Governments have used vouchers to spend billions of dollars on private education; much of this has gone to religiously affiliated schools. We explore the possibility that vouchers could alter the financial outcomes of religious organizations that are operating schools and thus have an impact on the spiritual, moral, and social fabric of communities. Using a data set of Catholic parish finances from Milwaukee, we show that vouchers are a dominant source of funding for many churches. Vouchers appear to offer financial stability for congregations as voucher expansion prevents church closures and mergers. However, voucher expansion causes significant declines in church donations and church revenue from noneducational sources.

I. Introduction

In the United States, private schools are dominated by religious organizations. According to the Private School Survey, over 80% of all private school students in the 2011/2012 school year attended a religiously affiliated school. The most common type of religious private school in the United States is a Catholic school, and most Catholic schools are operated by the local Catholic Church.

The educational environment facing these schools and their churches has dramatically changed with the rise of school vouchers and related programs that use government funds to subsidize attendance at private elementary and secondary schools. These programs have become enormously popular. Nearly half of all states have enacted a voucher-style school choice program supporting private schools (AFC Growth Fund, 2016), and billions of dollars have been spent on these programs. The importance of such subsidies will likely continue to grow: the recent major tax reform, the Tax Cuts and Jobs Act, included a provision to allow the payment of tuition for K–12 private schools to come from tax-preferred 529 savings plans that previously had been designated for higher education (Boswell, 2018), and the Trump administration has indicated a strong interest in pursuing large-scale voucher programs nationally (Strauss, 2017).

With the rise of vouchers and related subsidies, a large literature has developed to investigate the effects of these programs. Most of this work has focused on the impact of voucher programs on educational outcomes (for reviews, see Figlio, 2009; Hoxby, 2003; Epple, Romano, & Urquiola, 2017). This focus is understandable and worthwhile.

However, since vouchers subsidize attendance at religiously affiliated schools, they have the potential to affect not just educational outcomes but the outcomes of churches that operate private schools as well. But the implications of vouchers for religious groups is a topic that has received relatively little attention. In fact, to our knowledge it has received no attention in academic work. At the same time, discussions of vouchers among the media, policymakers, and ordinary citizens often concern whether, in the words of Justice William Rehnquist, vouchers have “the effect of advancing or inhibiting religion” (Rehnquist, 2002).

In this paper, we take up the argument that a primary effect of vouchers may not involve educational outcomes but instead may concern the funding of religious activities and the resultant changes in how religious groups organize and behave. Our study uses a data set of 71 Catholic parishes in Milwaukee covering the years 1999 to 2013. In an era where studies featuring enormous or unusual data sets have become commonplace, we nonetheless regard our data set of Milwaukee parishes as somewhat extraordinary. Churches do not have to provide financial information to the government, and we are unaware of any prior study in any discipline that provides financial information on a set of Catholic parishes and their schools over time. Our data allow us to do so in a city featuring one of the most famous voucher programs in the country (Rouse, 1998). These data include information on revenues and expenditures for a parish’s Catholic school, voucher revenue for the school, noneducational revenues and expenditures at the parish, and offertory revenue (e.g., contributions from worshipers). We can thus see how increased voucher revenue affects school finances and noneducational church finances.

Participation in the voucher program is voluntary for both students and schools. Thus, parishes with high levels of voucher revenue might differ from other parishes for a variety of reasons, including reasons unrelated to voucher spending. Comparisons of parishes with voucher-accepting schools to other parishes could confound the effects of vouchers with these other attributes. To address this fact, we exploit several changes in school choice policies during the period of our sample. These policies altered the maximum voucher payment, expanded voucher eligibility to new communities, and changed the income-eligibility thresholds for some students in some years. We combine this information with detailed address information on each parish to construct a measure of how generous voucher policy is in a given year for a given parish in a given neighborhood. We then exploit the panel nature of our data to follow parishes over time, comparing...
financial outcomes for parishes seeing significant changes in voucher policy relative to other parishes. Further, we can make this comparison among parishes with schools and those without.

We find that expansion in voucher policy is, unsurprisingly, associated with increases in voucher revenues for parishes with schools. We also find that voucher expansion prevents parish closures and mergers. We document this result using hazard regressions, but it is suggested by simple inspection of the data: closures are reasonably common before the first major voucher expansion we study and stop almost entirely thereafter.

We then see how voucher expansion affects parishes’ finances. Interestingly, and the above results notwithstanding, we find no evidence that vouchers stimulate parish religious financial activity beyond the operation of religious schools. In fact, our estimates repeatedly suggest the opposite. Vouchers cause a significant decrease in church donations and other religious revenue. These results are driven by parishes with schools and are robust to a battery of tests. We briefly consider nonfinancial outcomes (baptisms and the number of households in a parish); our estimates again suggest negative or zero effects.

The crowd-out of revenue is large in magnitude: if voucher eligibility in a parish’s local community increased from no eligibility to that of the average program in the sample, nondenominational religious revenues (that is, revenues from activities other than running a school) would decline by about $108,000. Put differently, within our sample alone, the Milwaukee voucher program has led over time to a decline in nondenominational church revenue of over $70 million. These large effects are driven by the large size of the voucher program itself.

Thus, the intensive-margin investigation made possible by our financial data tells a very different story from the extensive-margin one suggested by a simple focus on parish survival. While the extensive- and intensive-margin stories work in opposite directions, the intensive margin effects we identify are net effects that subsume the effect of vouchers on closures. That is, the overall impact of vouchers on religious revenues is negative.

This work represents a novel instance of nonprofits responding to newly available resources, and these resources crowding out other revenues and donations (Andreoni & Payne, 2003; Okten & Weisbrod, 2000). However, both the policy and the setting considered here are unusual. First, the revenue shock stems not from a grant but from the subsidization of a service that serves as an alternative to a government service. Further, the service providers include churches, which have not traditionally received large amounts of direct government support. Indeed, these novel aspects of vouchers have contributed greatly to their controversial character.

Moreover, it seems clear from our study that voucher programs could have large and potentially unanticipated impacts on religious life in the United States in years to come. The United States finds itself today in an unprecedented period of religious decline. Recent decades have seen a large rise in the fraction of Americans reporting no religious affiliation, and giving to religious causes (traditionally the largest area of charitable giving by far) has begun to fall while giving overall continues to grow (Velasco, 2015; Campbell & Putnam, 2012; Voas & Chaves, 2016). This shift is noteworthy as religiousity is strongly related to a variety of economically and socially relevant outcomes (Fruehwirth, Iyer, & Zhang, 2019; Hungerman, 2014; see Iyer, 2016, for a review), and congregations provide a variety of public goods, often jointly with the government.2

In this time of declining religion, our work suggests that such joint provision represents not only a source of competition between church and state but also a potentially crucial source of subsidization. The idea that public funding would provide an important, even dominant, source of support to congregations would have been unthinkable a few years ago. But this has quickly become reality. In our data, the typical parish accepting vouchers gets more revenue from government-funded vouchers than from offertory donations. But our work highlights the complexity of this relationship: the meteoric growth of vouchers could provide financial stability for congregations while at the same time affecting their religious activities. The “effect” of vouchers on religion could depend on whether one characterizes religion by the prevalence of churches or the activities within churches.

Our study also highlights the potentially large consequences of voucher expansion on outcomes unrelated to educational attainment. This is particularly noteworthy since some scholars have begun to conclude that vouchers may be somewhat ineffectual in generating gains in educational attainment for voucher recipients. In their survey, Epple et al. (2017) surmise that “empirical research does not suggest that awarding students a voucher is a systematically reliable way to improve their educational outcomes.” Prior work has suggested that vouchers may nonetheless be influential by, for example, altering public education (Figlio & Hart, 2014), but here we argue that the effects of vouchers could be broader still. Perhaps a key, if not the key, impact of vouchers on society will involve educational attainment only incidentally.

## II. Background

### A. The Milwaukee Archdiocese

There are over 6,500 Catholic elementary and secondary schools, enrolling over 40% of all private school students

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in the country (McDonald & Schultz, 2014). The Catholic Church is organized into geographical regions; typically these regions are called either a diocese or an archdiocese. There are about 200 dioceses and archdioceses in the United States. The data used in this paper cover the Archdiocese of Milwaukee, which encompasses the city (and county) of Milwaukee, along with several other surrounding counties in southeastern Wisconsin. The term parish, which will be used repeatedly here, refers to a local Catholic church as well as any related facilities, such as a school, under the supervision of a particular pastor. There were 216 parishes in the Milwaukee Archdiocese in 2007.

About half of parishes operate a Catholic school. Parish schools are typically—and in the case of Milwaukee during our study, entirely—elementary schools. They are also, of course, private schools. These schools are not operated by the local government and traditionally have not received any tax-based revenue. Instead, the operation and financing of a Milwaukee parish school are overseen by the parish itself. Most financial decisions concerning the parish school and parish church are made at the parish level, often by the pastor with the guidance of councils of parish members. From a financial and operational standpoint, the parish church and the parish school can be taken as an integrated agent. The setting we study—and the modern period of the U.S. Catholic Church—is one setting where many parishes have faced increased financial hardship. This hardship is often greater for parishes with a school. Frequently, the school’s revenues do not subsidize parish activity; instead, parishes use church revenues (such as offertory funds collected during worship) to subsidize their school.

In addition to parish support, many parish schools rely on tuition and donations for revenue. Catholic schools typically charge lower-than-average tuition compared to other private schools. In the 2007/08 school year, average Catholic elementary school tuition was $4,200, less than half as much as nonsectarian elementary schools (U.S. Department of Education, 2007–2008). However, Catholic education tuition costs have risen in recent decades, partly driven by the decline in the share of nuns as teachers (Meyer, 2007). The archdiocese does not subsidize parish or parish-school activities. Financial hardship has coincided with a decline in the participation of young families in the Catholic Church. Figure 1 shows total infant baptisms in the Archdiocese of Milwaukee and the entire United States, from 1999 to 2011. Each trend is normalized to 100 in 1999 so that each line shows the percentage change, year after year, in baptisms, relative to 1999. (There

3For more on the history of this archdiocese, see Avella (2002, 2014).
4This is the case in Milwaukee, but not in all dioceses. The Archdiocese of Milwaukee does own some property. For example, the archdiocese controls a cemetery that was the subject of “fierce litigation” in a bankruptcy case that gained national attention (Vielmetti, 2015). The bankruptcy case began during the final year of our study; dropping this year from our sample does not alter our main findings.
5Most parishes and schools have a one-to-one relationship: the parish has one school, and a school answers to a single parish. However, some schools serve multiple parishes, and sometimes multiple parishes and schools may be consolidated. We will discuss how we handle multiparish schools and the consolidation of parishes.
were about 1 million baptisms in the United States in 1999 and about 9,000 in Milwaukee.) There are two main points in the picture. First, each trend shows a decline in baptisms, with baptisms in 2011 roughly 25% below their 1999 levels. Second, while the Milwaukee trend is unsurprisingly somewhat noisier, it is reasonably close to the overall U.S. trend.

Catholic schools in Milwaukee have faced other challenges mirrored by Catholic schools across the country. As Henk and Meney (2013) write, “The trials and tribulations faced in Milwaukee will sound all too familiar to anyone who knows the K–12 Catholic education sector.” Most notably, the trends in figure 1 have been accompanied by a decline in Catholic-school enrollment. In 2014, there were about 2 million students in Catholic schools in the United States; the population of Catholic school students makes up the plurality of United States private school students but is far below its peak of 5.6 million in 1965 (McDonald & Schultz, 2014). Brinig and Garnett (2014) note several reasons for dwindling enrollment, including competition from charter schools, struggles to appeal to underserved populations (e.g., Hispanics), and increasing tuition costs. They summarize the situation of Catholic schools thusly: “The Catholic school financial model—which depended upon the generosity of parishioners in pews that are now empty and the free labor of nuns who are now retired—cannot be sustained.” Catholic schools and parishes also had to contend in the early 2000s with accusations of abuse by priests (Hungerman, 2013; Dills & Hernández-Julían 2014; Bottan & Perez-Truglia, 2015).6 Facing these hardships, Catholic schools have become increasingly diverse and focused on serving inner-city, disadvantaged students (Henk & Meney, 2014).

It is in this context of declining finances, enrollment, and participation by young families that vouchers in Milwaukee and elsewhere have been introduced. By subsidizing attendance at Catholic parochial schools, these vouchers could have an impact on overall parish life in several ways. First, since Milwaukee parishes operate a unified budget and typically subsidize their schools, vouchers may create a financial benefit by raising school revenue through increased enrollment or increased tuition as in a standard subsidy-incidence story.

Next, vouchers could have an impact on the composition of families at the parish school. The voucher programs we study mainly focus on populations of students that may be unfamiliar with Catholicism. Vouchers could then lead to new families joining or participating in parish activities. Vouchers could also alter the behavior of those already involved in parish life. For instance, they could increase participation in a parish among established Catholics responding to increased vitality at a parish school. Alternately, vouchers could crowd out the financial support of parishioners. Further, school participation in vouchers is voluntary. If vouchers prompt some parish-school students to leave their parish school, we could see flight away from voucher parishes to (for example) non-voucher parishes. We discuss our empirical strategy for dealing with the voluntary nature of vouchers below, but first we discuss the details of the voucher programs themselves.

B. Milwaukee Voucher Programs

Several programs made vouchers available to students in the Milwaukee Archdiocese during the period of our study. The first program, and one of the most famous voucher programs in the country, is the Milwaukee Parental Choice Program (MPCP). Apple et al. (2017) write that “Milwaukee is in many respects the most important voucher program in the U.S. and has served as a model for others.” The program, enacted by legislation, 1989 Act 336, provided public funds to private schools in the city of Milwaukee, via a voucher, to cover the cost of attendance for eligible low-income students living in the city. Schools initially were required to be nonsectarian (Kava, 2013). The program was subsequently expanded to allow the participation of sectarian schools, although this initial (and well-known) expansion of the program precedes the period for which we have data.7

The maximum voucher payment in the MPCP program is capped each year. For each participating student, a school can receive this maximum voucher payment or the school’s calculated cost per student, whichever is less. The cap is increased each year “by the statewide per pupil increase allowed under the revenue limits imposed upon public school districts” by the state of Wisconsin (2000 MPCP facts and figures).

During our period of study, the first noteworthy change in this program occurred with legislation, 2005 WI ACT 125. (Despite its name, the law became effective in 2006.) This law raised the income-eligibility limit for currently participating families to 220% of the poverty level; before this, it had been set at 175% of the poverty level. The income limit for new applicant families was kept the same. The program also eliminated the requirement that children applying for a voucher had to have been in the prior year (a) not in school, (b) in a Milwaukee Public School, (c) an MPCP participant, or (d) in grades K to 3 in a private school (McShane et al., 2012). This law also required schools to administer standardized tests and seek accreditation within three years (Ritsche, 2006), although the Milwaukee Archdiocese itself was an accepted accrediting body (Kava, 2013).

In 2011, the income threshold for new voucher students increased to 300% of poverty. Further, students continuing in the program no longer had to verify income eligibility.

6 Virtually all allegations of abuse occurred in the years before voucher expansions in our data. However, using information from Bishop Accountability, we constructed a variable capturing the total number of accusations made against current or former individuals associated with parishes in our data. Our methodology will identify the effects of vouchers based on policy expansions that should vary independent of these historical episodes, and our results are essentially identical regardless of whether we control for allegations.

7 This distinguishes voucher schools from charter schools, which are public schools in Milwaukee. No major expansions of Milwaukee charter schools occurred during our study.
Additionally, schools not in the city of Milwaukee could accept vouchers from eligible Milwaukee families. This legislation also created the Racine Parental Choice Program (RPCP) for students who reside in the Racine Unified School District. This program provides vouchers to low-income students living in the city of Racine.

The Racine program differs in several ways from the MPCP program. Vouchers are available only to students who were in the program or in a public school in Wisconsin in the prior year, were not in school at all in the prior year, or were in kindergarten, first, or ninth grades. During our period of study, priority had to be given to applicants qualifying for free or reduced-price lunches (beyond the income limits for eligibility; Kava, 2013). The program was capped at a relatively small number of students, although the number of students was still enough that it could sizably affect private school revenue. But the program’s income eligibility limits and maximum voucher payments mirror those in the MPCP program.

Table 1 provides information on the maximum per student voucher, income eligibility limits, and total voucher payments and participation for each program. Several items are worth noting. First, the nominal voucher cap does not simply increase each year with inflation. Rather, it does not change in some years, declines one year, and expands notably in 2005. This will provide real (i.e., inflation-adjusted) variation in the program over time. Next, the 2005 expansion coincides with a large increase in voucher payments; total voucher spending increased by almost 20% from 2005 to 2006. Third, the 2011 expansion also coincides with growth in voucher spending that is much larger than in the years just prior. Fourth, the 2011 expansion included making schools outside Milwaukee city (such as schools in Milwaukee County but outside the city itself) eligible. This is a source of variation in voucher spending that the table does not capture.

In theory, a voucher-like subsidy could leave enrollment and tuition unchanged, so that the voucher payment effectively goes to the families. Even in this case, vouchers could alter the character and financial outcomes of affiliated churches. Hungerman and Rinz (2016) consider this question and find that voucher-style programs increase school revenue, but their data essentially exclude Catholic schools and contain no information on church finances. Given the size of per student and total voucher payments in table 1, it is clear that voucher programs in this setting could have a significant impact on private school, and church, finances. We investigate this next using parish data.

### III. Data and Specifications

#### A. Parish Data

Data on Catholic parish finances are difficult to come by; we know of no rigorous study in economics (or in other disciplines) using these data. While many aspects of the Catholic Church are hierarchical, the particulars of church finances vary across dioceses, and there is no part of the church that collects parish-level financial data at the national level. Furthermore, Catholic churches are under no obligation to report their financial information to the government. The same is true for Catholic schools. Several surveys include some basic information on a relatively small cross section of parishes, but we know of no survey providing the information needed for our study.

Our data on parish finances were provided with the help of the Catholic Archdiocese of Milwaukee. Parishes in Milwaukee have their own budgeting systems but follow common guidelines set out by the archdiocese; they are asked to share their data with the archdiocese annually. The archdiocese collates these data but does not disseminate them. In fact, each parish’s data are proprietary to the parish itself and cannot be shared by the archdiocese without parish permission.

We first approached the archdioceses seeking permission to access parish data. Upon learning that permission would
Table 2.—Mean Financial Characteristics of Milwaukee Parishes, by Parish Type

<table>
<thead>
<tr>
<th>Variables</th>
<th>All Parishes</th>
<th>(2) Parishes with Schools</th>
<th>(3) Parishes without Schools</th>
<th>(4) Parishes with Voucher-Accepting Schools</th>
<th>(5) Parishes with Schools Not Accepting Vouchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voucher revenue</td>
<td>246.7</td>
<td>335.1</td>
<td>0</td>
<td>894.8</td>
<td>0</td>
</tr>
<tr>
<td>(100.1)</td>
<td></td>
<td>(133.9)</td>
<td>(0)</td>
<td>(323.0)</td>
<td>(0)</td>
</tr>
<tr>
<td>School Expenditures</td>
<td>1067</td>
<td>1450</td>
<td>0</td>
<td>1772</td>
<td>1259</td>
</tr>
<tr>
<td>(131.5)</td>
<td></td>
<td>(144.2)</td>
<td>(0)</td>
<td>(340.9)</td>
<td>(101.8)</td>
</tr>
<tr>
<td>School Revenue</td>
<td>756.2</td>
<td>1027</td>
<td>0</td>
<td>1469</td>
<td>764.5</td>
</tr>
<tr>
<td>(125.1)</td>
<td></td>
<td>(152.7)</td>
<td>(0)</td>
<td>(377.6)</td>
<td>(69.6)</td>
</tr>
<tr>
<td>Nonschool Expenditures</td>
<td>816.1</td>
<td>822.7</td>
<td>797.6</td>
<td>798.4</td>
<td>837.2</td>
</tr>
<tr>
<td>(66.1)</td>
<td></td>
<td>(50.1)</td>
<td>(212.9)</td>
<td>(75.1)</td>
<td>(66.9)</td>
</tr>
<tr>
<td>Nonschool Revenue</td>
<td>1169</td>
<td>1292</td>
<td>826</td>
<td>1121</td>
<td>1394</td>
</tr>
<tr>
<td>(84.0)</td>
<td></td>
<td>(78.6)</td>
<td>(217.3)</td>
<td>(112.1)</td>
<td>(102.9)</td>
</tr>
<tr>
<td>Operating Expenditures</td>
<td>1886</td>
<td>2276</td>
<td>797.6</td>
<td>2573</td>
<td>2100</td>
</tr>
<tr>
<td>(157.9)</td>
<td></td>
<td>(170.8)</td>
<td>(212.9)</td>
<td>(370.8)</td>
<td>(158.2)</td>
</tr>
<tr>
<td>Operating Revenue</td>
<td>1930</td>
<td>2326</td>
<td>826</td>
<td>2595</td>
<td>2166</td>
</tr>
<tr>
<td>(162.4)</td>
<td></td>
<td>(176.8)</td>
<td>(217.3)</td>
<td>(380.9)</td>
<td>(168.2)</td>
</tr>
<tr>
<td>Offertory Revenue</td>
<td>896.4</td>
<td>996.2</td>
<td>618.1</td>
<td>814.2</td>
<td>1104</td>
</tr>
<tr>
<td>(71.7)</td>
<td></td>
<td>(68.1)</td>
<td>(184.0)</td>
<td>(88.4)</td>
<td>(90.1)</td>
</tr>
<tr>
<td>Observations</td>
<td>936</td>
<td>689</td>
<td>247</td>
<td>257</td>
<td>432</td>
</tr>
</tbody>
</table>

Standard errors, clustered at the parish level, in parentheses. Dollar amounts are in thousands of 2014 dollars. In columns 3 and 4, parishes with schools are grouped according to whether they ever received vouchers.

be needed from each individual parish, we sought permission from parishes for use of their data. We initially identified thirteen parishes with schools that were likely to have been affected by expansions of voucher programs in 2006 and 2011. All thirteen of these parishes reported that they would be willing to participate in our study. We then asked all parishes in the archdiocese if they would be willing to share their data. Overall, 71 (out of about 200) agreed to share data. Given the historical reticence of Catholic organizations in sharing financial data, we view this response rate as remarkably good. While we cannot of course compare the financial outcomes ofparishes in our sample to Milwaukee parishes that did not participate, in the appendix (figure A1; all appendix materials are online), we compare the baptism rates for our sample and for Milwaukee overall; they are reasonably similar. We discuss more below issues of generalizability from our sample.

Several parishes we use were formed through the merger of smaller parishes during the period covered by our data. We treat each merged parish as a single entity in our main analysis, using the postmerger address (which is typically the address of one of the component parishes) to determine location. But we also consider mergers as an outcome variable.

For each parish, the archdiocese provided annual information on operating revenue, operating expenses, and revenue from weekly collections at masses. For parishes that operate schools, it also provided the amount of revenue derived from operation of the school, as well as expenditures on the school. We calculate nonschool revenue and expenses as the difference between operating and school revenue and expenses. We also were given information on the number of baptisms performed and the number of parish households. Our focus is on financial outcomes, and we have found our estimates with baptisms and households to be relatively less robust across specifications, but we report results on baptisms and households in the appendix. The archdiocese provided this information for each fiscal year (ending June 30) from 1999–2000 to 2012–2013. Where valid observations are available before and after, we replaced missing values and a limited number of outliers with linearly interpolated values; our results are largely not sensitive to these adjustments.

Table 2 summarizes the financial characteristics of parishes in our sample. Dollar amounts are in thousands, so that the average parish in the sample (column 1) has about $1 million in nonschool revenue and expenditures. Most of this revenue is offertory revenue (pledges and donations collected during worship).

Regarding the generalizability of our sample, we can compare the average donation amount here to average donations for Catholic parishes in the National Congregations Study. Using the 2006 and 2012 waves of that study and excluding rural churches, the NCS reports that the average Catholic congregation had $936,670 (in year 2014 dollars), which is close to the average offertory revenue in column 1 of table 2. Looking next at school revenue, we can generate a rough estimate of typical Catholic school revenue in the United States using average maximum tuition for Catholic schools in the Schools-and-Staffing survey ($4,200 in 2007–2008), times the average size of Catholic elementary schools, which according to the 2007–08 Private Schools Survey was 240. This calculation suggests revenue of 4200 × 240 = $1,008,000, which is close to the average school revenue amount in column 2. Finally, McDonald and Schultz (2014) report in their exhibit 24 that average cost per student at Catholic parish elementary schools is $5,847, suggesting total costs of 5,847 × 240 = $1,403,280, which is very close to average school expenditures in column 2 here. For several variables, the average parish in our sample resembles the average Catholic parish as reported by other sources.
Columns 2 and 3 in table 2 show that parishes that operate schools are substantially larger than those that do not, as one might expect. Operating revenues and expenses at parishes with schools (column 2) approach three times those at parishes without (column 3). Once school revenues and expenses are removed, however, these two groups are more similar. Column 4 considers parishes with voucher-accepting schools. The results here underscore a main point of this paper: that vouchers have the potential to become an enormously important—even dominant—source of revenue for churches. Remarkably, these parishes actually receive more of their revenue from government-sponsored vouchers than from offertory revenue contributed by their worshipers.

In a comparison of the last two columns, the differences between parishes that ever receive vouchers (column 4) and those that do not (column 5) are suggestive of how voucherers may influence parish finances. Revenue and expenditures are higher at voucher schools than at nonvoucher schools, and while on average both types of schools lose money for their parishes, voucher schools lose less money despite being larger. Despite the difference in the “profitability” of their schools, voucher and nonvoucher parishes are in similar, slightly positive positions when overall operating revenues are compared to operative expenditures, with nonvoucher schools making up for the lack of voucher money with higher nonschool revenue. In particular, this nonschool revenue comes primarily from higher levels of offertory revenue.

One important issue here is that parishes may respond to vouchers by shifting the recording of expenses from noneducational to educational categories in an effort to obtain higher voucher payments. This is possible. We note, however, that our results are similar when looking at expenditures or at revenues, and the latter should not be subject to such manipulation, and as noted above, table 2 shows that in both proportionate (as a percent of revenue) and absolute terms, the economic loss is larger for schools without vouchers, which is not consistent with higher educational expenditures being driven purely by shifts in cost. Nonetheless, while we include nonschool expenditures in our main results, the possible manipulation of these expenditures should be kept in mind, and we defer the robustness results for this outcome to the appendix. Before considering results, however, we describe other controls we will use in combination with our parish data.

B. Community Characteristics and Empirical Methodology

Our parish information includes the address of each parish in our sample. Using this, we can combine parish financial data with characteristics of their neighborhoods. We take these characteristics from the 2000 Census and the American Community Survey from 2009 to 2013. Using the addresses of each parish and the centroids of census tracts in Wisconsin, we match each parish to all tracts with centroids that are within 1 mile of the parish. For parishes operating schools that have addresses different from the parish, we use the address of the school. In the few cases where a parish operates a school with multiple locations, we use the address of the location that is listed first alphabetically. We calculate shares of the population in various age-by-race, education, marital status, nativity, and language groups; the unemployment rate; and family income from these collections of census tracts. For 2001 through 2008, we linearly interpolate between the values we calculated for 2000 and 2009. We match each fiscal year to the calendar year in which it began.

Average demographic and economic characteristics of the areas around the parishes in our sample are presented in table A1. As the table shows, parish schools receiving vouchers are located in areas that, on average, have larger nonwhite populations, higher unemployment rates, lower income, less education, lower marriage rates, and larger shares of the population who were born abroad and speak a language other than English at home.

In our results, we control for these community characteristics that could affect both voucher spending and parish outcomes. But we can also combine information on a parish’s community with the variation in program characteristics from table 1 to address the concern that schools voluntarily decide to accept voucher payments.

To overcome this issue, our results will not use realized voucher spending as the key regressor. Instead, we will exploit the policy variation in table 1, as well as the expansion of the MPCP program to the entire county of Milwaukee during our sample, to construct a measure of potential voucher revenue for each parish. We count the number of families with at least one child at various levels of income living in tracts within 1 mile of each parish. Based on the level of income and the child’s location, we can calculate the potential voucher revenue for each parish each year (we also report results using distances other than 1 mile). Thus, as a simple example, if we estimated that there were 5,000 families with at least one potentially eligible child living near a parish and the maximum voucher was $1,000, potential voucher revenue for that parish would be $5,000. This estimate of money a parish school could receive depends on variation in geographic eligibility for vouchers income eligibility thresholds, and the maximum voucher value, which all change over time.

Another source of variation that could affect our potential voucher spending variable is the demographics of a neighborhood itself. Rich neighborhoods will not have many families eligible for vouchers in any year, and their parishes may have different outcomes than other parishes do. In the appendix (see table A2) we report community means in our initial year for parishes ever exposed to vouchers (i.e., located in a community that ever has a voucher program during our study).

9 Most parishes (54%) are matched with either one or two tracts when we define neighborhoods using a 1 mile radius, and the interquartile range for the number of tracts parishes match to runs from 1 to 5. We show results using alternate radii.
and parishes never exposed to vouchers in the subsequent years of our study. That table shows that parishes ever exposed to vouchers have fewer white children, more minority children, higher unemployment rates, and lower median family income. However, first, our results can include fixed effects that should account for fixed differences in neighborhood characteristics over time. Second, in our calculations of potential voucher spending, we can hold neighborhood characteristics fixed. That is, we will estimate potential voucher spending using ex ante Census 2000 data for every year in the sample. This ensures that the only source of variation over time in our constructed potential voucher spending measure is policy driven. The use of Census 2000 data also allows for reasonably high levels of precision in estimating community characteristics. Additionally, our results include controls for time trends or lead changes in potential voucher spending. Our main results are similar across these different tests, and our main conclusion—that vouchers do not lead to an increase in nonschool religious financial activity—is supported by all of our results.

We also verify below that variation in potential voucher spending is closely related to variation in actual voucher spending. We calculated actual school-level voucher payments each year using (a) publicly reported school-by-year data on voucher-eligible students (i.e., counts of full-time-equivalent, FTE, enrollment in each school) and (b) the final cost per pupil reported by each school each year (provided by the Wisconsin Department of Public Instruction, DPI). We confirmed with DPI officials that multiplying the amount in item a by the lesser of the maximum voucher value or item b would allow us to calculate the voucher payment received by each school.

C. Baseline Specification

Our baseline specification takes the form

\[ y_{it} = \delta \text{voucher}_{it} + \beta X_{it} + \theta_i + \phi_t + T_{it} + \epsilon_{it}, \]

where \( y_{it} \) is an outcome variable for parish \( i \) in year \( t \), such as actual voucher revenue, school expenditures or revenue, nonschool expenditures or revenue, or offertory revenue. The variable \( \text{voucher}_{it} \) is potential voucher revenue for parish \( i \) in year \( t \), \( X_{it} \) is a set of controls for community characteristics, \( \theta_i \) is a set of parish fixed effects, \( \phi_t \) is a set of year dummies, and \( T_{it} \) is a set of parish-specific time trends. The term \( \epsilon_{it} \) is noise.

The key regressor in the equation is \( \text{voucher}_{it} \). The coefficient \( \delta \) describes how a 1-unit-increase in potential voucher revenue affects parish outcome \( y \). Potential voucher revenue will be much higher than realized voucher revenue, since many students eligible for a voucher will instead (for instance) attend a public school. This suggests that care must be taken in interpreting the coefficient \( \delta \). In the appendix, we report the raw coefficients \( \delta \). However, in the main tables of results, we adjust the coefficients to make them more interpretable. First, we can run a regression using realized voucher revenue as the dependent variable and take the resultant “first-stage” estimate \( \delta_{\text{voucher}} \) and use it to divide our subsequent coefficients from regressions on other parish outcomes. This produces a dollar-for-dollar effect: the change in a parish outcomes for a $1.00 change in voucher revenue. We estimate this using two-stage least squares (2SLS).

Alternately, we can regress a parish outcome \( y \) on potential voucher revenue, and then scale the coefficient by the average potential voucher revenue in communities with voucher-eligible students: \( \hat{e} = \hat{\delta} \times \text{voucher}_{it} \), where \( \text{voucher}_{it} \) is the average of \( \text{voucher}_{it} \) taken for all observations where \( \text{voucher}_{it} > 0 \). The resulting scaled coefficient \( \hat{e} \) is a semielasticity estimate that shows the predicted effect on parish outcomes from the local community going from having no potential to receive voucher revenue to having the potential to receive the average amount. Of course, the actual introduction of a voucher program could have extensive-margin effects that might differ from the intensive-margin effects that will identify \( \hat{e} \). This notwithstanding, the semielasticity estimates will provide a useful gauge in assessing the magnitude of the results.\(^{10}\)

IV. Results

Our baseline regression analysis is presented in table 3. The sample includes all parishes. The unit of analysis is a given parish in a given year; there are 936 observations. Financial variables are expressed in thousands of 2014 dollars. Standard errors in parentheses are clustered at the parish level. We first regress actual voucher revenue and educational finances on potential voucher revenue (already described). The results on noneducational parish finances use the same specifications as do the results on educational finances, and so we also present them here. We then turn to results on parish closures and mergers.

Panel A presents semielasticity estimates of the effects of voucher programs on finances. Here, the raw coefficient on potential voucher revenue and its standard error are multiplied by the average amount of potential voucher spending in communities with a voucher program. (The raw unadjusted coefficients are reported in appendix table A3.) Based on this estimate, going from zero potential voucher revenue in the

\(^{10}\)Calculating potential voucher revenue requires information on the distribution of income across families within a census tract. We have such data based on the presence of children from the 2000 Census but not based on the number of children in a household or by age of children. We thus treat each family with at least one child as one potential student. This will lead to an undercount of potential students and, by extension, potential revenue. However, note that our two methods of scaling our coefficient \( \delta \) should counteract this undercounting effect. For example, if in each community, families with at least one school-aged child actually on average had two school-aged children, then our potential voucher spending variable would be half its actual size and our raw coefficient will be two times too large. However, in this case, the scaling term \( \delta_{\text{voucher}} \) would also be two times too large, while the scaling term \( \text{voucher}_{it} \) would be half its actual size, so that multiplying \( \delta \) by \( \text{voucher}_{it} \) or dividing \( \delta \) by \( \delta_{\text{voucher}} \) would produce a correctly scaled result.
local community to the average amount (among parishes with positive values) would bring a parish about $315,000 in actual voucher revenue—a number reasonably close to the overall average amount of voucher revenue reported in the simple table of means already shown, and about half of overall school revenue.

However, columns 2 and 3 show that this large influx of voucher support does not lead to corresponding increases in school expenditures and revenues. Going from no voucher program to an average-sized program leads to a small and statistically insignificant change in school expenditures and revenue. In Panel b, we present 2SLS estimates where we instrument actual voucher revenue with potential voucher revenue, producing dollar-for-dollar effects. A dollar of voucher revenue at a school has no significant impact on overall school finances.

Does the increase in voucher revenue correspond to greater religious financial activity in a parish? Column 4 considers how voucher expansion affects nonschool expenditures such as pastor salaries, mission expenditures, and church upkeep. Here, the coefficients are negative and significant, so that these activities actually decline when vouchers expand. The average voucher program diminishes nonschool expenditures by $139,000, or by 44 cents on the dollar. Nonschool revenue decreases by $108,000 under an average voucher program (panel A) or 34 cents per dollar of voucher revenue (panel B). Another way of interpreting this effect would be to consider the aggregate decline in revenue caused by voucher programs since the beginning of our sample. Table 2 shows in column 4 that total voucher revenue (in 1,000s) in our sample is 898.4 × 257 = $230,888.80. The dollar-for-dollar estimates here suggest this $230 million in voucher revenue has caused a within-sample decline of $230,888.80 × 0.34 ≃ $78.50 million dollars in nonschool revenue. Columns 6 and 7 show the effect on overall operating revenue and expenditures, which are statistically insignificant as the large imprecision in the school finance results in columns 2 and 3 mask the significant decline in nonschool finances identified in columns 4 and 5. Rather than leading to an increase in religious financial activity, it appears that an increase in revenue from vouchers crowds out revenue from other sources. Column 8 shows that the typical voucher program in the local community leads to about a $56,000 decline in offertory contributions from parishioners. The dollar-for-dollar crowd-out effect is 18 cents on the dollar.

In appendix tables A4a and A4b, we consider donations made to other charitable organizations in Wisconsin using data from the National Center for Charitable Statistics. The tables present semielasticity coefficients of charitable donations regressed on potential voucher revenue. They show that the expansion of voucher policy did not coincide with a decline in donations to other charitable groups.

The decline documented for churches includes both parishes that operate schools and those that do not. We can compare these two types of parishes to each other to produce alternative estimates of the effects of vouchers on parish finances. These results are presented in table 4. Again this table focuses on semielasticity estimates; 2SLS dollar-for-dollar effects would be poorly estimated for parishes without schools since actual voucher revenue is mechanically 0 for these observations. The table includes a coefficient that interacts the potential voucher revenue control with a dummy indicating that a parish has a school and a coefficient that interacts potential voucher revenue with a dummy indicating that a parish lacks a school. (Parish fixed effects would be collinear with an uninteracted school dummy, and with an uninteracted lacking-school dummy, were they to be included on the right-hand side.) Below the table, Wald tests are reported for a test of whether the two coefficients are equal.

The only study we know of to produce a comparable revenue number is Hungerman and Rinz (2016), which estimates that in a world where the incidence of a subsidy falls on families, the dollar-for-dollar revenue effect of a voucher is 85 cents. Certainly the precision in table 3 cannot rule out an effect of similar magnitude. However, the sample in that paper essentially excludes Catholic schools, while the sample here is entirely Catholic schools, and the two studies focus on different policies.
BEYOND THE CLASSROOM

TABLE 4.—EFFECTS OF VOUCHERS ON PARISH OUTCOMES BY PRESENCE OF A SCHOOL: SEMIELASTICITY ESTIMATES

<table>
<thead>
<tr>
<th></th>
<th>(1) NonSchool Revenue</th>
<th>(2) Offertory Revenue</th>
<th>(3) NonSchool Revenue</th>
<th>(4) Offertory Revenue</th>
<th>(5) NonSchool Revenue</th>
<th>(6) Offertory Revenue</th>
<th>(7) NonSchool Revenue</th>
<th>(8) Offertory Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential Voucher Revenue × Parish with School</td>
<td>−391</td>
<td>−237</td>
<td>−307</td>
<td>−229</td>
<td>−284</td>
<td>−187</td>
<td>−94</td>
<td>−60</td>
</tr>
<tr>
<td></td>
<td>(193.0)</td>
<td>(95.2)</td>
<td>(140.5)</td>
<td>(67.3)</td>
<td>(115.9)</td>
<td>(57.4)</td>
<td>(54.8)</td>
<td>(29.6)</td>
</tr>
<tr>
<td>Potential Voucher Revenue × Parish with no School</td>
<td>213</td>
<td>136</td>
<td>473</td>
<td>189</td>
<td>348</td>
<td>157</td>
<td>50</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>(198.5)</td>
<td>(128.2)</td>
<td>(230.2)</td>
<td>(154.5)</td>
<td>(183.0)</td>
<td>(144.5)</td>
<td>(112.1)</td>
<td>(48.5)</td>
</tr>
<tr>
<td>Lead Potential Voucher Revenue × Parish with School</td>
<td>−29</td>
<td>−75</td>
<td>−29</td>
<td>−75</td>
<td>−26</td>
<td>−22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(100.0)</td>
<td>(51.7)</td>
<td>(76.1)</td>
<td>(45.7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead Potential Voucher Revenue × Parish with no School</td>
<td>−238</td>
<td>33</td>
<td>126</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(137.2)</td>
<td>(73.0)</td>
<td>(218.0)</td>
<td>(66.6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>936</td>
<td>936</td>
<td>936</td>
<td>936</td>
<td>936</td>
<td>936</td>
<td>936</td>
<td>936</td>
</tr>
<tr>
<td>RHS controls?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>School-status-by-year-fixed-effects?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Parish fixed effects?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Parish trends?</td>
<td>No</td>
<td>No</td>
<td>No No No No Yes Yes Yes Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In each column, the coefficients are from the same regression. These estimates are semielasticity estimates. Standard errors in parentheses are clustered at the parish level. N = 936. A Wald test of the hypothesis that the two potential voucher revenue coefficients in a given regression are equal produces values of 4.985 (p = 0.029) in column 1, 5.901 (p = 0.018) in column 2, 6.855 (p = 0.011) in column 3, 6.108 (p = 0.016) in column 4, 7.714 (p = 0.007) in column 5, 5.230 (p = 0.025) in column 6, 0.021 (p = 0.655) in column 7, and 0.818 (p = 0.369) in column 8. The last four columns include a set of lead potential voucher revenue variables constructed using the voucher rules from two years in the future.

last two. All estimates in the table include year dummies interacted with school status, so that parishes with schools can have different trends over time than those without. The last pair of columns further adds in parish time trends.

While these estimates could be thought of as similar to a triple-difference framework, we note that vouchers could affect parishes without schools (vouchers could cause families to migrate between parishes, for example). Thus, we would hesitate to consider the results from this exercise in terms of comparing “control” and “treatment” parishes. However, it would be surprising if our main results were driven entirely by parishes without schools. We focus on nonschool revenue and offertory revenue (for parishes without schools, school revenues and expenditures are 0, and nonschool revenues and expenditures equal operating revenues and expenditures).

These results indicate that the decline in religious activity is driven by parishes with schools. In the first four columns, the declines we see for parishes with schools are statistically different from the responses of parishes without schools (as shown by the Wald tests), and in all instances, they are statistically different from 0 (as shown by the standard errors). Columns 5 and 6 show results from including two “lead” potential voucher controls—one interacted with a parish school dummy and one interacted with a no-school dummy. Each lead voucher control uses law changes two years in the future to calculate potential voucher revenue. This serves as both a potential means to investigate trends in the data and an attempt to determine whether parishes’ financial outcomes are changing contemporaneously with the prevalence of vouchers nearby. Column 5 shows that contemporary voucher eligibility drives the effect on nonschool revenue. Similarly, in column 6, the decline in offertory revenue is driven by contemporaneous responses in parishes with schools.

The lead-potential-voucher coefficients in these columns are all smaller (closer to 0) than the corresponding contemporaneous effects and three of four are insignificant, although the effect for nonschool revenue for the no-school parishes is significant at conventional levels. This positive sign could fit a scenario where families anticipate voucher expansion and respond by moving to other nearby parishes (as our data are based on a fiscal year rather than a calendar year), but the lack of significance across the table for most of these coefficients makes this possibility suggestive at best.

The last two columns add trends to our estimates. All the coefficients, both the main effects and the lead effects, become notably smaller. In fact, this decline corresponds to a decline in the relationship between voucher revenue and potential voucher revenue—the first-stage regression produces a coefficient of 1,601 (680) without trends and 343 (116) with trends for parishes with schools. This suggests that the dollar-for-dollar effects are similar with trend controls and without; we take this up momentarily. The lead effects for parishes with schools are again negative, but also smaller and once more imprecisely estimated. In appendix table A5, we present an additional specification test where we redo columns 5 and 6 in table 4 but include a set of variables for voucher policy two years, three years, and four years in the future. Those results find significant contemporaneous effects and insignificant lead effects for parishes with schools; coefficients for no-school parishes are generally insignificant.12

Moreover, looking at the no-school coefficients in table 4, we do not find a consistently estimated effect of vouchers. The main effects for parishes without schools in the last two columns of table 4 are negative and insignificant, so the positive coefficients in columns 1 through 6 do not appear robust. One could produce an alternate version of table 4 by estimating the regression for the two samples separately. Results using just parishes with schools in the sample are reported momentarily and are similar to those shown here. However, in this case, the (much smaller) sample of parishes without schools yields insignificant coefficients; the respective

12In appendix figure 2 and appendix table A6, we present results similar to those in table A5 using the full sample and a set of lagged potential voucher coefficients to go with the lead potential voucher coefficients. These show that our outcomes are related to changes in contemporaneous voucher policy but not (in particular) future changes.
coefficients on nonschool revenue and offertory revenue for the sample of no-school parishes are \(-35 (196)\) and \(-68 (117)\). In appendix table A7, we reestimate table 4, but the data have been winsorized (for both the sample of parishes with schools and the sample without schools, we truncate values of the \(y\) variable above the 95th percentile value to the 95th percentile value and similarly for values below the 5th percentile). The results in table A7 are similar for parishes with schools but smaller (closer to 0) for parishes without schools, and again the implied effects switch sign depending on trend controls. The fall in religious finances for parishes with schools is thus quite robust, and while vouchers could directly affect nonschool parishes, evidence of a partial shift of resources to nonschool parishes is at best suggestive and sensitive to the use of outliers.

Tables 5 and 6 provide additional tests of robustness. Given the results in table 4, here we focus on parishes with schools, but results using all parishes are typically similar. As with the main results, estimates on operating expenditures and revenues are not significant for these tests and are omitted for brevity. Results on nonschool expenditures are generally significant and negative, although given the concerns about them noted above, we report them in appendix table A8. That table also reports results using two nonfinancial outcomes: households and baptisms. Results with those two variables are often negative but not usually statistically significantly different from 0.

Table 5 reports semielasticity results. Column 1 reports specifications that drop trends and right-hand-side controls, followed by (2) results that drop just trends, (3) include parishes without schools, and again the implied effects switch sign depending on trend controls. The fall in religious finances for parishes with schools is thus quite robust, and while vouchers could directly affect nonschool parishes, evidence of a partial shift of resources to nonschool parishes is at best suggestive and sensitive to the use of outliers.

Table 6 shows the effects are observed across a range of specifications. For both donations and nonschool revenue, the first two columns show a larger effect when trends are omitted, but a smaller effect than baseline when the weaker postal code–level trends are used. That is, the estimates shrink when more aggressive trend controls are applied. As before, the increase in the magnitude without trends corresponds to an increase in the magnitude of the first-stage regression (which is shown in table 6 and discussed momentarily), indicating that the changes in magnitude observed here will not lead to changes in the implied dollar-for-dollar effects.

---

**Table 5. Further Robustness Results, Parishes with Schools, Semielasticities**

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No RHS</td>
<td>No Trends</td>
<td>Alternate Trends</td>
<td>Log Outcome</td>
<td>No Interpolation</td>
<td>Community: 2 Miles</td>
<td>Community: 3 Miles</td>
</tr>
<tr>
<td>Dependent variable: Nonschool revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential voucher revenue</td>
<td>(-397 (197))</td>
<td>(-213 (112))</td>
<td>(-93 (60))</td>
<td>(-0.066 (0.084))</td>
<td>(-135 (63))</td>
<td>(-152 (119))</td>
</tr>
<tr>
<td>Dependent variable: Offertory revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential voucher revenue</td>
<td>(-242 (97))</td>
<td>(-179 (55))</td>
<td>(-69 (37))</td>
<td>(-0.116 (0.059))</td>
<td>(-92 (35))</td>
<td>(-104 (59))</td>
</tr>
<tr>
<td>RHS controls?</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year FE's?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Parish FE’s?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Parish trends?</td>
<td>None</td>
<td>None</td>
<td>Postal code</td>
<td>Linear</td>
<td>Linear</td>
<td>Linear</td>
</tr>
</tbody>
</table>

Each coefficient is from a separate regression. The sample is parishes with schools. Coefficients are semi-elasticity coefficients that suggest the effect of going from no voucher program to an average-sized voucher program in the local community. Standard errors in parentheses are clustered at the parish level. The first two columns remove parish trends and the third column uses postal code–level trends. The fourth column logs the dependent variable, and the fifth column excludes outliers rather than replacing them with interpolated values. The last two columns use different distances from the parish to construct right-hand-side controls and the potential voucher revenue variable. There are 673 observations in the sample.

---

**Table 6. Further Robustness Results, Parishes with Schools, 2SLS**

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No RHS</td>
<td>No Trends</td>
<td>Alternate Trends</td>
<td>Log Outcome ((\times 100)^4)</td>
<td>No Interpolation</td>
<td>Community: 2 Miles</td>
<td>Community: 3 Miles</td>
</tr>
<tr>
<td>Dependent variable: Actual voucher revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voucher revenue</td>
<td>(0.217 (0.115))</td>
<td>(0.166 (0.095))</td>
<td>(0.041 (0.015))</td>
<td>(0.048 (0.010))</td>
<td>(0.0387 (0.013))</td>
<td>(0.0153 (0.005))</td>
</tr>
<tr>
<td>Dependent variable: Nonschool revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voucher revenue</td>
<td>(-0.206 (0.089))</td>
<td>(-0.145 (0.075))</td>
<td>(-0.256 (0.165))</td>
<td>(-0.019 (0.022))</td>
<td>(-0.329 (0.178))</td>
<td>(-0.262 (0.193))</td>
</tr>
<tr>
<td>RHS controls?</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year and parish FE’s?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Parish trends?</td>
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<td>None</td>
<td>Postal code</td>
<td>Linear</td>
<td>Linear</td>
<td>Linear</td>
</tr>
</tbody>
</table>

\(^4\)The log-outcome coefficients are multiplied by 100 for readability. Each coefficient is from a separate regression. The sample is parishes with schools. Standard errors in parentheses are clustered at the parish level. The first two columns remove parish trends, and the third column uses postal code–level trends. The fourth column logs the dependent variable, and the fifth column excludes outliers rather than replacing them with interpolated values. The last two columns use different distances from the parish to construct right-hand-side controls and the potential voucher revenue variable. There are 673 observations in the sample.
The column with logs suggests that the establishment of an average-sized voucher program will lead to a 7% fall in non-school revenue and a 12% fall in donations. Using the means from table 2, these correspond to roughly a $100,000 decline for both variables, effects similar to those suggested by the main coefficients in the last columns of table 4. The result on non-school revenue is imprecise given the inclusion of parish trends. Without these, the coefficient becomes −0.21 (0.12), but we omit this result from the table. The next column excludes outliers rather than replacing them with imputed values; this does not change the results. The last two columns use different measures of distance to calculate potential voucher revenue. Clearly, the results are not driven by the choice of distance.

Table 6 reports 2SLS results along with first-stage estimates in row 1. These first-stage coefficients are the raw, unadjusted coefficients. Overall the results are similar to those in table 5. As anticipated in the presentation of the earlier results, the first-stage effect (in row 1) is much larger without trend controls, meaning that the implied dollar-for-dollar effects in rows 2 and 3 is similar. The effects on non-school revenue and offertory revenue are quite consistently estimated, except the large non-school revenue result using a 3 mile radius. Aside from this result, estimates on non-school revenue are between 14 and 33 cents on the dollar, and all offertory effects are between 12 and 24 cents on the dollar.

Overall, the results repeatedly refute the possibility that vouchers promote greater religious financial activity within recipient parishes. Indeed, the results suggest the opposite. In particular, looking at religious finances, we find no evidence of an overall increase and repeatedly find robust evidence that vouchers decrease parish religious revenue.

The results so far have focused on financial changes within parishes, but vouchers can have important extensive-margin effects (Rinz, 2016). We next consider how the existence of parishes themselves could be affected by vouchers. This impact is a priori unclear. If overall revenues and expenditures do not change when vouchers expand, then vouchers could have no effect on parish survival. Alternately, if a fall in offtery revenue signals a decline in the religious vitality of a parish, then vouchers could promote church closures. Finally, if vouchers, for example, offer a relatively certain source of income for a struggling parish, then they may promote parish survival even if the short-run effects on overall revenue are negligible.

When any parish, in the Archdiocese of Milwaukee, closes, members of this parish merge with those in another parish (closures are always achieved by mergers). In consulting with the archdiocesan office and with various years of the Official Catholic Directory, we can identify which parishes merged in which years. There were 12 mergers, involving 35 parishes, that occurred in our sample during the period studied. Four mergers (fourteen parishes) occurred in 2000, one merger (two parishes) in 2001, two mergers (six parishes) in 2003, two (four parishes) in 2005, one (two parishes) in 2006, one (four parishes) in 2007, and one (three parishes) in 2011.

Combining this merger information with our information on voucher expansion, we can investigate how the two are related.

Table 7 reports estimates of a Cox proportional-hazard model. In the first two columns, the outcome variable is whether a parish closes in a given year, and the hazard model estimates the likelihood of this event (conditional on survival to the current year and conditional on observables). The estimates are negative and significant, suggesting that expansions in voucher eligibility lower the likelihood of a parish closure. The coefficients are quite large, essentially suggesting that upon adoption of an average-sized voucher program, the probability of closure falls by 100%. This can be seen by noting that the proportional hazard model is of the form \( \lambda(t; x) = x\beta + \log\lambda_0(t) \), where \( \lambda(t; x) \) is the hazard function representing the probability of closure at period \( t \) given survival to period \( t \). Since the average potential (as opposed to actual) voucher spending is about $9.4 million, and recalling that the monetary amounts are in thousands, the predicted effect on the hazard of going from no voucher program to an average-sized voucher program would be 100 × \( (e^{0.037} - 1) \approx 100 \). The result is similar whether or not covariates are included in the estimation. The large effect is not surprising; a casual investigation of the above list of closures shows that mergers were fairly common before voucher expansion and much less common after expansion. If two parishes are struggling financially, the archdiocese could decide to combine them, and the decision for which parish to close might be arbitrary. In that case, it would be important not to focus on parish closures alone as a key outcome, but rather to consider any involvement in a merger as an outcome. The last two columns of table 7 present results where the hazard now estimates the probability of involvement in a merger rather than just closure. The estimates are quite similar to before.

Thus, table 7 indicates that voucher expansion greatly lowered the probability of closure or merger for parishes. How does this finding reconcile with the earlier estimates? First,

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<th>Table 7.—Hazard Regressions on Parish Mergers</th>
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<td>Potential voucher</td>
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<td>Observations</td>
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Estimates are coefficients from Cox proportional hazard models. Dollar amounts are in thousands of 2014 dollars. The first two columns estimate the conditional likelihood that an open parish is closed in a given period. The last two columns estimate the conditional likelihood that an open parish is involved in a merger in the current period. Standard errors in parentheses are produced through 200 bootstrap replications. Specifications do not include fixed effects because they are incompatible with single-spell duration data. See Horowitz and Lee (2006) for more details.
a scenario where vouchers prevent closures could produce negative observed results on financial outcomes via selection. Vouchers “rescue” struggling parishes, and the continued presence of these struggling parishes “drags down” the average outcomes observed in the data. However, our estimates include parish fixed effects and are driven by changes within parishes over time (a Monte Carlo exercise verified this). A story where the sample average of parish activity is observed to decline as struggling parishes are rescued does not drive our results.

Second, parish mergers can be painful events for adherents, and they may directly affect parish revenues by lowering attendance or contributions. If voucher expansion prevents mergers, this could be a channel by which vouchers promote religious activity. However, for our earlier estimates, we treated any merged parishes as a single entity in all years by combining all premerger data. Since our prior estimates combine data for merging parishes in all years, this means our prior estimates are net of any ameliorative effects of vouchers on parish survival. The estimated decrease in nonschool revenues and offertory funds documented above subsumes any anticlosure positive effect of vouchers on church finances. However, there may be harder-to-quantify benefits of vouchers on keeping parishes in a neighborhood open. We turn to the complexity of measuring the long-term effects of vouchers on all aspects of religious vitality in section V.

V. Conclusion

This paper considers the impacts of vouchers on the finances of American churches and, by extension, the potential of vouchers to alter American religious and social life. We find that vouchers often make up a very large fraction of church finances when a church operates a voucher-accepting school. Indeed, we view that result, based on the simple means in table 2, as a key result of this study and one suggesting a potentially critical role for vouchers in determining the future of American religion. We then show that Catholic parishes operating schools in our sample see a shift away from nonschool religious revenue when vouchers expand. At the same time, voucher expansion appears to halt parish closures. Vouchers thus may help ensure the survival of churches, but may do so while diminishing churches’ reliance on nonschool religious activities for revenue.

This paper highlights the important role of education policy in affecting community outcomes. Scholars have recognized that education policy can have civic effects beyond the classroom (Milligan, Moretti, & Oreopoulos, 2004), and work on school choice has considered the effects of choice policy on noneducational outcomes, such as community characteristics (Nechyba, 2000). But the sizable potential impact of vouchers on American religion that we document here is, to our knowledge, an effect not rigorously considered before.

This impact could further alter the organization of churches themselves in years to come. Given the declining fortunes of American religious groups and the contemporaneous rise of vouchers, it seems quite plausible that in the coming years, more churches will turn to vouchers (and to running schools) to stay open. To some extent, that has already occurred in Milwaukee: even as vouchers have become the primary revenue source for the Catholic churches using them in our sample, the number of non-Catholic religious schools using vouchers in Milwaukee has grown from 29 at the start of our study period to 72 by its end (Public Policy Forum Research Briefs, 2000, 2013).

This change may allow us to gain insight into the objectives and productivity of religious organizations. Denominations vary greatly in their traditional role in the educational market. Whether this will matter for future entry into the voucher market, or for future school and church survival, remains to be seen. Future work should consider the impact of vouchers on entry into the educational sector and on church survival across denominations.

We do not conclude from our study that school choice is good or bad, or even whether it is good or bad insofar as it impinges on religious behavior. On the one hand, religious activity has repeatedly been shown to produce beneficial outcomes in terms of (for instance) civic participation, so that the crowd-out effects found here could lead to worse outcomes in communities if religiosity falls. However, Catholic parishes and schools themselves have been argued to be important sources of social capital in communities (Brinig & Garnett, 2012), so that the findings on parish survival, combined with the crowd-out effects, could lead to either positive or negative effects overall. Further, even evidence of an increase in religious activities following voucher expansion might concern those who worry that this expansion will alter religious groups in the long run, potentially in hard-to-measure ways. Alternately, the negative effects we identify here could be compensated in the long run if some voucher students return to the Catholic Church as adults (Banchero & Levitz, 2012), or if the long-term survival of parishes proved beneficial in ways that our short-term results on finances miss. Our data cover over a decade, but it is still the case that the long-term effects of vouchers on religious vitality could be more positive than what we find here. Finally, how vouchers affect harder-to-measure aspects of religious vitality, such as commitment and beliefs, we cannot yet say.

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