Policy Effects on Mixed-Citizenship, Same-Sex Unions:

A Triple-Difference Analysis

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Abstract

After the U.S. Supreme Court struck down the Defense of Marriage Act (DOMA) in 2013, same-sex partners of U.S. citizens became eligible for spousal visas. Since then, the U.S. has a seen a rapid rise in same-sex, mixed-citizenship couples. However, this effect varies greatly depending on the LGB policy context of the non-citizen's country of origin. Using waves 2008 to 2019 of the American Community Survey, this study employs a triple-difference design to examine how the policy environment of the origin country moderates the effect of the end of DOMA. Quasi-Poisson models with two-way fixed effects show that, after 2013, individuals in mixed-citizenship same-sex couples coming from countries with progressive LGB policy saw a more than 60-percent increase in incidence relative to those in different-sex or same-citizenship couples. Meanwhile, those from countries with regressive laws experienced no significant increase. These results are corroborated by analyses of individual policies. We argue that the policy context of country of origin leaves a lasting cultural impact on immigrants that shapes their response to policy shifts in their country of residence, even many years after migration.

1   Introduction

Unions, "a term encompassing marriage and nonmarital cohabitation" (Bloome & Ang, 2020, p. 1754), are of central concern to many sociologists and demographers. This is because unions provide meaningful life experiences for those who enter them, but also because they are demonstrated to influence a range of important quality-of-life indicators. Moreover, studying how union formations change across populations can reveal other social processes of particular concern to a variety of sociologists: changing migration flows, gendered workforce participation, (de)institutionalization of cultural norms, and shifts in state governance and public policy – to name a few.

While research on unions in the United States historically privileges those in different-sex relationships, this line of research has recently expanded to include those in same-sex unions (Baumle et al., 2009; Kolk & Andersson, 2020; Rosenfeld & Kim, 2005; Umberson et al., 2015). New cultural and legal recognition of these alternative family formations helps drive research into this new domain. Now, studies seek to understand how previous demographic and sociological theories are strengthened or must be re-imagined when considering these additional arrangements (Manning et al., 2016; Martell & Nash, 2020; Reczek et al., 2017). We contribute to this rich scholarly domain by considering an additional union type: those containing individuals of the same sex but mixed citizenship statuses (where one partner is a citizen and the other is a non-citizen).

While mixed-citizenship couples generally face barriers to union formation (López, 2021), numbers of mixed-citizenship, same-sex unions in the U.S. have been on a dramatic rise in recent years. This is likely due to an important policy change: In 2013, the U.S. Supreme Court ruled the Defense of Marriage Act (DOMA) unconstitutional. For the first time, U.S. citizens could sponsor the visa of their same-sex fiancé or spouse (Carron, 2015; Edwards, 2013). In the years since, the U.S. population of immigrant-containing same-sex couples has grown rapidly (Hoffmann & Velasco, 2021; Redpath, 2022). Data on cohabiting partners and spouses from the American Community Survey (ACS, Ruggles et al., 2021) show that numbers of different-sex, mixed-citizenship couples grew by 8 percent from 2013 to 2019 (from 3.8 million to 4.1 million), while corresponding

same-sex couples increased by 197 percent (from 28 thousand to 82 thousand) in the same period. Despite this rapid increase, research on this population has been limited; existing work has largely focused on such unions only outside of the U.S. (Badgett, 2011; Chauvin et al., 2021; Salcedo Robledo, 2013).

The growth of this new union type calls for additional research to again understand how this population confirms or complicates existing theory. While the DOMA decision opened this union pathway to all, uptake is unlikely to be homogeneous and may reinforce existing inequalities. Namely, we bring in theories from cultural sociology to argue that, like all relationship forms, same-sex unions are a cultural object specific to time and place (Kalmijn, 2007; Perelli-Harris & Bernardi, 2015; Treas et al., 2014; Wang & Schofer, 2018). By defining what is possible, state policies that exist at an immigrant's country of origin shape the cultural products to which they aspire. For example, legally entering into a same-sex union was neither thinkable nor desirable for many until quite recently; progressive LGB policies institutionalize this new cultural form and then expand support and participation in a recursive process (Abou-Chadi & Finnigan, 2019; Baiocco et al., 2014). On the other hand, regressive LGB policies can limit the horizon of union possibilities, instill fear of punishment for disclosing one's same-sex union, and negatively influence whether U.S. immigration officials view same-sex relationships from these countries as credible (Carron, 2015). Hence, we argue that the repeal of DOMA will likely function as a pathway to spousal visas only when an immigrant's country of origin's institutional context is affirming of LGB communities.

To test our theory, we apply cutting-edge methods of causal inference. Using waves 2008 to 2019 of the ACS, we employ a triple-difference, quasi-Poisson model with two-way fixed effects to estimate the effect of the post-2013 legal context in the U.S. on numbers of mixed-citizenship same-sex couples reported in the ACS. By controlling for incidence of mixed-citizenship and same-citizenship couples that we would not expect to be impacted by this policy, this design allows us to isolate the effect of DOMA's repeal specifically on unions of interest (Redpath, 2022). To assess the role of LGB policy at the country of origin, we rely on an original dataset indexing LGB policy
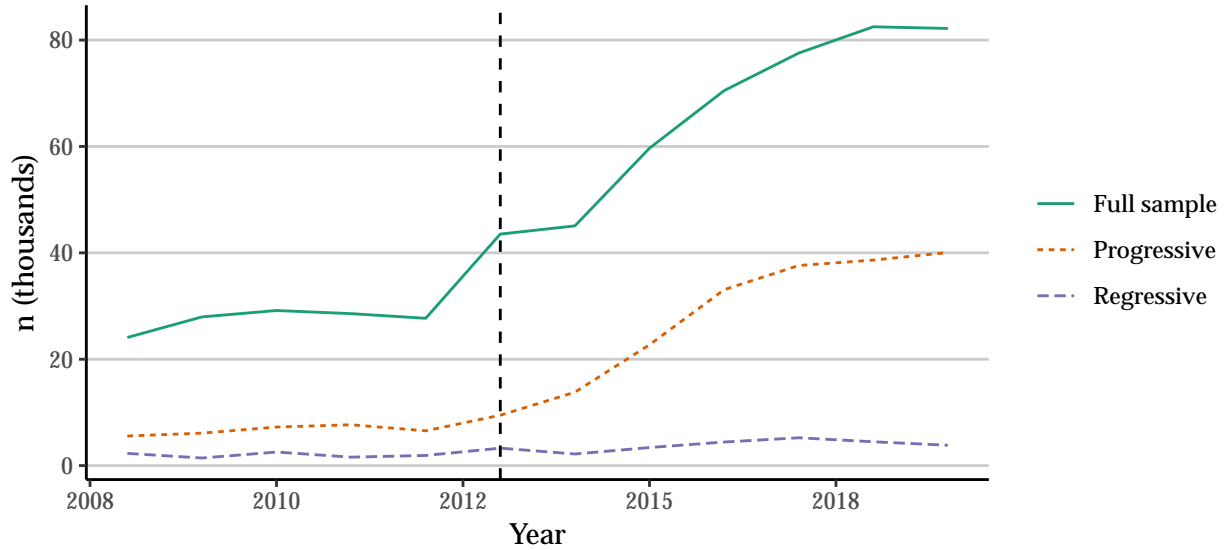
Figure 1: Estimated counts of individuals in mixed-citizenship, same-same couples from the American Community Survey. The "Regressive" sample includes only countries with a LGB policy score less than 0, and the "Progressive" sample includes only those with a score greater than 3. The sample is limited to individuals aged 18 to 64 in the 50 U.S. states. Immigrants in the sample are limited to those from countries present in the LGBT Policy Index, and who immigrated to the U.S. after 1990 and after the age of 17.

changes in 123 countries from 1991 to 2019 (Velasco, 2018). We stratify the sample by the LGB policy context at the country of origin to examine how the policy environment of the origin country moderates the effect of the end of DOMA.

Our findings reveal that, after 2013, individuals in mixed-citizenship same-sex couples hailing from countries with progressive LGB policies saw a more than 50-percent increase in incidence relative to those in different-sex or same-citizenship couples. Meanwhile, those from countries with regressive laws experienced no significant increase. Affirming, family-oriented policies, in particular, seem to be the most influential.

Our work adds to and connects the burgeoning literature on the importance of culture in shaping both migration (Benson & O'Reilly, 2009; Dixon, 2020; Thompson, 2017) and union decisions (Msibi, 2013; Wang & Schofer, 2018). Mixed-citizenship unions constitute a test case for examining the relationship between culture and union formation: Do the norms and values learned in the country of origin continue to exert influence in the destination country? We show how local norms and values – as embodied in LGB legislation – exhibit close ties with family formation de-

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cisions, even years after immigrants leave their countries of origin. In addition, our work shows another way that stratification by state categories can result in unequal allocation of benefits that enable migration. These results highlight a case where institutional forms may interact across their domains of influence.

2   Background

2.1   The Overturning of Defense of Marriage Act and Expansion of Mixed-Citizenship, Same-Sex Unions

The United States Supreme Court overturned the Defense of Marriage Act (DOMA) in *United States v. Windsor* in 2013. Enacted in 1996, DOMA prevented the recognition of same-sex marriages by instilling a heterosexual definition of marriage and spouse across the federal government. Even after same-sex marriages were legalized at the state level, this recognition did not open access to federal marriage benefits. So same-sex couples could only file federal tax returns jointly, secure Social Security benefits, and participate in numerous other federal programs like the Supplemental Nutrition Assistance Program after the 2013 *Windsor* decision.

The DOMA ruling also had another important consequence of unlocking spousal visas for same-sex couples (Edwards, 2013). The federal government has long provided a pathway for U.S. citizens to secure permanent residency, and eventual citizenship, for their migrant spouses and fiancés. Indeed, family reunification is privileged within U.S. migration law and such cases represent the vast majority of U.S. immigrant visas issued.[1] However, DOMA categorically denied access to these visas because the federal government did not recognize same-sex unions as legitimate or valid. Additionally, DOMA had a downstream effect where even if a U.S. state were to legalize same-sex marriage, mixed-citizenship couples were unlikely to take advantage of these state-level benefits. This is because a condition of non-permanent residents' visas is to not show intent on

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[1]For example, in 2019, The U.S. issued 186,584 visas for immediate relatives of U.S. citizens and 190,938 for other family members, out of a total of 462,422 immigrant visas issued (U.S. Department of State, 2022).

staying in the U.S. permanently – something marriage to a U.S. citizen could potentially violate. The *Windsor* decision allowed mixed-citizenship couples access to spousal visas and, where legal, for such couples to get married and switch visa types. Following the 2013 end of DOMA, Redpath (2022) finds a 36 percent relative increase in partnering of mixed-citizenship same-sex couples and a 78 percent increase in these types of marriages.

The dramatic rise in mixed-citizenship, same-sex unions found by Redpath can be the result of two distinct mechanisms: increased entry into such unions of individuals already residing in the U.S., or new immigration of one or both members of the couple into the U.S. as a result of the policy shift. Regardless of pathway, rising trends invite us to ask new questions such as: What are the characteristics of immigrants selecting into these relationships? How does one's country of origin condition entering into such a union?

Indeed, as shown in Figure 1, the rapid increase after 2013 was not uniform across immigrants from all countries. For those hailing from countries with progressive LGB policies, the increase was indeed rapid after 2013. However, from those with regressive LGB policies, no increase occurred. Why do we see so much variation by policy context at the country of origin?

2.2   Intersections of Culture, Law, and Sexuality in Understanding Union Formation

Family formation, especially processes related to unions, remains a central concern of many sociologists and demographers. There are a number of reasons for this attention: Unions are subjectively important to many individuals' everyday lives, they are an important mechanism that influence a range of outcomes (e.g., health and well-being, economic mobility, social integration), and their formation and structure reveal ongoing social transformations in society (e.g., gendered labor force participation, (de)institutionalization of cultural norms, changing migration patterns). We weave together different threads of union formation scholarship to provide a general theoretical framework for understanding the significance of our research question. As explained below, we specifically examine the interactions between culture and policy to understand the less-studied union-type of

mixed-citizenship, same-sex couples and the divergent trends in Figure 1.

Marriage and cohabitation are inextricably woven into cultural processes operating at multiple scales. For example, the notion that one enters into and out of unions based on their own individual volition is a distinct cultural product formed as part of expanding liberalism and consumer logics (Perelli-Harris & Bernardi, 2015; Sassler & Lichter, 2020; Wang & Schofer, 2018). These global processes have weakened family-arranged marriages and created the space for individual preferences to hold greater significance in union formation (Desai & Andrist, 2010; Yu & Xie, 2015). Yet, "individual preferences" regarding partner selection are influenced by the cultural environment in which people are embedded (Hiekel et al., 2014; Lappegård et al., 2018). Even at the most intimate of scales, the "when, where, how, why, and with whom" of sexual behaviors themselves are culturally determined (Ahmadi, 2003).

Public policy is an important lever that both reflects and alters cultural understandings of unions and stratifies access to their benefits based precisely on such cultural understandings. Often, these laws both reflect cultural understandings yet can also be an important trigger to shape subsequent possibilities (Hiller & Recoules, 2013). For example, interracial marriages, same-sex marriages, "no fault" divorce, and the rise in nonmarital cohabitation in the U.S. reflect evolving cultural values that connect to changes within these arrangements' legal governance (Emens, 2009; Perelli-Harris & Bernardi, 2015; Sassler & Lichter, 2020). Moreover, public policies that touch on unions – such as paid family leave, welfare programs, health insurance, hospital visitation, and foster care – all have embedded assumptions regarding an ideal family type (Cahill, 2005; Levitt et al., 2020). Consequently, ostensibly "neutral" policies result in stratified participation based on how couples both fit these ideal types and have the requisite resources to access their benefits. The close interactions between public policy and the cultural norms societies place onto unions means that "values and behavioral expectations about marriage and cohabitation, and about appropriate partners, are likely to be at the forefront of cultural and political clashes around the world" (Sassler & Lichter, 2020, p. 49).

We turn to understanding this policy and culture interaction regarding mixed-citizenship, same-

sex unions. Research centering this specific union type is limited (see below for some exceptions); as such, we draw from existing research on mixed-citizenship and same-sex unions, generally. First, a significant body of research focuses on unions between citizens by birth and non-citizen immigrants, both in the U.S. (Bohra-Mishra & Massey, 2015; Lee & Yamanaka, 1990; Lichter et al., 2015; López, 2021, 2015; Qian & Lichter, 2001) and elsewhere (Bonjour & de Hart, 2021; Hoogenraad, 2021; Medrano, 2020; Rodríguez-García et al., 2015). Historically, such research has focused on "marital assimilation" – i.e., marriage to a native-born citizen – as an important measure of immigrant integration (Bohra-Mishra & Massey, 2015; Gordon, 1964; Lee & Yamanaka, 1990; Lichter et al., 2015; Qian & Lichter, 2007; see Rodríguez-García et al., 2015 for a critique). But more recent work has highlighted the particular stressors and barriers that mixed-citizenship couples face (Hoogenraad, 2021; López, 2021, 2015). Despite a pathway to citizenship being legally codified for spouses of U.S. citizens, mixed-citizenship couples face scrutiny and suspicion by the state, and their eventual success in acquiring citizenship is shaped by the timing and strategy that couples deploy as well as the resources they possess.

Second, a burgeoning area of research focuses on same-sex unions (Baumle et al., 2009; Baumle, 2013; Gates, 2015; Reczek, 2020). Especially following recent U.S. state and federal legalizations in marriage equality, this work compares same-sex to different-sex couples across a range of outcomes, including patterns of assortative mating (Jepsen & Jepsen, 2002; Schwartz & Graf, 2009); division of household labor (Giddings et al., 2014; Goldberg et al., 2012; Goldberg, 2013; van der Vleuten et al., 2021); relationship satisfaction (Holmberg & Blair, 2009; Mackey et al., 2004); and relationship stability (Joyner et al., 2017; Manning et al., 2016; Manning et al., 2022). Recent research also seeks to understand how legalization of marriage equality affects propensity to marry (Carpenter, 2020), interstate migration (Marcén & Morales, 2019), and earnings (Martell & Nash, 2020), as well as how shifting legal environments alter LGB individuals' desire to join such a union or alters their behaviors in the union once legal recognition is conferred (Ocobock, 2020).

Although studies investigate different dimensions of each union type, these lines of research

have largely proceeded on independent paths. This separation is due to research on mixed-citizenship couples assuming heterosexuality and research on same-sex unions assuming U.S. citizenship of both partners (Luibhéid, 2008). Queer migration research is certainly expanding, yet this area of research largely focuses on refugees seeking asylum in the U.S. or qualitative studies into the motivations and experiences of queer migrants. Thus, scholarship sitting at the intersection of these fields – on mixed-citizenship, same-sex couples – is limited. Small-scale work in France (Salcedo Robledo, 2013) and the Netherlands (Chauvin et al., 2021) suggests that same-sex, mixed-citizenship couples face even higher bureaucratic suspicion of the legitimacy of their relationships. Other scholars question the extent to which marriage equality has actually allowed provided pathways to citizenship for same-sex non-citizen partners (Badgett, 2011; Carron, 2015). Attending to this union type is important due to its rapid growth in the U.S., as demonstrated in Figure 1, and because we do not know the degree to which these unions confirm or challenge existing theories in how culture sets up participation in particular union types and stratifies access to benefits of public policy.

2.3 Country of Origin and Selection into Same-Sex Unions

Although the DOMA decision equally applied to all mixed-citizenship couples, Figure 1 highlights an important line of differentiation: There is a distinct rise in couples where the non-U.S. citizen came from a country with more progressive LGB policies. Numbers of couples where the non-U.S. citizen came from a country with regressive LGB policies – such as bans on sodomy, or anti-LGB "propaganda" laws – remain unchanged. Why might this be? Why would conditions at the immigrant partner's country of origin influence the distribution of same-sex union formation across the population of mixed-citizen couples in the U.S.? We argue that by investigating the interplay between law and culture, we can understand these diverging trends.

As mentioned, relationships, and marriage specifically, are unique cultural products (Rosenfeld, 2007). The rituals, symbols, norms, and laws that govern them have different instantiations depending on the time and place. These cultural products then influence and are influenced by the

legal expectations and conditions associated with relationships (Kalmijn, 2007; Treas et al., 2014; Wang & Schofer, 2018). Well, this is especially true for same-sex unions in the present historical moment (Hull, 2003; Ocobock, 2020). The assimilation of same-sex couples into existing marriage and relationship programs is an ongoing, dynamic process (Bernstein & Taylor, 2013; Saez, 2011). Denmark became the first country to recognize civil unions for same-sex partners in 1989 while Netherlands became the first to grant full marriage equality in 2001. At the end of 2019, 26 countries had recognized marriage equality nationally with an additional 13 recognizing civil unions.

Of the many consequences of these shifts toward more progressive policies, one is that they shift understandings of what it permissible and seen as possible. Prior to state recognition, there are often public campaigns by LGBT+ organizers seeking to influence broad support. While geared toward the general public, this campaign rhetoric and imagery also socializes LGB individuals into the appropriateness of participating in institutions long exclusive to heterosexuals (Bernstein & Taylor, 2013). This is particularly important as participation in same-sex unions by LGB individuals is a critical strategy to normalize and secure such legal advancements (Ocobock, 2020). State recognition of same-sex couples also takes on a recursive process of increasing desirability of forming such a union as participation becomes a real option (Baiocco et al., 2014). Thus, immigrants coming from a countries with affirming policy environments, generally, and those that specifically recognize and reinforce the validity of same-sex unions and families may be more inclined to establish and desire such a union once permitted to do so following the end of DOMA.

Conversely, policy environments that are especially regressive may hinder the formation of mixed-citizenship, same-sex unions by immigrants in the U.S. This can operate in multiple ways. First, regressive contexts can potentially limit the desirability of forming a same-sex union by limiting what is seen as possible. At the end of 2019, roughly 68 countries still criminalized same-sex sexual acts between two consenting adults (Velasco, 2023). While in some countries these laws are rarely enforced, in others, such as Cameroon, there has been an active revival of these laws to terrorize LGB populations (Bongmba, 2021). Moreover, the DOMA legislation in the U.S. was not

a unique act. More than 30 countries since the 1990s have similarly re-codified a "one man, one woman" definition of marriage either through federal law like DOMA or through constitutional amendments (Velasco, 2023). Second, these legal environments can influence how the cultural norms, rituals, and performances of relationships manifest. In the U.S. and many Western countries where marriage equality exists, mainstream LGB cultures emphasize publicly "coming out" and sameness with heterosexuals using language such as "love is love." But LGB cultures can look quite different when "coming out" risks vulnerability to state-sponsored violence (Msibi, 2013). Third, and relatedly, these different cultures can negatively influence whether U.S. immigration bureaucrats in charge of issuing visas perceive relationships as legitimate (Carron, 2015). When couple photos, disclosure to friends and family, and other public evidence are used to evaluate if a relationship is valid and worthy of a visa, immigrants coming from countries where possession of such evidence can be dangerous are at a systematic disadvantage. Thus, for all of these reasons, mixed-citizen, same-sex unions following the 2013 DOMA decision are likely to contain fewer immigrant partners from regressive contexts.

Consequently, we expect that affirming LGB policies, generally, at the non-citizen partner's country-of-origin will be associated with greater increases in same-sex, mixed-citizenship unions. We further hypothesize that policies specifically affirming of queer families and relationships will have the largest effect. This is because such policies may both increase the likelihood of an immigrant participating in these cultural objects and increase the legibility of the relationship to U.S. officials.

3   Data and Methods

3.1   Sample

We employ data from the 2008 to 2019 American Community Survey (Ruggles et al., 2021). Each year, the ACS surveys a 1-percent representative sample of the U.S. population about a variety of individual and household attributes. We focus on counts of individuals in mixed-citizenship

same-sex couples, comparing to those in same-citizenship or different-sex couples. Our counts include only cohabiting individuals who identify themselves as spouses or unmarried partners, since the ACS does not allow identification of same-sex couples that do not reside together. "Mixed-citizenship" couples include either two citizens or two non-citizens, and "same-sex" couples include two individuals who report the same sex. We exclude individuals who immigrated before the age of 18, before the year 1991, and those younger than 18 or older than 64 in each survey year.

Beginning in 2008 the Census Bureau made changes to ACS gender and partnership questions in order to prevent such errors (U.S. Census Bureau, 2013), so we rely on data only from 2008 onward. In addition, following Gates & Steinberger (2009), we remove all respondents that had either their relationship or sex variable imputed by the Census Bureau. We test sensitivity to hypothetical sex misreporting in the Appendix. See Table 1 for sample sizes.

Table 1: Unweighted and weighted sample sizes of cohabiting individuals by type of couple, from American Community Survey (ACS) data 2008-2019

Composition	Citizenship	n (unweighted)	n (weighted)
Different sex	Mixed citizenship	450,914	48,408,804
Different sex	Same citizenship	11,020,751	1,037,315,393
Same sex	Mixed citizenship	7,105	676,084
Same sex	Same citizenship	146,705	13,553,802

3.2   Analytic Strategy

Our analytic strategy proceeds in two parts. First, how does LGB policy at country of origin moderate the effect of the repeal of DOMA on the incidence of same-sex, mixed-citizenship couples in the U.S.? To isolate the effect of the 2013 DOMA repeal, we employ a triple difference, or difference-in-differences-in-differences (DDD), quasi-Poisson design (Hausman et al., 1984; Olden & Møen,

2022).

This design has a number of advantages over other choices, which we compare conceptually in Figure 2. A simple difference (D) design comparing numbers of mixed-citizenship same-sex couples before and after 2013 descriptively quantifies the trend show in Figure 1, but it fails to account for numbers of mixed-citizenship or same-sex couples overall, which both rose in this period as well. A difference-in-differences (DD) design accounts for one of these: Among individuals in same-sex couples, we take the difference in counts before and after 2013 for those in mixed- and then those in same-citizenship couples, and then we calculate the difference in these differences. If numbers in mixed-citizenship couples rose more quickly after 2013, then we should see a positive effect. But perhaps the effect is relevant to all mixed-citizenship couples, rather than specific for those in same-sex couples. In order to account for this, a DDD design takes yet another difference: Starting with the same-sex-only DD quantity, we subtract it from a corresponding DD estimate for different-sex couples. This results in a the triple-difference (DDD), representing the rise in same-sex mixed-citizenship couples relative to different-sex or same-citizenship couples.

Estimating this difference using a linear model is not ideal, because absolute numbers of same-sex couples are small. Rather than considering absolute trends, we are interested in the *relative* rise in incidence of mixed-citizenship same-sex couples. Hence we model counts as draws from a Poisson distribution; after transformation, coefficients from a Poisson model can be interpreted as percent increases. We estimate the Poisson model using quasi-maximum likelihood estimation (QMLE). Unlike Maximum Likelihood Estimation (MLE), this estimation method does not assume the mean and variance of the distribution are equal, adjusting standard errors accordingly (Cameron & Trivedi, 2005, p. 667). To remove sources of time-invariant confounding, we include two-way fixed effects, with indicators for survey year and state-group. We also cluster standard errors at the state-group level.

Our estimand is the relative change in incidence of individuals in mixed-citizenship, same-sex couples following the repeal of DOMA in 2013 (Lundberg et al., 2021). We estimate this as the coefficient to a three-way interaction between indicators for same-sex, mixed-citizenship, and

Simple difference (D)   Diff–in–diff (DD)   Triple–diff (DDD)

$$\delta = A \qquad\qquad \delta = A - B \qquad\qquad \delta = (A - B) - (C - D)$$
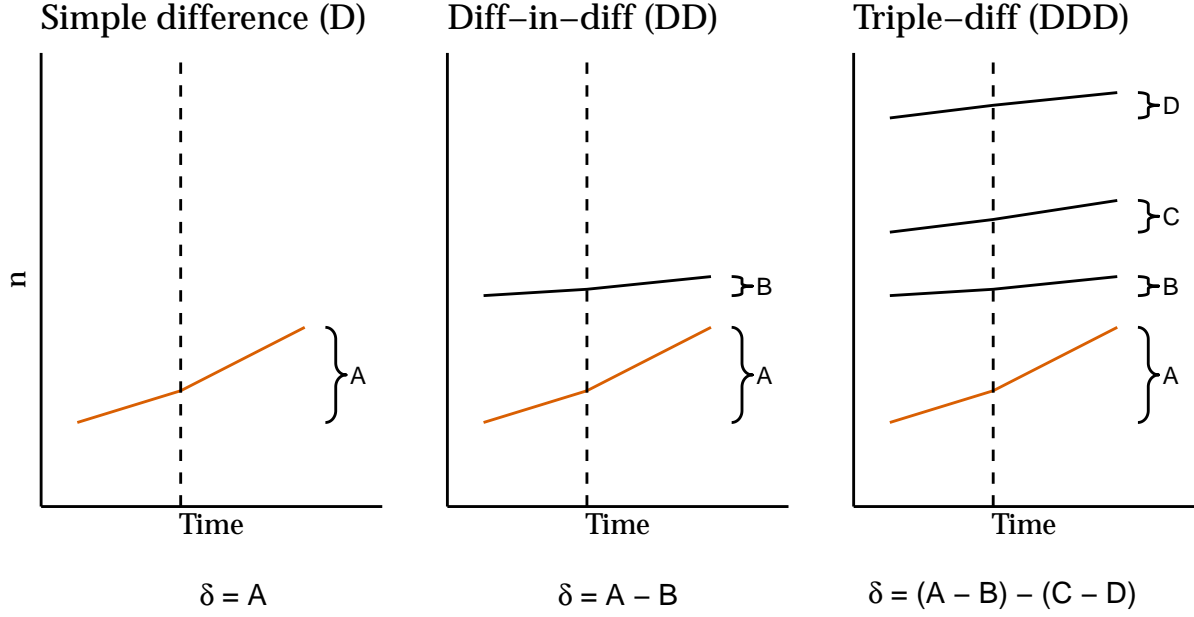
Figure 2: Conceptual comparison of simple-difference (D), difference-in-differences (DD), and triple-difference (DDD) designs. The trend of interest is shown in orange, and the vertical dashed line represents the moment the treatment is applied.

post-2013 survey year. We write our model as

$$
\begin{aligned}
y_{gst} = \exp[&\beta_0 + \beta_1 post_t + \beta_2(M_g \times post_t) + \beta_3(S_g \times post_t) \\
&+ \delta(M_g \times S_g \times post_t) + \alpha_{gs} + \gamma_t + \zeta' \mathbf{x}_{st} + \epsilon_{gst}
\end{aligned}
\tag{1}
$$

where y_{gst} is the count of individuals in group g in state s in survey year t; $post_t$ is an indicator variable for $t > 2013$; M_g is an indicator variable for group g being mixed-citizenship; S_g is an indicator variable for group g being same-sex; α_{gs} are group-state fixed effects; γ_t are survey year fixed effects; and ϵ_{gst} is an error term such that $\mathbb{E}(\epsilon_{gst}) = 0$. In some models, we add $\mathbf{x}_{st}$, a vector of state-level controls in year t: unemployment rate, per-capita income, and local LGB policy. The coefficient of interest is δ; the incidence ratio $\exp(\delta)$ estimates the relative increase of individuals in mixed-citizenship same-sex couples after 2013, relative to other couples.

We focus on heterogeneity of this effect: how it varies by the LGB policy context of non-citizens' country of origin. We measure the origin country policy environment using a modified

LGBT Policy Index (Velasco, 2018) for 1991 to 2019. The index comprises 16 policies, with both progressive policies (civil unions, constitutional protection, conversion therapy ban, employment protection, equal age of consent, hate-crime protection, incitement to hate banned, joint adoption, LGB military, marriage equality, same-sex acts legal) and regressive ones (anti-propaganda laws, death penalty, LGB military ban, marriage ban, unequal age of consent). The index is created by summing the net total of progressive policies (scored $+1$) over regressive policies (scored -1). For policies that exist in only certain parts of a country, fractional values are used. For the 173 countries of origin for our sample, the country index ranges from -3 to 10, with a mean of 1.7. Individuals are assigned the policy score for their country of origin in their year of immigration.

To see how the incidence of mixed-citizenship, same-sex unions varies by origin-country LGB policy context, we stratify our sample by this index. Foreign-born respondents are labeled depending on the LGB policy score at their year of immigration: Individuals coming from countries with a policy score less than 0 get a "regressive" label, while those with a score greater than 3 get a "progressive" label. U.S.-born respondents do not receive a label and are included in all analyses. We then estimate equation 1 twice more: once for counts including only "progressive"-origin respondents (plus U.S.-born), and once for only "repressive"-origin respondents (plus U.S.-born).

Second, which specific LGB policies of country of origin are most relevant in shaping entry into same-sex unions? To examine the influence of individual policies, we follow a similar procedure. Instead of stratifying by policy score, we stratify by whether individuals had a given policy in place in at least the majority of their country of origin in their year of immigration (as opposed to only enacted in one state or province, for example). This allows us to study the descriptive trends for numbers of individuals from countries with these policies.

However, these policies often co-occur. To obtain a quantity similar to an average partial effect of a given policy, we consider every existing policy combination in the sample (e.g., marriage equality co-occurring with employment protections or sodomy bans co-occurring with propaganda laws). Although thousands of combinations are possible, only 148 are present in the sample. We stratify the sample again for each of these combinations, including only foreign-born individuals

originating from countries with each unique combination, along with all U.S.-born individuals. We then estimate the same quasi-Poisson model as in equation 1 for each of these stratified samples. Next, for each policy, we find the average effect size for the three-way interaction of interest for all regressions on samples that include the policy and all regressions that do not. These averages are weighted by the inverse variance of the coefficients (Borenstein et al., 2010) as follows: Let β be the coefficient of interest and se be its standard error. We combine the results of m regressions, $i = 1, \ldots, m$ to obtain the average coefficient and standard error:

$$\overline{\beta} = \frac{\sum_{i=1}^{m} \beta_i \mathrm{se}_i^{-2}}{\sum_{i=1}^{m} \mathrm{se}_i^{-2}}, \quad \overline{\mathrm{se}} = \sqrt{\frac{1}{\sum_{i=1}^{m} \mathrm{se}_i^{-2}}}.$$

Finally, we calculate the difference between the average coefficient for samples that include the policy and those that do not. The resulting quantity is then the average effect of a given policy on the log relative incidence of same-sex, mixed-citizenship couples.

3.3   Control Variables

We rely on three state-level controls to account for alternative explanations. We use state per capita income by year from the Bureau of Economic Analysis (BEA, 2020) and state-level annual unemployment rates from the Bureau of Labor Statistics (BLS, 2020). All monetary variables are adjusted to 1999 U.S. dollars. To create the U.S. state LGB policy index, we compile data from the Movement Advancement Project[2], a leading LGB organization in the U.S. that collects data on a number of relevant policies. Our state index comprises both progressive policies (full marriage equality, recognition of civil unions and domestic partnerships, ban on employment and housing discrimination based on sexual orientation, hate crime protections based on sexual orientation, legal joint adoption by same-sex couples, and a ban on conversation therapy for minors) and regressive policies (criminalization of sodomy, state constitutional bans of marriage equality, religious freedom exemptions to discriminate against same-sex couples in adoption, and state-level bans on

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[2]https://www.lgbtmap.org/

local non-discrimination ordinances encompassing sexual orientation). In the years we consider, the state index ranges from -2 to 7, with a mean of 2.3.

4   Results

4.1   Main Effects

Table 2: Simple-difference (D), quasi-Poisson regressions of counts of individuals in mixed-citizenship same-sex couples, stratifying the sample by policy environment at year of immigration. The sample includes only mixed-citizenship same-sex couples.

	Full sample	Progressive	Regressive
Post-2013	1.136 ***	2.046 ***	0.515 †
	(0.092)	(0.176)	(0.287)
Observations	612	612	612

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$. The "Regressive" sample includes only countries with a LGB policy score less than 0, and the "Progressive" sample includes only those with a score greater than 3. Group-clustered standard errors shown in parentheses. Source: American Community Survey 2008-2019. Authors' calculations.

Table 3: Difference-in-difference (DD), quasi-Poisson regressions of counts of individuals in mixed-citizenship same-sex couples, stratifying the sample by policy environment at year of immigration

	Full sample	Progressive	Regressive
Post-2013 × Mixed-citizenship	0.428 ***	1.050 ***	0.300 *
	(0.050)	(0.074)	(0.136)
Post-2013	0.525 ***	0.522 ***	0.506 ***
	(0.038)	(0.039)	(0.040)
Observations	1200	1224	1224

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$. The "Regressive" sample includes only countries with a LGB policy score less than 0, and the "Progressive" sample includes only those with a score greater than 3. Group-clustered standard errors shown in parentheses. Source: American Community Survey 2008-2019. Authors' calculations.

We first present simple-difference (D) and difference-in-differences (DD) results, before presenting the more rigorous triple-difference (DDD) results. All of these models include two-way fixed effects and cluster standard errors at the state-group level. Table 2 shows the simple-difference result. The coefficient for 2013 represents the log-change in incidence of individuals in mixed-citizenship same sex couples. For the full sample, this group saw a $100 \times [\exp(1.1) - 1] = 211$ percent after 2013. But for those originating in countries with progressive LGB policy (defined as those with an LGB policy score greater than 3), the increase was much greater, at 673 percent. The increase for those coming from regressive countries (those with a policy score less than 0) is not significant.

Table 3 shows corresponding results for the DD analysis. These models control for the rise in same-sex same-citizenship couples, since their numbers also rose after the end of DOMA. Now the coefficient of interest is the two-way interaction between indicators for post-2013 and mixed-citizenship. The relative rise is less strong than in the D models, but the relative increase for progressive countries is still striking. Relative to same-citizenship same-sex couples, mixed-citizenship same-sex couples saw a 53 percent increase overall but a 186 percent increase for those originating in progressive countries.

Finally, Table 4 presents results from our DDD specifications. While the DD models control for numbers in same-sex couples overall, the DDD models also control for numbers in mixed-citizenship couples, regardless of sex composition. Here, the coefficient of interest is the three-way interaction between indicators for post-2013, same-sex, and mixed citizenship. For the full sample, the incidence of individuals in mixed-citizenship, same-sex couples grew by $100 \times [\exp(0.33) - 1] = 39$ percent after 2013, relative to those in couples that were not same-sex or mixed-citizenship. When we focus on individuals from progressive countries, the result is even stronger, at 65 percent. However, those from regressive countries saw no significant increase.

Although the two-way fixed effects in our specifications help allay concerns of confounders, it is still possible that time-varying state- and group-level variables may be confounding results. We test the robustness of our results by re-specifying our models while adjusting for state per-capita

Table 4: Triple-differences (DDD), quasi-Poisson regressions of counts of individuals in mixed-citizenship same-sex couples, stratifying the sample by policy environment at year of immigration

	Full sample	Progressive	Regressive
Post-2013 × Same-sex × Mixed-citizenship	0.326 ***	0.503 ***	0.230
	(0.052)	(0.091)	(0.143)
Post-2013 × Same-sex	0.369 ***	0.376 ***	0.376 ***
	(0.017)	(0.018)	(0.019)
Post-2013 × Mixed-citizenship	0.105 ***	0.547 ***	0.070
	(0.015)	(0.052)	(0.043)
Post-2013	-0.035 **	-0.051 ***	-0.064 ***
	(0.011)	(0.011)	(0.011)
Observations	2448	2448	2448

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$. The "Regressive" sample includes only countries with a LGB policy score less than 0, and the "Progressive" sample includes only those with a score greater than 3. Group-clustered standard errors shown in parentheses. Source: American Community Survey 2008-2019. Authors' calculations.

income, annual unemployment rates, and state LGB policy. Table 5 replicates Table 4, but with these additional controls. Substantive conclusions do not change. Notably, the coefficient for state LGB policy is small and nonsignificant; in these models, state LGB policy does not appear related to the incidence of same-sex unions.

Figure 3 presents dynamic models of the effect of interest, with state controls. These models replace the post-2013 indicator variable with a categorical variable for survey year, with years grouped into pairs for statistical power. The left panel shows this lag-lead specification for the full sample. We see that coefficients for the three-way interaction between year, same-sex, and mixed-citizenship become significantly positive only after 2013. The right panel presents the same specification, but for the stratified samples as in Table 5. Here, we see a clear upward trend for non-citizens from progressive countries, while the trend for those from regressive countries hovers close to 0. Also of note across all samples is the lower coefficient for the years 2018-2019, perhaps

demonstrating a "Trump effect" reducing LGB immigration or the willingness of LGB citizens and non-citizens to enter into unions.

Table 5: With state-level controls: triple-difference (DDD), quasi-Poisson regressions of counts of individuals in mixed-citizenship same-sex couples, stratifying by state-country-year-group average policy environment

	Full sample	Progressive	Regressive
Post-2013 × Same-sex × Mixed-citizenship	0.323 ***	0.515 ***	0.207
	(0.054)	(0.093)	(0.142)
Post-2013 × Same-sex	0.368 ***	0.374 ***	0.375 ***
	(0.018)	(0.020)	(0.020)
Post-2013 × Mixed-citizenship	0.104 ***	0.546 ***	0.071
	(0.016)	(0.052)	(0.044)
Post-2013	-0.061 **	-0.089 ***	-0.093 ***
	(0.022)	(0.022)	(0.020)
State LGB policy	0.004	0.006	0.006
	(0.004)	(0.004)	(0.004)
State unemployment	0.001	-0.000	0.000
	(0.003)	(0.003)	(0.003)
State per-capita income	0.004	0.005 †	0.003
	(0.003)	(0.003)	(0.003)
Observations	2400	2400	2400

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$. The "Regressive" sample includes only countries with a LGB policy score less than 0, and the "Progressive" sample includes only those with a score greater than 3. Group-clustered standard errors shown in parentheses. Source: American Community Survey 2008-2019. Authors' calculations.

4.2   Which Policies are Responsible?

Clearly, the post-2013 rise in mixed-citizenship same-sex unions occurred much more strongly for immigrants from countries with overall progressive LGB policies. But are there some policies that matter more than others? Whereas Table 4 stratified the sample by values of the policy index, here we stratify the sample by specific policies. We first descriptively present how the incidence of
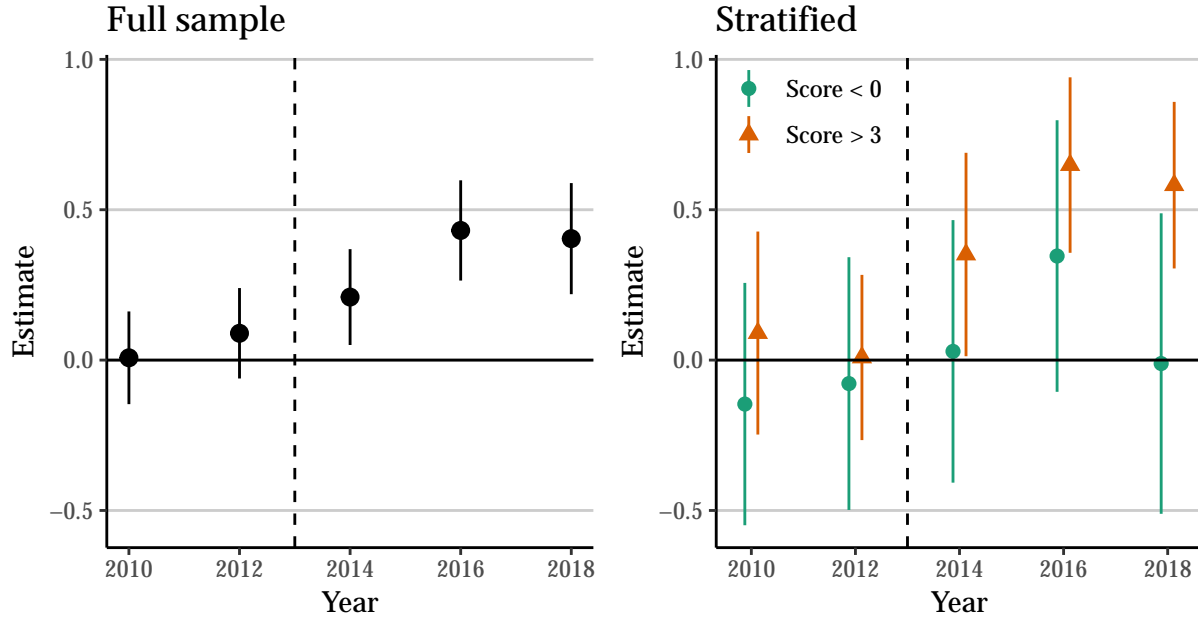
Figure 3: Dynamic specification of quasi-Poisson regression with two-way fixed effects, displaying the coefficient for the Year × Same-sex × Mixed-citizenship interaction. Survey years are aggregated into pairs, with 2008-2009 as the base category.

our population of interest varies by specific policies. Figure 4 shows the numbers of individuals in mixed-citizenship, same-sex couples originating from countries that had each specific policy in their year of immigration. For almost all progressive policies, rises in numbers are greater than for repressive policies. However, many of these policies co-occur in the sample, so from this figure it is difficult to determine which policies are driving the results.

As described above, we estimate individual policy effects by considering every existing policy combination in the sample to obtain a quantity similar to an average partial effect. Focusing on the coefficient from the three-way interaction of interest, we estimate the inverse variance-weighted average difference between regressions for individuals originating from countries that include a given policy and those that do not. Results from this analysis are displayed in Figure 5. As shown in the left panel, estimates for progressive policies are mostly positive: The post-2013 change in relative incidence was greater for foreign-born individuals originating from countries with these policies. Notably, the average effect for family-oriented policies like marriage equality and joint parental adoption is especially high, albeit not significantly more than other progressive policies
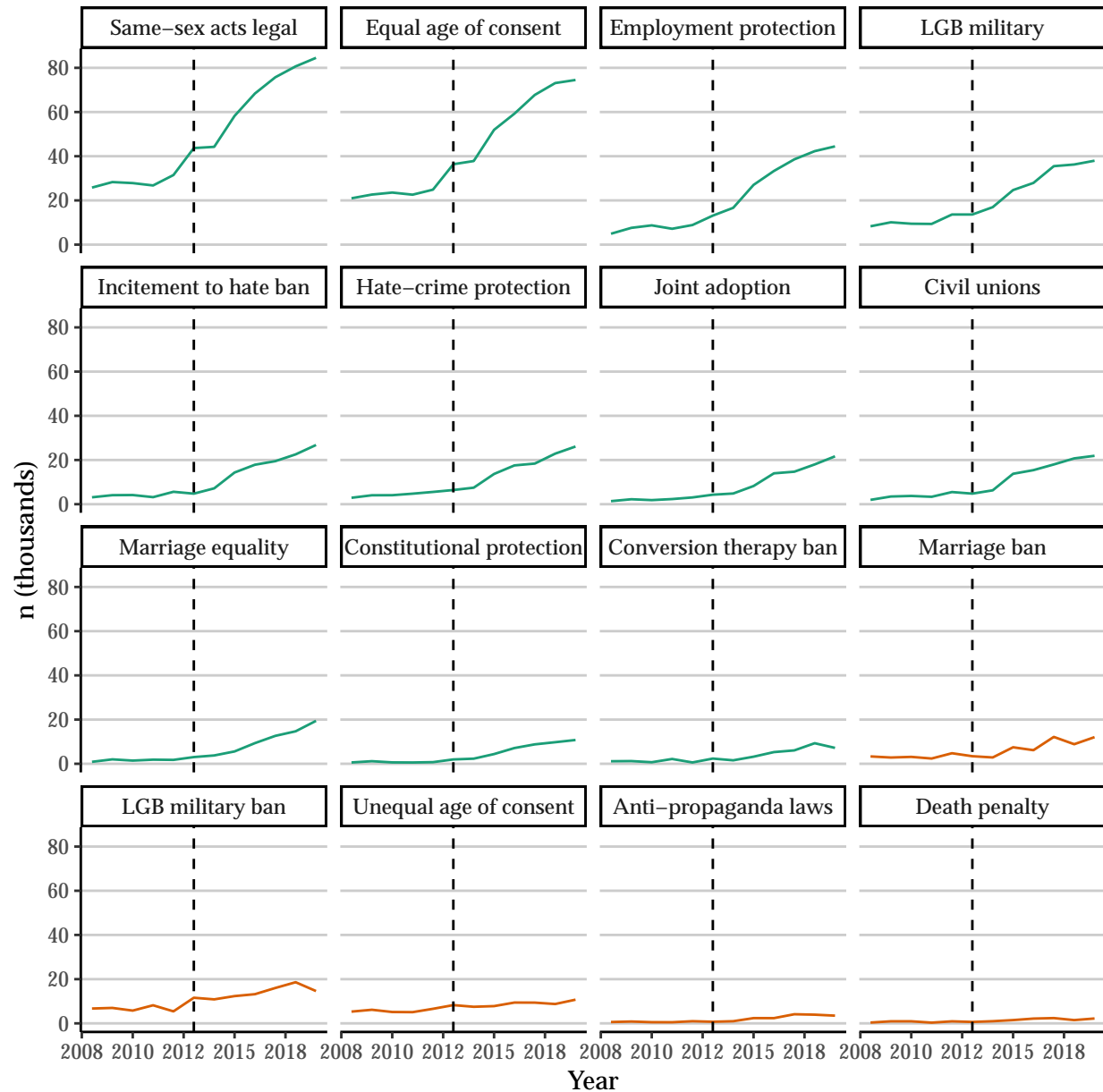
Figure 4: Estimated counts of individuals in mixed-citizenship couples originating from countries with specific LGB policies. Progressive policies are shown in green and regressive policies are shown in orange.
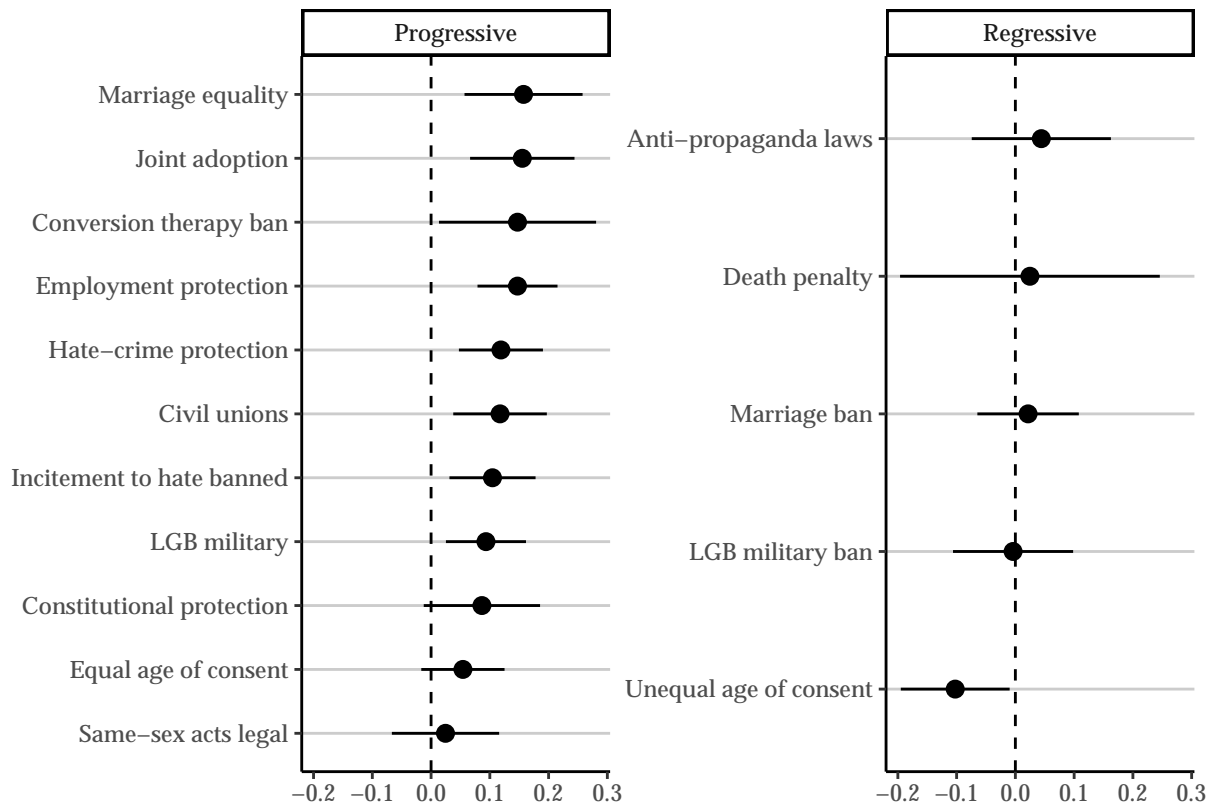
Figure 5: Stratified by specific policy: quasi-Poisson DDD regressions of counts of individuals in mixed-citizenship same-sex couples. Estimates and 95-percent confidence intervals are for the inverse variance-weighted average difference between samples that include individuals experiencing a policy and those who are not, for coefficients for the three-way interaction between indicators for same-sex, mixed-citizenship, and post-2013 survey year

like civil unions. For almost all progressive policies, we see greater incidence of mixed-citizenship, same-sex couples. In contrast, the right panel of Figure 5 shows nonsignificant or negative coefficients for regressive policies.

5   Discussion and Conclusion

When two people of different nationalities fall in love, finding a way to live together is no small feat. Even when marriage appears to be a clear legal path to residency for the foreign-born partner, bureaucratic hurdles abound, the burden of proof weighs heavily on the couple, and those without sufficient economic and cultural resources may fail to muster sufficient evidence to satisfy the scrutiny of the state (Hoogenraad, 2021; López, 2021). Yet one particular type of mixed-citizenship union has seen a spectacular rise in the U.S.: Numbers of same-sex, mixed-citizenship couples grew from 28 thousand to 82 thousand between 2013 and 2019, far outpacing growth of corresponding different-sex couples. This rise aligns with the 2013 repeal of DOMA, which for the first time allowed U.S. citizens to sponsor the visa of a foreign-born spouse or fiancé (Edwards, 2013; Redpath, 2022). But this rise was not uniform across all countries of origin: As shown in Figure 1, this rapid rise occurred for couples containing foreign-born partners from countries with progressive LGB policies, while those with members from regressive countries saw very little rise after 2013.

We use triple-difference, quasi-Poisson models to formally test how LGB policy moderates the incidence of mixed-citizenship, same-sex unions following the 2013 repeal of DOMA. By stratifying the sample by the country-of-origin policy of foreign-born partners, we show that the relative incidence of mixed-citizenship, same-sex unions grew by over 60 percent after 2013 when a partner originated from a country with progressive policies, while those originating from countries with regressive policies saw no significant increase. Stratifying by specific policies shows that those guaranteeing marriage equality may be especially important.

We bring a cultural perspective to understand these findings. Unions are cultural objects; while sexual behavior is ubiquitous across human societies, the composition, timing, motivation, and

other norms regarding socially codified unions are place- and time-specific (Kalmijn, 2007; Treas et al., 2014). We argue that public policy both affects cultural understandings of unions and is shaped by local norms. By defining what is possible or acceptable, laws relating to same-sex unions and affirming of LGB people, generally, leave lasting cultural impacts on those under their jurisdiction. Individuals originating from countries with progressive LGB policies may be less likely to hide their queer identities, codifying their same-sex relationships as openly same-sex unions. Furthermore, when policy affirms identity, benefits may spill over into other domains of life: Protection from discrimination leads to greater economic gains, access to social networks broadens, and the resulting resources enable emigration. On the other hand, policy environments that repress LGB identities limit the unions that locals see as possible and deny LGB individuals the resources necessary to migrate. Furthermore, when individuals originate from places where "coming out" risks vulnerability to state violence, they may fail to muster enough evidence of queer identity or a legitimate same-sex relationship to satisfy U.S. immigration officials (Carron, 2015; Msibi, 2013).

Our findings contribute to sociology of the family by building on recent work examining the relationship between culture and union formation (Perelli-Harris & Bernardi, 2015; Sassler & Lichter, 2020; Wang & Schofer, 2018). Scholars have tied culture to a number of recently proliferating forms of unions, including cohabitation (Sassler & Lichter, 2020), marriage across racial and ethnic lines (Kalmijn & Van Tubergen, 2010), and the redefinition of gender roles within unions (Goldscheider et al., 2015). Less work has connected culture to same-sex or mixed-citizenship relationships. Mixed-citizenship unions offer an interesting test case of the impact of culture on union formation: Do origin-country norms and values endure in the destination country? By assessing the relationship between LGB policy and incidence of same-sex unions in the population of mixed-citizenship couples, we find evidence that the culture of the origin country and choice of union in the destination country are closely linked.

These findings also amend a dominant narrative in migration studies that LGB migrants to the U.S. tend to be fleeing repression (Akin, 2017; Dhoest, 2019; Giametta, 2020; Murray, 2014; Saleh, 2020; Sam & Finley, 2015). Instead, this paper supports the notion that migration of advantaged

queer individuals – as explored in some recent ethnographic work (Choi, 2022; Di Feliciantonio & Gadelha, 2016) – may in fact be the principal form of LGB migration to the U.S., at least for those in cohabiting same-sex relationships. While LGB refugees are are certainly an important group, they are numerically small. Rather, dynamics for LGB migrants are similar to other migrants; we see stratification of LGB individuals around the world by the cultural and economic advantages that LGB policy affords. This stratification affects both migration capabilities as well as the horizon of possibilities for union formation.

Finally, our analyses open the door for future investigations to both overcome the limitations in our research design and expand our understanding of union formation and LGB migration. First, our analysis cannot assess the pathway through which a mixed-citizenship, same-sex union came to be. For example, we cannot ascertain whether the non-citizen partner already resided in the U.S. on another visa (e.g., employment-based) or came to the U.S. directly from their country of origin on a spousal or fiancé(e) visa. Future research should collect the necessary data to investigate this empirically. Second, this investigation prioritizes country-level interactions between policy and culture to explain increases in mixed-citizenship, same-sex unions. Although macro-level considerations are important for understanding union formation – especially for LGB individuals, as national policies have been rapidly changing – we do not attend to individual-level characteristics within countries. Attending to these characteristics can give insights into whether LGB migrants select on similar attributes as their straight co-nationals when forming unions with U.S. citizens. Moreover, while we do not see significant increases from repressive countries following DOMA, these individuals are still in the data. Who are they? As Kong (2010) documents, it may be the most privileged individuals with a cosmopolitan cultural orientation who end up in cross-national relationships. If so, this would strengthen the current study by demonstrating that these cultural processes continue at the individual-level as well. Finally, surveys similar to the ACS exist in several other countries that now recognize same-sex partners for immigration purposes (e.g. the Labour Force Survey in the United Kingdom and the Enquête Emploi in France). Thus, future work should assess whether our findings are distinct to the U.S. or these trends generalize across

countries where similar policy shifts occur. Doing so will help produce a broader understanding of how policy and culture shape sexual migration and union formation for LGB individuals.

A   Appendix: Sensitivity to Hypothetical Sex Misreporting

Published papers using the ACS to study same-sex couples overwhelmingly use the method by Gates & Steinberger (2009) employed our main paper to adjust for misreporting, where we drop all respondents that had either their relationship or sex variable allocated by the Census Bureau. However here we implement a novel method to adjust proportions of estimated immigrants in same-sex couples, based on the estimated mismatch rates from two U.S. Census Bureau studies. Beginning in 2019, the ACS provides explicit categories for "Opposite-sex husband/wife/spouse," "Opposite-sex unmarried partner," "Same-sex husband/wife/spouse," and "Same-sex unmarried partner" (Walker & Taylor, 2021), so sex misreporting in the 2019 data is unlikely, but we still adjust mismatch rates in these years as well.

In a Census Bureau working paper, Kreider & Lofquist (2015) use personal information such as names and addresses match same-sex couples from the 2010 ACS to Social Security administrative data. They find that 7 percent of unmarried couples coded as same-sex in the ACS are coded as different-sex in the administrative data, and 57 percent of married same-sex couples. A follow-up study (Kreider et al., 2017) shows that these mismatch rates appear to have fallen: In a 2016 ACS test module that included explicit categories for different- and same-sex spouses and partners, 31 percent of married and 3 percent of unmarried same-sex couples had inconsistent sex responses.

To test the robustness of our results these levels of misreporting, we re-assign up to 60 percent of counts of individuals in same-sex couples to counts in different-sex couples, within state, year, and citizenship group. We then re-fit the models reported in the main paper, with state-level controls. Coefficients for the three-way interaction of interest are shown in Figure 6. Results are extremely robust to even high levels of sex misreporting. Since we model a relative rather than absolute change, this robustness makes sense.
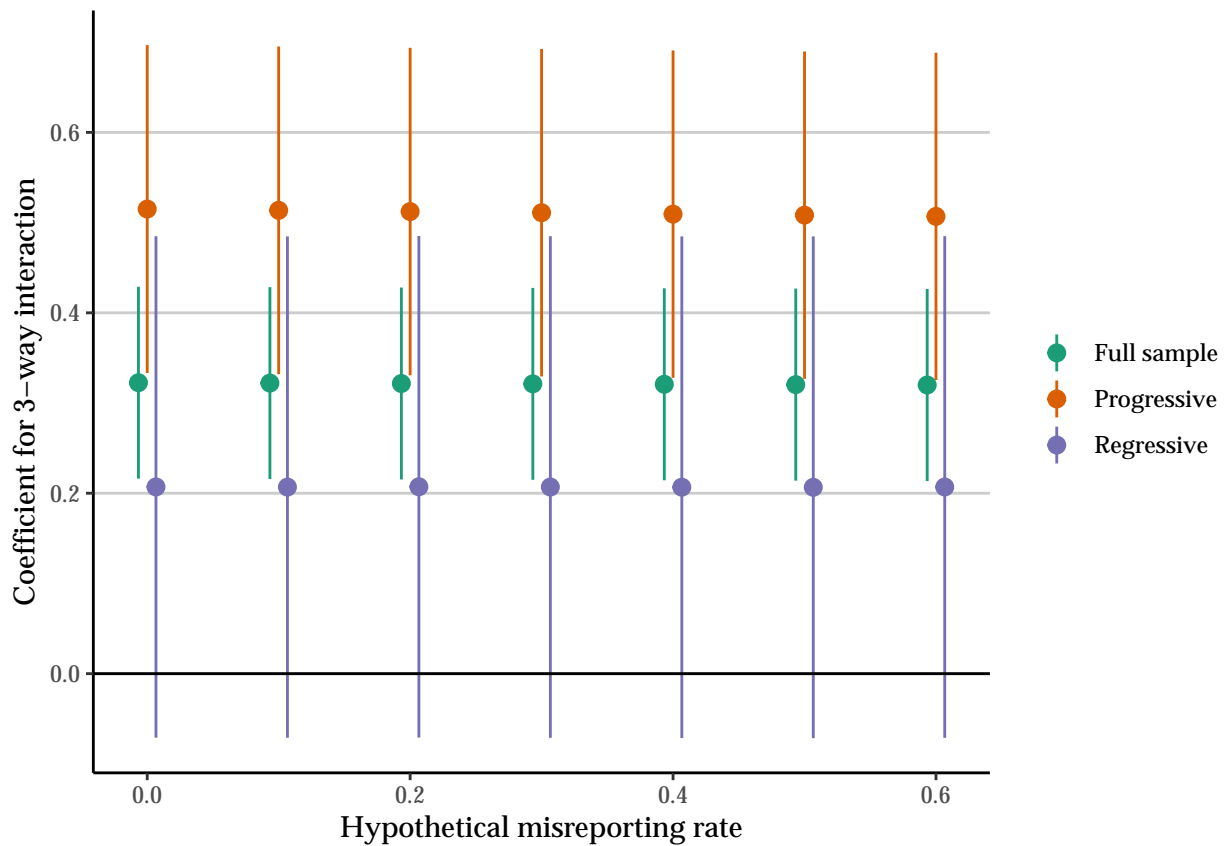
Figure 6: Coefficients for the three-way interaction between indicators for same-sex, mixed-citizenship, and post-2013 survey year from Table 5, with counts of individuals in same-sex couples in the sample reduced by 10 to 60 percent

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