X_{ist} are a series of household-level characteristics, including family size, family income, average age of the couple, race, ethnicity, disabilities, and state-level characteristics (population, GDP, disposable income per capita, and unemployment rate). The standard error ϵ_{ist} is clustered at state level.

When running the estimation, I restrict my sample to only include observations that were directly affected by the rulings. For example, USvW in June 2013 is not expected to have direct effects on SSCs living in Texas because the legalization of SSM did not take effect until the June of 2015. As a results, for the USvW ruling, I only include SSCs and OSCs living in progressive states.

On the other hand, the OvH ruling in 2015 should not directly change the Medicaid enrollment status of a same-sex couple living in a progressive state, where they had been enjoying the right to marry prior to 2015 and federal recognition since 2013. When estimating the treatment effect of 2015 ruling, I only include SSCs and OSCs living in dissenting states.

4.2 Same-sex couples in dissenting states vs. progressive states

Additionally, I investigate a different Average Treatment on Treated (ATT) effect of the two rulings on same-sex couples living in different states (progressive vs. dissenting). The reason to do so stems from the argument that same-sex couples might be systematically heterogeneous from opposite-sex couples, undermining the accuracy of the aforementioned comparison. If one believes that difference in sexual orientation is more profound than difference in location (progressive vs. dissenting states), this set of estimation may be more persuasive.

With this design, the control group is SSCs living in progressive states, and the effects I am estimating represent the change in outcomes of dissenting state SSCs relatively to progressive state SSCs. The regression equation with this design therefore takes the form of

$$Y_{ist} = \alpha + \beta(Post13_t * Dissenting_s) + \tau_s + \mu_t + X'_{ist}\gamma + \epsilon_{ist} \tag{3}$$

$$Y_{ist} = \alpha + \beta(Post15_t * Dissenting_s) + \tau_s + \mu_t + X'_{ist}\gamma + \epsilon_{ist} \tag{4}$$

where Y_{ist} is the outcomes of interest. $Post13_t$ and $Post15_t$ are indicators of whether the observation is surveyed after the USvW or the OvH ruling, $Dissenting_s$ is an indicator for dissenting states, τ_s is state fixed effect, μ_t is year fixed effect. X_{ist} are the same set of controls as in Equation 1. The standard error ϵ_{ist} is again clustered at state level.

Here, sample is restricted to SSCs living in both progressive and dissenting states, excluding pre-legalization progressive state samples.

5 Empirical Results

5.1 Federal recognition: United States v. Windsor (2013)

5.1.1 Same-sex couple vs. opposite-sex couple

The first set of DiD regressions aims to estimate the average treatment effect on the treated (ATT) of federal recognition. Here, the sample is restricted to states that legalized SSM on or prior to 2013 (progressive states), and observations before legalization

are excluded. Therefore, with the DiD design, the treatment group is SSCs in progressive states and the control group is OSCs in progressive states.

Regarding insurance coverage (shown in Figure 4, and Table 6), I observe higher take-up overall (2.63%), increased coverage through ESI by 5.01%, and a higher private insurance coverage of 0.89%. Note that the large confidence interval in the pre-treatment period is mostly due to that only a few states legalized SSM in early years.

In the labor market, I do not find conclusive results (As in Figure 5), whereas my data exhibits an increase in total social security income of SSCs compared to OSCs by approximately 13.4% in Figure 6. See Table 7 and Table 8 for DD estimators.

To summarize, results here indicate that federal recognition of SSM indeed narrowed the health insurance gap between SSCs and OSCs, and this change happened mainly through an expanded ESI coverage.

5.1.2 Same-sex couples in dissenting states vs. progressive states

Using the second DD setup, I employ the same regression on SSCs living in both progressive and dissenting states, and estimate the ATT of federal recognition on dissenting state SSCs compared to their counterparts in progressive states. With this design, the treatment effects measure the spill-over of federal recognition in progressive states to dissenting states.

DD regression in Figure 7 shows a persistent increase in both overall insurance as well coverage through employment, 8.02% and 4.75% respectively. See Table 9 for details. There was no significant change in the private coverage, which includes coverage through ACA marketplace that started in October 1st of 2013[10]. This offers additional evidence to the spill-over effect against the potential threat from Medicaid Expansion that was implemented at the same time.

In the labor market, Figure 8 shows no significant change in unemployment, but a reduction of weekly working hours of dissenting state SSCs relative to SSCs in progressive states by 1.934 hours. On the other hand, I observe a decreased social security income (by approximately 15.2%) accompanied by an increase in SSI recipient

[10]Although a big fraction of the states did not expanded the eligibility of Medicaid as mandated in the ACA bill, the opening of health insurance exchanges is required by law.

as in Figure 9 in spite of an insignificant DD estimator. See Table 10 and Table 11 for details.

My findings here show that although the 2013 ruling did not directly lift the legal restriction of SSM in the dissenting states, it had a spill-over effect on health insurance coverage to SSCs in not-yet-legal states compared to SSCs in SSM legal states. Potential channels and discussion on the spill-over is discussed in Section 6.

5.2 Marriage equality: Obergefell v. Hodges (2015)

5.2.1 Same-sex couple vs. opposite-sex couple

The second set of DiD regressions aims to estimate the average treatment effect on the treated (ATT) of marriage equality. Here, sample is restricted to states that did not legalized SSM until 2015 (dissenting states). Therefore, the SSCs in this sub-sample did not have access to marriage before OvH, and the ruling in 2015 granted them both marriage equality and federal recognition. In this case, the control group is OSCs in dissenting states, and the treatment group is SSCs in dissenting states.

Unlike results in the federal recognition of the same-sex marriage, pre-trends are found in both overall insurance coverage and ESI. As in Figure 10, the treatment effects happened prior to the 2015 ruling that ensured marriage equality, which are consistent with the spill-over found in the previous section. A significant decrease of 1.99% in Medicaid coverage is shown in panel (d) and Table 12. This can be explained by the fact that combined income of both spouses may disqualify them for Medicaid, the eligibility of which depends on the federal poverty line (FPL)[11].

No significant effects can be seen in unemployment and wage (see Figure 11, and Table 13). For weekly hours worked, results show a significant 2.139 hours increase. No change in social security income is found (see Figure 12, and Table 14), even though DD estimator of SSI shows a reduction of around 7.37%.

[11]To be eligible for Medicaid, the household needs to have an income equal to 400% of the FPL at most, which is the threshold for getting partially subsidized insurance plans.

5.2.2 Same-sex couples in dissenting states vs. progressive states

Again, alternative setup on the 2015 ruling uses SSCs in both progressive and dissenting states as the sub-sample of interest. The ATT estimated here represents the treatment effect of marriage equality on SSCs living in dissenting states relative to SSCs in progressive states.

From Figure 13, a significant pre-trend can be found in both overall coverage and ESI, even though DD estimators in Table 15 shows significance in both outcomes. The event study indicates a possible pre-exposure to the treatment, which could be explained by the spill-over discussed earlier. No conclusive results are given in the event study on labor market outcomes and social security recipient (See Figure 14, Figure 12, Table 16, and Table 17). These event study graphs imply that the increase of overall coverage and ESI may not be the results of the 2015 ruling, but of an earlier event.

6 Robustness Check and Discussion

6.1 Concurrent Healthcare Reform

One potential threat to the spill-over estimation above is the concurrent healthcare system reform that happened on 2010, the Affordable Care Act (ACA). With the event study graphs in section 5.2, ACA could potentially be the reason of the early response in outcomes. Implementing in 2014, ACA establishes private insurance marketplace in each state, and expands the eligibility of Medicaid coverage to able-bodied childless low-income individuals [12]. Outlined below, two sets of robustness check isolate the interference of ACA, re-estimate the ATT, and have found same conclusions.

6.1.1 ACA Expansion and Health Insurance Take-up

The first major policy change from ACA is the expanded Medicaid eligibility to able-bodied childless individual with low income. After the passing of ACA back in 2010,

[12] ACA also established a small business exchange (Small Business Health Options Program, SHOP) for employers to gain better access to the insurance market for their employees. However, the launch and participation of SHOP face challenges from the beginning, so SHOP is not expected to have significant bias to my findings. See https://chirblog.org/winding-small-business-marketplaces-feds-acknowledge-failure-launch/.

Supreme Court's decision on National Federation of Independent Business v. Sebelius in 2012 allows states to decide whether the eligibility shall be expanded. Therefore, this allows me to run the same estimation on a sub-sample of households in ACA non-expansion states. By doing so, I look at households that are completely not affect by the policy reform in Medicaid. The sample here includes same-sex couples living in post-SSM progressive states, and dissenting states that do not expand ACA.

Doing so ensures that the ATTs estimated by DiD function as a lower-bound of the true ATTs. Since most dissenting states do not expand ACA whereas most progressive states are involved in expansion, a fraction of the true ATTs could be negated by the improvement of coverage in progressive states.

Figure 16 and Table 18 demonstrates the event studies of insurance coverage status for same-sex couples. We could notice that the significant increase of 8.77% and 5.12% in overall coverage and ESI persist absence of ACA expansion. Moreover, we observe a insignificant response in private coverage after the treatment. This further contradicts with the interference from private coverage exchanges/marketplace in ACA.

6.1.2 Income and ACA Eligibility

The second major change in ACA is the establishment of health insurance marketplace. The marketplace is a federal/state regulated exchange that allows households to purchase different levels of health insurance plans to fit their needs. In ACS micro-data, the coverage through this channel is considered private insurance. Despite I found, in Section 5, no change in private coverage from the rulings, I further restricted my sample to HHs with annual income above 400% FPL[13]. This threshold excludes all household that might be affected by the change in ACA through income.

On insurance outcome, Figure 17 shows a similar positive spill-over of federal recognition on dissenting state SSCs, with a 2.27% increase in overall coverage and 2.78% increase in ESI. No significant change in private insurance and Medicaid is found, which is consistent with the restriction on the sample (See Table 19).

[13]Although Medicaid expansion lower the Medicaid income eligibility to below 138% of FPL, 400% of FPL is the threshold to qualify for premium tax credit that subsidizes an insurance marketplace plan. See https://www.healthcare.gov/glossary/federal-poverty-level-fpl/ for details.

In the labor market, I again find a decrease of 2.26 hours of work per week, and no conclusive results are drawn from social security since my sample here focuses on higher-income HHs (For trends and DD estimators, refer to Figure 18, Figure 19, Table 20, and Table 21).

6.2 Discussion: the Spill-over

The surprising results in the spill-over effects of United States v. Windsor (2013) on same-sex couples can happen through several channels. First of all, 2013 ruling even though did not specifically target same-sex households in dissenting states, it improved workplace anti-discrimination, which was empirically validated and mentioned as a potential channel in literature (Sansone, 2019). Friendlier work environment could incentivize higher willingness to include same-sex dependent in ESI, as well as improve sexual minority's access to better employment with more ESI coverage.

Secondly, the ruling in 2013 provides incentives for insurance companies and employers to avoid setting eligibility restrictions on same-sex couples. This is supported by the significant increases in ESI across all specifications. Thirdly, Badgett & Mallory (2014) provides descriptive evidence from administrative data that more same-sex couples get married following the ruling, both in-state and out-of state. They see nearly twice as many couples married in New England states in 2013 than in 2012, with larger increase in out-of-state travels for marriage.

Lastly, Crandall-Hollick et al. (2013) explains that the Supreme Court decision may lower the effective health insurance premiums paid by married same-sex couples on employer-sponsored insurance (ESI) plans. Previously, the employer's contribution towards the premium for a same-sex spouse was taxable income for the employee, unlike for opposite-sex spouses. Post-decision, with same-sex marriages recognized for federal tax purposes, these contributions are no longer taxable, thereby reducing the tax liability for same-sex couples and encouraging higher enrollment in employer-provided family health plans.

7 Conclusion

This study utilized a difference-in-differences approach to investigate the impacts of two pivotal Supreme Court decisions regarding same-sex marriage in the United States - the 2013 United States v. Windsor ruling and the 2015 Obergefell v. Hodges ruling. The findings highlight substantial benefits in terms of improved health insurance coverage accrued by same-sex couples following the expansion of marriage rights and federal recognition of their unions.

By acknowledging the incremental layers of reform inherent in the legalization of same-sex marriage, I separately estimated the treatment effect of state-level access to marriage, and the federal recognition followed by extended federal benefits, building upon the existing literature on the marital contract. Although in smaller magnitude, I found the federal recognition unaccompanied by more supply of marriage contract to same-sex couples narrowed the gap in health insurance coverage between same-sex partners and their opposite-sex counterparts, and this improvement was materialized mainly through expanded coverage from employment, as either employees or their dependents.

It is important to investigate such heterogeneous treatments in the setting since my estimation in dissenting states further showed that gaining federal recognition elsewhere also spills over to same-sex couples living in not-yet-legalized regions. Heterogeneity occurred in the response of same-sex couples as well, supported by the larger-than-baseline treatment effect on the treated from ACA non-expansion states and smaller-than-baseline ATT for higher-income same-sex couples.

This study contributes to the growing body of literature on the economic and social impacts of same-sex marriage legalization, as well as how public policy could help narrow the economic gap between heterosexual families and sexual & gender minorities. The findings highlight the potential for policy interventions to reshape the landscape for marginalized communities and foster greater inclusivity within societal institutions.

While the legislative process and institutional context were specific to the United States, the lessons learned from this research can inform policymakers globally as more countries legalize same-sex marriage and provide equal legal treatment towards LGBTQ+ community. Furthermore, the broader implications extend beyond same-sex

unions, as similar logic can be applied to any policies that modify the supply and benefits associated with the marital contract.

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8 Tables

Table 1: Summary of SSM Literature

Outcome	Literature	USvW	OvH	Data
Health	Carpenter, Eppink, et al. (2021)	✗	✓	BRFSS
	Kail, Acosta and Wright (2015)	✗	✓	CPS
	Wight, LeBlanc and Badgett (2013)	✗	✓	CHIS[a]
	Francis, Mialon and Peng (2012)[b]	✗	✓	State-level data
Insurance	Mann et al. (2023)	✗	✗	ACS
	Carpenter, Gonzales, et al. (2021)	✗	✗	ACS, NHIS
	Carpenter, Eppink, et al. (2021)	✗	✓	BRFSS
	Downing and Cha (2020)	✗	✓	ACS
	Tumin and Kroeger (2020)	✗	✓	NHIS
Healthcare Use	Carpenter, Eppink, et al. (2021)	✗	✗	BRFSS
Labor Market	Martell and Nash (2020)	✗	✓	ACS, NHIS
	Hansen et al. (2020)	✗	✓	ACS, CPS, ATUS
	Sansone (2019)	✗	✓	ACS
	Dillender (2015)	✗	✓	CPS
Miscellaneous	Piano, Behr and West (2024)	✗	✓	State-level data
	Isaac (2023)	✓	✗	ACS
	Cheng et al. (2021)	✓	✗	ACS

This table summarizes the existing literature on the same-sex marriage in the context of the United States of America. The same-sex marriage legalization is divided into two layers in my study, recognition by the federal government of the existing same-sex marriage, and the access to same-sex marriage in the first place. The Supreme Court ruling on United States v. Windsor (USvW) decided that the federal government must give the same benefits and treatment to same-sex marriages performed in legal state, and the ruling on Obergefell v. Hodges (OvH) on the other hand decided that all states must allow same-sex marriage. The miscellaneous outcome is primarily on taxation.

[a] California Health Interview Survey
[b] Instead of SSM legalization, this study is on the ban on SSM.

Table 2: Date and Form of SSM Legalization

State	**Date of Decision**	**Date of Effect**	**Form**
Massachusetts	Nov 18th, 2003	May 17th, 2004	Court decision
California	May 15th, 2008	Jun 16th, 2008	Court decision
	(Overturned)		
	Aug 4th, 2010	Jun 26th, 2013	Court decision
Connecticut	Oct 10th, 2008	Nov 12th, 2008	Court decision
Iowa	Apr 3rd, 2009	Apr 27th, 2009	Court decision
Vermont	Apr 7th, 2009	Sep 1st, 2009	State legislation
New Hampshire	Jun 3rd, 2009	Jan 1st, 2010	State legislation
District of Columbia	Dec 18th, 2009	March 3rd, 2010	State legislation
New York	Jun 24th, 2011	July 24th, 2011	State legislation
Washington	Feb 13th, 2012	Dec 6th, 2012	State legislation[14]
Maryland	Mar 1st, 2012	Jan 1st, 2013	Referendum
Maine	Nov 6th, 2012	Dec 29th, 2012	Referendum
New Jersey	Sep 27th, 2013	Oct 21st, 2013	Court decision
New Mexico	Dec 19th, 2013	Aug 21st, 2013	Court decision, county clerk[15]
Rhode Island	May 2nd, 2013	Aug 1st, 2013	State legislation
Delaware	May 7th, 2013	Jul 1st, 2013	State legislation
Minnesota	May 14th, 2013	Aug 1st, 2013	State legislation
Hawaii	Nov 13th, 2013	Dec 2nd, 2013	State legislation
Illinois	Nov 20th, 2013	Feb 26th, 2014	State legislation, court decision[16]
Utah	Dec 20th, 2013	Dec 20th, 2013	Court decision
	(Court Stay[17])		
	Oct 6th, 2014	Oct 6th, 2014	Court Decision
Oregon	May 19th, 2014	May 19th, 2014	Court decision
Pennsylvania	May 20th, 2014	May 20th, 2014	Court decision
Virginia	Oct 6th, 2014	Oct 6th, 2014	Court decision
Indiana	Jun 25th, 2014	Oct 6th, 2014	Court decision
Wisconsin	Sep 4th, 2014	Oct 6th, 2014	Court decision

Continued on next page

[14]Affirmed by a referendum

[15]The New Mexico Supreme Court ruled that the same-sex marriage is permitted on Dec 19th of 2013, even though eight county clerks had already been issuing marriage license to same-sex couples since Aug of 2013.

[16]The legislation was set to be effective from Jun 1st of 2014, but a U.S. District Judge ruled on Feb 21st of 2014, that the marriage is available immediately.

[17]Stay is an action taken by a court to stop a legal proceeding or the actions of a party.

Table 2 – *Continued from previous page*

State	**Date of Decision**	**Date of Effect**	**Form**
Oklahoma	Jul 18th, 2014	Oct 6th, 2014	Court decision
Colorado	Jul 9th, 2014	Oct 7th, 2014	Court decision
West Virginia	Jul 28th, 2014	Oct 9th, 2014	Court decision
North Carolina	Oct 10th, 2014	Oct 10th, 2014	Court decision
Wyoming	Oct 17th, 2014	Oct 21st, 2014	Court decision
South Carolina	Nov 12th, 2014	Nov 20th, 2014	Court decision
Idaho	May 13th, 2014	Oct 15th, 2014	Court decision
Nevada	Oct 7th, 2014	Oct 9th, 2014	Court decision
Alaska	Oct 12th, 2014	Oct 12th, 2014	Court decision
Arizona	Oct 17th, 2014	Oct 17th, 2014	Court decision
Montana	Nov 19th, 2014	Nov 19th, 2014	Court decision
Florida	Aug 21st, 2014	Jan 6th, 2015	Court decision

Table 3: States Group by SSM Legalization Year (Adjusted)

Year	State
2004	Massachusetts
2009	Connecticut*, Iowa, Vermont
2010	New Hampshire, District of Columbia
2011	New York
2013	California, Washington*, Maryland, Maine*, New Mexico, Rhode Island, Delaware, Minnesota
2014	New Jersey*, Hawaii*, Illinois, Oregon, Pennsylvania
2015	Utah*, Virginia*, Indiana*, Wisconsin*, Oklahoma*, Colorado*, West Virginia*, North Carolina*, Wyoming*, South Carolina*, Idaho*, Nevada*, Alaska*, Arizona*, Montana*, Florida
OvH States	Alabama, Arkansas, Georgia, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Tennessee, Texas

In this table, states in the U.S. are grouped based on the different timing of same-sex marriage legalization within the states. Given the data used in annual basis, if a state implemented the legalization later than October in that year, the treatment year will be set as the following year. States in the table marked by * are these approximated states. Note that states that did not legalize the same-sex marriage prior to Obergefell v. Hodges (2015) are listed separately.

Table 4: Descriptive Statistics: Progressive States

Variable	Pre-2013				Post-2013			
	SSC		OSC		SSC		OSC	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Overall Coverage	0.9396	0.1922	0.9320	0.2246	0.9327	0.2074	0.9194	0.2425
ESI	0.7866	0.3534	0.7906	0.3797	0.7461	0.3786	0.7296	0.4102
Private Insurance	0.1000	0.2546	0.0907	0.2600	0.1104	0.2668	0.1039	0.2749
Medicaid	0.0859	0.2368	0.0888	0.2664	0.0949	0.2490	0.1056	0.2848
Unemployment	0.0401	0.1963	0.0412	0.1988	0.0314	0.1743	0.0265	0.1607
Weekly Hours Worked	74.373	24.293	70.551	23.737	73.642	25.308	69.677	24.327
Log Total Wage	10.8977	2.4473	10.7524	2.4344	10.9344	2.5220	10.7818	2.5229
Log Total Social Security	0.3648	1.8149	0.3092	1.6652	0.3922	1.8774	0.2696	1.5625
Log Total SSI	0.2611	1.5179	0.1784	1.2643	0.2501	1.4885	0.1733	1.2467
Family Size	2.8341	1.0595	3.4323	1.2987	2.7777	1.2025	3.4415	1.3943
Log Total Income	11.4698	0.9465	11.3169	0.9921	11.4739	1.1995	11.3441	1.1037
Disability	0.1221	0.3275	0.0984	0.2978	0.1425	0.3495	0.1077	0.3099
Average Age	42.6811	9.3769	43.5937	9.5969	41.9821	9.9867	43.0899	9.8398
Hispanic	0.1165	0.3209	0.0915	0.2883	0.2280	0.4196	0.2082	0.4060
Asian	0.0155	0.1237	0.0113	0.1058	0.0349	0.1835	0.0242	0.1536
Black	0.0768	0.2664	0.0623	0.2416	0.0977	0.2970	0.0678	0.2514
Log Population	16.362	1.1729	16.338	1.1028	16.408	1.1588	16.386	1.1087
Log GDP	13.538	1.1398	13.485	1.1260	13.674	1.1741	13.629	1.1628
Log Disposable Income	10.621	0.1058	10.611	0.0995	10.790	0.1183	10.779	0.1150
Unemployment rate	8.7338	2.1896	8.5256	2.2350	5.2985	1.5425	5.2611	1.5480
Observations	2,317		155,629		16,741		909,035	

This sample is used to estimate the average treatment effect on the treated (ATT) of the 2013 Supreme Court ruling on United States v. Windsor, that invalidate part of the Defense of Marriage Act (DOMA). The decision marked the federal recognition of the same-sex marriage in the united state. Sample here is restricted to progressive states, those who legalized the same-sex marriage in their states prior to the ruling, and observations from before SSM was legal in those states are excluded. Column two to fifth contain the descriptive statistics of the pre-treatment outcomes and characteristics of the treatment and control households. And column sixth to ninth, on the other hand, includes the mean and standard deviation of the post-treatment treatment and control groups.

Table 5: Descriptive Statistics: Dissenting States

Variable	Pre-2015				Post-2015			
	SSC		OSC		SSC		OSC	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Overall Coverage	0.8296	0.3113	0.8517	0.3218	0.9074	0.2417	0.9045	0.2621
ESI	0.6669	0.3976	0.7031	0.4233	0.7163	0.3906	0.7207	0.4116
Private Insurance	0.1122	0.2580	0.1027	0.2746	0.1143	0.2702	0.1115	0.2831
Medicaid	0.0621	0.1936	0.0560	0.2102	0.0847	0.2343	0.0815	0.2504
Unemployment	0.0433	0.2036	0.0403	0.1967	0.0235	0.1515	0.0208	0.1429
Weekly Hours Worked	72.243	25.988	68.911	25.236	73.654	24.863	70.311	24.671
Log Total Wage	10.500	2.5775	10.413	2.6234	10.781	2.4127	10.699	2.5188
Log Total Social Security	0.5051	2.1028	0.3906	1.8624	0.4132	1.9114	0.3323	1.7280
Log Total SSI	0.3099	1.6403	0.1848	1.2780	0.2744	1.5549	0.1921	1.3100
Family Size	2.8784	1.1753	3.3731	1.3275	2.7886	1.1753	3.2657	1.3336
Log Total Income	11.092	1.1607	11.059	1.0645	11.277	1.1767	11.263	1.0888
Disability	0.1708	0.3763	0.1364	0.3432	0.1677	0.3736	0.1279	0.3340
Average Age	41.480	9.8093	42.655	10.103	40.860	10.456	42.668	10.127
Hispanic	0.1593	0.3660	0.1357	0.3424	0.2081	0.4060	0.1627	0.3691
Asian	0.0318	0.1755	0.0262	0.1597	0.0349	0.1837	0.0261	0.1595
Black	0.1035	0.3046	0.0898	0.2859	0.1172	0.3217	0.0834	0.2765
Log Population	16.006	0.7465	15.884	0.7953	16.022	0.7929	15.952	0.8119
Log GDP	12.921	0.7764	12.798	0.8274	13.004	0.8409	12.931	0.8606
Log Disposable Income	10.475	0.0947	10.467	0.0990	10.642	0.0934	10.635	0.0950
Unemployment rate	7.7600	1.9606	7.7037	2.0436	4.2500	0.8573	4.2880	0.8679
Observations	18,521		1,793,944		19,567		1,234,083	

This sample is used to estimate the average treatment effect on the treated (ATT) of the 2015 Supreme Court ruling on Obergefell v. Hodges, that legalize the same-sex marriage across the United States. The decision ensured an equal access of the same-sex marriage in the whole country. Sample here is restricted to dissenting states, those who did legalized the same-sex marriage in their states prior to the ruling (with adjustment). Column two to fifth contain the descriptive statistics of the pre-treatment outcomes and characteristics of the treatment and control households. And column sixth to ninth, on the other hand, includes the mean and standard deviation of the post-treatment treatment and control groups.

Table 6: Effect of United States v. Windsor (2013) on Insurance
Same-sex couples vs. Opposite-sex couples

VARIABLES SSC vs OSC	Overall Coverage (1)	ESI (2)	Private Insurance (3)	Medicaid (4)
DD Estimator	0.0263***	0.0501***	0.0089*	-0.0378***
	(0.0067)	(0.0072)	(0.0051)	(0.0090)
Year Fixed Effect	✓	✓	✓	✓
State Fixed Effect	✓	✓	✓	✓
Baseline	0.9396	0.7866	0.1000	0.0859
N	920,474	920,474	920,474	920,474

Dependent variables: probability couple insured, probability couple has employer-sponsored insurance, probability couple has privately-purchased insurance (excluding purchases through a government program), and probability couple has Medicaid or other government-sponsored health insurance. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 7: Effect of United States v. Windsor (2013) on Labor Market
Same-sex couples vs. Opposite-sex couples

VARIABLES SSC vs OSC	Unemployment (1)	Weekly Hours Worked (2)	Log Total Wage (3)
DD Estimator	0.0073	4.0760***	0.0565
	(0.0060)	(0.8710)	(0.0605)
Year Fixed Effect	✓	✓	✓
State Fixed Effect	✓	✓	✓
Baseline	0.0401	74.373	10.898
N	920,474	920,474	920,474

Dependent variables: probability couple unemployed, combined weekly working hours, and log of combine wage and salary income. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 8: Effect of United States v. Windsor (2013) on Social Security
Same-sex couples vs. Opposite-sex couples

VARIABLES SSC vs OSC	Log Total Social Security (1)	Log Total SSI (2)
DD Estimator	0.1340***	-0.0546
	(0.0290)	(0.0893)
Year Fixed Effect	✓	✓
State Fixed Effect	✓	✓
Baseline	0.3648	0.2611
N	920,474	920,474

Dependent variables: log of combine social security benefits, and log of combined Supplemental Security Income benefits. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 9: Effect of United States v. Windsor (2013) on Insurance
Same-sex couples in dissenting states vs. in progressive states

VARIABLES Progressive vs Dissenting	Overall Coverage (1)	ESI (2)	Private Insurance (3)	Medicaid (4)
DD Estimator	0.0802***	0.0475***	0.0042	0.0333***
	(0.0119)	(0.0126)	(0.0078)	(0.0105)
Year Fixed Effect	✓	✓	✓	✓
State Fixed Effect	✓	✓	✓	✓
Baseline	0.8226	0.6679	0.1094	0.0589
N	28,312	28,312	28,312	28,312

Dependent variables: probability couple insured, probability couple has employer-sponsored insurance, probability couple has privately-purchased insurance (excluding purchases through a government program), and probability couple has Medicaid or other government-sponsored health insurance. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 10: Effect of United States v. Windsor (2013) on Labor Market
Same-sex couples in dissenting states vs. in progressive states

VARIABLES Progressive vs Dissenting	Unemployment (1)	Weekly Hours Worked (2)	Log Total Wage (3)
DD Estimator	-0.0152**	-1.934**	0.0510
	(0.0073)	(0.7420)	(0.0697)
Year Fixed Effect	✓	✓	✓
State Fixed Effect	✓	✓	✓
Baseline	0.0474	72.532	10.472
N	28,312	28,312	28,312

Dependent variables: probability couple unemployed, combined weekly working hours, and log of combine wage and salary income. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 11: Effect of United States v. Windsor (2013) on Social Security
Same-sex couples in dissenting states vs. in progressive states

VARIABLES Progressive vs Dissenting	Log Total Social Security (1)	Log Total SSI (2)
DD Estimator	-0.1520***	-0.0838
	(0.0522)	(0.0878)
Year Fixed Effect	✓	✓
State Fixed Effect	✓	✓
Baseline	0.5099	0.3057
N	28,312	28,312

Dependent variables: log of combine social security benefits, and log of combined Supplemental Security Income benefits. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 12: Effect of Obergefell v. Hodges (2015) on Insurance
Same-sex couples vs. Opposite-sex couples

VARIABLES SSC vs OSC	Overall Coverage (1)	ESI (2)	Private Insurance (3)	Medicaid (4)
DD Estimator	0.0528***	0.0616***	0.0017	-0.0199***
	(0.0056)	(0.0058)	(0.0049)	(0.0027)
Year Fixed Effect	✓	✓	✓	✓
State Fixed Effect	✓	✓	✓	✓
Baseline	0.8296	0.6669	0.1122	0.0621
N	2,692,598	2,692,598	2,692,598	2,692,598

Dependent variables: probability couple insured, probability couple has employer-sponsored insurance, probability couple has privately-purchased insurance (excluding purchases through a government program), and probability couple has Medicaid or other government-sponsored health insurance. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 13: Effect of Obergefell v. Hodges (2015) on Labor Market
Same-sex couples vs. Opposite-sex couples

VARIABLES SSC vs OSC	Unemployment (1)	Weekly Hours Worked (2)	Log Total Wage (3)
DD Estimator	-0.0062*	2.1390***	0.0602*
	(0.0035)	(0.2740)	(0.0315)
Year Fixed Effect	✓	✓	✓
State Fixed Effect	✓	✓	✓
Baseline	0.0433	72.243	10.501
N	2,692,598	2,692,598	2,692,598

Dependent variables: probability couple unemployed, combined weekly working hours, and log of combine wage and salary income. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 14: Effect of Obergefell v. Hodges (2015) on Social Security
Same-sex couples vs. Opposite-sex couples

VARIABLES SSC vs OSC	Log Total Social Security (1)	Log Total SSI (2)
DD Estimator	-0.0034	-0.0737***
	(0.0262)	(0.0266)
Year Fixed Effect	✓	✓
State Fixed Effect	✓	✓
Baseline	0.5051	0.3099
N	2,692,598	2,692,598

Dependent variables: log of combine social security benefits, and log of combined Supplemental Security Income benefits. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 15: Effect of Obergefell v. Hodges (2015) on Insurance
Same-sex couples in dissenting states vs. in progressive states

VARIABLES Progressive vs Dissenting	Overall Coverage (1)	ESI (2)	Private Insurance (3)	Medicaid (4)
DD Estimator	0.0534***	0.0477***	0.0006	0.0138*
	(0.0118)	(0.0094)	(0.0070)	(0.0073)
Year Fixed Effect	✓	✓	✓	✓
State Fixed Effect	✓	✓	✓	✓
Baseline	0.8296	0.6669	0.1122	0.0621
N	28,312	28,312	28,312	28,312

Dependent variables: probability couple insured, probability couple has employer-sponsored insurance, probability couple has privately-purchased insurance (excluding purchases through a government program), and probability couple has Medicaid or other government-sponsored health insurance. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 16: Effect of Obergefell v. Hodges (2015) on Labor Market
Same-sex couples in dissenting states vs. in progressive states

VARIABLES Progressive vs Dissenting	Unemployment (1)	Weekly Hours Worked (2)	Log Total Wage (3)
DD Estimator	-0.0097	0.0124	0.0877
	(0.0060)	(0.5300)	(0.0593)
Year Fixed Effect	✓	✓	✓
State Fixed Effect	✓	✓	✓
Baseline	0.0433	72.243	10.501
N	28,312	28,312	28,312

Dependent variables: probability couple unemployed, combined weekly working hours, and log of combine wage and salary income. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 17: Effect of Obergefell v. Hodges (2015) on Social Security
Same-sex couples in dissenting states vs. in progressive states

VARIABLES Progressive vs Dissenting	Log Total Social Security (1)	Log Total SSI (2)
DD Estimator	-0.1070**	-0.0537
	(0.0516)	(0.0586)
Year Fixed Effect	✓	✓
State Fixed Effect	✓	✓
Baseline	0.5051	0.3099
N	28,312	28,312

Dependent variables: log of combine social security benefits, and log of combined Supplemental Security Income benefits. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 18: Effect of United States v. Windsor (2013) on Insurance
SSCs in ACA Non-expansion Dissenting States vs. Legal Progressive States

VARIABLES Progressive vs Dissenting	Overall Coverage (1)	ESI (2)	Private Insurance (3)	Medicaid (4)
DD Estimator	0.0877***	0.0512***	0.0092	0.0342***
	(0.0136)	(0.0125)	(0.0092)	(0.0109)
Year Fixed Effect	✓	✓	✓	✓
State Fixed Effect	✓	✓	✓	✓
Baseline	0.8159	0.6618	0.1141	0.0507
N	21,924	21,924	21,924	21,924

Dependent variables: probability couple insured, probability couple has employer-sponsored insurance, probability couple has privately-purchased insurance (excluding purchases through a government program), and probability couple has Medicaid or other government-sponsored health insurance. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 19: Effect of United States v. Windsor (2013) on Insurance
Same-sex couples in dissenting states vs. in progressive states (Above 400% FPL)

VARIABLES Progressive vs Dissenting	Overall Coverage (1)	ESI (2)	Private Insurance (3)	Medicaid (4)
DD Estimator	0.0227***	0.0278*	-0.0087	0.0044
	(0.0073)	(0.0157)	(0.0110)	(0.0066)
Year Fixed Effect	✓	✓	✓	✓
State Fixed Effect	✓	✓	✓	✓
Baseline	0.9367	0.7795	0.1119	0.0592
N	16,690	16,690	16,690	16,690

Dependent variables: probability couple insured, probability couple has employer-sponsored insurance, probability couple has privately-purchased insurance (excluding purchases through a government program), and probability couple has Medicaid or other government-sponsored health insurance. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). Sample is restricted to same-sex households in dissenting states or post-legalization progressive states with annual income above 400% of FPL. All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

Table 20: Effect of United States v. Windsor (2013) on Labor Market
Same-sex couples in dissenting states vs. in progressive states (Above 400% FPL)

VARIABLES Progressive vs Dissenting	Unemployment (1)	Weekly Hours Worked (2)	Log Total Wage (3)
DD Estimator	-0.0078	-2.2632**	0.0307
	(0.0099)	(0.8563)	(0.0840)
Year Fixed Effect	✓	✓	✓
State Fixed Effect	✓	✓	✓
Baseline	0.0213	77.240	11.193
N	16,690	16,690	16,690

Dependent variables: probability couple unemployed, combined weekly working hours, and log of combine wage and salary income. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). Sample is restricted to same-sex households in dissenting states or post-legalization progressive states with annual income above 400% of FPL. All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

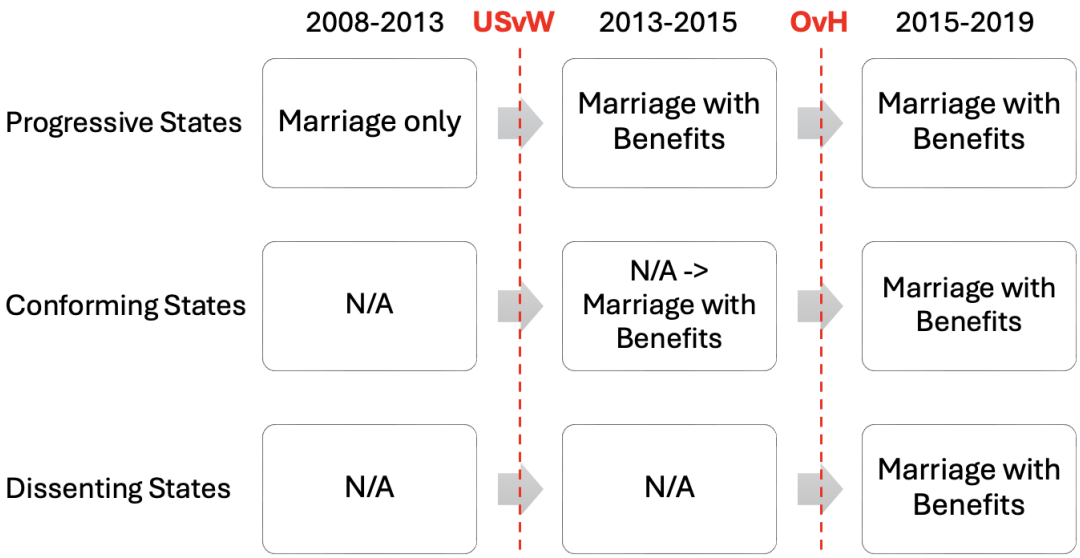
Table 21: Effect of United States v. Windsor (2013) on Social Security
Same-sex couples in dissenting states vs. in progressive states (Above 400% FPL)

VARIABLES Progressive vs Dissenting	Log Total Social Security (1)	Log Total SSI (2)
DD Estimator	-0.1020**	0.0006
	(0.0441)	(0.0584)
Year Fixed Effect	✓	✓
State Fixed Effect	✓	✓
Baseline	0.3258	0.1967
N	16,690	16,690

Dependent variables: log of combine social security benefits, and log of combined Supplemental Security Income benefits. Standard errors in parenthesis clustered at the state level (51 clusters: 50 states plus the District of Colombia). Sample is restricted to same-sex households in dissenting states or post-legalization progressive states with annual income above 400% of FPL. All specifications include year and state fixed effect, individual and state-level controls. Individual controls: family size, family income, average age of the couple, race, ethnicity, and disabilities. State-level controls: population, GDP, disposable income per capita, and unemployment rate. *p<0.10, **p<0.05, ***p<0.01.

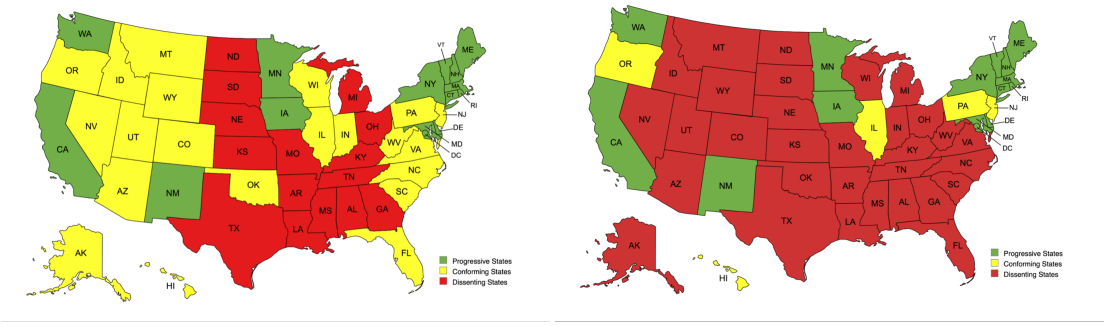
9 Figures

Figure 1: Timeline of Same-sex Marriage Legalization



This figure shows the heterogeneous treatments from two Supreme Court rulings on same-sex marriage by type of state a same-sex couple lives in. SSCs in progressive state have access to marriage before both rulings, therefore USvW in 2013 only granted their existing marriage federal recognition and benefits. SSCs in conforming states gained federally-recognized marriage between two rulings, whereas those in dissenting states got it on 2015 in compliance with OvH.

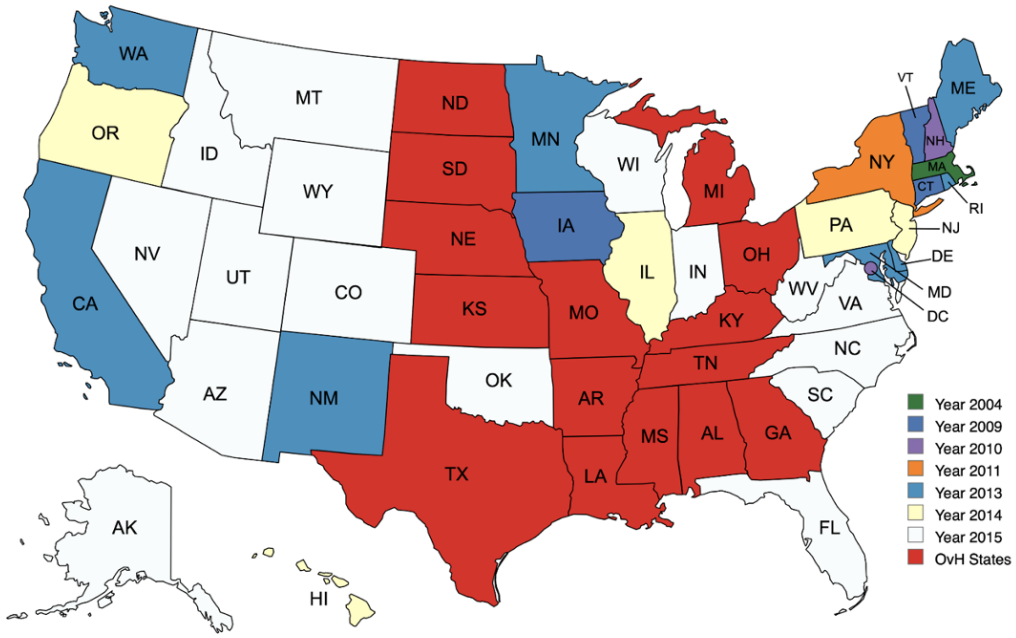
Figure 2: Classification of States



(a) Original Classification (b) Adjusted Classification

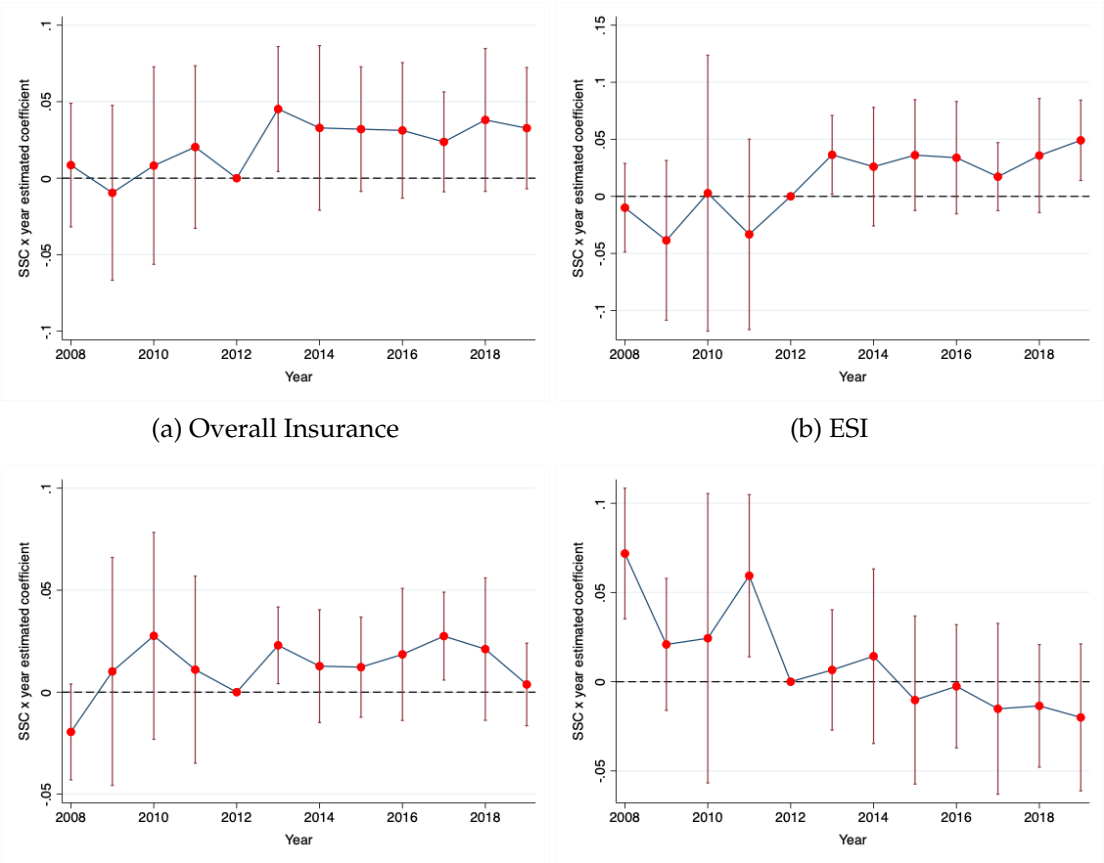
Panel (a) marks the states with their type based on the effective year of same-sex marriage. In panel (b), some conforming states are adjusted into dissenting states, if within-state legalization happened in 2015 but before OvH ruling, or later than October of 2014.

Figure 3: States by SSM Legalization Year



This map shows the variation in same-sex marriage legalization year. Note that states legalized SSM by OvH ruling are listed separately.

Figure 4: Trends in Insurance Coverage for United States v. Windsor (2013)
Same-sex couples vs. Opposite-sex couples

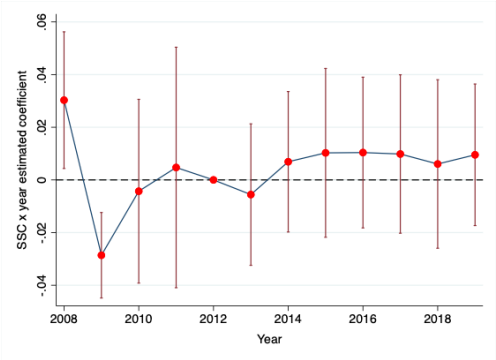


(a) Overall Insurance (b) ESI

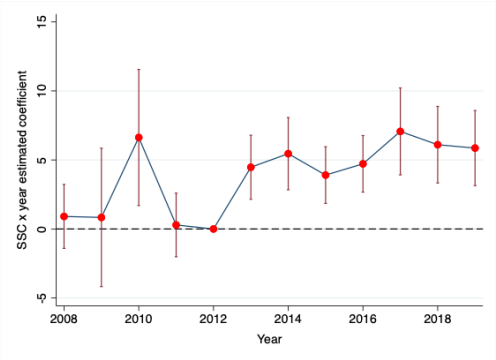
(c) Private Coverage (d) Medicaid

Effect of USvW ruling (federal recognition) on SSCs' insurance take-up relative to OSCs. Sample is restricted to households in progressive states and excludes pre-legalization observations.

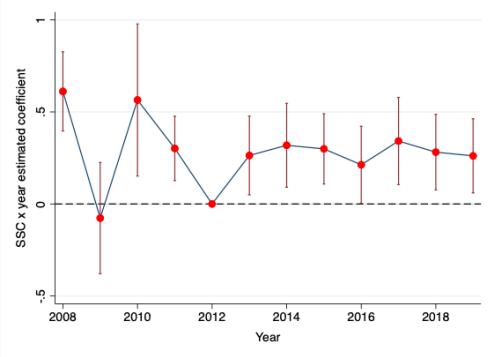
Figure 5: Trends in Labor Market Outcomes for United States v. Windsor (2013)
Same-sex couples vs. Opposite-sex couples



(a) Unemployment



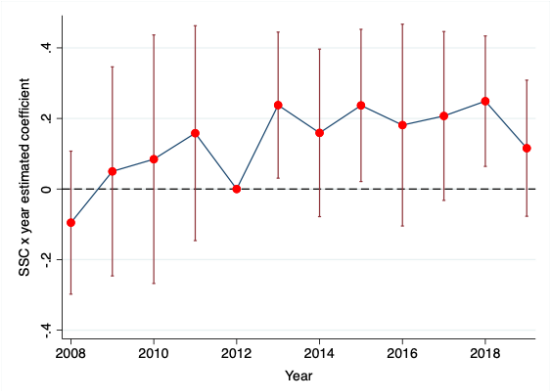
(b) Hours



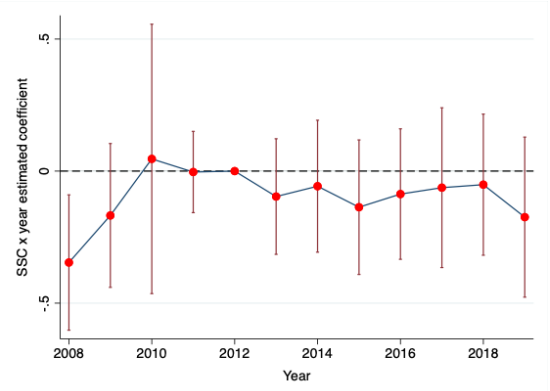
(c) Wage

Effect of USvW ruling (federal recognition) on SSCs' labor market outcomes relative to OSCs. Sample is restricted to households in progressive states and excludes pre-legalization observations.

Figure 6: Trends in Social Security for United States v. Windsor (2013)
Same-sex couples vs. Opposite-sex couples



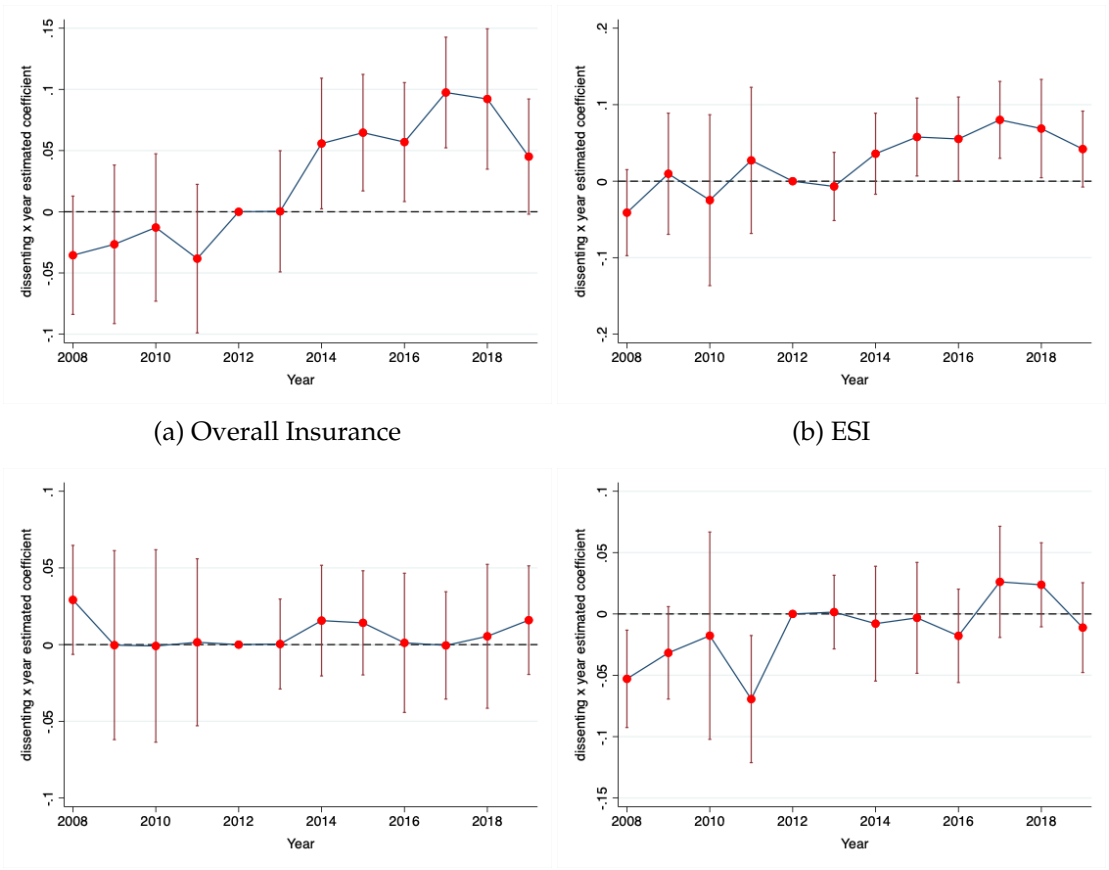
(a) Social Security Benefits



(b) SSI Income

Effect of USvW ruling (federal recognition) on SSCs' social security receipt relative to OSCs. Sample is restricted to households in progressive states and excludes pre-legalization observations.

Figure 7: Trends in Insurance Coverage for United States v. Windsor (2013)
Same-sex couples in dissenting states vs. in progressive states



(a) Overall Insurance

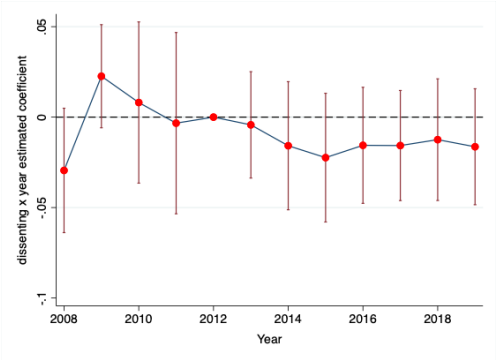
(b) ESI

(c) Private Coverage

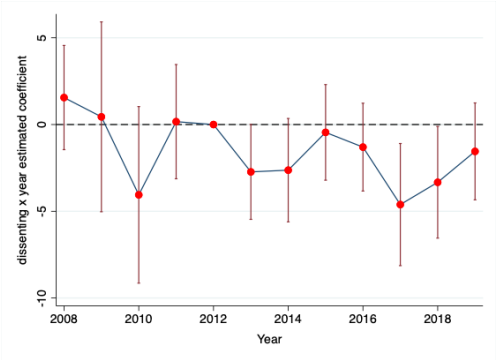
(d) Medicaid

Effect of USvW ruling (federal recognition) on dissenting state SSCs' insurance take-up relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states.

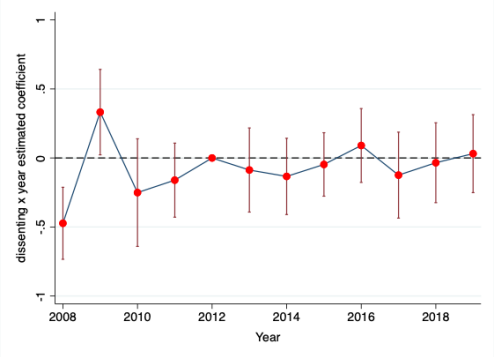
Figure 8: Trends in Labor Market Outcomes for United States v. Windsor (2013)
Same-sex couples in dissenting states vs. in progressive states



(a) Unemployment



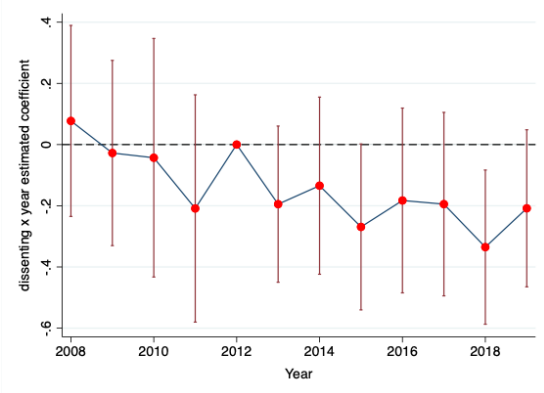
(b) Hours



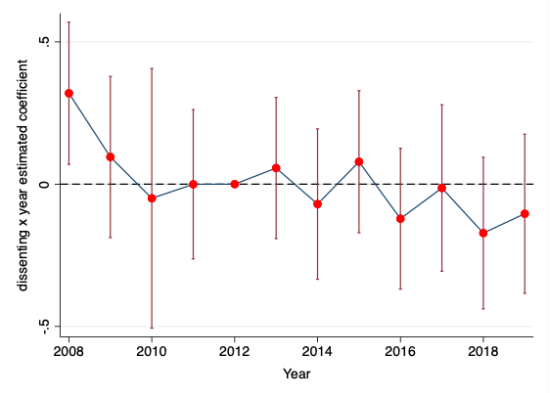
(c) Wage

Effect of USvW ruling (federal recognition) on dissenting state SSCs' labor market outcomes relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states.

Figure 9: Trends in Social Security for United States v. Windsor (2013)
Same-sex couples in dissenting states vs. in progressive states



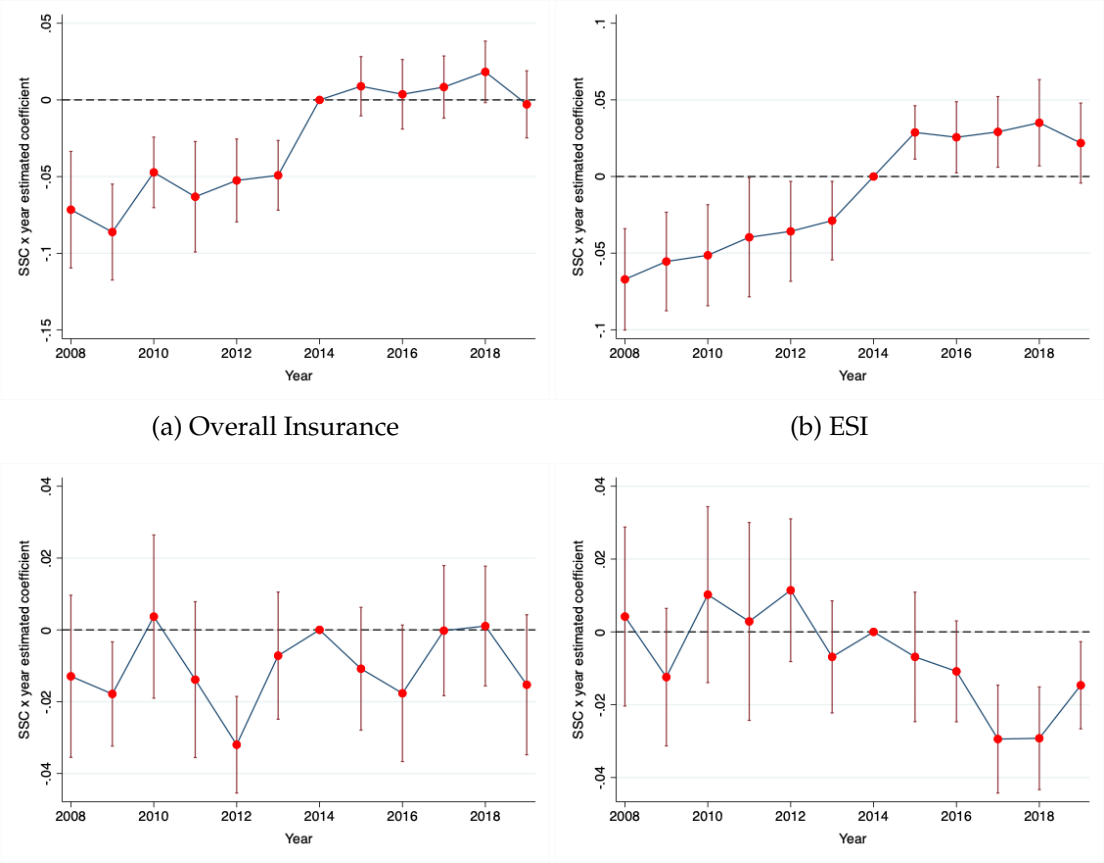
(a) Social Security Benefits



(b) SSI Income

Effect of USvW ruling (federal recognition) on dissenting state SSCs' social security receipt relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states.

Figure 10: Trends in Insurance Coverage for Obergefell v. Hodges (2015)
Same-sex couples vs. Opposite-sex couples



(a) Overall Insurance

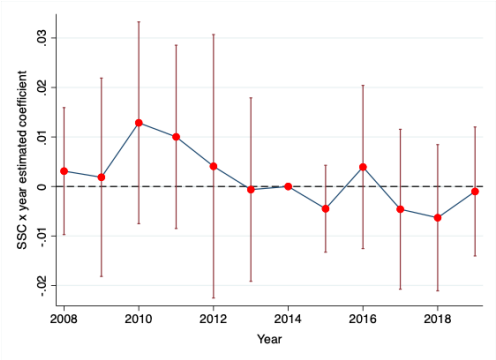
(b) ESI

(c) Private Coverage

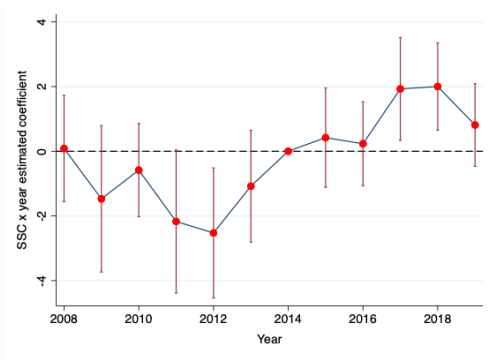
(d) Medicaid

Effect of OvH ruling (marriage equality) on SSCs' insurance take-up relative to OSCs. Sample is restricted to households in dissenting states.

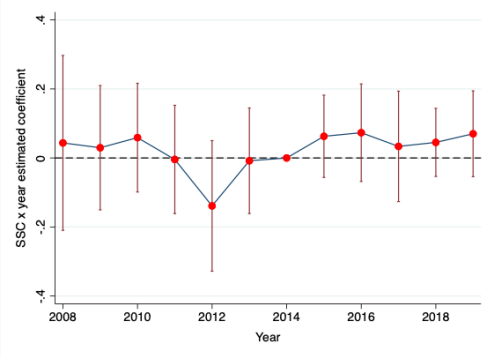
Figure 11: Trends in Labor Market Outcomes for Obergefell v. Hodges (2015)
Same-sex couples vs. Opposite-sex couples



(a) Unemployment



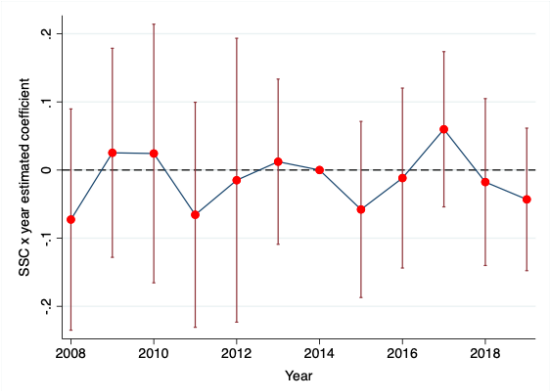
(b) Hours



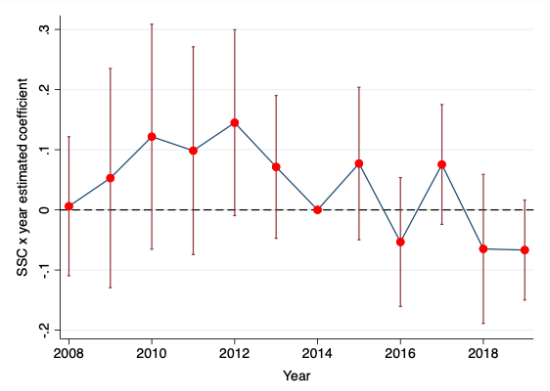
(c) Wage

Effect of OvH ruling (marriage equality) on SSCs' labor market outcomes relative to OSCs. Sample is restricted to households in dissenting states.

Figure 12: Trends in Social Security for Obergefell v. Hodges (2015)
Same-sex couples vs. Opposite-sex couples



(a) Social Security Benefits



(b) SSI Income

Effect of OvH ruling (marriage equality) on SSCs' social security receipt relative to OSCs. Sample is restricted to households in dissenting states.

Figure 13: Trends in Insurance Coverage for Obergefell v. Hodges (2015)
Same-sex couples in dissenting states vs. in progressive states

(a) Overall Insurance

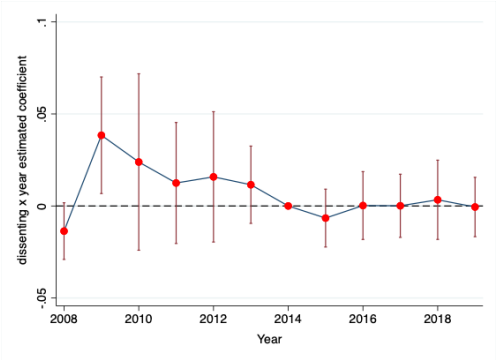
(b) ESI

(c) Private Coverage

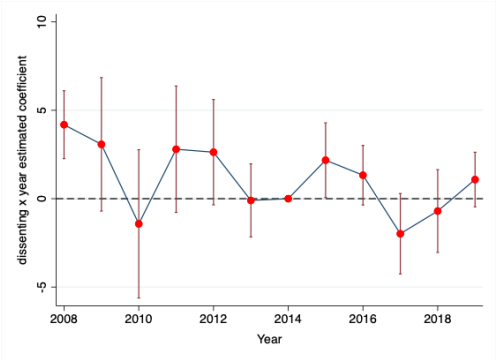
(d) Medicaid

Effect of OvH ruling (marriage equality) on dissenting state SSCs' insurance take-up relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states.

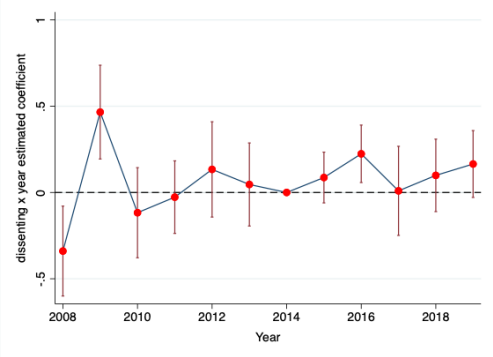
Figure 14: Trends in Labor Market Outcomes for Obergefell v. Hodges (2015)
Same-sex couples in dissenting states vs. in progressive states



(a) Unemployment



(b) Hours

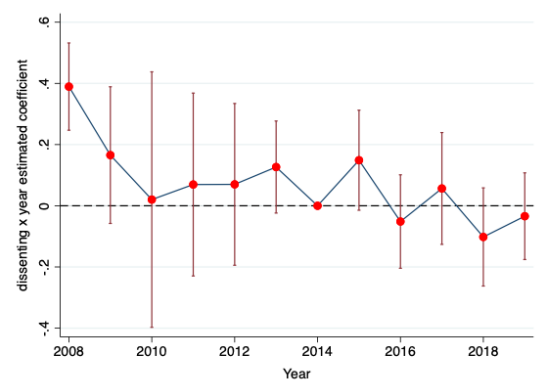


(c) Wage

Effect of OvH ruling (marriage equality) on dissenting state SSCs' labor market outcomes relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states.

Figure 15: Trends in Social Security for Obergefell v. Hodges (2015)
Same-sex couples in dissenting states vs. in progressive states

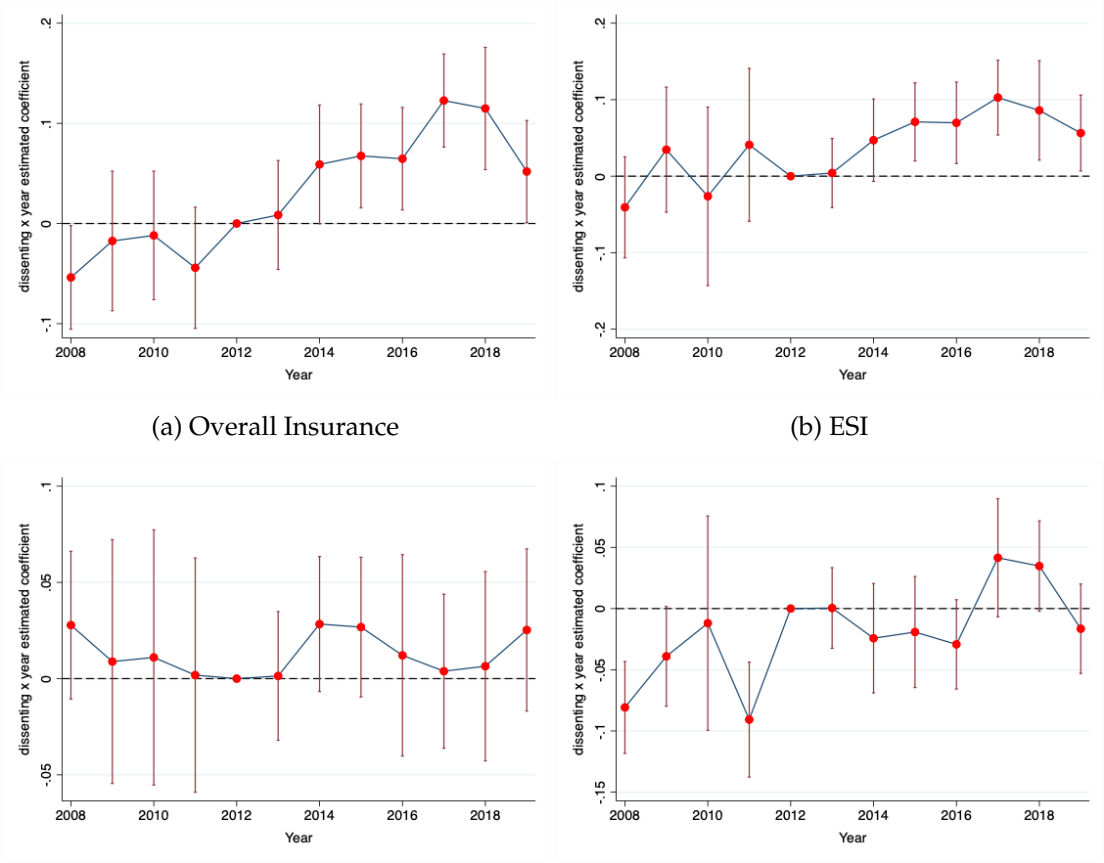
(a) Social Security Benefits



(b) SSI Income

Effect of OvH ruling (marriage equality) on dissenting state SSCs' social security receipt relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states.

Figure 16: Trends in Insurance Coverage for United States v. Windsor (2013)
Same-sex couples in dissenting states vs. in progressive states (ACA not-yet-expanded)



(a) Overall Insurance

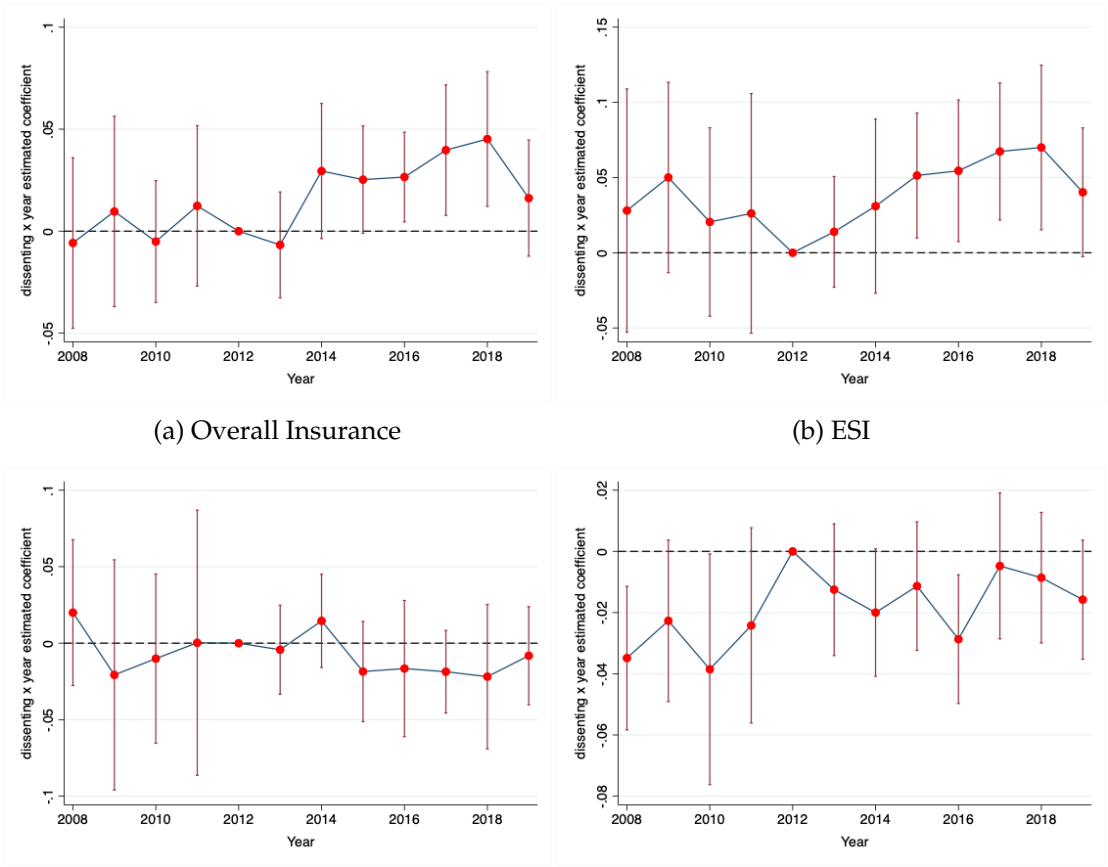
(b) ESI

(c) Private Coverage

(d) Medicaid

Effect of USvW ruling (federal recognition) on dissenting state SSCs' insurance take-up relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states that had not yet expand Medicaid eligibility.

Figure 17: Trends in Insurance Coverage for United States v. Windsor (2013)
Same-sex couples in dissenting states vs. in progressive states (Above 400% FPL)



(a) Overall Insurance

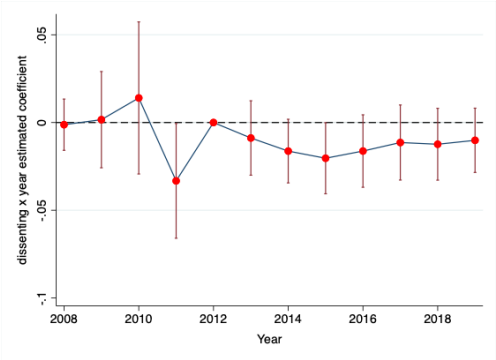
(b) ESI

(c) Private Coverage

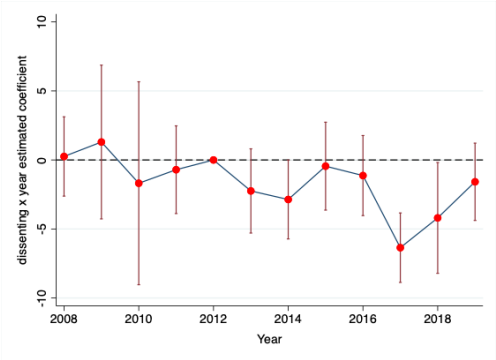
(d) Medicaid

Effect of USvW ruling (federal recognition) on dissenting state SSCs' insurance take-up relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states with annual income above 400% of FPL.

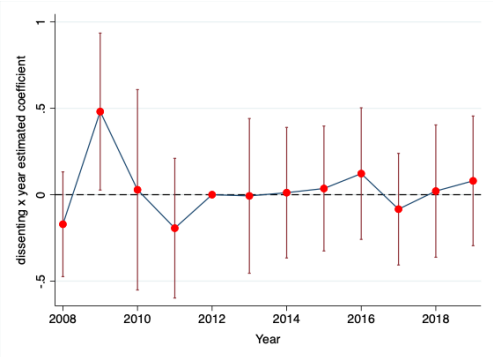
Figure 18: Trends in Labor Market Outcomes for United States v. Windsor (2013)
Same-sex couples in dissenting states vs. in progressive states (Above 400% FPL)



(a) Unemployment



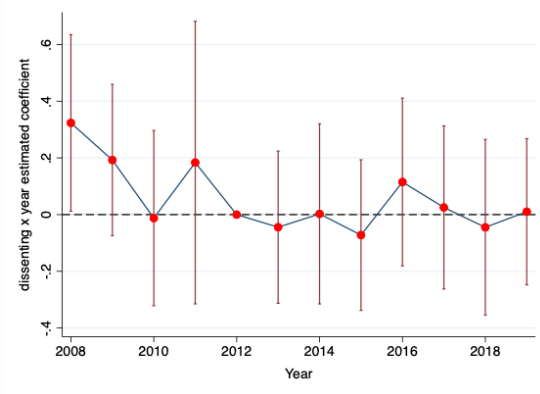
(b) Hours



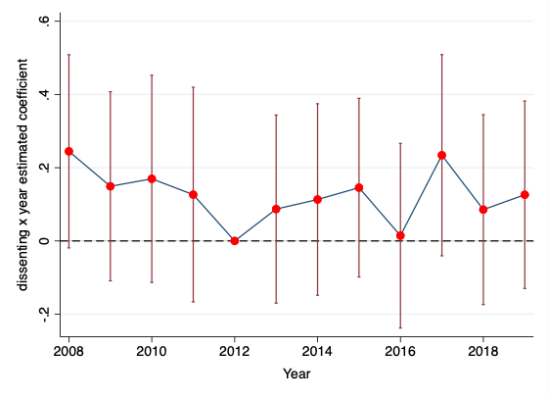
(c) Wage

Effect of USvW ruling (federal recognition) on dissenting state SSCs' labor market outcomes relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states with annual income above 400% of FPL.

Figure 19: Trends in Social Security for United States v. Windsor (2013)
Same-sex couples in dissenting states vs. in progressive states (Above 400% FPL)



(a) Social Security Benefits



(b) SSI Income

Effect of USvW ruling (federal recognition) on dissenting state SSCs' social security receipt relative to SSCs in progressive states. Sample is restricted to same-sex households in dissenting states or post-legalization progressive states with annual income above 400% of FPL.