NEGATIVE PUBLICITY AND CATHOLIC SCHOOLS

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Between 1990 and 2007, the number of Catholic schools in the United States decreased by 14% and enrollment diminished by 7%. We generate two measures of publicity of sexual abuse at the diocesan level—public disclosure and news coverage. Dioceses with higher rates of negative publicity had a larger decline in both the number of Catholic schools and overall Catholic school enrollment. We estimate that publicity arising from sexual offenders within the Church explains 5% of the decline in the availability of Catholic schooling. (JEL I21, H52, H44)

I. INTRODUCTION

Catholic education makes up a large part of the United States' K-12 educational system: Catholic schools educate over one-third of all private school students, more elementary and secondary students than all other religious schools combined (National Center for Education Statistics [NCES], 2007). However, Catholic education is becoming less prevalent. Between 1990 and 2007, the number of Catholic schools decreased by 14%, from 8,719 to 7,498, while enrollment declined by 7% from 2,498,870 to 2,320,651.[1] The mainstream media has covered this trend, beginning with closings in the early 1990s (Foderaro, 1990).

Private schools enroll 11% of elementary and secondary school students; 39% of private school students enroll in Catholic schools.[2] Catholic schools historically have served a predominantly urban, minority population with some success: research generally finds modest gains in educational attainment, particularly for minority students (e.g., Altonji et al., 2005; Evans and Schwab, 1995; Neal, 1997). There is evidence that Catholic schools raise student academic achievement and reduce adolescent risky behaviors (Figlio and Ludwig, 2000; Figlio and Stone, 2000).[3] The current decline in Catholic schooling reflects diminished opportunities for students to enroll in alternatives to public schools; this decline is particularly troubling for the low-income, urban minority students who have particularly benefited from Catholic schools in the past (Neal, 1997). The decline in private schooling options also lowers the level of competition among schools; the decrease in competition may worsen the outcomes of public school students (Hoxby, 1994).

We consider potential explanations for the decline in Catholic schooling in the United States: changing demographics, changing income levels, and public awareness of sexual abuse and allegations. Immigration into and within the United States, particularly of the traditionally Catholic Hispanic population, likely affected demand for Catholic schooling. O'Keefe (1996) suggests that falling income per capita near existing Catholic schools led to school closings. Further, the negative publicity from the sexual abuse crisis in the Catholic Church may

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1. Authors' calculations from McDonald and Schultz (various years).
2. Authors' calculations from NCES (2008) and McDonald and Schultz (various years).

3. Also note that Mocan and Tekin (2006) disagree about the benefits of religious private schooling on adolescent risky behaviors.

ABBREVIATIONS

NCEA: National Catholic Education Association

NCES: National Center for Education Statistics

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have impacted the availability of and demand for Catholic schooling.

Using diocese-level panel data on Catholic schooling, we empirically examine the importance of each of these factors. We develop two proxy measures of negative publicity based on the press coverage and on plausibly public notifications of abuse allegations. We find that negative publicity is associated with a reduction in the availability of Catholic schools. However, its effect is small: allegations related to the abuse cases account for about 5% of the decline in Catholic schools. Changing demographics, particularly increases in the Hispanic population, explain a larger proportion of the current decline in Catholic schooling.

II.   AN OVERVIEW OF CATHOLIC SCHOOL ENROLLMENT AND CATHOLIC SCHOOLS IN THE UNITED STATES

The Catholic Church is organized into dioceses and archdioceses, each administered by a bishop or archbishop. There are 175 of these in the United States, with each state and the District of Columbia having at least one. Dioceses, for the most part, follow county lines. Texas, with 14, is the state that has the most dioceses. The average state has approximately 3.5 dioceses. Catholic schools tend to be operated with financial backing from the local diocese, in combination with revenue from tuition and direct donations. Diocesan support ranges from a low of around 5% of school funding coming from dioceses in the South and West to a high of about 50% in the Midwest (Gero and Meitler 2003).

Figure 1 presents the percent of school-aged children enrolled in Catholic schools and the number of Catholic schools for 1990 to 2007.[4] The number of Catholic schools declined in the early 1990s; the decline slowed in the mid-1990s and accelerated again around 2004. Between 1990 and 2007, the number of Catholic schools in the United States decreased by 14%. Enrollment in Catholic schools exhibits a somewhat different trend. The percent of school-aged children enrolled in Catholic schools declined almost continuously between 1990 and 2007 from about 5.5% to 4.4%.[5] Certain schools have

4. The National Catholic Education Association (NCEA) provided the data on Catholic schools and enrollment for each diocese. The school aged population, the population aged 5–17, is calculated from U.S. Counties and aggregated to the diocese-level.

5. Some of the change in enrollment may be because of the increased availability of vouchers in the 1990s.

FIGURE 1

Catholic Schools and Enrollment in 48 States, 1990–2007
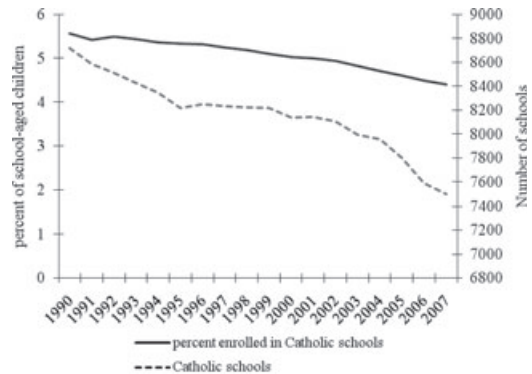
TABLE 1

Changes in Catholic Schools and Catholic School Enrollment by Diocese Characteristics, 1990–2007

	Percentage Change in Catholic Schools per School-Aged Child	Percentage Change in Catholic Enrollment Share
Total	−0.1245	−0.0417
Percent Catholic		
Below median in 1890	−0.1012	0.0156
Above median in 1890	−0.1678	−0.1045
Region		
Midwest	−0.1229	−0.0599
Northeast	−0.2191	−0.1832
South	−0.0939	0.0449
West	−0.0849	−0.0123
Density		
Below median in 1990	−0.0799	−0.0061
Above median in 1990	−0.1671	−0.0757

been severely affected: for instance, enrollment at Our Lady of the Blessed Sacrament School in Queens, NY, decreased from 2,500 students to 180 (Vitello 2009).

The number of Catholic schools and students enrolled in Catholic schools diminished, but not uniformly across the country. Table 1 provides some statistics. On average, a diocese experienced a 12% decline in schools per child and a 4% decline in enrollment share. Historically Catholic dioceses experienced larger declines in enrollment and in schools than dioceses that were less Catholic historically. Declines were

concentrated in the Northeast and the Midwest; the South experienced *increases* in enrollment and in schools. The regional pattern of changes in Catholic schooling may follow the migration patterns of traditionally Catholic Hispanics. More densely populated dioceses faced larger declines in schools and in enrollment share than less densely populated dioceses. These statistics indicate that Catholic schools particularly suffered where they were strongest: urban, historically Catholic areas in the Northeast.

III. CHANGING DEMOGRAPHICS AND THE CATHOLIC CHURCH

The distributions of Catholics and Hispanics across the United States changed dramatically between 1990 and 2007. As shown in Table 2, the average diocese experienced an 18% increase in the percent of the population that is Catholic and a 36% increase in the percent of the population that is Hispanic. Historically Catholic dioceses experienced much smaller expansions in the Catholic share of the population than did Catholic dioceses that were not historically Catholic. The growth in Catholicism was most pronounced in the South and West. Similar but even more noticeable trends occur with the percent of a diocese's population that is Hispanic. Dioceses in areas that historically were not very Catholic faced large increases in the percent of the population that is Hispanic as did the South and the West more generally.

Catholic schools traditionally have relied on priests and nuns to serve as teachers. Between 1965 and 2001, however, the number of nuns in the United States more than halved from 180,000 to 80,000; on the other hand, the number of priests increased by 6% (*The Economist*, 2001). The decline in nuns is reflected in the staffing of schools. In 1990, 87% of Catholic school teachers were lay teachers. Schools hired an increasing number of lay teachers, at much greater expense. The share of lay teachers has increased to 96% (National Catholic Education Association [NCEA], 2009).

The majority of Catholic schooling takes place at the elementary and middle school levels (NCEA, 2009). Almost 30% of Catholic school students are minority students; 14.5% of students do not identify as Catholic. A large fraction, 42.7%, of Catholic schools are in urban and inner city areas; 21% are in rural areas. The remainder is in suburban areas; suburban schools are increasing as a share of Catholic schools (NCEA, 2009).

IV. NEGATIVE PUBLICITY: MEASUREMENT AND ITS POTENTIAL EFFECT ON CATHOLIC SCHOOLING

A more prominent difficulty faced by the Catholic Church in the recent past stems from sexual abuse scandals. The John Jay Report, commissioned by the U.S. Conference of Catholic Bishops and published in 2004, summarizes information provided by the Catholic Church from its archives on perpetrators and victims of abuse. The report found that 4,392 priests (about 4%) participated in abuse. The abuse peaked in the 1970s, but many victims did not report the abuse until much later; over one-third

TABLE 2

Demographics and Negative Publicity by Diocese Characteristics, 1990–2007

	Percentage Change in Catholic Population Share	Percentage Change in Hispanic Population Share	Public Notices per 100,000 Residents	Lexis-Nexis Mentions per 100,000 Residents
Total	0.1826	0.3597	0.0492	0.4042
Percent Catholic				
Below median in 1890	0.2979	0.5753	0.0270	0.2553
Above median in 1890	0.0498	0.1325	0.0710	0.5255
Region				
Midwest	0.0815	0.1527	0.0381	0.2801
Northeast	0.0104	0.0855	0.1009	0.7513
South	0.2706	0.6685	0.0289	0.3150
West	0.3707	0.4741	0.0502	0.4042
Density				
Below median in 1990	0.1912	0.3730	0.0337	0.3056
Above median in 1990	0.1744	0.3470	0.0641	0.4988

of the victims made their declarations after 2002. At the time of the publication of the report, these cases had cost the Church about 500 million dollars. Since that date, settlements have exceeded 1 billion dollars.

The data made available to the researchers of the John Jay report by the Catholic Bishops of the United States have not been made public. Because the timing and location of abuse incidents are not publicly available, we focus on negative publicity about the abuse. Allegations themselves can be destructive to the accused, independent of guilt. An accusation of infidelity, for instance, can destroy a marriage; a suspicion of plagiarism can be the end of an academic's career; a false positive on a drug test may justify a termination of employment.[6] Allegations can be particularly caustic when they are of a sexual nature, be it harassment or abuse.

We generate two variables measuring negative publicity. The first uses information from a publicly available website to tabulate the number of priests and nuns in each diocese that have been involved in sexual abuse cases. The second totals press coverage of sexual abuse in each diocese.

First, we use information from a publicly available website to tabulate the number of priests and nuns in each diocese that have been involved in sexual abuse cases. The data are compiled by an independent educational non-profit and posted at bishopaccountability.org. The website, based in Massachusetts, was established in 2004 with the goal of collecting every document that alleges abuse within the Catholic Church. The site administrators' requirements for including documents are, as a result, very broad. Neither the allegations nor the documents reporting them are verified, although both are cited and included on the website. In cases where the priests or nuns have worked in more than one diocese, the website lists where and when they served. The website often includes photographs of the accused, lists their current and former parishes, and states the individual's current status: still with the church, convicted, retired, or deceased.

The information on the website includes, at the offender-level, the dates that the Church was informed about an incident, whether cases were filed or settled, as well as information on arrests, indictments, confessions, and convictions of

FIGURE 2
Annual Count of Settlements and Public Notices, 1974–2007
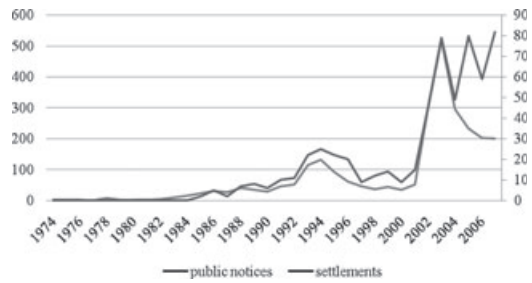
clergy. We collate some features of this information to produce public notice dates.[7] We define this measure as the earliest date that a priest or nun was either arrested, convicted, confessed, or settled his or her case. These dates capture public attention brought to a diocese's sexual abuse problems. We aggregate the offender-level data to the diocese-level in the analysis below.

Figure 2 presents the number of public notices by year. These events may have provided the public with information about abuse through newspaper articles, press releases, or court documents. Not all of the sources of information are readily available to the public. Newspaper articles are more easily available than press releases, which are more easily available than court documents. A smattering of public notices takes place between 1974 and 1982. Beginning in 1983, public notices increased. A large number of events occurred in the mid-1990s. Public notices sharply increased in 2002 and remain high for the rest of the sample. These notices are not uniformly distributed across dioceses in the United States. Of the 175 dioceses, 19 experienced no recorded events, while a few, such as Los Angeles, Chicago, and Boston, suffered many.[8]

This pattern is fairly consistent with the distribution of reporting years of abuse in the John Jay report (their Figure 5.2.1). As noted in the

6. Barnum and Gleason (1994) estimate that one-third of those identified as drug users may be falsely accused.

7. We assume that news coverage accurately conveys the timing and degree of the public information, although we realize that information on allegations likely is known by the parishioners prior to being made public.

8. These include Amarillo, Beaumont, Biloxi, Birmingham, Colorado Springs, Dodge City, Gary, Gaylord, Grand Island, Kalamazoo, Knoxville, Lake Charles, Las Cruces, Lubbock, Rapid City, Saginaw, Shreveport, and Victoria.

John Jay report and suggested by the limited evidence available from bishopaccountability.org, allegations occur right around the time of the abuse as well as many decades afterward. The data compiled for this study represent the timing of the allegation rather than the timing of the abuse. In addition, we can only roughly separate substantiated from unsubstantiated allegations.

Table 2 provides summary statistics of the total number of public events per 100,000 people for a diocese between 1990 and 2007. First, we describe dioceses by the percent of the population identifying as Catholic in 1890.[9] More public notices per capita occurred in dioceses that were historically more Catholic. Public notices per capita were noticeably higher in the West and Northeast and are not significantly correlated with population density.

A second measure of frequency of sexual abuse in each diocese is press coverage. We performed Lexis-Nexis searches of major world publications and news wire services with each diocese's name and the words "sex" and "abuse." The list includes any mention of the diocese along with these words in any newspaper article in a major world publication in English or any news release on a listed wire service. The Lexis-Nexis searches may produce a more objective measure of negative publicity. The news outlet searches are more commonly and easily available than information arising for the public events. In addition, bishopaccountability.org may have an interest in overstating the incidence of abuse in the Catholic Church.[10]

Figure 2 depicts the national annual counts of Lexis-Nexis mentions between 1990 and 2007. From 1990 to 2001, annual news counts averaged 185; 2002 witnessed a huge spike in news coverage with more than 8,000 news stories about Catholic sex abuse. This spike was sparked by scandals in the Archdiocese of Boston which comprise 20% of the news coverage in 2002. Cardinal Law resigned in 2002 as a result of his complicity in moving sex offending priests to new parishes. *The Boston Globe*'s coverage of these events and ensuing public outrage drove attention to the issues in

the Catholic Church.[11] From 2002 to 2007, annual news counts averaged almost 3,500.[12] Aggregated nationally, the correlation between the Lexis-Nexis news coverage and the tally of public notices on bishopaccountability.org is 0.76 (p-value = .0002). Additional summary statistics are presented in Table 3.

The sexual abuse scandals may have affected Catholic schooling through several mechanisms: reduced tithing from existing members, reduced membership in the Church, increased expenses from settlements to victims, litigation expenses, and reduced tuition revenues as parents remove their children from Catholic schools. Sexual abuse settlements drained resources, limiting the amount of money available to schools. When the diocese's finances were affected, so was its support of K-12 education. In part, dioceses were financially constrained because of the costs of litigation arising from lawsuits. In addition, the notoriety may have affected school financing by reducing charitable donations, church membership, and the parents' willingness to pay for Catholic education. Two dioceses, Tucson and San Diego, have declared bankruptcy; other dioceses involved in bankruptcy proceedings are the Diocese of Spokane (Washington), the Archdiocese of Portland (Oregon), the Diocese of Davenport (Iowa), and the Diocese of Fairbanks (Alaska).

The abuse cases not only directly affected Church finances but also its members' and potential members' perception of the Catholic Church. Negative publicity may have reduced adherence to the Catholic Church, dampening donations to the Church. In addition to the settlement costs and reduced tithing, the abuse cases likely led parents to remove their children from Catholic schools, reducing tuition revenues. Further, sending one's children to Catholic schools increases religiosity (Sander, 2005), compounding the effect of school closings.

V. ESTIMATION STRATEGY AND RESULTS

We examine how settlements of abuse cases, public notice of abuse cases, and changing

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9. We use Catholic membership in 1890 as the 1890 Census was the first to count the number of members of religions. Some dioceses did not have data available for 1890, many because they were not yet states. The missing dioceses include those in Alaska, Arizona, Hawai'i, New Mexico, and Oklahoma as well as Palm Beach, Florida.

10. On the other hand, many cases of abuse likely also go unreported.

11. See, for example, the *Globe*'s Spotlight on Abuse (http://www.boston.com/globe/spotlight/abuse/) or the book written by its journalists, *Betrayal*.

12. Because much attention was drawn to abuse within the church in 2002, we estimated the regression separately for years before and after 2002. Our estimates for the post-2002 period are significant and larger in magnitude than those for the entire sample, suggesting that the consequences of the negative publicity are larger in this more recent period.

TABLE 3
Summary Statistics by Frequency of Incidents per Capita

	Below Median Public Notices per 100,000 Residents	Above Median Public Notices per 100,000 Residents	Full Sample
Catholic school shares			
Catholic schools per children aged 5–17	1.70	2.11	1.82
Percent aged 5–17 enrolled in Catholic schools	4.47	6.55	5.05
Negative publicity			
Public notices per 100,000	0.00	0.18	0.05
Lexis-Nexis per 100,000	0.18	0.98	0.40
Control variables			
Percent of teachers that are lay	92.33	91.87	92.20
Percent of population that is Catholic	20.61	27.35	22.50
Percent of population that is Hispanic	8.84	11.78	9.67
Population density	0.30	0.94	0.48
Real per capita income	24.78	29.03	25.97

demographics affected Catholic schools and their enrollment since 1990. We estimate the following for diocese d in year t:

$$\ln(\text{Catholic school share}_{dt})$$

$$= \beta_1 \ln(\text{publicity}_{dt-1}) + \beta_2 \text{percent Catholic}_{dt}$$

$$+ \beta_3 \text{percent Hispanic}_{dt} + \delta X_{dt} + \alpha_d + \gamma_t + \upsilon_{dt}.$$

The dependent variable is either the logged number of Catholic schools per 1,000 school-aged children or the logged percentage of the school-aged population enrolled in Catholic school. The measures of publicity are lags of the variables described in the previous section: the number of new public notices and the number of news articles found on Lexis-Nexis for that diocese and year. The log-log specification makes β_1 an elasticity of Catholic school market share with respect to negative publicity. We include the percent Hispanic and the percent Catholic to capture changing demographics that may affect the demand of Catholic schooling. We include two other diocesan-level controls: population density and logged real per capita income

Diocese fixed effects, α_d, account for time invariant characteristics of the dioceses, such as the degree to which dioceses differ in their support of their schools. Year dummies, γ_t, capture nationwide changes in Catholic schooling. Standard errors are clustered by diocese. Because the use and availability of Catholic education in different dioceses may be changing at different rates, we also estimate results for specifications that include linear diocesan-specific trends.

We expect the publicity from abuse cases to reduce the market share of Catholic schools,

implying that β_1 would be negative. One possible reason that we might find a relationship is that some families responded to the negative publicity by pulling their children out of Catholic schools. Although we estimate the effect of publicity items on the market share of Catholic schools, most abuse cases, 90%, did not occur in schools (John Jay College of Criminal Justice, 2004). If nonschool cases had little effect on the decision to attend Catholic school, the estimated coefficients would underestimate the publicity effect of abuse cases. Another potential source of the decrease in Catholic school market share is through the Church's diminished ability to raise funds through tithing and donations. If dioceses had less money to support their schools, they may have been more likely to shut down. Some parents also may have responded by exiting the Catholic Church as well as pulling their children out of Catholic school. We potentially control for exits from the Church by including the percent of the population in the diocese that is Catholic.[13] The estimated effects of negative publicity are net of any reduction in congregation size.

Table 4 presents the estimates from the regressions. Columns (1) through (3) consider the enrollment share of Catholic schools. Negative publicity had no effect on enrollment

13. The Church reports membership every 10 years. We interpolate values for the intervening years. In addition to the smoothly arising from the interpolation, it may be difficult to remove oneself as an identified adherent of the Church. Our measure of membership may thus be slow to reflect declines in attendance and donations that occur prior to reported declines in membership.

TABLE 4
Ordinary Least Squares (OLS) Regressions of Catholic School Shares on Abuse Variables

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(%Enrolled in Catholic Schools)			ln(Schools per Child)		
ln(public notices per 100,000 residents$_{t-1}$)	0.00030 (0.00046)		0.00024 (0.00043)	−0.00084* (0.00046)		−0.00076* (0.00045)
ln(Lexis-Nexis hits per 100,000 residents$_{t-1}$)		0.00042 (0.00050)	0.00039 (0.00048)		−0.00072 (0.00052)	−0.00061 (0.00051)
Percent of teachers that are lay	0.00016 (0.00077)	0.00015 (0.00076)	0.00015 (0.00077)	−0.00077 (0.00109)	−0.00074 (0.00109)	−0.00075 (0.00109)
Percent Catholic	0.00285 (0.00236)	0.00275 (0.00234)	0.00283 (0.00235)	0.00222 (0.00232)	0.00221 (0.00232)	0.00223 (0.00233)
Percent Hispanic	−0.01067*** (0.00344)	−0.01054*** (0.00345)	−0.01064*** (0.00344)	−0.01449*** (0.00333)	−0.01466*** (0.00334)	−0.01451*** (0.00332)
Population in 000s per square mile	0.00767*** (0.00220)	0.00744*** (0.00221)	0.00763*** (0.00219)	0.00431** (0.00205)	0.00393* (0.00204)	0.00432** (0.00205)
ln(real per capita income)	0.21189* (0.12360)	0.20799* (0.12374)	0.21173* (0.12359)	−0.02065 (0.12693)	−0.02120 (0.12718)	−0.02110 (0.12714)
F-test	0.423	0.707	0.770	3.373	1.956	4.129
p-value	0.516	0.401	0.680	0.0663	0.162	0.127
within R^2	0.164	0.165	0.164	0.227	0.226	0.227

Notes: There are 174 dioceses and 2,762 observations. Robust standard errors in parentheses. Regressions include year dummies and diocese fixed effects. Standard errors clustered by diocese.
* $p < .1$; ** $p < .05$; *** $p < .01$.

in Catholic schools. The estimates are small and statistically insignificant. Areas gaining Hispanic population encountered declines in enrollment share, contrary to our expectations. Areas becoming more densely populated experienced increases in enrollment share. This is consistent with aggregate figures on private schooling, showing its growth in the urban fringe and large towns (National Center for Education Statistics, 2006). Further, Catholic school enrollment responds to rising per capita incomes.

Columns (4) through (6) of Table 4 examine Catholic schools per school-aged child. We find small, statistically significant negative effects of the public notice measure of publicity on Catholic schools. Although the elasticity is quite small, the average diocese in the sample experienced an enormous increase in negative publicity: about a 625% increase. The increase in public notices explains about 3% to 4% of the decline in Catholic schools. The effect of publicity as measured by Lexis-Nexis is similarly sized although not statistically significant. At the diocese-level, the two measures of negative publicity are correlated with each other (0.3719; p-value = .0000). Including both measures, however, changes the estimated

coefficients only slightly. Although many victims reported the abuse immediately after it occurred, many others waited decades to report past abuse. This reduces the magnitude of our estimates if parents are aware of abusive clergy and remove their children prior to an accusation. Further, the estimates may be smaller if the abuser is no longer present once the accusation is made.

For the estimates presented in Table 5, we include diocesan-specific trends. The estimates are qualitatively similar to those in Table 4. Negative publicity has no effect on the enrollment share in Catholic schools; negative publicity explains about 5% of the decline in the availability of Catholic schools over the past two decades. The factor consistently explaining a large fraction of the variation in Catholic schooling is the fraction of the population that is Hispanic. On average, between 1990 and 2006, dioceses experienced a 4 percentage point increase in the percent of the population that is Hispanic. This increase in the Hispanic population explains about one-third of the decline in Catholic schooling.

The estimates in Tables 4 and 5 control for the percent of the population residing in the diocese that is Catholic. Thus, the estimated effect

TABLE 5

OLS Regressions of Catholic School Shares on Abuse Variables with Linear Diocesan-Specific Trends

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(% Enrolled in Catholic Schools)			ln(Schools per Child)		
ln(public notices per 100,000 residents$_{t-1}$)	0.00021		0.00017	−0.00092*		−0.00083*
	(0.00048)		(0.00045)	(0.00048)		(0.00047)
ln(Lexis-Nexis hits per 100,000 residents$_{t-1}$)		0.00038	0.00036		−0.00075	−0.00063
		(0.00053)	(0.00050)		(0.00054)	(0.00053)
Percent of teachers that are lay	0.00019	0.00018	0.00019	−0.00069	−0.00066	−0.00067
	(0.00080)	(0.00079)	(0.00079)	(0.00114)	(0.00115)	(0.00114)
Percent Catholic	0.00201	0.00199	0.00200	0.00077	0.00080	0.00080
	(0.00240)	(0.00239)	(0.00238)	(0.00232)	(0.00232)	(0.00233)
Percent Hispanic	−0.00946**	−0.00939**	−0.00944**	−0.01330***	−0.01355***	−0.01334***
	(0.00409)	(0.00406)	(0.00408)	(0.00417)	(0.00416)	(0.00416)
Population in 000s per square mile	0.00396	0.00401	0.00394	0.00007	−0.00026	0.00009
	(0.00260)	(0.00265)	(0.00259)	(0.00304)	(0.00306)	(0.00304)
ln(real per capita income)	0.15785	0.15786	0.15809	−0.06812	−0.06736	−0.06854
	(0.13098)	(0.13108)	(0.13094)	(0.13852)	(0.13874)	(0.13871)
F-test	0.199	0.528	0.532	3.625	1.968	4.327
p-value	0.655	0.468	0.766	0.0569	0.161	0.115
within R^2	0.153	0.154	0.154	0.223	0.222	0.223

Notes: There are 174 dioceses and 2,762 observations. Robust standard errors in parentheses. Regressions include year dummies and diocese fixed effects. Standard errors clustered by diocese.

*$p < .1$; **$p < .05$; ***$p < .01$.

of the publicity items is net of any effect on membership with the Church. Negative publicity likely directly reduces both Catholic schooling and Catholic adherence, indirectly reducing Catholic schooling. We estimate the regressions excluding the percent Catholic.[14] These estimates are quite similar, suggesting that most of the effect from the negative publicity occurs directly through schooling and not through first reducing Catholic membership. Membership is reported by the Church. Catholics may attend church less, tithing less often long before becoming former Church members. Finally, a regression including lags and leads of our measures of negative publicity led to results that are not significantly different from those presented earlier.

Our public notices measure includes arrests, convictions, confessions, and settlements as reported on bishopaccountability.org. We separate the convictions and confessions from the arrests and settlements, dividing the public notices measure used previously into two measures. Incidents resulting in a conviction

or confession likely reflect stronger evidence of wrongdoing. Table 6 presents results using these two sub-measures. The regressions include the same set of control variables as given in Tables 4 and 5; their estimated coefficients are omitted for brevity.

Convictions and confessions drive most of the negative publicity results presented earlier. We find small, statistically insignificant effects of arrests and settlements on both enrollment share and on schools per child. The estimate on convictions and confessions tends to be more negative and has a statistically significant effect on schools per child. The magnitude of the effect on schools is similar to the magnitude of the effect of all public notices found in Tables 4 and 5. Negative publicity resulted in a decline in the availability of Catholic schools. The additional results in Table 6 suggest that much of the decline is likely driven by events with strong evidence of wrongdoing.

VI. CONCLUSION

The Catholic Church received a large amount of negative publicity following allegations and

14. These results and those including lags and leads described below are available upon request.

TABLE 6
OLS Regressions of Catholic School Shares on Abuse Variables With and Without Linear Diocesan-Specific Trends

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln(% Enrolled in Catholic Schools)				ln(Schools per Child)			
ln(convictions and confessions per 100,000 residents$_{t-1}$)	−0.0006 (0.0005)	−0.0007 (0.0005)	−0.0007 (0.0005)	−0.0007 (0.0005)	−0.0009 (0.0005)*	−0.0009 (0.0005)*	−0.0010 (0.0005)*	−0.0009 (0.0005)*
ln(arrests & settlements per 100,000 residents$_{t-1}$)	0.0003 (0.0005)	0.0003 (0.0005)	0.0002 (0.0005)	0.0002 (0.0005)	−0.0007 (0.0005)	−0.0006 (0.0005)	−0.0008 (0.0005)	−0.0007 (0.0005)
ln(Lexis-Nexis hits per 100,000 residents$_{t-1}$)		0.0004 (0.0005)		0.0004 (0.0005)		−0.0006 (0.0005)		−0.0006 (0.0005)
Linear diocesan-specific trends?	no		yes		no		yes	
Within R^2	0.165	0.165	0.154	0.154	0.227	0.227	0.223	0.224
p-value	2.242	3.330	2.177	3.280	5.380	5.963	5.690	6.186
F-test	0.326	0.343	0.337	0.350	0.0679	0.113	0.0581	0.103

Notes: There are 174 dioceses and 2,588 observations. Robust standard errors in parentheses. Regressions include year dummies and diocese fixed effects. Regressions also include the percent of teachers that are lay, the percent of the population that is Hispanic, the percent of the population that is Catholic, population density, and logged real per capita income. Standard errors clustered by diocese.

*$p < .1$; **$p < .05$; ***$p < .01$.

substantiations of sexual abuse. On top of the damage directly created by inappropriate and abusive behavior by Catholic priests and nuns, our results show that this abuse also decreased Catholic schooling in the United States. The negative publicity may have affected the availability of Catholic schooling through a decrease in demand as parents were discouraged from church attendance and from enrolling their children, or a diminished supply because of the settlement costs and the dioceses' reduced ability to raise funds from its members, or both.

We measure the negative publicity in two ways. The first aggregates information on arrests, convictions, confessions, and settlements reported on a website chronicling abuse in the Catholic Church. The second counts news articles covering sex abuse in Catholic dioceses as cataloged in Lexis-Nexis. Negative publicity explains 5% of the decline in Catholic schools in the United States. Our results suggest that negative publicity hampers the ability of schools to remain in the market. Broader demographic factors, particularly changes in the Hispanic population, explain a larger fraction of the changes in Catholic school availability.

On the one hand, it is beneficial that schools engaged in abusive practices close their doors. On the other, studies of Neal (1997) imply that this decline in Catholic schooling may negatively affect children in these dioceses, particularly the neediest. Hoxby (1994) further implies that the decline in Catholic schools may negatively affect public school students as competition is eroded.

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