

College of the Holy Cross  
Economics and Accounting Research Methods, Professor Justin Svec

# Prospectus

---

## The Effects of Catholic Clergy Sexual Abuse Scandal Reporting on Self-Identified Catholicism State-by-State

Dana Barovich

Advisor: Professor Conor Carney

Monday April 5, 2021

**Introduction:**

The early 2000's marks the most impactful introduction of the Catholic clergy sexual abuse scandal in the United States—in January of 2002, the Boston Globe published an article exposing Boston priest John Geoghan of his long record of sexual abuse which was followed by an extensive amount of reporting on the Catholic clergy sexual abuse scandal throughout 2002 and into 2003. This was a turning point for Catholics who began to question their dedication to their religiosity, their confidence in their religion, and the true values of their religion. In addition to a significant decline in the number of self-identified Catholics throughout 2002 and 2003, there was also simultaneous decrease in the number of individuals who felt confident about organized religion, who appeared at church and parish meetings, and who attended and participated in religious services (GSS).

Between the years of 2003 and 2006, allegations began to slow down slightly, and the General Social Survey showed an increase in Catholic religious preference from 2004 to 2006—people began to regain confidence in organized religion, and more people began to attend religious services. This didn't last long, however, as 2007 brought an intense resurgence of published articles alleging additional sexual abuse by the Catholic clergy. The post-2007 effects of these increased scandal publications matched the negative effects on Catholic religiosity, confidence in Catholic values, and participation in Catholicism that were observed in 2002 (GSS).

The intense resurgence of sexual abuse allegations against the Catholic church in 2007 took place nationwide; however, some states faced a higher number of allegations matched with a greater amount of publication and press coverage than other states which didn't experience the same heightened magnitude of cases. This paper will focus on this resurgence of allegations;

however, rather than studying the broad nationwide change in the Catholic population throughout 2004 and 2008, I will analyze publication data state-by-state in order to evaluate how the amount of reporting in certain states impacts the declining Catholic population in that state in the year following the resurgence of scandals. I also collected data on the number of events of sexual abuse allegations state-by-state in order to evaluate how much of the decline in the Catholic population in a certain state was attributed to the publication surrounding the events and how much of the decline resulted from the actual events themselves.

### **Background:**

In both of their studies, Nick Bottan (2015) and Dan Hungerman (2011) provide evidence that, as allegations spiked in 2002 and 2003, there was a statistically significant decline in Catholic membership, church attendance, and institutional participation. Other scholars conducted further research to analyze the effects of decreased church participation on other factors measuring Catholic religiosity. Suzanne Clain (2006) supports the theory that contributions of time and money are complementary for Catholic households—church members who participate more in their church communities and attend mass more often also contribute more monetary donations to their parishes. Therefore, it would be expected for the decrease in the Catholic population throughout 2002 to be matched by a complementary decrease in funding and monetary donations provided to the Catholic church. As Catholics are leaving the church and participating less and less in parish activities, there is less incentive to donate to institutions which have proven to be corrupt and which go against the values of their faith. At the same time the nationwide decrease in Catholic participation in 2002 caused a decline in monetary support and funding to the Catholic church, many parishes were also experiencing a significant outflow of cash in settlement costs for lawsuits after legal action was taken in response to the publication

of these allegations (Dills 2010). These funds that were spent on settlement costs may have been able to contribute to the maintenance of funds to the Catholic church; however, other literature has provided evidence that the “indirect costs” of the scandal—the intense decline in giving—are more significant than the direct costs of legal expenses (Bottan 2013). The combination of both the decrease in monetary funding from a lack of church participation as well as the large settlements paid by Catholic institutions caused the finances of the church to take a hard hit in the early 2000s.

Negative publicity surrounding events of sexual abuse also initiated a decline in both the number of Catholic schools in the United States as well as the national enrollment rates at these Catholic institutions. Angela Dills reported that between 1990 and 2007, the number of Catholic schools decreased by 14% and the enrollment rates at Catholic institutions decreased by 7% due to both public disclosure and news coverage of sexual assaults at the diocesan level (Dills, 2010). As mentioned by Bottan, an apparent reason for this decline was the decreased desire of discouraged Catholic parents to send their children to Catholic schools and the decreased demand for these Catholic institutions after allegations continued to become publicized (Bottan, 2015). Dills also mentioned the decreased financial ability of the Catholic church to finance Catholic schools in certain regions. As Catholic members left the religion, their funding decreased, and they no longer supported their parishes looking to uphold private Catholic institutions. The National Catholic Educational Association provides evidence that this decreased enrollment and Catholic school participation was not short-lived—starting in 2007 and trending throughout 2014 and 2018, NCEA data shows that the overall number of Catholic schools has decreased throughout the country, with some regions facing a more intense decline than others (NCEA).

The Catholic church wasn't the only denomination to face significant changes in participation and donations after 2002. Hungerman's data provides evidence that after the scandal began, states that were "harder-hit" by the scandal faced a larger number of former Catholics transitioning into the Southern Baptist Church than states that weren't as "hard-hit." His findings provide evidence that location plays a factor in religious substitution and that individuals who left the Catholic church did not immediately become religiously unaffiliated. Rather, they redirected their participation and donations to other denominations—including the Baptist church which is the second largest denomination after the Catholic church and debatably the most theologically distant faith from Catholicism—before considering the denial of religion in general (Hungerman, 2011).

Bottan's findings on the long-term effects of scandals support both the NCEA and Dills' data on the shifting number of Catholic schools through his comparison of the magnitude of national decline in both Catholic schools and religious employees two years after the scandal versus multiple years following its initial publication. He noted the significant decline in Catholic schools from the beginning of the scandal to about two years following the initial publications; however, his findings showed an even more statistically significant long-term effect on the number of Catholic schools, which faced a more extreme decline in the three to four years after the scandal (Bottan 2013). Bottan uses the number of employees working in religious establishments as a proxy for the number of religious institutions in a certain region and provides evidence of a rapid and continuous decline in the number of religious employees up to eight years after the first allegations. Both he and Dills (2010) provide evidence that there was a significant decline in Catholic schools and religious employees in the short-term period after the scandal was publicized; however, Bottan goes even further to show that the most statistically

significant effects actually came in the long-term period of three to eight years after the scandal, especially as more cases began to arise many years after 2002. As reiterated by Dills, the decreased funding to Catholic establishments caused Catholic institutions to be unable to pay wages to their religious employees; therefore, the long-lasting decrease in funding to the Catholic church was matched by a continuous decline in the number of religious employees working at religious establishments across the country (Bottan 2013).

These substantial long-term effects are potentially attributable to the fact that after the first allegation, an increased number of victims came out with allegations and encouraged more survivors to speak out about their abuse. Cylor Spaulding found that when priests have more time to speak out about their perspective on the events that took place and contemplate their allegations in the long-term period after they are accused, they often become inconsistent with their stories, causing Catholics to become more suspicious of clergy and more sympathetic towards victims (Spaulding, 2013). The negative effects these scandals on the number of Catholics, donations to the Catholic church, and funding for Catholic institutions didn't end in 2002—allegations of sexual assault in the Catholic church continued to be reported and publicity surrounding these reports permeated throughout the rest of the decade and had a significant effect on the Catholic population across the country.

**Research Question:**

This paper will aim to answer the question of how the magnitude of scandal publications within states in 2007—based on the number of articles published about the Catholic clergy sexual abuse scandal that took place in that designated location throughout the year—has affected the number of self-reported Catholics in that state. Does a heightened number of articles published in the state in which Catholic clergy sexual abuse scandals took place cause more

people in that state to leave Catholicism in comparison to other locations with a fewer amount of sexual abuse allegations and therefore a fewer number of publications? Bottan, Clain, Dills, and others have analyzed the nationwide effects of the increased Catholic scandals publications in 2002; however, 2007 introduced an intense resurgence which I am analyzing state-by-state rather than generally throughout the nation. Using data from Bishop Accountability, which lists all of the articles published in each state across the country for each month in a given year, I was able to see how many articles related to Catholic clergy sexual abuse—including case settlements, allegations, or statements from accused priests—were published in each state throughout the year of 2007. I will look at how the number of articles published in a particular state affects how many individuals defined themselves as Catholics in 2008 in comparison to the number of self-reported Catholics in that state in 2004, a few years prior to the resurgence.

I will also use data on the number of sexual assault allegations reported state-by-state throughout the three years in between the pre and post treatment years (2004 and 2008). I will analyze what kind of immediate effect the magnitude of events and publications had on the declining population—by separating the events year-by-year—and compare it to the cumulative effect the events and publication had on the Catholic population by combining the total number of events throughout all three years. I will also use the number of total events as a control variable in order to analyze how much of the decline in the Catholic population had to do with the publicity surrounding the events and how much of the decline was attributed to the isolated events themselves.

### **Previous Literature:**

2002 wasn't the only period of time which sparked a negative reaction—Robert Jones studies the shifting religious landscape in the United States from 2006 to 2016 and evaluates

certain impacts on religiosity in the US after another sharp increase of scandal publications in 2007. Just as participation levels were beginning to stabilize around 2005 and 2006, the Catholic population faced another decline in religiosity after this resurgence. Jones provides evidence that the negative impacts on Catholic religiosity permeated up until nine years after the string of 2007 scandals, supporting both Bottan's and Spaulding's findings that long-term effects are incredibly significant due to the continuous publication of accusations. Jones' findings partially support Hungerman's (2011) evidence about substitution into other Christian denominations—he finds that the unaffiliated population stayed at a stable, low level from 2002 until about 2006, signifying that more substitution and relocation by Catholics happened within the Christian faith than it did outside of it. However, when scandal publications increased in 2007 after the number of reports declined throughout 2005 and 2006, the religiously unaffiliated population began to continuously increase all the way through 2016 (Jones, 2017). Additionally, even though Hungerman's findings provide evidence that former Catholics are motivated to join alternative denominations and still remain part of the Christian faith, Jones' (2017) data shows that many ultimately turn to religious disaffiliation. These “substitutions,” although significant in the first few years after the scandal, do not seem to have a long-long lasting result—former Catholics do not appear to maintain the dedication to the Christian faith which they may have pursued in the short-term period after the scandal publication and rather flock towards the more mainstream group of “religious nones.”

The American Religious Identification Survey conducted by Kosmin and Keysar (2009) compares data on religious affiliation collected in 1990 to data collected in 2008. Over this eighteen-year time frame, their findings display an increase in the religiously unaffiliated population matched by a significant decline in the Catholic population similar to the decrease in



Catholicism after the 2002 scandals. Rather than focusing on the religious shifting of the nation as a whole, however, Kosmin and Keyser conducted their research state-by-state in order to more closely analyze the changes in Catholicism and religious disaffiliation. In his study titled “America’s Changing Religious Landscape,” Gregory Smith also gathered state-by-state data comparing self-identified Catholics and religious “nones” in the years 2007 and 2016. Although both studies were conducted in two very broad, different time periods, they had comparable findings both to each other as well as to previously referenced authors who focused on the long-lasting shift in the religious landscape of the United States. Smith found that between 2007 and 2014, the Catholic population fell more than 3%, whereas the unaffiliated population grew over 6.5% (Smith 2015). These drastic shifts took place after the heightened reporting in 2007 and lasted up until seven years after the publications, which supports Bottan’s findings on how significant the long-term effects of these scandals truly are. Kosmin and Keysar support Bottan’s literature, as well, through their findings that the religiously unaffiliated population grew almost 7% from 1990 to 2008, and that the historic Mainline churches and denominations (i.e. Catholic, Protestant) have experienced the steepest declines in the time period studied (Kosmin and Keysar 2009).

Declaring oneself a religious “none” has become increasingly accepted and incredibly utilized through modern times. Kosmin and Keysar worked with Cragun and Rivera to publish a report which further analyzed the American Religious Identification Survey of 2008. This report emphasized the factor that geography had in declaring oneself a religious “none,” stating that 1 in 5 people in New England have declared themselves religiously unaffiliated (Cragun and Rivera 2008). This is not surprising considering how dense the number of sexual abuse allegations and publications were in the New England region—as more allegations became

publicized, it is likely that individuals in these areas were more inclined to leave Catholicism and move into the more mainstream practice of becoming religiously unaffiliated.

Adding to these regional findings, the National Catholic Educational Association reported a significant decline in the number of Catholic schools in the New England and Mideast regions after 2007 and 2008. This data corresponds with Cragun and Rivera's findings that regional location makes a difference in religious affiliation and participation—in this case, the NCEA data provides evidence that households in the Northeast region have become less inclined to send their children to Catholic schools in support of their Catholic parishes (NCEA). It is not surprising that a significant number of allegations and published articles came from the regions with the sharpest decline in Catholic school enrollment and incline in religious disaffiliation throughout 2007. Additionally, Hungerman (2011) provided evidence that states that were harder hit by the scandal had a larger population of Catholics leaving the Catholic church to join the Southern Baptist Church than states that were less hard-hit by scandals. These findings support the NCEA and Cragun and Rivera's findings that the amount of reporting region-by-region impacts the number of Catholic participation and dedication in those regions—the more reporting there is in a certain location, the more likely Catholics are to leave their faith, experiment with other denominations, and decrease their religious dedication and participation.

Both Smith's and Kosmin and Keysers' study uses data from a wide range of time which makes it more difficult to analyze the true effects of the scandals in 2007 on the Catholic and religiously unaffiliated population. This study will focus on a more specific period of time, comparing the number of self-identified Catholics in 2004—a year prior to and much closer to the 2007 resurgence—to the number of self-identified Catholics in 2008—the year directly following these increased allegations. I will use the number of article publications released in

each state throughout 2007 related to the Catholic clergy sexual abuse scandal as a way to measure the amount of publicity in each state and evaluate how that publicity effected that state's self-reported Catholicism.

**Data:**

This paper uses data collected by Gallup Poll which tracks religious affiliation state-by-state from 2000 to 2004 and is analyzed by Jeffery Jones in his report: "Tracking Religious Affiliation, State by State." A total of 62,744 interviews were conducted across 48 states—not including Hawaii and Alaska—with at least 2,000 interviews in every state aside from North Dakota, South Dakota, and Wyoming, where a slightly lower number of interviews were conducted (Jones 2004). Not only does this report track Catholicism state-by-state, it also includes other religious preferences such as Protestant, other Christian denominations, Mormon, Jewish, and "nones." Data from The American Religious Identification Survey of 2008 will be used to compare how Americans religiously identified themselves after the resurgence of 2007 allegations. This survey also includes other religious affiliations including other Christian denominations and "nones." In order to assess the publicity of the scandal in each state, I have used the Abuse Tracker resource on BishopAccountability.org which includes all of the articles related to the Catholic clergy sexual abuse scandal published across the country throughout each month of a given year. I analyzed the number of articles published in each state for every month of 2007 in order to get the total number of articles published in each of the 48 states—Hawaii and Alaska excluded—throughout the year.

In order to run the regressions below, I also analyzed the total number of events that took place throughout 2005, 2006, and 2007 across the country by using the same yearly state-by-state data that Bottan used in his article. This allowed me to calculate which states had a larger

number of sexual abuse reports between the pre and post treatment years and what kind of effect the number of reported events had on the change in the Catholic population between 2004 and 2008. I was able to use data collected on the number of articles published in 2007 as well as data on the number of events that took place state by state in order to run regressions which allowed me to analyze how much of the decline in the Catholic population had to do with the isolated events themselves and how much of the decline had to do with the publicity and article publications after the events.

### **Model I:**

The pre-treatment year, 2004, and the post-treatment year, 2008, were analyzed in order to evaluate what kind of change took place in the Catholic population—with the expectation of a decline—after data was collected on events, allegations, and publicity within the three years between 2004 and 2008. I ran ordinary least squares regressions and first difference regressions in order to determine which factors contributed most to the decline in the Catholic population—either the events themselves or publication surrounding the events that took place. In Tables 3, 4, and 5 below, I ran an ordinary least squares regression—the statistics for which are in the middle column—without accounting for the year being 2008. In the rightmost column, I added the additional specification of  $year=2008$  into the regression which transformed the variables by using a first difference regression. The coefficient estimates and standard errors are also reported below. The robust standard errors are in parentheses under each of the coefficients. Three asterisks next to the coefficient represents a significance level less than .01, two asterisks represent a significance level less than .05, and one asterisk represents a significance level less than .1.

**Results:**

In order to best evaluate the change in the Catholic population across the country between the years 2004 and 2008 based on events of sexual abuse in the Catholic church and publicity surrounding these events, I used a first difference approach which transformed the variables by specifying the year as 2008. I used an ordinary least squares regression in order to find the value of the difference in Catholicism using the articles published in 2007 as an explanatory variable and controlling for other variables such as the number of religiously unaffiliated individuals in each state, the population of each state, and the population of Hispanic individuals in each state. Transforming the variables in the first difference regression and adding the specification of the year as 2008 allowed for the output variable to prove more about the change in Catholicism between the two years I had observed (2004 and 2008) as opposed to a more general focus on the change in the overall rate of Catholicism over the years. I was able to hone in on the decline over these years—caused by both the events of sexual assault in the Catholic church and the publicity and press coverage surrounding them—rather than just the general rate of change in the Catholic church which could have been caused by a wider range of factors separate from what the focus of this thesis is. As shown below, in the rightmost columns of Tables 2, 3, and 4, there is a more drastic and statistically significant decline in Catholicism as supported by the more negative coefficient estimate for the variable “articles2007” than there was when there was no specification of the year in which this decline was majorly observed. The sharper decline when adding “year==2008” as a specification proves that the events that took place leading up to 2008 contributed to the more specific and negative decline in the number of Catholics as opposed to the general changing rate of the Catholic population throughout the years.

**Table 1: Data Summary for 2004**

```
. summarize if year==2004
```

Variable	Obs	Mean	Std. Dev.	Min	Max
state	0				
year	48	2004	0	2004	2004
catholic	48	23.41667	11.54689	6.4	51.5
y08	48	0	0	0	0
articles2007	48	0	0	0	0

The data summarized above shows the mean and standard deviation from 2004, which is the pre-treatment year before the three years of data on allegations of sexual abuse scandals in the church was collected. The summary of these statistics shows what Catholicism across the United States looks like before the scandals occurred—the mean percentage of Catholics across the country was about 23%, and the standard deviation shows that the significant amount of states (90%) fall within having a Catholic percentage of 6.4% (as shown in the minimum column) and 46% (the 23% average doubled). The standard deviation across states varies by a significant amount; however, 46% is the maximum for only 90% of states. As displayed in the maximum column, there are other states that have a higher Catholic population (51.5%); however, these states don't lie within the standard deviation curve calculated for the majority of the other states. While some states have close to half of their population identifying as Catholic in 2004, there are other states where a majority of the population may be Evangelical, Protestant, Southern Baptist, or fall into another branch of Christianity separate from Catholicism.

**Table 2: Data Summary for 2008**

```
. summarize if year==2008
```

Variable	Obs	Mean	Std. Dev.	Min	Max
state	0				
year	48	2008	0	2008	2008
catholic	48	21.70833	10.9018	6	46
y08	48	1	0	1	1
articles2007	48	103.4583	170.5507	0	1138

This second table shows the summary for the data collected in 2008, the post-treatment year in which data on the Catholic population was collected after three years of data on sexual assault allegations, events, and publications was factored in. When compared to the data summarized in 2004, the pre-treatment year, it is clear that the mean, at 21.7%, is about 2% lower than the mean in 2004, and the standard deviation shifts from the significant amount of states (90%) having a Catholic population falling between 6.4% and 46% to a Catholic population ranging between 6% and about 42%. The standard deviation curve in 2008 became narrower than it had been in 2004, and the maximum Catholic population percentage declined from 51% in 2004 to 46% in 2008. There is also additional data about the articles published in 2007, since this was factored into the treatment variable which determined the coefficient that represented the declining Catholic population between 2004 and 2008 as more articles were published and more publicity surrounding sexual abuse cases in the Catholic church was released. As shown by the mean, minimum, and maximum columns, there were some states in which there was a very high publication of articles and there were some states where there was no publication at all. Across the country, however, there was an average of about 103 articles published in 2007 about sexual assault allegations and cases in the Catholic church. The drastic difference between the maximum and minimum number of articles in 2007 could be due to population differences—in states where there is a higher population of Catholics, there is a higher chance of events and allegations since there are more members of the Catholic clergy in these states, and therefore there will be a higher number of articles published about these allegations and events in these states.

**Table 3: Regression of Separate Total Events from 2005, 2006, and 2007 versus Regression of Total Events from 2005, 2006, and 2007 if Year is 2008**

v1	v2	v3
	(1)	(2)
VARIABLES	catholic_diff	catholic_diff (if year==2008)
totalevents2005	-0.0454 (0.057100)	-0.0634 (0.103000)
totalevents2006	0.0423 (0.071100)	0.210* (0.114000)
totalevents2007	0.0255 (0.174000)	0.0722 (0.255000)
articles2007	<b>-0.000825</b> (0.004550)	<b><u>-0.0108**</u></b> (0.004630)
religiousnones	-0.293*** (0.110000)	-0.495*** (0.177000)
population	-5.62E-05 (0.000115)	-9.57E-05 (0.000168)
populationhispanic	0.000872** (0.000427)	0.00197*** (0.000461)
Constant	1.397 (0.987000)	2.021 (1.673000)
Observations	96	48
R-squared	0.264	0.573

Conditioning on three years of data provides a more precise estimate for the output variable of 2007 articles. By parsing out the years in which data on events of sexual assault across the country was collected (2005, 2006, 2007) rather than combining them all together—as done in Table 4—there is more precision to the data because it makes the difference in Catholicism more true to the immediate impact of the news articles in 2007. It allows the data to be split up in a way that focuses less on the cumulative impact of the events and press coverage surrounding these events over the three years observed and focuses more on the immediate effects from the publicity and publication in the year closest to 2008. The “articles2007” coefficient estimate is negative and statistically significant (-.0108\*\*), and, when compared to



data in Table 4 below, proves to be more negative, which supports the theory that the more recent events in 2007 had a larger impact on the change in Catholicism than the cumulative effect of three years of sexual assault cases combined. This could be due to the fact that, as people continue to hear about sexual assault cases and other forms of abuse in the church, they become fed up with the continuous publication and are set off by more recent events after having remained faithful to the Catholic church despite press coverage through 2005 and 2006. If Catholics had had hope that there would be a decline in the allegations against the Catholic church, increased publications in 2007 may have sent them over the edge, causing them to leave the Catholic church and contribute to the decline in Catholics in 2008.

**Table 4: Regression of Combined Total Events from 2005, 2006, and 2007 versus Regression of Total Events from 2005, 2006, and 2007 if Year is 2008**

	v1	v2	v3
		(1)	(2)
VARIABLES	catholic_diff	catholic_diff(if year==2008)	
totalevents	-0.0093900 (0.0353000)		0.0309000 (0.0629000)
articles2007	-0.0006310 (0.0044100)		-0.00868* (0.0044600)
religiousnones	<b>-0.280***</b> (0.1040000)		<b><u>-0.487***</u></b> (0.1520000)
population	-0.0000317 (0.0001070)		(0.0000367) (0.0001520)
populationhispanic	0.000820* (0.0004190)		0.00177*** (0.0004160)
Constant	1.2470000 (0.9660000)		1.8140000 (1.5140000)
Observations	96.0000000		48.0000000
R-squared	0.2600000		0.5550000

For this regression, I analyzed the cumulative effect of all three years in which data was collected on sexual abuse cases and publicity in the Catholic church. Rather than parsing out the

number of events that took place year by year as done in Table 3, I combined all of the events throughout the years and used the variable “total events” as an explanatory variable in order to evaluate what kind of effect the combination of all the events would have as opposed to the three separate explanatory variables across the three years. The “articles2007” coefficient, while still negative (-.00868\*), is actually not as negative as the coefficient for “articles2007” from the rightmost column in Table 3 where the total events were separated by year. This could mean that the events that took place during the three years between 2004 and 2008 had less to do with the cumulative effect of the combined events and more to do with the more recent events in 2007 that led to a sharp decline in 2008. As mentioned before, 2007 could have been a turning point for many Catholics who had remained faithful to the church despite previous allegations—after three years of continuous allegations and publicity, they may have finally decided to move away from the Catholic church due to frustration with the clergy and powerful figures in the church. After running the regression with year==2008 as a specification, the difference in Catholicism declined more sharply—as supported by the more negative coefficient estimate—than the regression run without this specification. Therefore, the difference in the Catholic population has less to do with a general change in self-reported Catholicism between 2004 and 2008 and can be attributed more to a decline in the number of self-reported Catholics after increased reporting of events of sexual abuse and more publicity and press coverage surrounding these events within the years 2005, 2006, and 2007.

**Table 5: Regression of Total Events Per Capita versus Regression of Total Events Per Capita if Year is 2008**

	v1	v2	v3
		(1)	(2)
VARIABLES	catholic_diff	catholic_diff(if year==2008)	
totalevents_pc	-0.0643000 (0.1890000)		-0.0989000 (0.2340000)
articles2007	-0.0006820 (0.0043500)		-0.00704** (0.0032500)
religiousnones	<b>-0.271**</b> (0.1130000)		<b><u>-0.463***</u></b> (0.1630000)
population	-0.0000500 (0.0000870)		0.0000017 (0.0001360)
opulationhispanic	0.000834** (0.0004120)		0.00166*** (0.0003800)
Constant	1.2910000 (0.9970000)		1.7640000 (1.4820000)
Observations	96.0000000		48.0000000
R-squared	0.2610000		0.5550000

This regression was run taking into account the per capita effect on the number of total events. The reason this added per capita variable is important is because it takes into consideration the population across individual states. In states where there is a higher population, there will automatically be more cases of sexual assault since the Catholic church is more densely populated and therefore has a higher amount of clergy and laypeople within the state. In state where more sexual abuse events occur, there are more articles published about these events and more press coverage surrounding these events all across the state. A higher number of articles published within more densely populated states will therefore have a more significant effect on the number of Catholics leaving the church than states in which there are less Catholics and therefore less events and less publicity and press coverage surrounding scandals. The “articles2007” coefficient estimate for the difference in Catholicism is less negative (-.00704\*\*)

than the coefficient estimate in Table 4 when the regression was run without taking into account the population. This could be due to the fact that across the country, there are more states with a lower Catholic population than there are with a higher Catholic population, meaning there are less events in a majority of states and therefore less negative publication about the church and less incentive for Catholics to leave their faith.

### **Model II:**

I will be using the difference-in-difference model in order to analyze how self-reported Catholicism changed from 2004 to 2008 by comparing the number of pre-treatment and post-treatment self-identified Catholics in states that saw increased publication to states that saw a lower amount of publications. This will allow me to evaluate what kind of effect increased publication in certain states had on the Catholic population and whether or not publication surrounding these events was significant enough to cause a decline in the Catholic population. “Y08” is a binary variable which takes on the value of 1 if the year is 2008 and 0 if the year is 2004. “Treat” is also a binary variable which takes on the value of 1 if the number of article publications in a given state throughout 2007 was greater than 25 and 0 if the number of article publications in 2007 was less than 30. “Post-treat” represents the product of the two binary variables of “Y08” and “treat.” The controls I have accounted for include another baseline of religiosity by using the percentage of individuals who defined themselves as “religious nones,” considering this has been an increasing trend through evidence provided by other previous literature, as well as the general population of the state and the number of Hispanic individuals in that state since the Hispanic population significantly contributes to the Catholic population in a certain state and is influenced by the location of that state. I will use the following difference-in-difference model:

$$Y = \beta_0 + \beta_1 * y08 + \beta_2 * treat + \beta_3 * post\_treat + \beta_4 * religiousnones + \beta_5 * population + \beta_6 * populationhispanic + \beta_7 * (religiousnones * 08) + \beta_8 * (population * y08) + \beta_9 * (populationhispanic * y08).$$

After I ran this regression, I added an additional control variable which accounted for the actual, isolated events that took place in each state within the years 2005, 2006, and 2007 between the pre and post treatment years. This control variable allows for the number of events themselves to be factored into the declining Catholic population in order to evaluate how much of the decline in Catholicism was attributed to the isolated event of sexual abuse and how much of the decline was influenced by the publication and press coverage that was aired to the public after these events took place. The difference-in-difference model will look the same as above, but will have an extra control variable added to the end:

$$Y = \beta_0 + \beta_1 * y08 + \beta_2 * treat + \beta_3 * post\_treat + \beta_4 * religiousnones + \beta_5 * population + \beta_6 * populationhispanic + \beta_7 * (religiousnones * 08) + \beta_8 * (population * y08) + \beta_9 * (populationhispanic * y08) + (events * y08).$$

**Table 6: Regression of Post Treatment Variable without Controlling for Events vs. Regression of Post Treatment Variable with Events as a Control**

	v1	v2	v3
VARIABLES		(1)	(2)
		catholic	catholic (with events as control variable)
treat	12.45*** (3.40600)		12.15*** (3.38900)
y08	-1.46900 (3.65900)		-0.92200 (3.65200)
post_treat	<b>-0.54600</b> (4.41400)		<b>-1.19900</b> (4.40500)
religiousnones	-0.26000 (0.34500)		-0.24700 (0.34300)
population	-0.000666* (0.00039)		(0.00062) (0.00038)
populationhispanic	0.00242** (0.00111)		0.00231** (0.00111)
events			0.05890 (0.03940)
Constant	19.18*** (3.94000)		18.21*** (3.96600)
Observations	96.00000		96.00000
R-squared	0.25000		0.26900

The data in the middle column, labeled “catholic,” is a result of the regression run without using events as a control variable, and the data in the rightmost column, labeled “catholic (with events as a control variable),” is a result of the regression run while controlling for the number of events in each state. By adding this additional control variable, there is a better understanding of whether the isolated occurrence of the event had a more statistically significant and negative effect on the Catholic population or whether the articles published and the press coverage surrounding the events throughout 2007 had a more significant effect on the declining number of Catholics from 2004 to 2008. The “post\_treat” variable in the rightmost column where events were factored in as a control variable is more negative (-1.199) than the “post\_treat” variable for the regression when events were not controlled for (-.546). Based on the data in the middle column, in 2004, prior to increased scandal publications, states with a low level of published articles in 2007 had slightly more than a 19% (constant) self-reported Catholic population. States that had higher levels of reporting in 2007 reported a self-identified Catholic population that had an additional 12.45% added to the 19% self-reported population of the lower level states; therefore, around 32% of individuals in 2004 identified themselves as Catholics in states that faced an influx of article publications in 2007. In 2008, after the resurgence of publications, the lower level states faced a -1.469 percent decline in Catholicism, whereas states with a higher level of reporting faced an additional -.5459 percent decline; therefore, states with more publicized allegations saw a -2.02 percent decline in Catholicism, higher than that of the -1.49% of the less publicized states.

In the rightmost column, when events are controlled for, states with a lower level of published articles in 2007 had a slightly lower self-reported Catholic population (18%) and states that had a higher level of publication in 2007 had an additional 12% self-reported Catholic

population; therefore, around 30% of the population in states with a higher number of article publications reported themselves Catholic. In 2008, after increased publication, states with a lower amount of publications faced a -.922 percent decline, which is less of a decline than when events were not controlled for, whereas states with a higher level of reporting faced an additional -1.199 decline, which is a more negative and drastic decline when compared to the regression run without events as a control. When events were not controlled for, states with more highly publicized allegations faced a -2.02% decline; however, when events were controlled for, states with more publicity surrounding sexual abuse in the Catholic church faced a more negative -2.12% decline in their Catholic population.

**Conclusion:**

The ordinary least squares regression run in Tables 3, 4, and 5 shows that the events that took place throughout the years in between the pre and post treatment years had a significant and negative effect on the difference in Catholicism by analyzing the coefficient estimate applied to the explanatory variable “articles2007.” By adding the specification of “year==2008” to each of the three regressions, it was clear from the more negative coefficients in each of the rightmost columns of the three tables that the events and publication surrounding the events had a direct and specific influence on the declining Catholic population beyond just a general change in the number of self-reported Catholics between the years 2004 and 2008. The negative coefficient proves that this decline was indeed a result of both the combination of the events and the press coverage that surrounded these events. The difference-in-difference regression run in Table 6 answers more specifically the question of how much of this decline could be attributed to the number of events and how much of the decline was a result of the publicity and press coverage aired after the events.

The difference-in-difference regression run in Table 6 shows that there is indeed a correlation between the increased number of published articles related to the Catholic clergy sexual abuse scandal in a certain state and the decreased number of individuals who define themselves as Catholics in that designated state after an influx in the publication of scandals. Part of this decrease in Catholicism can be linked to the increasing number of religiously unaffiliated individuals across the country; however, the correlation between the higher number of articles published in a certain state and the increased decline in those states provides evidence that the Catholic clergy sexual abuse scandals effects the dedication—or lack thereof—individuals have to their Catholic parishes. With these increased scandals, individuals are less likely to pursue their faith and stay part of their Catholic communities.

When events were controlled for, the post treatment coefficient estimate was more negative, proving that the events themselves had a significant effect on the decline in Catholicism separate from the effect of the increased publicity, which is why, when the events weren't previously controlled for, the decline in Catholicism was less drastic. This supports the theory that when there are more events, there is automatically more press coverage surrounding these events, and therefore more of an incentive for Catholics to leave the church when they are continuously hearing about events and allegations of sexual assault. When events were controlled for, states with a lower amount of publications faced a less negative decline in Catholicism, which also supports the theory that when the number of actual, isolated events is lower—despite the publicity that surrounds them—there is a lower number of Catholics leaving the church. Therefore, the number of events proves to have an effect on the self-reporting Catholic population—yes, the publicity that surrounds these events influences the percentage of the Catholic population in each state; however, a higher number of events in certain states increases



the incentive for Catholics in that state to leave their faith. By combining press coverage with the additional effect that the isolated occurrence of the events has on the Catholic population, it is clear that controlling for events leads to a more negative and drastic decline in the Catholic population and therefore prove to have a significant and lasting effect on the number of self-reported Catholics.

## Bibliography

- Bottan, Nicolas L., and Ricardo Perez-Truglia. "Losing My Religion: The Effects of Religious Scandals on Religious Participation and Charitable Giving." *Journal of Public Economics* 129 (2015): 106–19. <https://doi.org/10.1016/j.jpubeco.2015.07.008>.
- Bishop Accountability: Abuse Tracker*, [www.bishop-accountability.org/AbuseTracker/](http://www.bishop-accountability.org/AbuseTracker/).
- Clain, Suzanne Heller, and Charles E. Zech. "A Household Production Analysis Of Religious." *American Journal of Economics and Sociology* 58, no. 4 (July 3, 2006): 923–46. <https://doi.org/10.1111/j.1536-7150.1999.tb03401.x>.
- Dills, Angela K., and Rey Hernández-Julián. "Negative Publicity and Catholic Schools." *Economic Inquiry* 50, no. 1 (2010): 143–52. <https://doi.org/10.1111/j.1465-7295.2010.00342.x>.
- Hungerman, Daniel. "Substitution and Stigma: Evidence on Religious Competition from the Catholic Sex-Abuse Scandal." *American Economic Journal: Economic Policy*, 2011. <https://doi.org/10.3386/w17589>.
- Jones, Jeffrey M. "Tracking Religious Affiliation, State by State." *Gallup.com*, Gallup, 8 Nov. 2018, [news.gallup.com/poll/12091/tracking-religious-affiliation-state-state.aspx](https://news.gallup.com/poll/12091/tracking-religious-affiliation-state-state.aspx).
- Jones, Robert P., and Daniel P. Cox. "America's Changing Religious Identity." Public Religion Research Institute, September 6, 2017. <https://www.ppri.org/wp-content/uploads/2017/09/PRRI-Religion-Report.pdf>.
- Kosmin, Barry A, and Ariela Keysar. *American Nones: The Profile of the No Religion Population*. Paramount Market Publishing, 2008.
- Kosmin, Barry A, and Ariela Keysar. *American Religious Identification Survey: Summary Report*. Paramount Market Publishing, 2009.
- "Schools and Tuition." *National Catholic Educational Association*, Advanced Solutions International, Inc.
- Smith, Gregory. *America's Changing Religious Landscape*. Pew Research Center, 2015, <https://www.pewforum.org/2015/05/12/americas-changing-religious-landscape/>.
- Smith, Tom W., et al. "General Social Surveys, 1972-2018." 2018.
- Spaulding, Cylor. "Crisis of Faith: Same-Sex Sex Scandals, Evangelicalism, and Crisis Management." PhD diss., University of Miami, 2013. ProQuest (AAT 3609335).

