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# Legalized Same-Sex Marriage and Coming Out in America: Evidence from Catholic Seminaries

Comments

ESI Working Paper 21-07

# Legalized Same-Sex Marriage and Coming Out in America: Evidence from Catholic Seminaries\*

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## Abstract

We study the effect of legalization of same-sex marriage on coming out in the United States. We overcome data limitations by inferring coming out decisions through a revealed preference mechanism. We exploit data on enrollment in seminary studies for the Catholic priesthood, hypothesizing that Catholic priests' vow of celibacy may lead gay men to self-select as a way to avoid a heterosexual lifestyle. Using a differences-in-differences design that exploits variation in the timing of legalization across states, we find that city-level enrollment in priestly studies fell by about 15% exclusively in states adopting the reform. The celibacy norm appears to be driving our results, since we find no effect on enrollment in deacon or lay ministry studies that do not require celibacy. We also find that coming out decisions, as inferred through enrollment in priestly studies, are primarily affected by the presence of gay communities and by prevailing social attitudes toward gays. We explain our findings with a stylized model of lifestyle choice.

*JEL* Classification Numbers: D91, J15, Z12.

*Keywords:* Homosexuality, Religion, Identity.

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*“No union is more profound than marriage, for it embodies the highest ideals of love, fidelity, devotion, sacrifice, and family. In forming a marital union, two people become something greater than once they were. [...] They [the petitioners] ask for equal dignity in the eyes of the law. The Constitution grants them that right.”*, United States Supreme Court, in *Obergefell v. Hodges*.

## 1 Introduction

Coming out seems to be getting easier, making younger generations more likely to self-identify as LGBT. A significantly higher proportion of American youth identify as LGBT than their older counterparts, as shown in Figure 1. In 2020, only 2% of baby boomers associated themselves with the LGBT identity, compared to 9% among millennials. Remarkably, one in six adult members of Generation Z self-identified as LGBT in 2020. The reasons underlying this rapid change in the expression of sexual identities are, however, unclear. To begin with, measurement can be challenging, as information on sexual identities is seldom included in survey data.<sup>1</sup> Moreover, because sexual minorities may be targets for stigmatization and discrimination, the reporting of sexual identity is typically subject to self-censorship.<sup>2</sup>

In this paper, we argue that the legalization of same-sex marriage (SSM) in the United States has played a significant role in the recent evolution of sexual identities.<sup>3</sup> We identify this relationship and overcome data limitations by inferring coming out decisions through a revealed preference mechanism. We exploit data on enrollment in Catholic seminaries, hypothesizing that the vow of celibacy made by priests may attract gay men to the Catholic priesthood as a safe way to avoid a heterosexual lifestyle. Under this assumption, as SSM legalization changes the relative payoff from adopting a gay lifestyle, a negative effect of these laws on enrollment in priestly studies would suggest more coming out decisions.<sup>4</sup>

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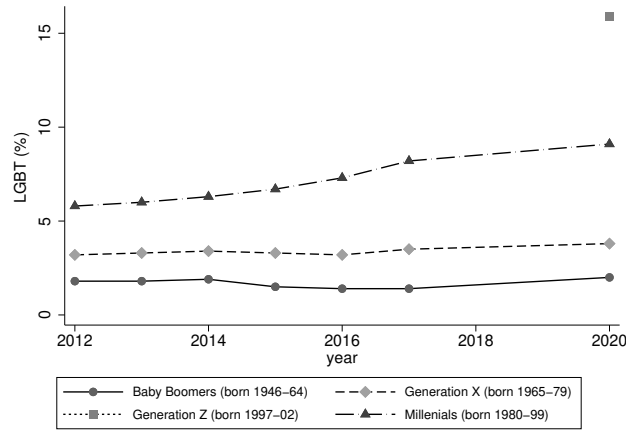
<sup>1</sup>The evolution of LGBT identities in survey or poll data can be partly driven by changes in reporting (Coffman, Coffman and Ericson 2017a).

<sup>2</sup>Coffman, Coffman and Ericson (2017a) provide experimental evidence that questions related to sexual identity have a significant social desirability bias even under extreme privacy and anonymity.

<sup>3</sup>Badgett (2009) provides a detailed overview on the economic value of marriage for same-sex couples. The author also argues that alternative statuses than marriage such as domestic partnerships, civil unions or registered partnership are seen by same-sex couples as less desirable than marriage.

<sup>4</sup>The students enrolled in priestly studies, compared to ordained priests, represent the younger cohorts that exhibit a significant evolution in sexual identities.

Figure 1: Americans' self-identification as LGBT by generation



Source: Gallup Poll.

Associating homosexuality with the Catholic priesthood is not new. During the middle ages, there was a campaign against homosexuals in the clergy by ecclesiastics such as Saint Peter Damien (XIth century), Pope Innocent III (1198-1216), and Pope Grégoire IX (1227-1241).<sup>5</sup> More recently, in 2002, American Bishops wrote to the Vatican for advice on matters concerning the sexual orientation of candidates for the seminary. Not only was the question asked through official channels, but the Vatican considered it sufficiently important to reply in a *Notitiae*, or an official publication by the Sacred Congregation for the Sacraments and Divine Worship.<sup>6</sup> The relationship between priesthood, celibacy, and homosexuality has received attention from theologians, psychologists and sociologists.<sup>7</sup> Reverend Richard P. McBrien (1987, p. 382), former chair of the Theology department at the University of Notre Dame, described the self-selection of gay men in Catholic priesthood: ‘... in a society where

<sup>5</sup>Damian, Hoffman and Iniguez (2015) and Greenberg and Bystryn (1982).

<sup>6</sup>The Notitiae states: “*This Congregation for Divine Worship and the Discipline of the Sacraments, bearing in mind the experience that comes from not a few cases taking place with a view to obtaining dispensation from the obligations which arise from sacred Ordination, and after due consultation with the Congregation for the Doctrine of the Faith, expresses its judgment as follows: The ordination of homosexual men or those with homosexual tendencies to the diaconate or to the priesthood is absolutely inadvisable and imprudent and, from a pastoral point of view, very precarious. As such, a homosexual person, or one with homosexual tendencies, is unfit to receive the sacrament of holy Orders.*” Notitiae 38 (2002), 586.

<sup>7</sup>The relationship between priesthood, celibacy, and homosexuality has received attention from theologians, psychologists and sociologists (Cozzens 2000; Greely 1989; Hoge and Wenger 2003; Sipe 2013). Based on more than 1,500 interviews with priests and sexual partners of priests, Sipe (2013) suggested that 20 percent of American priests have a homosexual identity. Other estimates found in the related literature are higher. See, for example, Nugent (1989) and Hoge and Wenger (2003). More broadly, there is a literature on the relationship between homosexuality and self-selection into professions where individuals have to forego heterosexual encounters or where the male-to-female ratio is high. Sinclair (2009) review the literature in sociology on the relationship between the military and LGBT identities, while Shilts (1994) gives a historical account of homosexuality in the military.

homosexuality continues to be stigmatized, the celibate priesthood can offer an esteemed and rewarding profession in which ‘unmarried and uninterested’ status is self-explanatory and excites neither curiosity nor suspicion.’. Eminent jurist Richard A. Posner (1994, p. 152 - 154), who authored the 7th circuit court ruling to overturn same-sex marriage bans in Wisconsin and Indiana, also conjectured that the celibacy rule may have led gay men to join the priesthood to avoid social disapproval and a heterosexual lifestyle.

Using a differences-in-differences strategy that exploits variation in the timing of SSM legalization across the United States, we show that the adoption of these laws had a robust negative effect on the enrollment of students in priestly studies. Quantitatively, our estimates reveal that enrollment in priestly studies fell by approximately 15% in states legalizing same-sex marriage.

We assess the validity of our results through a series of robustness checks. First, we implement a flexible events study design and rule out pre-existing trends in enrollment in studies for the priesthood among the treatment and the control states. Further examining the dynamics, we find a long-term decline in enrollment in studies for the priesthood in states where SSM was legalized.

Second, we address the concern that the timing of the laws could have coincided with a secularization trend in the treatment states that was already dampening enrollment in Catholic seminaries. We exploit the fact that, in addition to preparing candidates for the priesthood, Catholic seminaries train deacons and lay ministers, who also perform key pastoral duties but are not required to be celibate.<sup>8</sup> We find that the SSM laws had no impact on enrollment in clerical studies that did not involve a lifetime of celibacy. The absence of a connection between SSM legalization and the enrollment of deacon and lay ministry students in Catholic seminaries indicates that (i) the celibacy norm in the Catholic priesthood is driving our main result, while (ii) the evolution of the American religious landscape and related structural changes in the characteristics of the Catholic Church are unlikely to explain the results.

Third, we address the possibility that a gradual shift in public attitude towards same-sex marriages could have facilitated the passing of SSM law at the state level. We exploit the fact that most SSM laws were passed through intervention by courts, which would have been influenced less by public opinion on same-sex marriage compared to state legislatures. We find that the effect of the laws on enrollment in priestly studies remains significant in the sub-sample where these laws were implemented solely through court orders.

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<sup>8</sup>Deacons and lay ministers can preside over various religious services or give certain blessings. Importantly, they can perform pastoral duties that were the prerogative of priests before Vatican II, a major reform undertaken by the Catholic Church in the sixties. [U.S. Bishops’ Committee \(1980\)](#).

To understand these results, we resort to a stylized model of lifestyle choice. In this framework, choice of lifestyle acts as a commitment mechanism. While a sense of vocation may drive men to become priests and adopt the associated lifestyle of celibacy, the celibacy requirement may also induce young gay men to join the priesthood to escape pressure to lead a heterosexual lifestyle. Same-sex marriage legalization changed the relative payoff from joining the priesthood by increasing the benefit associated with a gay lifestyle. We predict that, following SSM legalization, there is a one-to-one relationship between more coming out decisions and the decline in enrollment in studies for the Catholic priesthood. We also predict that this effect is particularly strong in places with larger gay communities and more favorable social attitudes toward gays.

We conduct additional analysis to verify our theoretical predictions. Exploiting data on the spatial distribution of Gay Pride events, we find that the legalization of SSM significantly affects enrollment in priestly studies only in cities where a Gay Pride event was held. This result suggests that the presence of a strong gay community enhanced the effect of SSM legalization.

We also present evidence that social attitudes toward gays are key determinants of coming out decisions. Positive attitudes toward gays decrease the likelihood of an individual choosing to become a Catholic priest after the law is passed. Strikingly, we also find that in areas where attitudes toward gays are more negative, men are *more* likely to become Catholic priests following the passing of the law. Consistent with our model, we interpret these results as a backfire effect. The increased social stigma that same-sex marriage legalization may generate regarding the gay lifestyle can be sufficiently strong to decrease coming out decisions.

Finally, we address the potential alternative explanations for our findings. First, we show that the migration of prospective students is not driving the decline in enrollment in priestly studies. We address the concern that following legalization of SSM, a prospective student might choose to enroll in a seminary in a non-reforming state if he was opposed to the new law. We abstract from the potential migration of prospective candidates by restricting the sample to students already enrolled in priestly studies at the time of the reform and find a significant decline in their numbers. In addition, we directly assess whether SSM reform in neighboring states has any bearing on enrollment. Our results suggest that legalization of SSM in neighboring states has no impact on the enrollment decision in a given state. Next, we rule out any possibility that SSM legalization could affect enrollment by reducing labor market discrimination for gay men. Specifically, we control for the effect of non-discrimination laws passed during the intervening period. Our results show that non-

discrimination laws have no impact on enrollment in priestly studies, which suggests that SSM legalization is unlikely to impact enrollment by reducing labor market discrimination.

The paper contributes to two strands of the literature. First, it contributes to the emerging literature on homosexuality, which typically investigates issues related to household production, health, and labor market discrimination<sup>9</sup> and attitudes toward sexual minorities.<sup>10</sup> Several studies exploit variation in the timing of SSM reform. For example, [Sansone \(2019\)](#) examines how the legalization of SSM in the U.S. affects same-sex couples in the labor market, while [Anderson, Matsuzawa and Sabia \(2019\)](#) explore the relationship between marriage equality and suicidal behaviors among LGBTQ-identifying youths. [Chen and van Ours \(2020\)](#) investigate the effect of SSM legalization on partnership stability. [Hamermesh and Delhomme \(2020\)](#) study how SSM laws affected the marital surplus of same-sex couples. However, while this literature typically relies on survey data, we use unique data on enrollment in Catholic seminaries to infer legalization’s effect on coming out decisions. Closely connected to our work is [Fernandez, Parsa and Viarengo \(2019\)](#), who show that the AIDS epidemic led to more coming out decisions by unifying the gay community, which enhanced political mobilization, local media coverage, and opinion change. We complement this study, finding that SSM legalization also played a significant role in the rapid evolution of sexual identities.

Our study also contributes to the literature on institutions and cultural change.<sup>11</sup> In particular, several studies have shown that laws can meaningfully affect cultural values ([Acemoglu and Jackson 2017](#); [Aldashev et al. 2012](#); [Benabou and Tirole 2012](#); [Fouka 2019](#); [Jia and Persson 2020](#)). We complement and contribute to this literature in two ways. First, although the literature covers several important dimensions of cultural norms such as religion, individualism, or honor, few studies address sexual identities. Second, we complement this literature by inferring coming out decisions through a revealed preference mechanism. Our work is thus linked to [Atkin, Colson-Sihra and Shayo \(2019\)](#), who explore religious identity through food consumption, and [Shofia \(2020\)](#), who investigates the evolution of veiling through photographs.

The paper is organized as follows. Section 2 provides background information on the gay rights movement, SSM legalization, and the history of priestly celibacy and attitudes to homosexuality in the Catholic church. Section 3 describes our conceptual framework,

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<sup>9</sup>[Ahmed, Andersson and Hammarstedt \(2013\)](#); [Badgett \(2001\)](#); [Black, Sanders and Taylor \(2007\)](#); [Buser, Geijtenbeek and Plug \(2018\)](#); [Carpenter et al. \(2018\)](#); [Patacchini, Ragusa and Zenou \(2015\)](#); [Plug, Webbink and Martin \(2014\)](#).

<sup>10</sup>[Aksoy et al. \(2020\)](#); [Andersen and Fetner \(2008\)](#); [Coffman, Coffman and Ericson \(2017b\)](#); [Fernandez, Parsa and Viarengo \(2019\)](#).

<sup>11</sup>[Akerlof and Kranton \(2000\)](#); [Akerlof \(2017\)](#); [Bisin and Verdier \(2000, 2001\)](#); [Carvalho \(2012\)](#); [Fernández \(2013\)](#); [Guiso, Sapienza and Zingales \(2006\)](#); [Sambanis and Shayo \(2013\)](#); [Shayo \(2009\)](#)



while the data are presented in Section 4. In Section 5, we outline our empirical strategy and Section 6 presents the results. Section 7 details a series of alternative explanations and robustness checks. A final section concludes.

## 2 Background

In this section, we briefly discuss the movement for equal rights for sexual minorities in the United States that recently culminated in the legalization of same-sex marriage. We then highlight how the celibacy norm evolved to become a feature of the Catholic priesthood and how it may have contributed to the self-selection of gay men into the priesthood.

### 2.1 A Quest for Equality: Legalizing Same-Sex Marriage in United States

The movement for equality for sexual minorities gathered steam in the late 1960s, as part of the broader civil rights movement for women and racial minorities. Organizations began mobilizing gays, and engaged with political authorities in the public realm. An example is the “Kiss-ins” organized at straight bars to protest against bans on same-sex displays of affection (Tremblay and Paternotte 2015). Activists also refused to dress in accordance with mainstream culture, proclaiming their identity in defiance of heterosexual norms.

Furthermore, the gay rights movement used litigation to attain social and political change.<sup>12</sup> The legal battle for marriage equality began in the 1970s, albeit with limited initial success. In 1972, the U.S. Supreme Court denied appeal in *Baker v. Nelson*, a case where Minnesota Supreme Court ruled that failure to extend the marriage statute to same-sex couples was not unconstitutional. Following the ruling, a number of States passed laws that explicitly banned same-sex marriage.<sup>13</sup> In 1993, the Hawaiian Supreme Court in *Baehr v. Lewin* ruled that prohibiting same-sex marriage was likely unconstitutional. There was an immediate outcry against the ruling in many states and at federal level. In 1996, President Bill Clinton approved the Defense of Marriage Act (DOMA), allowing states to refuse recognition of same-sex marriages accepted in other states.

Despite these setbacks, however, significant progress was made in legalizing same-sex marriage. Between 1996 and 2015, fifteen states and the District of Columbia passed domestic

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<sup>12</sup>The foundations were laid in 1958 when the Supreme Court extended constitutional protection for a gay magazine, reversing a lower court finding that the publication was obscene (“The Court Cases That Changed L.G.B.T.Q. Rights”, New York Times, June 19, 2019).

<sup>13</sup>Maryland imposed a ban on same-sex marriage in 1973, Virginia in 1975, and California, Florida, and Wyoming in 1978.

partnership laws that recognized same-sex relationships, although they stopped short of fully recognizing same-sex marriage.<sup>14</sup> The passing of these civil union laws only strengthened the resolve of gay rights activists to achieve equal status for same-sex relationships through the legalization of same-sex marriage.<sup>15</sup>

On May 17, 2004, Massachusetts became the first state to legalize same-sex marriage, when the Massachusetts Supreme Court ruled in *Goodridge v. Department of Public Health* that denying a marriage license to same-sex couples violated the state constitution. Between 2004 and 2015, 33 additional states and the District of Columbia legalized same-sex marriage. Twenty-two of these laws were brought into effect through court rulings, while twelve more involved the legislative process. That left 16 states with statute provisions banning same-sex marriage in their jurisdiction. On June 26, 2015, in the landmark *Obergefell v. Hodges* ruling, the U.S. Supreme Court struck down these provisions and legalized same-sex marriage across the country.

## 2.2 The Catholic Priesthood, Celibacy and Homosexuality

There is no evidence that church leaders in the first millennia were required to practice lifelong celibacy (Frazee 1988; Gogan 2010).<sup>16</sup> The accent in this period appears to be on clerical continence following their ordination (Gogan 2010; Parish 2016). Clerical celibacy began to be advocated in the tenth and eleventh centuries, coinciding with the centralization of power in the Roman papacy and the rising wealth of the Church (Ekelund et al. 1996). The development of feudal institutions in Europe enabled the Church to acquire vast tracts of land for the upkeep of the clergy and other ecclesiastical institutions (Gogan 2010). This in turn raised the prospect of priests with children appropriating parish properties and revenues for their families, thus diminishing the Church’s wealth through inheritance (Ekelund et al. 1996). In 1139 CE, the Second Lateran Council formally adopted the law of priestly celibacy (Gogan 2010). As argued by Ekelund et al. (1996), the Roman papacy thus solved the problem of monitoring distant agents who might be tempted to appropriate Church property.

The norm of celibacy among Catholic priests, which developed independently of the Church’s position on sexual preference, may itself have led to over-representation of men

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<sup>14</sup>“Civil Unions and Domestic Partnership Statutes”, [National Conference of State Legislatures \(2019\)](#).

<sup>15</sup>The courts also recognized the difference in status between a civil union and a marriage. For instance, the Connecticut Supreme Court in 2008 ruled that offering homosexual couples civil unions in lieu of marriage amounts to unequal treatment “because the institution of marriage carries with it a status and significance that the newly created classification of civil unions does not embody.”

<sup>16</sup>According to Frazee (1988), “the great majority of clergymen in the West from Gregory the Great to the tenth century were married men.”. Gogan (2010) suggests that “marriage before ordination remained an option for the Roman Patriarchate as well as others in Christendom and was common practice until the 12th century in the West.”

with a homosexual preference within the priesthood. The celibate life of Catholic priests could have attracted both men who had relatively poorer marital prospects in the outside world and homosexual men encouraged by their families to enter holy orders.<sup>17</sup> Actually, the Church's position regarding homosexuals has always been ambiguous. While protective of homosexuals within its rank, it persistently condemned same-sex desires.<sup>18</sup> One illustration of this ambiguity is a famous public letter addressed to the Pope during the XIth century, in which Saint Peter Damian directly attacked part of his ecclesiastic readership, stating: "Now I come face to face with you, Sodomite, whoever you are" (Damian, Hoffman and Iniguez 2015). Describing the behavior of certain bishops, Saint Peter Damien added, "They engage with unnatural, incestuous acts with their spiritual children, with men they have brought over from the world into the monastery or men they have ordained to the clergy."

The debate on homosexuality in the priesthood remains lively and explicit, even within the Catholic Church. A text published in 1967 by the New Catholic Encyclopedia suggests an ambiguity between homosexuality and the Catholic priesthood: "[the homosexual] needs a vocation of service to God and to men that the priest can help him to find".<sup>19</sup> In 2002, American bishops officially brought before the Vatican the question of whether a diocesan Bishop is permitted to ordain men who manifest homosexual tendencies. Both the question and the reply show the prominence of the issue of homosexuality in the Catholic priesthood. The Vatican responded in a *Notitae*, or an official publication of the Sacred Congregation for the Sacraments and Divine Worship. The response states in particular: "[...] This Dicastery considered it opportune to send this response, which is also being published because of its special importance." The *notitae* then reaffirms the Church's official position on homosexuality: "The ordination of homosexual men or those with homosexual tendencies to the diaconate or to the priesthood is absolutely inadvisable and imprudent and, from a pastoral point of view, very precarious. As such, a homosexual person, or one with homosexual tendencies, is unfit to receive the sacrament of holy Orders." (Notitae 38 (2002), 586).

In 2005, the Vatican issued another instruction on the criteria for admission to the seminaries and for ordination.<sup>20</sup> Although, it reconfirmed that homosexual men are unsuitable for priesthood, it made a distinction between those with "deep-seated homosexual tendencies" and those for whom "homosexual tendencies" were the "the expression of a transitory

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<sup>17</sup>Posner (1994, p. 152- 154).

<sup>18</sup>On the protective aspect of the Church towards homosexuals, see, for instance, Mott and Assuncao (1989) or Ruggiero (1985).

<sup>19</sup>The New Catholic Encyclopedia (1967).

<sup>20</sup>"Instruction Concerning the Criteria for the Discernment of Vocations with regard to Persons with Homosexual Tendencies in view of their Admission to the Seminary and to Holy Orders", Congregation for Catholic Education (2005). [Link](#).

problem”. The Church advised that for the latter type of candidates “such tendencies must be clearly overcome at least three years before ordination to the diaconate.”.

### 3 Conceptual Framework

In this section, we propose a static utility model, inspired by the framework of [Akerlof and Kranton \(2000\)](#), that incorporates lifestyle choice. Given our hypothesis, we restrict our attention to two lifestyles: a priest’s lifestyle  $p$  and a gay lifestyle  $g$ .

An individual  $i$  can “invest” an effort  $e_{i,g} \geq 0$  in order to adopt a gay lifestyle  $g$ . For example, marrying someone of the same sex or going to a gay pride event could be considered as “investments” that signal a gay lifestyle. The investment  $e_{i,g}$  entails a quadratic cost  $c(e_{i,g}) = \frac{e_{i,g}^2}{2}$ . An agent’s utility from a gay lifestyle depends on both his inner identity and social factors such as relationship opportunities and social stigma. We denote  $d_{i,g}$  individual  $i$ ’s inner gay identity, which we assume fixed and drawn from a uniform distribution on the segment  $[0, 1]$ . We propose the following utility function when individual  $i$  comes out:

$$u_{i,g}(e_{i,g}) = -c(e_{i,g}) + \underbrace{e_{i,g}d_{i,g}}_{\text{Intrinsic payoff}} + \underbrace{e_{i,g}(\alpha_0 x_g - \gamma_0)}_{\text{Social payoff}}. \quad (1)$$

The utility (1) depends on two factors. First, individual  $i$  has an intrinsic payoff associated with the adoption of a gay lifestyle. We assume through our simple specification that there is complementarity between individual  $i$ ’s investments in a gay lifestyle  $e_{i,g}$  and his inner gay identity. This assumption is based on the idea that a gay identity makes an individual more willing to invest in a gay lifestyle. Second, individual  $i$  has a social payoff associated with the adoption of a gay lifestyle. The parameter  $x_g \in [0, 1]$  corresponds to the likelihood of individual  $i$  finding a gay partner. The coefficients  $\alpha_0 \in [0, 1]$  measures the value of forming a gay relationship. Finally, parameter  $\gamma_0 \in [0, 1]$  measures the social stigma associated with adopting a gay lifestyle. Individual  $i$ ’s investments in a gay lifestyle  $e_{i,g}$  are more productive when the likelihood of finding a gay partner increases, and less productive when the stigma associated with a gay lifestyle increases. Upon coming out, an individual chooses an investment  $e_{i,g} \geq 0$  that maximizes his utility  $u_{i,g}$ .

We model the decision to join the priesthood in a similar way. An individual  $i$  can invest an effort  $e_{i,p} \geq 0$  when he chooses to become a priest. Indeed, becoming a priest entails the cost of breaking social ties or the vow of celibacy. We propose the following utility function when an individual  $i$  joins the priesthood:

$$u_{i,p}(e_{i,p}) = -c(e_{i,p}) + e_{i,p}d_{i,p}, \quad (2)$$

with  $c(e_{i,p}) = \frac{e_{i,p}^2}{2}$  and  $d_{i,p}$  individual  $i$ 's inner preference for becoming a priest, which we assume is drawn from a uniform distribution on the segment  $[0, 1]$ . Key to our analysis, because of the celibacy requirement, the utility of a priest  $u_{i,p}$  is independent of relationship opportunities  $x_g$ , of the value of forming a relationship  $\alpha_0$ , and of the social stigma  $\gamma_0$  associated with a gay lifestyle. We abstract in this stylized model from the potential social payoff from celibacy and more broadly from entering the priesthood.

Individual  $i$  thus chooses to adopt a gay lifestyle when

$$\max_{e_{i,g} \geq 0} u_{i,g}(e_{i,g}) > \max_{e_{i,p} \geq 0} u_{i,p}(e_{i,p}), \quad (3)$$

while he chooses to join the priesthood otherwise.

In the context of the model, legalization of SSM has a twofold effect on lifestyle choices. First, once gay men can marry, we assume that the value of forming a gay relationship increases from  $\alpha_0$  to  $\alpha_1 > \alpha_0$ . For instance, [Chen and van Ours \(2020\)](#) find that the institution of same-sex marriage plays a symbolic role, stabilizing partnership by decreasing the separation rate. Similarly, [Hamermesh and Delhomme \(2020\)](#) find that the marital surplus of same-sex couples increases with SSM reform. Finally, [Badgett \(2009\)](#) argues that same-sex couples are deprived of economic support for their families and are not granted the same rights with respect to taxation, employee benefits, and dissolution when not married. The author also argues that same-sex marriage is seen as more desirable by same-sex couples than domestic partnerships, civil unions or registered partnership.

Second, SSM legalization affects the stigma  $\gamma_0$  associated with a gay lifestyle. Several mechanisms may lie behind this evolution. Social attitudes toward the gay community may improve with the reform.<sup>21</sup> Alternatively, because marriage makes a gay lifestyle more visible, it can expose gay men to more stigma. Hence, we assume that with the passing of the reform laws,  $\gamma_0$  changes to  $\gamma_1$ , while we remain agnostic on the direction of this change.

Solving the optimization problem (3), we establish the following result:

**Proposition 1** *Legalization of SSM decreases the fraction of individuals choosing to join the priesthood by increasing coming out decisions if and only if  $(\alpha_1 - \alpha_0)x_s \geq \gamma_1 - \gamma_0$ .*

The main intuition behind Proposition 1 is that fixing the identity parameters  $d_{i,g}$  and  $d_{i,p}$ , gay men may self-select into the priesthood as a way to (i) avoid stigma (i.e. high  $\gamma_0$ ), because (ii) they have few relationship opportunities (i.e. low  $x_g$ ), or because (iii) the payoff associated with forming a gay relationship is low (i.e. low  $\alpha_0$ ). The legalization of

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<sup>21</sup>Across Europe, [Aksoy et al. \(2020\)](#) find that SSM legalization is associated with an improvement in social attitudes toward sexual minorities.

SSM changes both their exposure to social stigma  $\gamma_0$  and their payoff from being in a gay relationship  $\alpha_0$ .

If the increase in payoff from forming a gay relationship  $(\alpha_1 - \alpha_0)x_s$  is higher than the reform’s effect on stigma  $\gamma_1 - \gamma_0$ , then legalization makes men more willing to come out. Alternatively, if legalization exposes the gay lifestyle to increased stigma, then we should expect the exact opposite. The laws will *backfire* and incite more gay men to join the priesthood to avoid the stigma associated with a gay lifestyle.

In summary, this conceptual framework provides micro-foundations for our empirical investigation of the effect of SSM legalization on enrollment in priestly studies. It does so by deriving two important results. First, following legalization, we find that there is a one-to-one relationship between gay men’s willingness to come out and reduced enrollment in studies for the Catholic priesthood. Second, we derive from our model that gay men’s willingness to come out is primarily affected by the presence of a gay community and the social stigma associated with a gay lifestyle.

## 4 Data and Stylized Facts

Our empirical analysis examines the timing of SSM legalization and enrollment in Catholic seminaries. We collect data on Catholic seminaries from academic years 2000 to 2015 and combine the enrollment information with data on SSM reform in the United States. In the following section we discuss the main outcome and explanatory variables.

*Outcome Variable.* — The main outcome variable is enrollment in priestly studies. This is a city-level measure we constructed from data on Catholic seminaries acquired from the Center for Applied Research in the Apostolate (CARA). The dataset contains seminary-level information on the number of students enrolled as well as the *type* of studies. In addition to preparing candidates for priestly duties, Catholic seminaries also train candidates to perform various tasks essential to the daily functioning of Catholic churches, such as assisting priests during Mass and managing religious education and youth ministry. The two main such vocations are “Deacon” and “Lay minister”. A key feature distinguishing them from priests is that there is no requirement for celibacy.

We use their location identifier to aggregate the data at the city level.<sup>22</sup> We restrict our analysis to the period 2000–2015. Legalization of SSM started in Massachusetts in 2004, and

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<sup>22</sup>Table A.1 and Table A.2 of the Online Appendix show the sample of cities in our dataset. Sub-section A.1.1 of the Online Appendix provides more details on the construction of the Catholic seminary enrollment variables.

the final step was taken on June 26, 2015 when the United States Supreme Court mandated all states to recognize same-sex marriage.

*Explanatory Variable.* — The key explanatory variable in our analysis is a state-level indicator that switches to one from the year a state legalized SSM.<sup>23</sup> Table A.3 of the Online Appendix describes the timing of SSM legalization across states.

We also construct measures to identify the Gay Pride tradition, compiling a novel city-level dataset on Gay Pride parades as follows. We consulted the most recent Gay Pride Calendar, which reports pride events held across US cities,<sup>24</sup> and then accessed all those pride event websites to identify when the first pride parade was held. When the event history was not available on an official website, we searched local newspapers. Working from 213 pride events scheduled in 2020, we were able to identify 152 Gay Pride parade histories to create two variables of interest. The first variable is an indicator that takes the value 1 if a Gay Pride parade was held in a given city prior to SSM reform in *any* state. The second variable measures the number of years a Gay Pride parade was held in a given city prior to the first SSM reform anywhere.<sup>25</sup> Note that our dataset does not identify pride events held at some point in history but since discontinued.

Finally, we create a measure of attitudes toward LGBT. The data is obtained from the American National Election Studies (ANES) biannual surveys.<sup>26</sup> These surveys include a “feeling thermometer” variable that asks respondents to rate gays and lesbians on a scale of 0 to 100 (a score of 100 implies the most positive feeling). The respondents can be identified geographically at the state level. We calculate an average feelings score by state for the survey years and perform linear interpolation to estimate the feelings score in the non-survey years.

*Control Variables.* — We use several additional variables as controls. First, we calculate each state’s number of Catholics and total population from the U.S. Religion Census data reported decennially for years 1990, 2000, and 2010. In addition, we calculate the number of Catholics and total population for 2018 from the Official Catholic Directory. We use this data to estimate the proportion of Catholics in each state’s population for the census years and perform linear interpolation to estimate this proportion for the non-census years. Second, we collect monthly state-wise unemployment data from the Bureau of Labor Statistics and use their yearly average to calculate the annual unemployment rate. Finally, we collect data on the state-wise implementation of non-discrimination laws from the Movement Advancement

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<sup>23</sup>The information on the legalization of same-sex marriage is publicly available. See, for instance, [ProCon.org](http://ProCon.org). The website reports the timing and method of legalization across states.

<sup>24</sup>See <https://www.gaypridecalendar.com/>.

<sup>25</sup>In our dataset, the first Gay Pride event was held in New Orleans in 1958.

<sup>26</sup>During the period of our study, ANES carried out surveys in years 2000, 2002, 2004, 2008, 2012 and 2016.



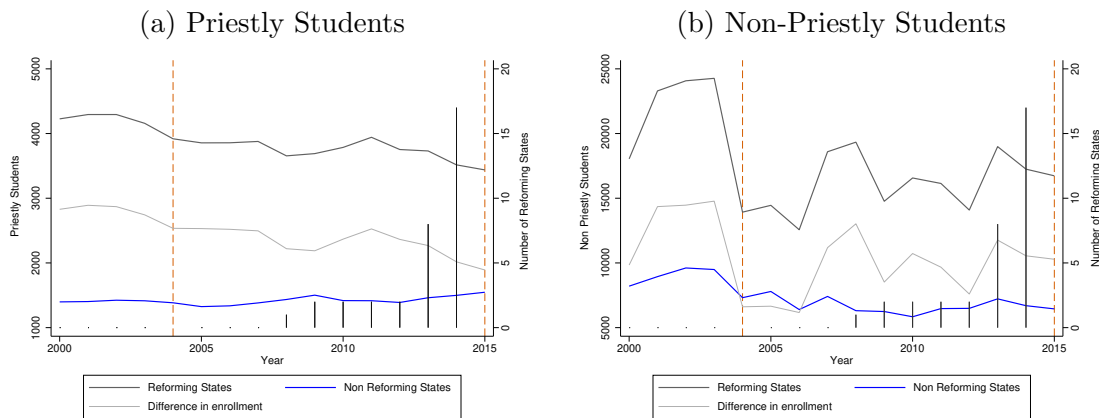
Project. Employment non-discrimination laws protect LGBT people from unfair hiring and firing or workplace discrimination on the basis of sexual identity. We construct a binary variable that takes the value 1 from the year a state enforced a non-discrimination law.

The summary statistics of the main variables used in the empirical analysis are reported in Table A.1.2 of the Online Appendix.

*Enrollment trends.* — Figure 2 depicts the enrollment trend in Catholic seminaries in the United States over the 2000-2015 period. Panel (a) compares enrollment in priestly studies in states adopting SSM reform with enrollment in non-reforming states. There is a sharp decline in enrollment in reform-adopting states relative to non-reforming states from 2011 onwards, the period during which twenty-nine states legalized SSM prior to the Supreme Court intervention. However, Panel (b) shows that enrollment in non-priestly studies within Catholic seminaries does not exhibit a similar pattern.

Of course, the observed decline in enrollment in studies for the priesthood could be due to other factors coinciding with SSM reform. We investigate this in the following regression framework.

Figure 2: Enrollment in Catholic seminaries and SSM reforms



Source: Authors' computation from CARA data. Non-Priestly Students include Deacon and Lay ministry students within the Catholic seminaries. See text for details. In 2004, Massachusetts became first state to legalize same-sex marriage. The United States Supreme Court legalized same-sex marriage across the country on June 26, 2015. Non-reforming states are those states which did not legalize same-sex marriage until the Supreme Court intervention.

## 5 Empirical Framework

We examine the effect of SSM reforms on enrollment in priestly studies using a differences-in-differences (DD) strategy. We estimate a model of the following form:



$$Enrollment_{cst} = \beta SSM_{s,t-1} + \eta' \mathbf{X}_{st} + \lambda_s + \mu_t + \omega_{st} + e_{cst}, \quad (4)$$

where the dependent variable is the number of students enrolled in priestly studies in city  $c$  of state  $s$  in the academic year  $t$ .  $SSM_{s,t-1}$  is a dummy that switches to 1 if state  $s$  legalized SSM in the previous calendar year. The lag structure allows us to test the effect of legalizing SSM on enrollment in the subsequent academic year. For instance, if SSM was legalized in state  $s$  in 2012, we estimate its effect on enrollment in the 2013 academic year (2012-13). The coefficient of interest is  $\beta$ , and it measures the average change in enrollment in priestly studies in states legalizing SSM compared to non-reforming states.

In addition, all estimates include a vector of state dummies ( $\lambda_s$ ) controlling for mean difference in enrollment in priestly studies across states, and year dummies ( $\mu_t$ ) controlling for enrollment change common to all states. We also include state-level controls for unemployment rate and proportion of Catholics, and linear state time trends. The linear state time trends ( $\omega_{st}$ ) allow for unobserved state-specific priestly studies enrollment propensities to trend linearly over time. Standard errors are clustered within states to account for serial correlation (Bertrand, Duflo and Mullainathan 2004).

## 6 Results

### 6.1 Baseline Findings

Table 1 presents SSM legalization’s effect on enrollment in priestly studies. It can be seen from the point estimate of -10.6 in column (1), after removing mean state enrollment levels and time effects common across states, that city-level enrollment fell on average by approximately 11 candidates for the priesthood in reform-adopting states. Given the sample average of 64 students, this magnitude implies a decrease in enrollment of 16.5% in states that legalized SSM.

In column (2), we relax the common trend assumption and control for state-specific linear time trends, as there might be smoothly evolving omitted variables affecting enrollment in priestly studies and SSM legalization across states. For instance, it is possible that a trend toward ‘secularization’, varying across states, both reduced enrollment in Catholic seminaries and influenced public opinion in favor of SSM legalization. The coefficient of interest in column (2), 6.6, is smaller following the inclusion of state-specific linear time trends. This smaller magnitude is consistent with our omitted variable interpretation, i.e. factors correlated with a relative decline in enrollment in priestly studies led states to legalize SSM. In columns (3) and (4) we add controls for state-level Catholic population and unemployment

rate, to account for concurrent changes in religious demography and in the labor market across states. The coefficient of interest is statistically robust and larger when these state-level controls are included. Comparing the magnitude in Column 4, which includes the full set of controls, to the sample average of 63.6 students enrolled in priestly studies, we find a decline of 14.5%. Overall, the baseline finding is consistent with the first prediction of our stylized model: legalizing SSM induced a decline in enrollment in priestly studies by incentivizing coming out.

Before assessing the identifying assumptions underpinning a causal interpretation, we perform two key robustness checks. First, we assess whether our average treatment effect is valid even in the presence of heterogeneous treatment effects (de Chaisemartin and d’Haultfoeuille 2020). Second, we check whether the estimated standard errors might be biased downwards due to a potentially small number of clusters (Cameron and Miller 2015). We perform diagnostics, detailed in Online Appendix subsections A.3.1 and A.3.2, and rule out these concerns.

Table 1: Impact of the SSM law on the Enrollment of Priestly Students

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-10.593** (3.905)	-6.581* (3.510)	-9.194** (3.452)	-9.201** (3.420)
Catholic population share			3.308** (1.458)	3.324** (1.471)
Unemployment rate				-0.196 (1.298)
Observations	1,333	1,333	1,333	1,333
R-squared	0.383	0.395	0.396	0.396
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. **Dep. var. mean**=63.56. Number of states (s)=30. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level.

## 6.2 Identification Issues

The validity of our differences-in-differences (DD) design rests on the assumption that the timing of SSM reform was *as if* random. This assumption would be violated if the reform’s

timing reflects pre-existing differences in enrollment across states - which would also imply that the parallel trends assumption is violated. For instance, it is plausible that a trend toward secularization preceded SSM legalization, and that this trend also led to declining enrollment in priestly studies.

Secondly, as the nationwide call for SSM legalization clearly got underway, Catholic seminaries may have responded preemptively by promoting enrollment in deacon or lay ministry studies.<sup>27</sup> We perform three robustness checks to test the validity of our DD estimator.

First, we implement a flexible event study design to identify any pre-existing trends in enrollment in priestly studies across the reforming and non-reforming states. The absence of pre-existing trends would rule out a spurious relationship between enrollment data and the timing of SSM reforms. In addition, the flexible event study design also allows us to test the dynamics of enrollment following SSM reform. Our event study specification takes the following form:

$$Enrollment_{cst} = \sum_{\tau=-q}^{-1} \gamma_{\tau} SSM_{s\tau} + \sum_{\tau=0}^m \delta_{\tau} SSM_{s\tau} + \eta' \mathbf{X}_{st} + \lambda_s + \mu_t + \omega_{st} + e_{cst} \quad (5)$$

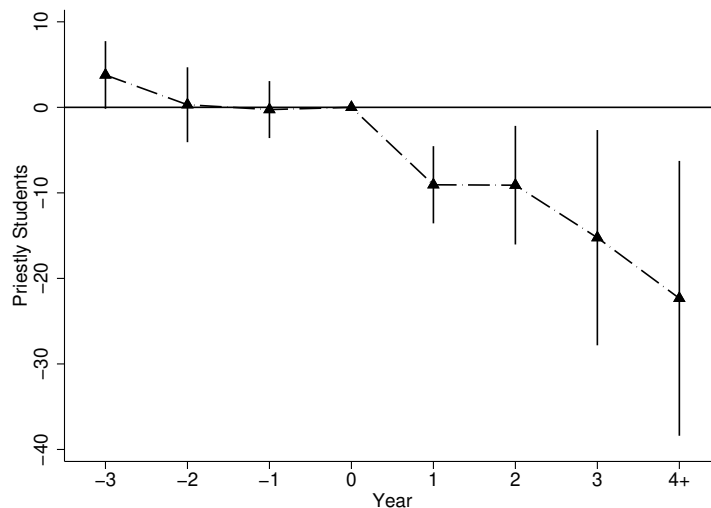
We modify the baseline equation (4), adding categorical variables for 1 to 3 years before SSM legalization, 0 to 3 years after SSM legalization, and 4 years or more after. The categorical variable for year 0 is treated as the reference year, and it is set to zero, since we expect the SSM legalization to impact enrollment in the following academic year and onwards. The statistically significant effect of year indicators before legalization would suggest the presence of an anticipatory effect of SSM legalization on enrollment in priestly studies.

Figure 3 shows the dynamic estimates of SSM reform's impact on enrollment in priestly studies. The lead effects are statistically not different from zero. However, enrollment declines sharply by about nine students in the first academic year after SSM is legalized (the effect is significant at 1% level). The decline in enrollment persists, reaching a peak in year 4 and after (all lag coefficients are significant at the conventional levels). Overall, our results indicate that SSM reform resulted in a persistent decline in enrollment in priestly studies.

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<sup>27</sup>Between 2004 and 2007, only one state adopted the SSM reform. However, between 2008 and 2014, thirty-three more states and D.C. legalized SSM. The Catholic seminaries may have pre-empted the legalization of same-sex marriage across the country by shifting resources towards deacon and lay ministry studies.

Figure 3: Dynamics of Legalizing Same-Sex Marriage on Priestly Enrollment



*Notes:* The model is estimated with state and year dummies, state specific linear time trends and state level controls. Year 0 is normalized to zero.

Next, we perform a placebo analysis to assuage concern that the timing of SSM reform could have coincided with a secularization trend, which in turn could have reduced enrollment in Catholic seminaries. Specifically, we consider the impact of SSM reform on enrollment in studies for the diaconry and lay ministry.

In our stylized model, gay men may adopt the celibate lifestyle of the Catholic priesthood to avoid the stigma associated with a gay lifestyle, or because they have few opportunities to find a romantic partner. Therefore, since SSM legalization raises the value of a gay relationship (i.e.  $\alpha_0$  increases), it may reduce the number of men willing to join the priesthood.<sup>28</sup> However, Catholic seminaries also train deacons and lay ministers, who perform key pastoral duties in Catholic churches but do not make a vow of celibacy. Consistent with our stylized model, SSM legalization should not reduce enrollment in deacon and lay ministry studies.

Arguably, deacons and lay ministers differ from priests in other ways, which could explain their differing response to legalization of SSM. For instance, the higher sacrifice associated with a priest's celibate lifestyle should induce self-selection of more committed members of the church (Iannaccone 1992). However, in that case there should be a decline in enrollment in studies for the diaconry and lay ministry than priestly studies, arising from a relatively lower impetus to join Catholic seminaries.<sup>29</sup>

<sup>28</sup>An alternative possibility is that following SSM reform, individuals might switch to non-priestly studies that enable them to continue performing pastoral duties. If this substitution occurs, we should observe higher enrollment in non-priestly studies following legalization of SSM.

<sup>29</sup>It could be argued that Catholic priests perform specific functions that might, following same-sex marriage reform, make the occupation less attractive. In particular, the prospect of solemnizing same-sex marriages

Table 2 presents the results for enrollment in studies for the diaconry and lay ministry. Legalization of SSM has no effect on such enrollment in Catholic seminaries, and this null effect is crucial to interpreting our results. It implies that where a Catholic vocation does not require celibacy, SSM legalization has no effect on associated enrollments. In other words, our results cannot be attributed to an overall decline in the attractiveness of enrolling in a Catholic seminary, which could be due a secularization trend in states legalizing same-sex marriages.

Our final robustness check exploits the fact that most SSM laws were passed through court orders rather than legislative rulings.<sup>30</sup> We perform a sub-sample analysis where we only assess the effect of SSM legalization through court orders, since these reforms are less likely to be driven by underlying change in public opinion.

State and federal courts began to pass SSM laws in states like Massachusetts, Iowa, and Connecticut before 2010, even though opinion polls did not reflect positive public opinion of gay marriage until 2011-2013 (Sansone 2019). The justice system’s independence from public opinion is reflected in the remark by Justice Kennedy in *Obergefell v. Hodges* (Sansone 2019): “Of course, the Constitution contemplates that democracy is the appropriate process for change, so long as that process does not abridge fundamental rights. [...] It is of no moment whether advocates of same-sex marriage now enjoy or lack momentum in the democratic process. The issue before the Court here is the legal question whether the Constitution protects the right of same-sex couples to marry.” Table 3 shows the effect of SSM legalization on enrollment in priestly studies in states where the law was passed through a court order. The reform has a greater effect on enrollment than predicted from the baseline estimates: the average decline in enrollment attributable to SSM legalization through court orders ranges between 10% and 20% depending on choice of specification.<sup>31</sup> This further indicates that evolving public opinion on same-sex marriage is unlikely to drive the relationship between SSM legalization and the decline in enrollment in priestly studies.

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could deter those opposed to gay marriage from entering the priesthood. This explanation is not plausible, however, since deacons and, in exceptional cases, lay ministers also solemnize Catholic weddings. More importantly, the Catholic Church does not recognize same-sex marriages and hence the clergy does not face the prospect of performing such marriage rites.

<sup>30</sup>It is instructive to note that SSM laws, unlike unilateral divorce laws, were predominantly implemented through court orders (see Table A.3). Out of the thirty-five states (including D.C.) that legalized SSM prior to 2015, 22 states implemented the reform through court orders.

<sup>31</sup>The exclusion of states using legislative orders leads to loss of 30% of our original sample, which increases the standard errors in specifications with court orders only. Still, the coefficient of interest is statistically significant at the usual threshold level in three out of four columns.

### 6.3 Potential Channels

In this section we assess the prediction of our stylized model that willingness to come out is mainly affected by the presence of a gay community and the social stigma associated with a gay lifestyle.

**Gay community.** Because legalizing same-sex marriage increases the benefit from being in a gay relationship, its overall effect on men’s willingness to come out depends on their likelihood of finding a partner. Hence, as predicted in our conceptual framework, in areas where men are more likely to find gay partners (i.e.  $x_g$  is high), SSM reform is predicted to have a more significant effect on enrollment in priestly studies.

We test this theoretical prediction by exploiting variation in the spatial distribution of the Gay Pride movement across the United States. Since the sixties, the gay community has used pride parades as a medium for public expression, allowing a large number of gay people to converge in a city. For example, the annual Folsom Street Fair in San Francisco attracts over 250,000 enthusiasts.

As pride parades are a key indicator of the presence and strength of gay communities, we hypothesize that the likelihood of forming a gay relationship is higher in cities that have a tradition of hosting Gay Pride events. We find that SSM legalization only has an effect on enrollment in priestly studies in cities with a history of holding Gay Pride events. The results are presented in Table 4, where we interact the  $SSM_{s,t-1}$  dummy with a  $Pride_i$  dummy that takes a value of 1 if city  $i$  held a Gay Pride event prior to 2004. This result suggests that the presence of a gay community is crucial in explaining the effect of SSM reform on sexual identity choices. In a similar vein, we also find that cities with a longer tradition of Gay Pride parades experienced a greater decline in the number of students preparing for the priesthood following SSM legalization (results are reported in Table A.8 in the Online Appendix.). The result is also consistent with the idea the cities with a longer history of Gay Pride parades may attract gays to settle there long-term.

**Social attitudes towards gays.** The reform’s effect on identity expressions should also be conditioned by social attitudes toward gay people. Indeed, because same-sex marriage makes a gay lifestyle more visible, it can expose gays to greater stigma, as predicted by the model (i.e. when  $\gamma_1 > \gamma_0$ ). If legalizing same-sex marriage increases more the stigma associated with adopting a gay lifestyle than it increases the value of forming a gay relationship, then fewer gays will decide to come out. The law can thus backfire, leading to *fewer* individuals choosing to come out and more men deciding to join the priesthood (Proposition 1). Conversely, if SSM legalization increases more the benefit from forming a gay relationship than it increases

the stigma associated with a gay lifestyle, then there is no backfire effect. We find evidence consistent with both predictions.

To test these hypotheses, we create a binary variable that takes value 1 if the average feelings score in state  $s$  was above the national average. In Table 5, we interact the  $SSM_{s,t-1}$  dummy with a  $Social\ Attitude_{s,t}$  dummy that takes value 1 if the average “feeling thermometer” score in state  $s$  was above national average in year  $t$ . The coefficient of the SSM law dummy is positive and statistically significant at 1% level in all specifications. This result suggests that in states showing more negative social attitudes toward gays and lesbians than the national average, legalization of SSM increases enrollment in priestly studies the subsequent academic year. The interaction term, on the other hand, is negative and statistically significant at the 1% level. Table A.9 in the Online Appendix shows qualitatively similar results obtained with a continuous measure of the feeling thermometer. The magnitude indicates that the increased enrollment in states with more negative views of gays and lesbians is more than compensated by a decline in enrollment in states where attitudes toward gays and lesbians are more positive than the national average. Together, these results support our prediction that social attitudes play an important role in shaping lifestyle choices following legalization of same-sex marriage.

Consistent with our model, we interpret these results as evidence that SSM legalization increases gay men’s exposure to social stigma in those areas where social attitudes toward gays are the most negative. Actually, we find that the increase in social stigma is not related to changes in prevailing social attitudes toward gays in general.<sup>32</sup> Rather, it seems that the increase in stigma associated with the gay identity is intrinsically related to the institution of marriage itself, which increases the visibility of the gay identity - a visibility that some might seek to avoid in areas where it is viewed negatively.

Finally, the spatial distribution of gay communities can reasonably be expected to be correlated with more positive social attitudes toward gays. Hence, in order to disentangle the effect of social attitudes from the effect of the presence of gay communities, we conducted an additional regression to control for the interactions of the  $SSM_{s,t-1}$  dummy with both the  $Social\ Attitude_{s,t}$  and the  $Pride_i$  dummies. We find that both social attitudes toward gays and the spatial distribution of gay communities are significant in explaining our results (Online Appendix Table A.10).

To summarize, we find that the relative payoff of choosing to join the priesthood instead of coming out is primarily affected by (i) the spatial distribution of gay communities, and (ii) social attitudes toward gays. Legalization of same-sex marriage has no effect on enrollment

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<sup>32</sup>In Online Appendix Table A.11 we test the impact of SSM laws on social attitudes toward the LGBT population and find no effect.

in priestly studies in areas where there is no gay community. Likewise, attitudes toward gays are a key independent determinant of coming out decisions. More positive attitudes lead gay men to come out after SSM legalization. Conversely, in areas where attitudes are more negative, legalization can backfire and make gay men *less* willing to come out.



Table 2: Impact of the SSM law on the Enrollment of Deacon and Lay Ministry Students

Number of Students	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Deacon	Deacon	Deacon	Deacon	Lay minister	Lay minister	Lay minister	Lay minister
SSM Law (t-1)	-0.266 (1.200)	1.735 (1.391)	1.662 (1.460)	1.673 (1.475)	-31.864 (28.901)	0.520 (21.712)	-2.863 (21.394)	-2.875 (21.494)
Catholic population share			0.140 (0.523)	0.144 (0.513)			5.742 (4.247)	5.736 (4.264)
Unemployment rate				0.159 (0.524)				0.136 (6.846)
Observations	2,392	2,392	2,392	2,392	2,693	2,693	2,693	2,693
R-squared	0.206	0.227	0.227	0.227	0.110	0.141	0.141	0.141
State and Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. In columns 1-4 the dependent variable is the number of students enrolled in Diaconate studies. **Dep. var. mean: Deacon=22.** In columns 5-8 the dependent variable is the number of students enrolled in the Lay Ministry studies. **Dep. var. mean: Lay minister=128.97.** Number of states (s)=50. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level.

Table 3: SSM laws passed through Court Orders and Enrollment of Priestly Students

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-11.331*** (3.179)	-6.505 (3.932)	-8.478* (4.069)	-7.829* (4.158)
Catholic population share			3.724** (1.560)	3.650** (1.551)
Unemployment rate				1.034 (1.114)
Observations	970	970	970	970
R-squared	0.260	0.271	0.272	0.272
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. **Dep. var. mean**=57.2. Number of states (s)=30. Standard errors are clustered at the state level. Unemployment rate and Catholic population is measured at the state level.

Table 4: Impact of the SSM Law and the Presence of Gay Communities on Priestly Enrollment

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-5.760 (4.259)	0.191 (4.693)	-2.398 (4.689)	-2.402 (4.667)
Pride (pre-2004)	14.045 (17.572)	14.629 (18.066)	14.753 (18.056)	14.750 (18.058)
SSM Law (t-1) $\times$ Pride (pre-2004)	-24.034 (14.655)	-33.230** (13.171)	-35.798*** (12.532)	-35.800*** (12.547)
Catholic population share			3.931** (1.503)	3.941** (1.501)
Unemployment rate				-0.130 (1.262)
Observations	1,333	1,333	1,333	1,333
R-squared	0.389	0.402	0.403	0.403
State and Year Dummies	Yes	Yes	Yes	Yes
State Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level. Pride is a dummy that takes value 1 if at least one Gay Pride event was being organized in city  $i$  before the passing of the first SSM reform in 2004.

Table 5: Impact of the SSM Law and Social Attitude on the Enrollment in Priestly Studies

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	12.685*** (2.398)	14.838*** (3.025)	12.739*** (3.015)	12.834*** (3.437)
Social Attitude	-2.893 (4.337)	-5.063 (4.932)	-4.417 (4.821)	-4.437 (4.745)
SSM Law (t-1) $\times$ Social Attitude	-25.147*** (3.340)	-23.981*** (3.599)	-24.249*** (3.512)	-24.349*** (3.989)
Catholic population share			3.115** (1.433)	3.101** (1.433)
Unemployment rate				0.157 (1.167)
Observations	1,333	1,333	1,333	1,333
R-squared	0.383	0.396	0.397	0.397
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level. Social attitude is a dummy that takes value of 1 if average feelings towards gays and lesbians was above national average in state  $s$  in year  $t$ .

## 7 Alternative Explanations

In the final part of our empirical analysis, we address plausible alternative explanations of our results such as migration, reduced discrimination in the labor market, and socialization into a gay lifestyle within Catholic seminaries.

**Migration.** We examine whether our baseline finding is driven by migration of prospective candidates for the priesthood. For instance, a prospective candidate for the priesthood might choose to enroll in a seminary in a non-reforming state if he is against SSM legalization. This could explain the decline in enrollment that follows same-sex marriage reform in a given state. We address this concern by restricting the sample to those students already enrolled in priestly studies when the state legalized same-sex marriage.<sup>33</sup> Results presented in Online Appendix Table A.12 suggest that SSM legalization generated a significant exodus of students from priestly studies in Catholic seminaries. Compared to a sample average of 34 students, Column 4 shows a 13% drop-out rate among students already enrolled in priestly studies when same-sex marriage was legalized.

In addition, we can directly estimate the effect of SSM legalization in neighboring states: if the migration hypothesis holds, enrollment in a given state should also be impacted by its neighbors' adoption of SMS reform. In Online Appendix Table A.13 we include an additional binary variable SSM laws Neighbors (t-1) that switches to one if any of the neighboring states legalized SSM in the previous calendar year. The effect of neighboring states' SSM reform is negative but statistically not different from zero across all the columns. The coefficient of interest,  $\beta$ , is robust to controlling for neighboring states' reform and is slightly larger than the baseline point estimates. Our results indicate that enrollment in priestly studies in a state is only affected when that state itself legalizes SSM.

**SSM laws reduce discrimination in the labor market.** We next investigate the possibility that SSM legalization might indirectly affect enrollment in priestly studies by reducing labor market discrimination for gay men.<sup>34</sup> We control for the effect of the non-discrimination laws on employment passed by nine states during the period of legalization, from 2004 to 2014. These laws protect LGBT people from hiring and firing or workplace discrimination on the basis of sexual identity. We modify the baseline estimation and add a Non-Discrimination Law dummy (t-1) that switches to one if a state  $s$  passed a non-discrimination law in the previous calendar year. Results in Online Appendix Table A.14 suggest that non-discrimination

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<sup>33</sup>Online Appendix A.1.1 describes how we construct the priestly enrollment variable after excluding new enrollment in a given academic year.

<sup>34</sup>For instance, Sansone (2019) finds that individuals in same-sex couples were more likely to both be employed following the SSM reform.

laws have no effect on enrollment in priestly studies. Moreover, the SSM legalization dummy continues to have a robust negative effect on enrollment. We conclude that SSM legalization is unlikely to affect enrollment in priestly studies by reducing labor market discrimination.

**Socialization effects.** There is anecdotal evidence that the percentage of homosexuals in the Catholic clergy is significant.<sup>35</sup> Catholic seminaries could therefore provide opportunities for an individual to be socialized into a gay lifestyle. As a result, there could be more coming out of students that were socialized into a gay lifestyle in Catholic seminaries. The effect of SSM legalization on enrollment in priestly studies could reflect this, which would make our results less informative about the reform’s impact on coming out decisions in broader society. To test for socialization effects within seminaries, we divide total enrollment in priestly studies into two categories, first year and senior year students. In Online Appendix Table A.15, we test the effect of SSM reform on the proportion of first year students in the academic year following legalization. The coefficient across all columns is positive, the magnitude is small (relative to a sample mean of 28%) and statistically not different from zero. We conclude that SSM legalization does not disproportionately affect enrollment of students already enrolled prior to the reform relative to the new students. Hence, the results do not appear to be driven by socialization into a gay lifestyle within Catholic seminaries.

## 8 Conclusion

This paper provides evidence that the legalization of same-sex marriage has a significant impact on gay men’s willingness to come out. To identify plausibly causal effects, we assessed the effect of the staggered implementation of same-sex marriage reform in the United States on enrollment in Catholic seminaries. We exploited data on Catholic seminaries because of Catholic priests’ vow of celibacy, which could lead gay men to self-select as a way to avoid the stigma associated with a gay lifestyle.

Our analysis reveals that enrollment in priestly studies fell significantly in states legalizing same-sex marriage compared to non-reforming states. The celibacy requirement appears to drive this result, since we found no effect of same-sex marriage legalization on enrollment of potential deacons or lay ministers, who also perform pastoral duties but are not required to be celibate. We further demonstrated that the reform’s effect on enrollment in studies for the Catholic priesthood is entirely driven by (i) the spatial distribution of LGBT communities and (ii) social attitudes toward gays. Finally, we found that only legalized marriage, not

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<sup>35</sup>See the detailed discussion in [Posner \(1994, p. 154-155\)](#). Through interviews with more than 1500 priests, [Sipe \(2013\)](#) estimated that 20% of American priests have homosexual tendencies. In an LA Times survey of Catholic priests in 2002, about 15% identified as homosexual ([Los Angeles Times 2002](#)).

anti-discrimination laws, the secularization of society, or changing social attitudes, affected enrollment in priestly studies.

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**For Online Publication**

**Supplement to “Legalized Same-Sex Marriage  
and Coming Out in America: Evidence from  
Catholic Seminaries”**

## A.1 Data and descriptive statistics

Table A.1: Sample of cities with Catholic formation

Northeast Region	Midwest Region	South Region	West Region
Albany	Atchison	Alexandria (Louisiana)	Albuquerque
Allentown	Ava	Alexandria (Virginia)	Anchorage
Bethlehem	Baraboo	Alleyton	Berkeley (California)
Bloomfield	Belleville	Amarillo	Bethel
Braintree	Berkeley (Michigan)	Arcadia	Big Sur
Bridgeport	Bismarck	Arlington	Billings
Brighton	Canfield	Atlanta	Boise
Bronx	Carmel	Austin	Camarillo
Brooklyn	Carthage	Ave Maria	Casper
Buffalo	Cherokee	Baltimore	Chinle
Caldwell	Chicago	Baton Rouge	Colfax
Cambridge	Cincinnati	Beaumont	Colorado Springs
Camden	Collegeville	Bedford	Denver
Catskill	Columbus	Biloxi	Fairbanks
Center Harbor	Conception	Birmingham	Fresno
Cheshire	Crest Hill	Boynton Beach	Gallup
Chestnut Hill	Crookston	Brookville	Garden Grove
Chicopee	Davenport	Brownsville	Grand Terrace
Colchester	Dayton	Canyon	Great Falls
Cromwell	De Pere	Charles Town	Greenwood Village
Dalton	Denton	Charleston (South Carolina)	Helena
Danvers	Des Moines	Charleston (West Virginia)	Honolulu
Douglaston	Detroit	Charlotte	Juneau
Dunwoodie	Dodge City	Chillum	Kaneohe
East Aurora	Dubuque	Corpus Christi	Kaneohe, Oahu
Elmhurst	Duluth	Covington	Las Cruces
Erie	East Grand Rapids	Dallas	Las Vegas
Fairfield	East Lansing	El Paso	Loomis
Fall River	Epworth	Emmitsburg	Los Angeles
Framingham	Evansville	Evans	Menlo Park
Glen Cove	Fargo	Fayetteville	Milwaukie
Greenlawn	Fort Wayne	Fort Belvoir	Monterey
Greensburg	Franklin	Fort Worth	Napa
Harrisburg	Gaylord	Guthrie	Newcastle
Haverhill	Godfrey	Houston	Oakland
Hollidaysburg	Grand Rapids	Irving	Oceanside
Huntington	Green Bay	Jackson	Oxnard

Note: This Table shows cities in our main sample that contained Catholic formation studies during the sample years.

Table A.2: Sample of cities with Catholic formation (Contd.)

Northeast Region	Midwest Region	South Region	West Region
Jamaica	Hales Corners	Jacksonville	Pasco
Johnstown	Hannibal	Knoxville	Phoenix
Langhorne	Indianapolis	Lafayette (Louisiana)	Portland (Oregon)
Latrobe	Jefferson City	Lake Charles	Pueblo
Lawrence	Joliet	Laredo	Reno
Lodi	Kalamazoo	Lexington	Sacramento
Madison (New Jersey)	Kansas City (Kansas)	Little Rock	Salt Lake City
Manchester	Kansas City (Missouri)	Louisville	San Bernardino
Methuen	Kearney	Lubbock	San Diego
Metuchen	La Crosse	Lumberton	San Francisco
Morristown	LaCrosse	Memphis	San Jose
New Bedford	Lafayette (Indiana)	Miami	Santa Clara
New Haven	Lansing	Miami Gardens	Santa Cruz
New York	Lincoln	Miami Shores	Santa Maria
Newark	Madison (Wisconsin)	Miramar	Santa Paula
Norwalk	Mankato	Mobile	Santa Ynez
Norwich	Marquette	Naples	Seattle
Ogdensburg	Maywood	Nashville	Spokane
Paoli	Merrillville	New Orleans	St. Benedict (Oregon)
Philadelphia	Milwaukee	Oklahoma City	Stockton
Pittsburgh	Mount Calvary	Orlando	Tacoma
Portland (Maine)	Mundelein	Owensboro	The Dalles
Providence	New Ulm	Palm Beach Gardens	Tucson
Rochester (New York)	Nixa	Pensacola	Yakima
Rockville Centre	Notre Dame	Raleigh	
Scranton	Omaha	Richmond	
So. Burlington	Orchard Lake	San Angelo	
South Burlington	Parma	San Antonio	
South Orange	Peoria	San Juan	
Springfield (Massachusetts)	Pepper Pike	Savannah	
Stamford	Rapid City	Schriever	
Standish	Richardton	Selma	
Syracuse	River Forest	Shreveport	
Thornwood	Rochester (Minnesota)	Silver Spring	
Trenton	Rockford	Smyrna	
Uncasville	Rolling Prairie	St. Benedict (Louisiana)	
Villanova	Romeoville	St. Petersburg	
Weston	Saginaw	Subiaco	
Worcester	Saint-Mary-of-the-Woods	Tulsa	
Wynnewood	Salina	Tupelo	
Yonkers	Seward	Tyler	
Youngstown (New York)	Sioux City	Venice	

Note: This Table shows cities in our main sample that contained Catholic seminaries during the sample years.

### A.1.1 Construction of the Catholic Formation variables

We aggregate program level data that we acquired from the Center for Applied Research in Apostolate (CARA) to generate annual city level information on enrollment across various Catholic formations. This sections summarizes the aggregation exercise:

**(i) Priestly enrollment:** The underlying dataset contains information on three tiers of priestly programs, 1) High school 2) College and 3) Theologate (Graduate program). At the college level three types of study programs are offered, namely, Free Standing, Collaborative and Other College. We sum up students that are enrolled across all of these programs in a city in a given year to generate the Priestly enrollment variable. Similarly, we sum up the number of programs across all sub-categories in a city in a given year to generate the Priestly program variable.

Each of the three tiers entail four year of programmatic studies. Except ‘Other College’ we have information regarding the distribution of students across the program years. We use this information to calculate the total priestly enrollment excluding the 1st year students and Share of 1st year students (%) that are enrolled in priestly studies in a city in a given year.

**(ii) Diaconate and Lay ministry enrollment:** Neither of these programs have a sub-category. We sum up students enrolled in Diaconate and Lay ministry programs in a city in a given year to generate the Diaconate and Lay ministry enrollment variables. Similarly, we add up the number of Diaconate and Lay ministry programs respectively that are in a city in a given year to generate the Diaconate program and Lay ministry program variables.

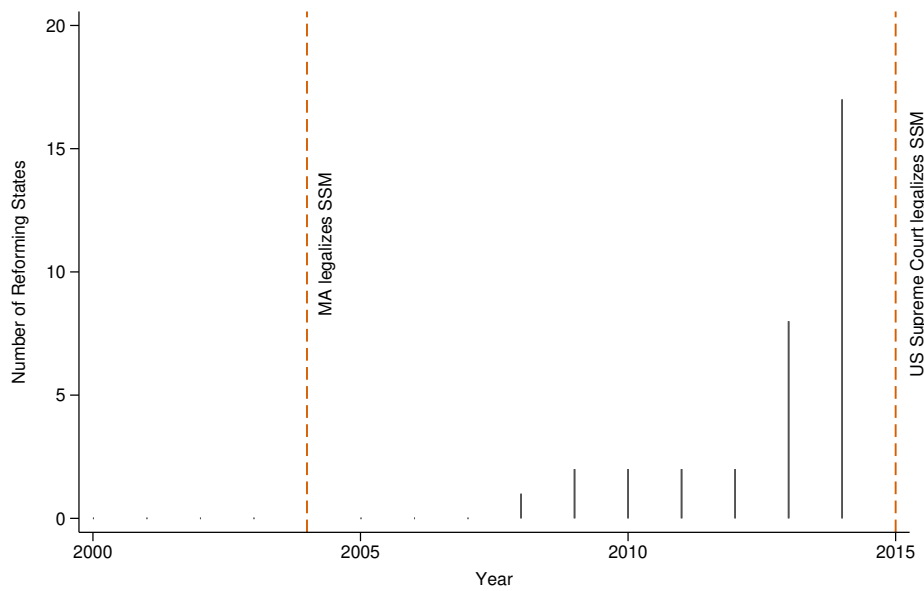


Table A.3: Timing of SSM Reforms

State	Reform Year	Reform type
Alabama	2015	Court
Alaska	2014	Court
Arizona	2014	Court
Arkansas	2014	Court
California	2013	Court
Colorado	2014	Court
Connecticut	2008	Court
Delaware	2013	Legislative
District of Columbia	2012	Legislative
Florida	2015	Court
Georgia	2015	Court
Hawaii	2013	Legislative
Idaho	2014	Court
Illinois	2014	Legislative
Indiana	2014	Court
Iowa	2009	Court
Kansas	2014	Court
Kentucky	2015	Court
Louisiana	2015	Court
Maine	2012	Legislative
Maryland	2013	Legislative
Massachusetts	2004	Court
Michigan	2015	Court
Minnesota	2013	Legislative
Mississippi	2015	Court
Missouri	2015	Court
Montana	2014	Court
Nebraska	2015	Court
Nevada	2014	Court
New Hampshire	2010	Legislative
New Jersey	2013	Court
New Mexico	2013	Court
New York	2011	Legislative

North Carolina	2014	Court
North Dakota	2015	Court
Ohio	2015	Court
Oklahoma	2014	Court
Oregon	2014	Court
Pennsylvania	2014	Court
Rhode Island	2013	Legislative
South Carolina	2014	Court
South Dakota	2015	Court
Tennessee	2015	Court
Texas	2015	Court
Utah	2014	Court
Vermont	2009	Legislative
Virginia	2014	Court
Washington	2012	Legislative
West Virginia	2014	Court
Wisconsin	2014	Court
Wyoming	2014	Court

Figure A.1: Evolution of SSM reforms



Note: This figure depicts the evolution of SSM reforms across United States. MA=Massachusetts.

## A.1.2 Descriptive Statistics

Table A.4: Descriptive Statistics

	Obs.	Mean	S.D.	Min	Max
<b>City level variables</b>					
<b>(i) Catholic Seminary enrollment</b>					
Priestly students (#)	1333	63.56	67.76	0	475
Priestly students excl. 1st yrs (#)	1333	34.12	40.21	0	301
Share of 1st year priestly students (%)	1021	27.61	13.08	0	100
Diaconate students (#)	2392	22.01	20.37	0	263
Layministry students (#)	2693	128.97	243.84	0	4168
<b>(ii) Gay Pride data</b>					
Pride parade before 2004 (binary)	4147	0.21	0.40	0	1
Pride parade years before 2004 (#)	4147	4.63	10.10	0	46
<b>State level variables</b>					
<b>(iii) Reforms</b>					
SSM Law (t-1) (binary)	4147	0.11	0.32	0	1
Non discrimination law (t-1) (binary)	4147	0.14	0.34	0	1
SSM Law Neighbour (t-1) (binary)	4147	0.22	0.41	0	1
<b>(iv) Other Controls</b>					
Unemployment rate (%)	4147	6.12	1.98	2.30	13.61
Catholic population share (%)	4147	22.69	10.79	3.29	53.81
Social attitudes towards LGBT (0-100)	4118	50.48	7.73	0	83

Note: Source: authors' computation from Center for Applied Research in Apostolate (CARA), Gay Pride Calender, American National Election Studies (ANES), U.S. Religion Census, The Official Catholic Directory, Bureau of Labour Statistics and the Movement Advancement Project. See text for more details.

## A.2 Proof of Proposition 1

Conditional on an individual  $i$  adopting a gay lifestyle  $g$ , we find that his optimal effort is

$$e_{i,g} = d_{i,g} + \alpha_0 x_g - \gamma_0, \quad (\text{A.1})$$

which we assume positive for any value of  $d_{i,g} \in [0, 1]$ , i.e.  $\alpha_0 x_g - \gamma_0 \geq 0$  is assumed true. Similarly, conditional on individual  $i$  joining the priesthood, his optimal effort is  $e_{i,p} = d_{i,p}$ . Hence,

$$\begin{cases} \max_{e_{i,g}} u_{i,g}(e_{i,g}) = \frac{1}{2} \{d_{i,g} + \alpha_0 x_g - \gamma_0\}^2, \text{ and} \\ \max_{e_{i,p}} u_{i,p}(e_{i,p}) = \frac{1}{2} d_{i,p}^2. \end{cases} \quad (\text{A.2})$$

From (3), an individual chooses to adopt a gay lifestyle when

$$\max_{e_{i,g}} u_{i,g}(e_{i,g}) > \max_{e_{i,p}} u_{i,p}(e_{i,p}), \quad (\text{A.3})$$

Hence, substituting (A.2) in the previous inequality, we find that an individual chooses to express a sexual identity when

$$d_{i,g} + \alpha_0 x_g - \gamma_0 > d_{i,p}. \quad (\text{A.4})$$

Given that  $d_{i,g}$  and  $d_{i,p}$  are drawn from independent uniform distributions on  $[0, 1]$ , we have represented the identity choice in Figure A.2. In the white area,  $d_{i,g} + \alpha_0 x_g - \gamma_0 > d_{i,p}$ : any individual chooses to express a gay lifestyle. Inversely, in the shaded area,  $d_{i,g} + \alpha_0 x_g - \gamma_0 \leq d_{i,p}$ : any individual chooses to join the priesthood. It is then direct from the figure that the share of individuals that express a priest identity,  $x_{p,0}$ , is equal to the shaded area in Figure A.1:

$$x_{p,0} = \frac{1}{2} (1 - (\alpha_0 x_s - \gamma_0))^2. \quad (\text{A.5})$$

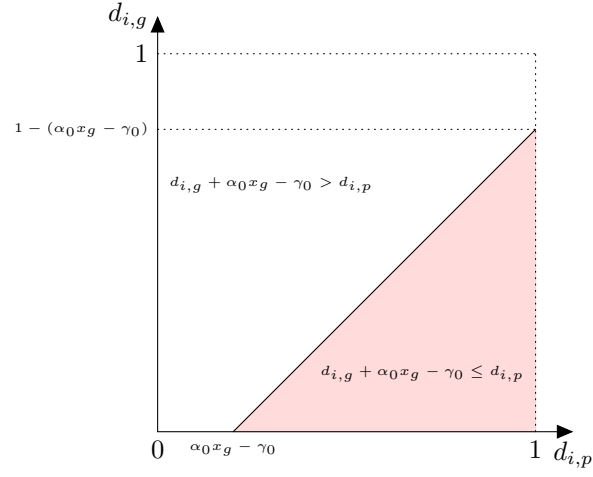
Similarly, we find that after the adoption of the same-sex marriage law, the fraction of individuals choosing the priesthood changes from  $x_{p,0}$  to  $x_{p,1}$ , with

$$x_{p,1} = \frac{1}{2} (1 - (\alpha_1 x_g - \gamma_1))^2. \quad (\text{A.6})$$

From (A.5) and (A.6), we find that:

$$x_{p,0} - x_{p,1} = \{(\alpha_1 - \alpha_0)x_g - (\gamma_1 - \gamma_0)\} \left\{1 - \frac{1}{2} [(\alpha_1 + \alpha_0)x_g - (\gamma_1 + \gamma_0)]\right\}. \quad (\text{A.7})$$

Figure A.2: Determination of the share of priests  $x_{p,0}$



The second bracketed term above  $1 - \frac{1}{2}[(\alpha_1 + \alpha_0)x_g - (\gamma_1 + \gamma_0)] \geq 0$  is necessarily positive given that  $\alpha_t \in [0, 1]$ ,  $\gamma_t \in [0, 1]$  and  $x_g \in [0, 1]$ . We deduce that the sign of  $x_{p,0} - x_{p,1}$  is equal to the sign of the first bracketed term in (A.7). Hence  $x_{p,1} \leq x_{p,0}$  if and only if  $(\alpha_1 - \alpha_0)x_s \geq (\gamma_1 - \gamma_0)$ . This concludes the proof of Proposition 1.

## A.3 Additional Results: Baseline Estimates

### A.3.1 Two-way fixed effects estimators with heterogeneous treatment effects

A newly emerging literature on DiD with a staggered treatment shows that they estimate the weighted sum of the average treatment effects (ATE) in each group and period (de Chaisemartin and d’Haultfoeuille 2020; Goodman-Bacon 2018). A potential concern in interpreting the average treatment effect is that the weights in some groups in some periods can be negative. The negative weights arise because the estimated  $\beta_{fe}$  is a weighted sum of several DiDs, that compare the evolution of the outcome between consecutive time periods and across pairs of groups.

Due to the negative weights, the regression coefficient can be negative while all the ATEs are positive (de Chaisemartin and d’Haultfoeuille 2020). The negative weights are especially a concern in the presence of heterogeneous treatment effects. de Chaisemartin and d’Haultfoeuille (2020) propose a strategy to address this concern. First, they recommend to compute the weights attached to individual groups in the regression. If many weights are negative and the ratio of  $|\beta_{fe}|$  divided by the standard deviation of the weights is close to zero, they propose to compute a new estimator ( $\text{DiD}_m$ ). We compute the weights using the `twowayfeweights` package in Stata.

Reassuringly, 95% weights are positive, and the ratio of  $|\beta_{fe}|$  (which corresponds to the coefficient of interest in Column 1 of Table 1) divided by the standard deviation of the weights is equal to 121.94. This assures us that our estimated two-way FE coefficient is valid even if the treatment effect is heterogeneous over time or across groups.

### A.3.2 Wild bootstrapped Standard Errors

Note that our sample of priestly education is concentrated in thirty states. This could potentially create a problem for inference due to a downward biased clustered robust variance estimate due to the small number of clusters (Cameron and Miller 2015). We address this concern by performing a wild clustered bootstrapping of standard errors in our baseline specification (Cameron and Miller 2015). The estimated standard errors are shown in Table A.5 and suggest that we do not overestimate the statistically significant relationship between SSM laws and priestly enrollment due to accounting for auto-correlation within potentially a small number of clusters.

Table A.5: Impact of the SSM law on the Enrollment of Priestly Students

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-10.593*** (4.106)	-6.582 (4.060)	-9.197** (4.473)	-9.204** (4.361)
Catholic population share			3.312* (1.688)	3.328** (1.659)
Unemployment rate				-0.196 (1.151)
Observations	1,333	1,333	1,333	1,333
R-squared	0.383	0.395	0.396	0.396
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

Notes:\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ . **Dep. var. mean**=63.56. Number of states (s)=30. Wild bootstrapped standard errors are clustered at the state level. Unemployment rate and Catholic population share are measured at the state level.

### A.3.3 Impact on the Priestly programs

It is natural to ask what happens to the existence of the priestly programs if there is significant decline in student enrollment following the SSM reform. In Table A.6 we regress the number of priestly programs on SSM reform dummy and the full set of covariates. The results suggest that holding the Catholic population share constant, there is an approximately a 7% decline in the number of priestly programs that is attributable to the SSM reform (columns 3 and 4).

Table A.6: Impact of the SSM law on the Number of Priestly Programs

Number of Priestly Programs	(1)	(2)	(3)	(4)
SSM Law (t-1)	0.009 (0.047)	-0.068 (0.045)	-0.095** (0.045)	-0.095** (0.044)
Catholic population share			0.034** (0.016)	0.035** (0.016)
Unemployment rate				-0.009 (0.017)
Observations	1,333	1,333	1,333	1,333
R-squared	0.323	0.334	0.334	0.334
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. **Dep. var. mean**=1.38. Number of states (s)=30. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level.



## A.4 Additional Results: Mechanisms

### A.4.1 Gay Pride Parade locations

Table A.7 showcases the cities which had a history of holding Gay Pride parades prior to 2004, i.e., before Massachusetts (MA) became the first state to pass SSM law.

Table A.7: Sample of cities with Gay Pride Parades

Northeast Region	Midwest Region	South Region	West Region
Albany	Chicago	Atlanta	Albuquerque
Brooklyn	Cincinnati	Baltimore	Anchorage
Buffalo	Columbus	Birmingham	Boise
Huntington	Detroit	Charlotte	Colorado Springs
New York	Indianapolis	Dallas	Denver
Philadelphia	Kansas City	Fort Worth	Las Vegas
Pittsburgh	Lansing	Houston	Los Angeles
Portland	Omaha	Jacksonville	Phoenix
Providence	St. Louis	Louisville	Reno
Syracuse	Wichita	Miami	Sacramento
Worcester		Nashville	Salt Lake City

Note: This Table shows cities in our main sample that had been holding a Pride parade prior to 2004.

## A.4.2 Number of Pride years and SSM Law

In this section we assess the mediating effect of Pride parades at the intensive margin. We hypothesize that cities with longer tradition of hosting pride events, which is measured in the number of years a city was hosting a Pride parade prior to 2004, will have a stronger presence of the Gay communities. Therefore, we would expect the SSM laws to have a more salient effect on priestly enrollment in cities with a longer tradition of hosting pride events. Results shown in Table A.8 confirm that the negative effect of SSM law on priestly enrollment increases within an additional year of hosting the Gay Pride parade.

Table A.8: Impact of the SSM laws and the presence of Gay Communities on Priestly Enrollment

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-6.829 (4.262)	-1.429 (4.713)	-3.909 (4.733)	-3.911 (4.699)
Number of Pride Years (pre-2004)	0.636 (0.702)	0.656 (0.726)	0.660 (0.725)	0.660 (0.725)
SSM Law (t-1) $\times$ Number of Pride Years (pre-2004)	-0.812 (0.657)	-1.099** (0.531)	-1.219** (0.471)	-1.220** (0.475)
Catholic population share			3.854** (1.515)	3.875** (1.505)
Unemployment rate				-0.243 (1.269)
Observations	1,333	1,333	1,333	1,333
R-squared	0.390	0.403	0.405	0.405
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	No	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level. Pride Years measures the number of years a Pride event was held in city  $i$  before 2004.

### A.4.3 Social attitudes as a continuous variable

In this section we use a continuous measure of the feelings thermometer variable as a proxy for social attitudes towards gays and lesbians in a given state  $s$ . Results shown in Table A.9 confirm that the effect of SSM laws on priestly enrollment is mediated by the prevailing social attitudes towards gays and lesbians.

Table A.9: Impact of the SSM Law and Social Attitude on the Enrollment in Priestly Studies

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	19.734 (34.478)	61.918 (37.415)	91.166** (34.653)	91.397** (34.862)
Social Attitude	-0.100 (0.218)	-0.112 (0.282)	-0.091 (0.222)	-0.092 (0.220)
SSM Law (t-1) $\times$ Social Attitude	-0.516 (0.612)	-1.203* (0.670)	-1.773*** (0.611)	-1.777*** (0.616)
Catholic population share			4.113*** (1.397)	4.106*** (1.413)
Unemployment rate				0.107 (1.177)
Observations	1,333	1,333	1,333	1,333
R-squared	0.383	0.396	0.397	0.397
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

Notes:\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ . Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level. Social attitude is a continuous measure of the average feelings towards gays and lesbians in state  $s$  in year  $t$ .

#### A.4.4 SSM Law, Presence of Gay Community and Social Attitudes

In this section, we disentangle the effect of social attitudes from the effect of the presence of gay communities by including interactions of the  $SSM_{s,t-1}$  dummy with both the  $Social\ Attitude_{s,t}$  and the  $Pride_i$  dummies in the same specification. Results presented in Table A.10 suggest that both the social attitudes and the spatial distribution of gay communities are significant in explaining our results.

Table A.10: SSM Law, Gay Communities and Social Attitude, and the Enrollment in Priestly Studies

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	14.427*** (2.209)	19.021*** (2.761)	16.823*** (2.581)	16.948*** (2.925)
Pride (pre-2004)	14.096 (17.623)	14.645 (18.085)	14.754 (18.079)	14.758 (18.083)
SSM Law (t-1) × Pride (pre-2004)	-23.667 (15.041)	-32.738** (13.217)	-35.157*** (12.487)	-35.149*** (12.496)
Social Attitude	-3.557 (4.512)	-5.333 (4.955)	-4.567 (4.828)	-4.594 (4.760)
SSM Law (t-1) × Social Attitude	-22.036*** (3.818)	-21.353*** (4.085)	-21.483*** (4.137)	-21.615*** (4.561)
Catholic population share			3.719** (1.500)	3.701** (1.486)
Unemployment rate				0.207 (1.146)
Observations	1,333	1,333	1,333	1,333
R-squared	0.389	0.403	0.404	0.404
State and Year Dummies	Yes	Yes	Yes	Yes
State × Time trends	No	Yes	Yes	Yes

Notes:\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level. Number of priestly programs is measured at the city level. Pride is a dummy that takes value 1 if atleast one Gay Pride event was being organized in city  $i$  before the passing of the first SSM reform in 2004. Social attitude is a dummy that takes value of 1 if average feelings towards gays and lesbians was above national average in state  $s$  in year  $t$ .

### A.4.5 SSM Law and Social Attitudes towards LGBT population

In our baseline model we assume that the prevailing social attitudes against LGBT amplify the effect of SSM laws on priestly enrollment. It is however possible that SSM laws themselves affected social attitudes, which can then affect the priestly enrollment. For instance, [Aksoy et al. \(2020\)](#) in a cross-country study find that same-sex marriage and same-sex registered domestic partnership policies significantly improve attitudes toward sexual minorities in Europe. On the other hand, [Ofosu et al. \(2019\)](#) use online survey data in the United States and find an improvement in social attitudes towards LGBT population in states where the SSM law was effected at the state level. Further they find a ‘backlash effect’ in states where the law was implemented due to the Supreme Court ruling. Crucially, their empirical model does not account for the omitted variable bias through controlling for state or time fixed effects.

We estimate a two-way Fixed Effects (FE) model where we regress the average state level Social Attitudes towards gays and lesbians on the binary variable SSM law (t-1), the set of state level covariates, along with state level linear time trends. The results are presented in [Table A.11](#). The coefficient of interest is positive and small relative to the sample average, and it is statistically not different from zero. The data therefore suggests a static interpretation which is consistent with our model, i.e. that SSM laws influence priestly enrollment through prevailing social attitudes towards the LGBT populations.

Table A.11: Impact of the SSM law on Social Attitudes towards LGBT population

Social Attitudes	(1)	(2)	(3)	(4)
SSM Law (t-1)	2.996 (1.901)	1.503 (2.853)	1.631 (3.116)	1.585 (3.256)
Catholic population share			-0.168 (0.893)	-0.053 (0.837)
Unemployment rate				-1.395* (0.683)
Observations	1,021	1,021	1,021	1,021
R-squared	0.092	0.121	0.121	0.125
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Dependent variable is an average “feelings score” towards LGBT people, that ranges between 0 and 100. **Dep. var. mean**=49.36. Number of states (s)=51. Standard errors are clustered at the state level.

## A.5 Additional Results: Alternative explanations

### A.5.1 SSM Law and Already Enrolled Priestly Students

In this section we restrict the sample to students that were already enrolled at the time that same-sex marriage was legalized. Specifically, we exclude students that were in the first year cohort at the time of year  $t$ . Thus we can abstract from the potential impact of the reform on new enrollment in the priestly studies, which could be impacted by the decision to enrol in another state. Results presented in Table A.12 suggest that the SSM reform had resulted in a significant exodus from the priestly studies.

Table A.12: Impact of the SSM law on Already Enrolled Priestly Students

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-8.381*** (2.548)	-4.159* (2.250)	-4.474* (2.414)	-4.469* (2.432)
Catholic population share			0.399 (0.898)	0.388 (0.911)
Unemployment rate				0.145 (0.849)
Observations	1,333	1,333	1,333	1,333
R-squared	0.351	0.372	0.372	0.372
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ . Dependent variable is the total of priestly students that were already enrolled in the studies when the laws were passed. **Dep. var. mean**=34.12. Number of states (s)=30. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level.

## A.5.2 SSM Law in Neighbouring States and Priestly Enrollment

In this section we estimate the effect legalizing same-sex marriage in a neighbouring state on the enrollment in priestly studies in a given state. SSM Law Neighbour (t-1) is a binary variable that equals 1 from the year when any of the neighbouring states passed the same-sex marriage law. Results presented in Table A.13 suggest that SSM reforms in neighbouring states have no impact of the enrollment in a given state.

Table A.13: Impact of the SSM law in the neighbouring states on the Enrollment of Priestly Students

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-10.540** (4.480)	-7.280* (3.665)	-9.731** (3.503)	-9.776** (3.479)
SSM Law Neighbour (t-1)	-2.542 (5.062)	-3.255 (5.239)	-2.723 (5.170)	-2.878 (5.524)
Catholic population share			3.249* (1.549)	3.277* (1.584)
Unemployment rate				-0.380 (1.398)
Observations	1,333	1,333	1,333	1,333
R-squared	0.383	0.396	0.396	0.396
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. **Dep. var. mean**=63.56. Number of states (s)=30. Standard errors are clustered at the state and year level to account for serial correlation within and across states. SSM law Neighbour is a dummy that switches to 1 if any of the neighbouring states had passed a SSM reform in the previous calendar year. Unemployment rate and Catholic population share is measured at the state level.

### A.5.3 SSM Law and Labour Market Discrimination

In this section we assess whether SSM laws could have reduced enrollment of gay men in priestly studies by reducing discrimination in the labour market. We address this possibility by directly controlling for the effect the non-discrimination laws that were passed during the intervening period. Results presented in Table A.14 suggest that the non-discrimination laws by themselves have no impact on the enrollment of priestly students.

Table A.14: Impact of the Non-discrimination law on the Enrollment of Priestly Students

Number of Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	-10.603** (4.026)	-6.205* (3.394)	-8.791** (3.258)	-8.793** (3.227)
Non discrimination Law (t-1)	0.112 (6.987)	4.045 (4.543)	4.700 (4.203)	4.686 (4.270)
Catholic population share			3.351** (1.414)	3.352** (1.424)
Unemployment rate				-0.021 (1.287)
Observations	1,333	1,333	1,333	1,333
R-squared	0.383	0.395	0.396	0.396
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. **Dep. var. mean**=56.43. Number of states (s)=30. Standard errors are clustered at the state level. Non discrimination Law is a dummy that switches to 1 if any of the neighbouring states had passed a anti-discrimination law in the previous calendar year. Unemployment rate and Catholic population share is measured at the state level.



## A.5.4 SSM Law and Socialization to Gay Identity

In this section we consider whether a socialization to gay identity drives the decline in enrollment in the priestly studies. To test for this alternative explanation, we compare the enrollment of first year priestly students and their senior counterparts. Results shown in Table A.15 suggest that the SSM laws do not disproportionately affect the enrollment of new students relative to that of the senior students that have already been a part of the Catholic seminaries at the time of the SSM reform.

Table A.15: New Enrollment vs Already Enrolled

Share of first year Priestly Students	(1)	(2)	(3)	(4)
SSM Law (t-1)	2.996 (1.901)	1.503 (2.853)	1.631 (3.116)	1.585 (3.256)
Catholic population share			-0.168 (0.893)	-0.053 (0.837)
Unemployment rate				-1.395* (0.683)
Observations	1,021	1,021	1,021	1,021
R-squared	0.092	0.121	0.121	0.125
State and Year Dummies	Yes	Yes	Yes	Yes
State $\times$ Time trends	No	Yes	Yes	Yes

*Notes:*\*\*\* p<0.01, \*\* p<0.05, \* p<0.10. **Dep. var. mean**=27.6%. Number of states (s)=30. Standard errors are clustered at the state level. Unemployment rate and Catholic population share is measured at the state level.

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