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Are church and state substitutes? Evidence from the 1996 welfare reform

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Abstract

Churches provide community services similar to those provided by the government, but there has been no convincing analysis of the extent to which church activity can substitute for government activity. To address this important issue, this paper uses a new panel data set of Presbyterian Church (USA) congregations to regress both church-member donations and a church's community spending on a number of variables, including government welfare expenditures. A provision of the 1996 welfare law that decreased the availability and use of welfare services by non-citizens serves as an instrument to identify the causal effect of government spending on church activity. The results show that church activities substitute for government activities. Extrapolating the findings to all denominations, the estimated "crowd-out" effect lies between 20 and 38 cents on the dollar. The results are subjected to a number of robustness tests.

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1. Introduction

While the First Amendment of the U.S. Constitution states, “Congress shall make no law respecting an establishment of religion,” the church and the state are connected in a more circuitous way: both provide services intended to aid the disadvantaged. Faith-based organizations supply social services to over 70 million Americans annually (Johnson et al., 2002). Biddle (1992) estimates that congregations spend 24 billion dollars on philanthropic activities annually.² In a survey conducted by Cnaan and Yancey (2000), 60% of all congregations offered a food pantry, 52% offered clothing closets, 44% had programs for visiting patients in hospitals, 43% had programs for visiting the sick, and 41% sponsored a soup kitchen. These activities aim to help those afflicted by poverty, hunger, and disease, goals common to many government activities.

Public policy makers have noted these similarities. On July 22, 1999, then-Governor George W. Bush said, “In every instance where my administration sees a responsibility to help people, we will look first to faith-based organizations, charities, and community groups that have shown their ability to save and change lives” (Wallis, 2000). Since then, the Department of Health and Human Services has established the Compassion Capital Fund which has supported the work of over 1900 local groups and faith-based organizations that assist people in need (Office of the Press Secretary, 2004), and there are now Centers for Faith-Based and Community Initiatives located in seven different federal agencies with three new centers planned (Office of Faith-Based and Community Initiatives, 2004). Yet despite growing interest among policy makers in understanding how governments and congregations can and do work together, economists have undertaken little research in this area.

The goal of this paper is to relate actions taken by congregations (specifically, churches) to actions taken by the government. If churches and governments do in fact provide similar services, then church activity, such as donations made to churches and church spending on community projects, may respond to changes in government activity. With this idea in mind, this paper considers two research questions. First, what effect do government welfare expenditures have on donations made to churches? Second, what effect do government welfare expenditures have on spending decisions made by churches?

To answer these questions, this paper utilizes a heretofore-unexplored data set containing information on Presbyterian Church (USA) congregations from 1994 to 2000. This is a large denomination that has a strong level of adherence throughout the United States with about 2.5 million total members and over 11,000 congregations. Every congregation in the denomination is included. The data set has information on total contributions made to each congregation as well as each congregation’s spending on local community projects.

This data set is used to regress per-member donations made to a congregation and per-member spending decisions made by a congregation on a number of explanatory variables, including government welfare expenditures. Such a regression faces an identification problem; unobserved factors which systematically affect government spending in a community may also affect church activity. For example, a severe economic shock in a

² Biddle defines philanthropic expenditures as expenditures which address the specific material needs of individual members of the congregation or expenditures which support the provision of services to people regardless of their affiliation with the congregation.

community (such as a factory closing) may lead to a significant increase in both welfare spending and church activity.

To instrument for government spending this paper turns to a provision in the Federal Government's landmark 1996 welfare law (the Personal Responsibility and Work Opportunity Reconciliation Act). This law changed the eligibility criteria for welfare services from legal residency to legal citizenship. Research (e.g., [Borjas, 2004](#); [Capps, 2001](#); [Fix, 2001](#)) has shown that this bill greatly decreased availability and use of welfare services by non-citizens in the mid-1990s. In light of this change in the provision and use of welfare services by non-citizens, this paper will adopt an estimation strategy similar to a difference-in-difference approach. Intuitively, the argument is that if churches in communities with larger shares of non-citizens suddenly altered their behavior relative to other churches after the welfare law was passed, this variation in church activity is at least partially attributable to the welfare law. There are a number of important details to consider when using this identification strategy; they are discussed in Section 3.

This paper finds that the church and the state are indeed related and that decreases in government expenditures lead to significant increases in church activity. Extrapolating the findings to all denominations, the estimated "crowd-out" effect falls between 20 and 38 cents on the dollar. The results are subjected to a number of robustness tests.

The remainder of the paper is organized as follows: Section 2 describes the paper's contributions to a number of existing research agendas. Section 3 outlines the estimation strategy and describes some of the relevant issues related to identification. Section 4 describes the data used, presents the main results, and checks their robustness. Section 5 concludes.

2. Overview of related research

2.1. *Giving to churches*

This paper makes contributions to a number of existing fields of research. First, it contributes to research studying charitable contributions made to churches. This is an important topic; data summarized in [Ronsvalle and Ronsvalle \(2000\)](#) show that over half of all charitable giving in the United States goes to religious organizations. A small amount of economic research focuses on giving to churches and religious organizations; examples include [Clain and Zech \(1999\)](#), [Lipford \(1995\)](#), [Sullivan \(1985\)](#) and [Gruber \(2004\)](#).³ Some of this research has built upon the pioneering theories of [Azzi and Ehrenberg \(1975\)](#) in testing whether or not churchgoers view attending church as an activity that substitutes for giving money to the church. However, none of this research addresses the implications of government spending for church activity. This paper considers the implications of government spending while focusing on a different issue than

³ A sizable literature looks at total charitable giving as it is affected by tax prices, such as [Clotfelter \(1985\)](#), [Randolph \(1995\)](#), and [Auten et al. \(2002\)](#). Since this paper uses data at the congregation level, a serious analysis of tax prices is not possible (one cannot calculate marginal tax rates). However, this paper does suggest that models of charitable giving should consider government expenditures in addition to tax rates.

earlier research: rather than investigating the substitutability of various church activities for one another, this paper investigates whether the church and the state substitute for each other in the provision of community services.

There is a larger body of research on church giving outside of economics; examples include Lunn et al. (2001) and Hoge et al. (1996). A key issue in this literature—Hoge (1994) lists it as the number-one research question in the field—is denominational heterogeneity of church giving. To quote Chaves (1999),

Attempts to explain these denominational differences in terms of either individual or congregational characteristics are not successful. Almost nothing that appears to be correlated with denominational differences in giving patterns...consistently maintains its explanatory force when we turn to explaining congregational differences within denominations. This is a clue that true causal effects have not been identified.

This paper hypothesizes that causal effects can be found outside of congregation walls. For example, Catholics seem less generous than other denominations (Iannaccone, 1998). Perhaps this is because many Catholics live in areas of the country (such as the Northeast and in cities) where the government often plays a “larger” role in the community compared to areas where people of more generous denominations (e.g., Southern Baptists) live. Showing that churches and church members are affected by government spending would indicate that there may be at least a partial solution to a long-standing problem in this literature.

2.2. *Crowd out*

This paper makes at least two contributions to the crowd-out literature. First, a number of previous papers have considered government crowd out and nonprofit organizations. These papers sometimes use Internal Revenue Service (IRS) forms for nonprofit organizations as the source of their data (e.g., Weisbrod and Dominguez, 1986; Payne, 1998; Okten and Weisbrod, 2000; Andreoni and Payne, 2003). However, the IRS does not collect such forms from churches. Other papers consider a specific type of organization, such as public radio stations (Kingma, 1989), but research has not focused in whole or in part on religious organizations. Thus, this paper addresses a large part of the nonprofit sector—churches—not included in earlier crowd-out studies. Second, crowd-out research often faces an identification problem, as argued in Andreoni (1993). This paper contributes to the growing literature that attempts to identify causal crowd-out relationships; examples include Andreoni and Payne (2003), Payne (1998), and Khanna and Sandler (2000).

2.3. *Welfare*

Moreover, the instrument this paper uses is based on a change in federal welfare law. There is a growing body of literature studying the effects of the 1996 welfare law; Blank and Haskins (2001) gives an overview. Some of this research, such as Borjas (2001) and Passel and Zimmermann (2001), considers the effects of this welfare law on the behavior of immigrants and in particular non-citizens. Alternately, there are a few papers such as Brooks (2002) and Abrams and Schmitz (1984) that look at how welfare spending affects philanthropic behavior. This paper hopes to serve as a bridge between these two areas of

research by using the welfare law's unique implications for non-citizens as a way to generate robust estimates of welfare's effects on philanthropic behavior. Perhaps future research investigating the implications of means-tested benefits on economic behavior could use this strategy to identify a plausibly exogenous source of variation in government spending.⁴

3. Estimation and identification strategies

3.1. Premise

While this paper does not derive a formal model, it is easy to describe the economic behavior presumed to be at work. First, there is some evidence that churches provide public goods or at least goods that generate positive externalities; see [Iannaccone \(1998\)](#), [Hull and Bold \(1995\)](#), [Lipford et al. \(1993\)](#) and [Gruber \(2004\)](#). One could use this evidence to motivate a simple model of an economy where individuals attend church and pay lump-sum taxes to the government. There are two privately consumed goods—one religious and one secular in nature—and a public good. The religious good may only be obtained through donations made to the church. The government provides the public good with funds raised through the lump-sum taxes but individuals may also provide the public good via private expenditures directed to the church. Individuals take government tax rates as given when choosing their optimal bundle of goods for consumption.

At an interior solution to such a model, a decrease in the government's provision of the public good may encourage individuals to increase private expenditures on the public good.⁵ The size of this crowd out, and the effect of the government's actions on total money given to the church (for the public good and also the private religious good) would depend on the complementarity of the public good and the two privately consumed goods. Other considerations that might affect the size of crowd out are whether or not church members get a "warm glow" from privately providing the public good ([Andreoni, 1989](#)), the size of the population of potential donors ([Ribar and Wilhelm, 2002](#)), and actions taken by the local (or state) government ([Steinberg, 1987](#)).

[Fig. 1](#) considers the merits of this premise by comparing total federal government spending to average per-member contributions made to churches. Government spending is calculated as a percent of total personal income; average per-member contributions are calculated as a percent of per-capita personal income. The government-spending data come from the Statistical Abstract of the United States; the church-giving data come from the Yearbook of American and Canadian Churches, and the personal income data come from the Bureau of Economic Analysis.

The figure shows a negative relationship between government spending and donations made to churches. Of course, the relationship in this table may be affected by many things

⁴ This paper's identification strategy is in fact similar to one used by [Borjas \(2004, 2003\)](#), although his strategy requires individual-level data. The similarity in strategies will be considered in Section 4.

⁵ In a model similar to the one described here, [Bergstrom et al. \(1986\)](#) provide a study of cases where solutions are not necessarily interior.



Fig. 1. Government spending and church giving.

such as business cycles and wars. By using both cross-sectional and time-series-based variation, this paper's regressions may indicate whether this time trend is evidence of substitutability between church and state or is mere coincidence.

3.2. Identification

To test the substitutability of church and state one could start by regressing:

$$c_{ikt} = \alpha + gov_{kt}\delta + \mathbf{X}_{ikt}\beta + \varepsilon_{ikt} \quad (1)$$

where for church i in county k in year t , c_{ikt} is per-member donations to the church or per-member spending by the church, gov_{kt} is county per-capita government welfare spending, \mathbf{X}_{ikt} is a vector of congregational and community characteristics, and ε_{ikt} is the residual error.

This paper will focus on per-capita expenditures from four means-tested benefit programs—Aid to Families with Dependent Children/Temporary Assistance for Needy Families (AFDC/TANF), Food Stamps, Medicaid, and Supplemental Security Income (SSI)—as government activity that might influence church behavior. While some of these programs may be more likely to affect charitable church activity than others, using all of these programs is a conservative approach in that the inclusion of irrelevant expenditures will likely bias the results towards zero. Furthermore, these are the four major programs whose eligibility criteria for non-citizens were affected by the 1996 welfare reform law

(Wasem, 2004).⁶ These eligibility restrictions will play a crucial role in the identification strategy.

An ordinary least squares (OLS) regression would lead to incorrect estimates if the regressor *gov* were correlated with the noise term ε . The instrumental variables approach is the standard solution to this problem. This paper's instrument will be based on the effects of the 1996 welfare law on the availability and use of federal means-tested benefits by non-citizens. Specifically, the instrument will be an indicator variable that equals unity if the welfare law is in effect (starting in 1997) interacted with the percent of non-citizens living in the community. The argument behind this strategy is that if churches in communities with larger shares of non-citizens significantly altered their behavior relative to other churches after 1996, this variation is at least partially attributable to the welfare law.

There are a number of questions concerning the validity of this argument. First, what exactly did the welfare law say about non-citizen eligibility for TANF, Medicaid, SSI and Food Stamps? Table 1 gives an outline of the law's major implications for non-citizen eligibility. This table represents the eligibility criteria during the period in question; some of these criteria have since changed. The table shows that an important criterion for establishing eligibility for non-citizens is date of arrival to the United States. Immigrants arriving before August 22, 1996 (pre-enactment immigrants) often face different eligibility restrictions than those arriving after August 22, 1996 (post-enactment immigrants).

There are a few caveats to this table (for example, military personnel and American Indians born in Canada are eligible for some benefits), and the severity of the restrictions varied by program. But in all cases the law made important groups of immigrants ineligible for benefits. The restrictions on Food Stamps are the most severe; most non-citizens in the United States lost eligibility for this program following welfare reform.⁷ For SSI the restrictions were strongest for post-enactment immigrants; this group essentially became ineligible. For both TANF and Medicaid, states had the option of enrolling pre-enactment immigrants and almost all states have chosen to do so. These states could also, at their own expense, extend TANF and Medicaid to post-enactment immigrants. However, as described below, even in circumstances where states extended TANF and Medicaid eligibility, non-citizens in these programs often faced additional eligibility limitations for benefits.

An important aspect of the welfare law not captured in Table 1 is the increase in sponsor deeming requirements for non-citizens. Certain non-citizens entering the country must have a sponsor sign an affidavit promising financial support; the sponsor's income is then deemed available to the non-citizen when determining the non-citizen's eligibility for certain programs. Previously, deeming requirements applied to AFDC, Food Stamps, and SSI; the new rules expanded deeming to TANF and Medicaid. The new rules also deemed a sponsor's entire income available to the non-citizen (instead of just a fraction of the

⁶ The Children's Health Insurance Program (CHIP), created in the Balanced Budget Act of 1997, also restricts access from non-citizen children entering the United States after August 22, 1996. Expenditures on this program will be included with the Medicaid expenditures. The focus, however, will be on the other four programs, which are all much larger (Gruber, 2003).

⁷ While non-citizens under age 18 who first arrived in the country on or before August 22, 1996, maintain Food Stamp eligibility, 80% of the children of immigrants are themselves citizens and are thus fully eligible.

Table 1
Benefit eligibility of non-citizens

Arrival	Type of non-citizen	Food Stamps eligibility	SSI eligibility	TANF eligibility	Medicaid eligibility
On or before 8/22/1996	Legal permanent residents	If over age 64 on or before 8/22/1996 If under age 18 If disabled or blind	If receiving SSI on 8/22/1996 If disabled since	State option ^a	State option ^b
	Refugees/asylees	Eligible for 7 years	Eligible for 7 years	Eligible for 5 years	Eligible for 7 years
	Unqualified immigrants	Ineligible ^c	Ineligible ^c	Ineligible	Eligible for emergency services only
After 8/22/1996	Legal permanent residents	Ineligible	Ineligible	Ineligible for first 5 years, state option after	Ineligible for first 5 years, state option after
	Refugees/asylees	Eligible for 7 years	Eligible for 7 years	Eligible for 5 years	Eligible for 7 years
	Unqualified immigrants	Ineligible ^c	Ineligible ^c	Ineligible	Eligible for emergency services only ^d

These eligibility criteria are for the period of the analysis (1997–2000); some eligibility criteria have since changed. The table is for federal benefits. Eligibility for legal permanent residents (who are not naturalized citizens) excludes certain exempted groups (such as military personnel and their families, and individuals with 40 quarters of work experience as defined by the Social Security Act who arrived in the United States before 8/22/1996). Most exempted groups remained eligible for most services. Unqualified immigrants include undocumented immigrants, asylum applicants, and those with temporary status such as students, temporary workers, and tourists.

Sources: Zimmerman and Tumlin (1999) and Appendix A in Wasem (2004)

^a Every state but Alabama provides TANF to pre-enactment non-citizens.

^b Every state but Wyoming provides Medicaid to pre-enactment non-citizens.

^c American Indians born in Canada and certain other tribal members not born in the United States are eligible for Food Stamps and SSI.

^d Immigrants formerly considered Permanently Residing Under Color of Law (PRUCOL) receiving SSI on 8/22/96 are eligible for SSI and for Medicaid in states where Medicaid eligibility is linked to SSI eligibility.

sponsor's income), and extended the period for which these deeming requirements last from 3 years after entry to until the non-citizen becomes naturalized or meets a work test (40 quarters of documented work). These rules were designed to make it more difficult for sponsored aliens to meet financial tests for benefits (Wasem, 2004).⁸

A second question concerning the identification strategy is, did this law in fact have a significant impact on the use of welfare services by non-citizens relative to citizens? The

⁸ The increase in deeming requirements was partially the result of an additional law, the Illegal Immigration Reform and Immigrant Responsibility Act of 1996. For SSI, the deeming period from 1994 to 1997 was 5 years, not 3 years.

answer to this question can be found in Table 2, which uses estimates taken from Fix and Passel (1999). This table considers households with income less than 200% of the poverty line in the years 1994 and 1997, or 2 years before and 1 year after the welfare law was passed. The table shows that the share of non-citizen-headed households receiving welfare services fell after the welfare law, that this fall was greater than the decline for comparably poor citizen-headed households, and that this is true for multiple programs. Borjas (2004) and Capps (2001) present similar findings. The passage of the new welfare law led to a significant decrease in the eligibility and use of welfare services by non-citizens and their families.

Next, how have states responded to this law? Increased state autonomy in providing welfare services was a major aspect of the 1996 welfare reform and states had a number of options when deciding how to respond to eligibility restrictions for non-citizens. States had to decide whether to provide TANF or Medicaid to pre-enactment immigrants, whether to use state funds to extend TANF and Medicaid to post-enactment immigrants subject to the 5-year ban, whether to provide new state-level substitute programs for non-citizens ineligible for SSI or Food Stamps, and whether to use state General Assistance (GA) programs to aid non-citizens. Additionally, if a state decided to aid non-citizens through any program, the state also faced decisions about benefit levels and eligibility restrictions. Zimmerman and Tumlin (1999) give an overview of how states responded to non-citizens after the welfare law. They find that while almost every state extended TANF and Medicaid to pre-enactment immigrants, states were less generous in providing services to pre-enactment immigrants who lost SSI and Food Stamp eligibility. States were least generous in providing services to post-enactment immigrants. Furthermore, even when states provided benefits to non-citizens the benefits were less generous than those available to citizens. For example, states extended benefits only to certain types of non-citizens (such as children), required that any non-citizen using benefits apply for naturalization, placed time limits on non-citizen program use, and imposed relatively strict residency requirements on

Table 2
Percent of poor households receiving public benefits by citizenship of household head

	1994	1997	Percent change
<i>Food Stamps</i>			
Head is citizen	23.8	20.5	– 14
Head is non-citizen	26.3	19.1	– 27
<i>Medicaid</i>			
Head is citizen	30.3	30.0	– 1
Head is non-citizen	39.8	32.0	– 19
<i>Other welfare</i>			
Head is citizen	19.9	17.9	– 10
Head is non-citizen	21.7	14.5	– 33

Poor = income less than 200% poverty. Other welfare includes AFDC/TANF, SSI, and state GA programs. Source: Fix and Passel (1999).

non-citizens (such as mandating that an applicant be living in the same county as they had been on August 22, 1996).

It may be possible to address state heterogeneity empirically. For example, [Borjas \(2004\)](#) exploits the variety in state responses to study the impact of Food Stamps on food insecurity for non-citizens. However, Borjas' approach has a number of shortcomings for the present analysis. First, he does not include state responses to non-citizens losing Medicaid eligibility. Second, the implications that state heterogeneity has for expenditures on different welfare programs are conflicting and potentially ambiguous; this makes a two-stage “triple difference-in-difference” approach like Borjas' unattractive. Finally, the states that were most generous in aiding non-citizens may not be randomly selected.

A prudent approach to state heterogeneity will be to focus on the reduced-form results and see if they differ by state generosity to non-citizens. This approach will avoid the first-stage complications of Borjas' approach, and state responses to all four programs will be considered. Intuitively, one would expect that if churches in highly non-citizen communities become more active after welfare reform, this increased activity would be lessened by state-level responses to aid non-citizens, because such responses would mitigate the effects of the welfare law. However, it is not clear how significant the effects of state heterogeneity will be given that the benefits extended to non-citizens by states are often partial and subject to additional eligibility restrictions. Section 4 investigates this issue.

Non-citizens themselves may respond to welfare reform; for example, they may apply for citizenship. However, [Fix and Passel \(1999\)](#) find that naturalization does not account for the relative changes in welfare services between citizens and non-citizens. Additionally, [Fix et al. \(2003\)](#) show that immigrants who recently naturalized are better educated and generally have lower levels of welfare take-up than non-citizens. Alternately, non-citizens may move to states with relatively generous welfare policies. It is not clear how this would affect the regressions. However, at least one research paper, [Passel and Zimmermann \(2001\)](#), considers this issue directly and finds that the welfare law did not have a significant impact on immigrant migration patterns.

Finally, one might wonder whether churches were aware of the 1996 welfare reform, and in particular the law's implications for non-citizens. The churches used in this study belong to the Presbyterian Church (USA). In 1997, the minutes from this denomination's national meeting devoted a section to welfare reform that described the law's impact on non-citizen eligibility ([Presbyterian Church \(USA\), 1997a](#)). At that meeting the denominational body passed a statement directing congregations to “advocate for welfare programs that provide for the needs of all poor. . .and to assist those in their midst who are the most vulnerable to the cuts in social benefits” ([Presbyterian News Service, 1997](#)). Furthermore, in a 1997 national survey of clergy in this denomination, 88% of clergy agreed that welfare reform would increase demand on churches and other social service organizations, and 66% of clergy agreed that legal or undocumented immigrants would be worse off after welfare reform. This 66% figure exceeds those for most other groups, including the poor, the disabled, the elderly, unwed teenage mothers, and children ([Presbyterian Church \(USA\), 1997b](#)). Clearly, these churches were aware of the welfare reform law's implications for non-citizens.

Overall, the welfare law of 1996 significantly decreased the availability and use of welfare services by non-citizens relative to citizens. States have a number of options in responding to these changes and their responses will be considered empirically. Research suggests that non-citizens have not responded to these changes by becoming citizens or moving to states with generous services but that non-citizens have responded by using welfare less frequently. Churches knew about welfare reform and its restrictions on non-citizens. All of this suggests that the identification strategy is sound.

4. Main findings

4.1. Data used

Table 3 describes the data. The means shown are for the set of observations used in the regressions on charitable church spending. They are the unweighted church-level means. This paper will focus on churches belonging to the Presbyterian Church (USA) or PCUSA. The data set covers the years 1994 to 2000. All monetary values are in year 2000 dollars. The variables include three measures of the economic condition of a county: the percentage of single female-headed households (taken from the census), average per-capita personal income (taken from the Regional Economic Information System provided by the Bureau of Economic Analysis), and the annual unemployment rate (taken from the Bureau of Labor Statistics).⁹ Other demographic measures include the percent of the population under age 18, between 50 and 65, between 65 and 85, and over 85, the percent of the population that is Black, the percent of the population that is Hispanic, and the percent of the population that is non-citizen. These demographic variables are all taken from the census and annual values of these data are linearly interpolated. If demographic characteristics change reasonably slowly this should be a serviceable approximation.¹⁰ The data on Food Stamps expenditures and Supplemental Security Income come from the Consolidated Federal Funds Report and the Medicaid and AFDC/TANF data come from the REIS.

The data on congregations come from the PCUSA data set; it provides information on every PCUSA congregation. The data show that there are approximately 2.5 million total members; the 2002 Yearbook of American and Canadian Churches also lists the number of full or confirmed members at about 2.5 million. There are PCUSA congregations in about 2300 counties. Fig. 2 shows the relative size of the PCUSA throughout the continental United States. While there is some variation, this figure shows that the denomination has a strong representation in many different parts of the country.

⁹ The results shown in the next subsection are robust to specifications controlling for income and unemployment nonlinearly (for example, by using dummy variables for income and unemployment deciles).

¹⁰ As a robustness test, an alternate method of interpolation for the instrument was tried. For each county, the fraction of total non-citizen growth from 1990 to 2000 that occurred in a given year was set equal to the census region's fraction of the total non-citizen growth from 1990 to 2000 occurring that year, as measured by the Current Population Survey. Both methods of interpolation produce nearly identical results and those using the CPS are omitted for brevity.

Table 3

Variables used: means and standard deviations

County-level variables	
Percent under age 18	25.17 [2.64]
Percent between ages 50 and 65	14.91 [1.79]
Percent between ages 65 and 85	12.12 [3.18]
Percent over age 85	1.62 [0.60]
Percent Hispanic	6.88 [11.10]
Percent Black	11.34 [13.59]
Percent single female-headed households	11.40 [3.56]
Percent non-citizen	3.52 [4.73]
Unemployment rate	5.13 [2.40]
Income, per capita (1000s)	25.68 [6.69]
AFDC/TANF expenditures, per capita	59.73 [55.84]
Food Stamps expenditures, per capita	75.76 [47.79]
Medicaid expenditures, per capita	647.24 [337.94]
Supplemental security income expenditures, per capita	106.10 [79.05]
Church-level variables	
Total members in congregation	252.14 [372.44]
Per-member donations	681.96 [412.60]
Per-member charitable spending	56.54 [125.43]
Mortality rate	2.03 [2.66]

Total observations: 66,899. Standard deviations in brackets. The sample includes 10,894 congregations in 2303 counties from 1994 to 2000; these are the observations in the church-spending regressions that follow. Monetary figures in year 2000 dollars. For congregations missing data on either donations or spending, the average number of active members is 114 and the average mortality rate is 1.33. There are 12,778 observations missing data on either donations or spending. Of the 9691 observations missing data on spending, 4583 of these observations are also missing data on contributions. This censoring problem is not specific to any state or region in the country. Dummy variables for church size are also included in the regressions (see text).

Lipford (1995) and others have investigated whether donations are affected by a free-rider problem. The regressions include dummy variables to indicate churches with between 50 and 100, 101 and 150, 151 and 200, 201 and 300, 301 and 500, and over 500 members. These dummy variables may capture (possibly nonlinear) effects of church size on church donations and church spending.

Some congregations may attract older churchgoers than others and this might affect congregational behavior. The regressions control for the average age of the congregation's members by constructing a congregational mortality rate, the percent of congregation members who have died in the past year. As Table 3 shows, the mean mortality rate is 2.03, about two-and-a-half times the national average.

Average contributions are calculated as contributions over the total number of members. Contributions include payments on pledges, loose offerings, and special offerings. Average spending is calculated as spending on local missions plus presbytery expenditures, all over the total number of members.¹¹ Local missions are "all money paid

¹¹ The finding that government welfare spending crowds out church spending is preserved under semilog and log–log specifications, although the results are somewhat less precise than the results in levels shown here.

donations regressions were dropped because of extremely large values for the dependent variable. These churches are included in the summary statistics for omitted observations given below Table 3. There are about 67,000 observations for most of the regressions, or between 9000 and 10,000 churches a year.

Fig. 3 provides a simple illustration of the underlying identification strategy. The figure depicts the growth in per-member charitable church spending from 1995 to 1997 (from just before the welfare law to just after it) as a function of the percent of the population that is non-citizen in the church's county in 1994. The figure shows a clear monotonic relationship; following welfare reform churches became more charitably active and on average this growth was greater in communities with higher shares of non-citizens. The following subsection will more carefully consider this relationship in order to quantify the effect of government activity on church activity.

4.2. Main results

Table 4 presents selected results for the first stage of a two-stage least squares (2SLS) regression on charitable church spending. The dependent variable is per-capita welfare expenditures (expenditures on AFDC/TANF, Food Stamps, Medicaid, and SSI). Residuals are clustered by county and the Huber–White robust estimator is used to control for heteroskedasticity. Church and year dummies are included. There is a negative and significant sign for the instrument, a post-1996 dummy variable interacted with the percent of non-citizens in the county. This suggests that eligibility restrictions on non-citizens led to relative declines in welfare spending in highly non-citizen communities after the 1996 welfare law was passed.

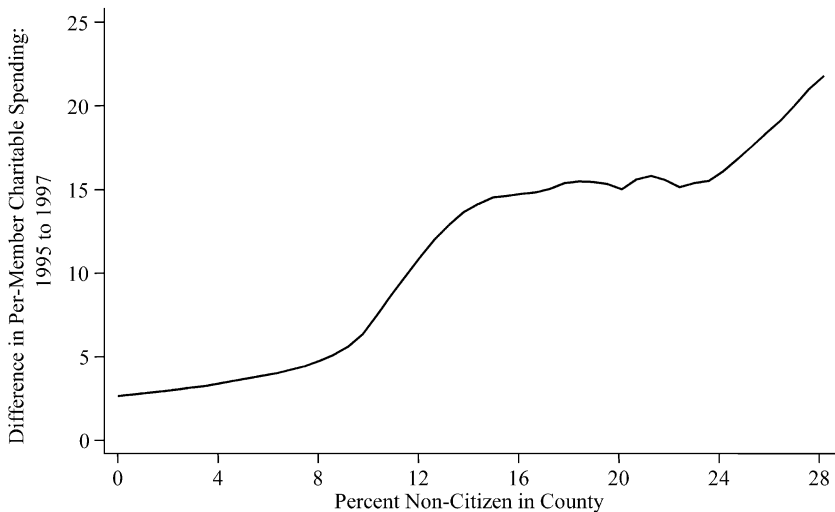


Fig. 3. Per-member church activity before and after the welfare law, by percent non-citizen in the community. The figure is an Epanechnikov kernel estimate of the level growth in per-member charitable church spending between 1995 and 1997 as a function of percent non-citizen in the county in 1994. The vertical axis is in dollars.

Table 4
First-stage regression results

	Per-capita welfare spending
Post-96 dummy times percent non-citizen	–3.114 [0.940]
Unemployment	7.03 [1.76]
Percent under age 18	6.18 [6.71]
Percent ages 50–64	–18.02 [7.56]
Percent ages 65–84	2.48 [8.53]
Percent over age 84	184.49 [33.89]
Percent Black	–6.13 [5.45]
Percent Hispanic	2.23 [5.98]
Percent single female-headed households	0.85 [15.87]
Percent non-citizen	1.57 [1.91]
Income, per capita (1000s)	–16.44 [9.51]
Total observations	66,899
Year dummies	Yes
Church dummies	Yes

Standard errors in brackets. Dependent variable is county per-capita spending on AFDC/TANF, Food Stamps, Medicaid, and SSI. Results are corrected for heteroskedasticity and residuals are clustered by county. These are the first-stage estimates for the 2SLS regression on per-member charitable church spending. Results are for selected coefficients only; the full set of coefficients given in Table 5 is included. R^2 : 0.977.

The other coefficients in Table 4 generally follow intuition. Communities with higher unemployment, larger shares of elderly residents, and lower levels of personal income all see larger levels of per-capita welfare spending. The racial variables and the percent single female-headed household variable are not significant. The R^2 is 0.977; the good fit is driven by the fixed-effects specification.

Table 5 presents the effects of welfare expenditures on church giving and church spending. The results again use the Huber–White covariance matrix; residuals are clustered by county and again a battery of dummy variables is employed. Looking at the first two columns, the two-stage results differ significantly from standard OLS results. The estimate on church spending is much larger in absolute value after instrumenting (a Hausman test rejects the consistency of OLS). Furthermore, the two-stage regression shows that church spending decisions are significantly negatively affected by per-capita government expenditures on welfare spending. The results could be interpreted thusly: holding all else equal, a US\$1 decrease in county-wide per-capita welfare spending will on average lead to an increase of US\$0.40 in a PCUSA congregation's per-member spending on local community projects.

To get a rough idea of this number's magnitude, suppose that all churches respond the same as the average PCUSA congregation. The Yearbook of American and Canadian Churches estimates that about half of all Americans were confirmed members of churches in the United States in 2002 and suppose this is comparable to the definition of members in the PCUSA data. This estimate of US\$0.40 per-member combined with a church population of roughly half of all Americans suggests that total crowd out may be about 20 cents on the dollar.

Looking next at the “member donations” columns, there is little difference between the 2SLS and OLS results (a Hausman test does not reject the null of consistency for

Table 5
Estimations of church activity

	Charitable church spending		Member donations	
	OLS	2SLS	OLS	2SLS
Welfare spending [†]	–0.009 [0.007]	–0.401 [0.140]	–0.010 [0.018]	–0.061 [0.192]
Unemployment	–0.56 [0.59]	2.56 [1.31]	0.75 [1.53]	1.15 [2.05]
Percent under age 18	4.51 [2.28]	5.06 [3.50]	7.12 [5.21]	7.26 [5.23]
Percent ages 50–64	–2.12 [1.81]	–9.15 [4.57]	27.01 [6.18]	26.22 [7.37]
Percent ages 65–84	3.88 [2.39]	4.29 [4.22]	2.3 [7.24]	2.39 [7.20]
Percent over age 84	–10.62 [8.71]	63.63 [30.29]	–55.24 [27.72]	–45.21 [47.53]
Percent Black	0.6 [1.24]	–1.52 [2.56]	4.46 [4.04]	4.24 [4.17]
Percent Hispanic	1.26 [2.33]	–1.07 [3.01]	–4.12 [5.28]	–4.38 [5.77]
Percent single female-headed households	–5.52 [3.51]	–5.6 [7.09]	12.57 [9.99]	12.37 [10.18]
Income, per capita (1000s)	0.58 [0.47]	0.69 [0.85]	2.85 [1.86]	2.87 [1.85]
Percent non-citizen	–1.37 [3.65]	–6.7 [5.55]	22.34 [6.86]	21.64 [6.56]
Mortality	0.74 [0.28]	0.70 [0.28]	5.52 [1.75]	5.52 [1.75]
Church size 50–100	–11.74 [7.17]	–11.3 [7.65]	–139.4 [22.34]	–139.23 [22.07]
Church size 101–150	–16 [9.36]	–18.98 [10.26]	–227.04 [23.94]	–227.39 [24.45]
Church size 151–200	–18.01 [9.85]	–20.88 [10.61]	–297.41 [27.06]	–297.71 [27.43]
Church size 201–300	–20.83 [10.47]	–25.26 [11.33]	–373.13 [30.98]	–373.63 [31.48]
Church size 301–500	–27.52 [11.59]	–34.34 [12.66]	–452.34 [39.68]	–453.14 [40.08]
Church size >500	–31.69 [12.80]	–37.89 [13.67]	–524.75 [48.21]	–525.46 [48.43]
Total observations	66,899	66,899	68,932	68,932
Hausman test [<i>p</i> -value]	–	12.73 [0.0004]	–	0.07 [0.796]
Year dummies	Yes	Yes	Yes	Yes
Church dummies	Yes	Yes	Yes	Yes

Standard errors in brackets. Results are corrected for heteroskedasticity and residuals are clustered by county. R^2 for OLS regressions: 0.606 (spending), 0.703 (donations).

[†] Includes county per-capita spending on AFDC/TANF, Food Stamps, Medicaid, and SSI.

the OLS regression). This implies that government spending does not have a significant effect on donations to churches. This finding is not surprising in light of the discussion at the start of Section 3, but it raises questions about how churches financed increased charitable spending in response to welfare reform. This topic is considered in the conclusions.

The other two-stage coefficients point to some interesting differences between church spending and church donations. Higher unemployment leads to higher church spending but not higher donations. Individuals aged 50–64 have the greatest impact on church donations; those over age 84 have the greatest impact on charitable spending. Communities with higher income have higher levels of donations but the coefficient is insignificant in the spending regression. A church's mortality rate is significant in both cases; older churches have higher per-member levels of donations and charitable spending. In all of the regressions there is evidence that church size has significant effects on church activity with smaller churches having higher levels of per-member spending and donations.

4.3. Robustness

There are a few different tests that may affirm the robustness of the documented relationship between church and state.¹⁴ First, it could still be a concern that some unconsidered phenomena are at work in these results. For example, suppose that highly non-citizen communities suddenly became wealthier in the mid 1990s, and churches in these communities also became wealthier, and these churches consequently spent more money on all activities, including charitable activities. This result could explain both the first-stage and the second-stage spending results (although why the effect would appear for charitable church spending but not donations is unclear).

The first column in Table 6 tests the robustness of the first-stage result by repeating the first-stage regression in Table 4, except now the dependent variable is per-capita expenditures on means-tested benefit programs whose eligibility criteria were generally unaffected by welfare reform. The main program included is the Earned Income Tax Credit.¹⁵ The regressions show that after the welfare reform law there was not a sudden relative decline in means-tested spending in highly non-citizen counties for programs unaffected by the law; this suggests that the first-stage results are not simply driven by omitted economic considerations.

The next column of Table 6 repeats the 2SLS regression on church spending from Table 5 but now the dependent variable is a congregation's per-member expenditures on operating expenses, such as spending on upkeep and utilities (see Table 6 for a detailed description of this variable's construction). This paper has hypothesized that that churches respond to government welfare spending because churches provide similar services. Basic operating expenditures should not be related to government spending in the same fashion. Accordingly, the coefficient on welfare spending is now positive and insignificant.

One might be concerned that outliers are affecting the main results. For example, if certain churches respond to natural disasters by dramatically changing charitable church activity, and this corresponds in a complicated way to changes in welfare spending, the results may be biased. The third column of Table 6 repeats the two-stage regression on church spending omitting outliers, where an outlier is any observation where church spending is either more than 1000 times larger or less than 1000 times smaller than the church's spending in either the prior year or the subsequent year; there are 25 such observations.¹⁶ The coefficient on welfare spending is unchanged.

The dependent variable of interest is the sum of per-capita expenditures in four programs; Medicaid is much larger than the other three programs. The fourth column of Table 6 repeats the standard regression excluding Medicaid. The coefficient is slightly

¹⁴ This subsection focuses on church spending as the dependent variable. Analogous regressions using donations to churches as the dependent variable yield coefficients that are not significant.

¹⁵ The programs used include the Earned Income Tax Credit, Foster Care and Adoption Assistance Payments, General Assistance Benefits, Energy Assistance Payments, and the Women, Infants and Children program. These data are taken from the REIS and cannot be broken down into individual program expenditures. As discussed before, GA programs could have been altered in response to welfare reform. However, GA programs are far smaller than EITC (Gallagher et al., 1999).

¹⁶ The results are not sensitive to this particular threshold; one can obtain similar estimates omitting observations 100 or 10 times smaller or larger. Table 6 describes how missing data are handled when identifying outliers.

Table 6
Robustness checks

	First-stage regression on income maintenance ^a	2SLS on operating expenses ^b	2SLS on charitable spending, no outliers ^c	2SLS on charitable spending, no Medicaid	2SLS on average attendance
Welfare spending	–	0.023 [0.397]	–0.401 [0.141]	–0.673 [0.233]	–0.005 [0.017]
Post-96 dummy	0.106 [0.295]	–	–	–	–
times percent non-citizen					
Total observations	66,899	68,565	66,874	66,899	66,650
Includes all regressors	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Church dummies	Yes	Yes	Yes	Yes	Yes

Standard errors in brackets. Results are corrected for heteroskedasticity and residuals are clustered by county.

^a This column repeats the first-stage regression from Table 4 except that the dependent variable is now per-capita spending on income maintenance programs whose eligibility criteria for non-citizens were generally not changed by welfare reform. These maintenance program data are county level estimates from the REIS and include the Earned Income Tax Credit, Foster Care and Adoption Assistance Payments, the General Assistance Benefits, Energy Assistance Payments, and the Women, Infants and Children program.

^b Dependent variable includes per-member spending on salaries, pension and social-security programs, printing, postage, utilities, insurance, and payments of interest and principal on loans. The coefficient is not driven by the sample size; rerunning the church spending regression from Table 5 using only observations with non-missing operating-expenses data does not qualitatively change the Table 5 results.

^c Excludes any observation where church spending is either more than 1000 times larger or less than 1000 times smaller than in either the previous year or the following year, if data from these years are available. If data from the present year are available but data from both the previous and the following year are not available, the observation is included. Results are not sensitive to using the factor of 1000 as the threshold.

larger in absolute value than before and remains significant. Based on the arguments given earlier, one could interpret this coefficient as indicating crowd out of 38 cents on the dollar; this is the upper-bound estimate. Given that the reduced-form regression has not changed, it is difficult to interpret this result as favoring one program or another, except to note that the results are robust to Medicaid's omission.

Turning next to the literature on church giving versus church attendance, this paper argues that people at least in part support congregations because congregations provide services with positive externalities. Presuming that the mere act of attending church does not aid the congregation in providing community services, this paper suggests that there should be no relation between government spending and church attendance. The last column of Table 6 repeats the standard two-stage regression again but this time the dependent variable is the average percentage of active church members who attend congregational services. There is an insignificant effect.

A final set of regressions focuses on state heterogeneity in response to welfare reform's impact on non-citizens. As mentioned in Section 3, it is difficult to exploit this heterogeneity by using a triple interaction term to instrument for welfare spending, because the implications state generosity has for welfare spending are ambiguous. To explore the impact of heterogeneity in state-level generosity to non-citizens, Table 7

Table 7
State responses to the welfare reform: reduced-form estimates

	Definition of generous state		
	Aided non-citizens losing eligibility in all 4 programs ^a	Aided non-citizens losing eligibility in 3 of 4 programs ^b	Non-citizens eligible for state GA programs ^c
Post-96 dummy times percent non-citizen times generous state dummy	−0.13 [0.90]	−0.42 [0.88]	−0.94 [1.14]
Post-96 dummy times percent non-citizen	1.46 [0.63]	1.49 [0.71]	1.889 [1.036]
Percent non-citizen times generous state dummy	−2.56 [5.85]	0.16 [4.00]	5.01 [5.21]
Percent non-citizen	−0.41 [5.22]	−1.48 [5.06]	−2.38 [5.11]
Total observations	66,899	66,899	62,236
Wald test that instrument equals zero in generous states. [<i>p</i> -value] ^d	5.7 [0.017]	8.66 [0.003]	12.3 [0.001]
<i>R</i> ²	0.61	0.61	0.60
Includes all regressors	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Year-by-generous-state dummies	Yes	Yes	Yes
Church dummies	Yes	Yes	Yes

Standard errors in brackets. Results are corrected for heteroskedasticity and residuals are clustered by county. Results are OLS estimates from regressions on charitable church spending.

^a A state is defined as generous in this column if it provided TANF and Medicaid to post-enactment non-citizens, an SSI substitute program for non-citizens, and a Food Stamp substitute program for non-citizens following the welfare reform law. California and Maine are the only states qualifying as generous by this definition. From Table 5 of Zimmerman and Tumlin (1999). There are 3567 observations in generous states by this definition.

^b A state is defined as generous in this column if it provided at least three of the following four programs: TANF to post-enactment non-citizens, Medicaid to post-enactment non-citizens, an SSI substitute program for non-citizens, or a Food Stamps substitute program for non-citizens. The states that qualify as generous by this definition include California, Connecticut, Illinois, Maine, Massachusetts, Maryland, Minnesota, Nebraska, Rhode Island, and Washington. From Table 5 of Zimmerman and Tumlin (1999). There are 11,456 observations in generous states by this definition.

^c A state is defined as generous in this column if its non-citizens were eligible for a General Assistance or similar program for families and children. The states that qualify as generous by this definition include Alaska, California, Connecticut, Delaware, Illinois, Maine, Massachusetts, Minnesota, Missouri, New Jersey, New Mexico, New York, Ohio, Pennsylvania, Vermont, and Washington. Six states (Idaho, Indiana, Iowa, Nevada, New Hampshire, and South Dakota) have plans that vary significantly from county to county and these states are omitted. From Table 11 of Zimmerman and Tumlin (1999). There are 30,227 observations in generous states by this definition.

^d This Wald test tests the hypothesis that the sum of (a) the coefficient on the post-96 dummy interacted with the percent non-citizen and (b) the coefficient on the triple interaction of the post-96 dummy, the percent non-citizen, and the generous state dummy equals zero.

provides the reduced-form results including a triple-interaction coefficient (which interacts the instrument with a dummy for whether a state was generous to non-citizens), allowing for church responses to the welfare reform to differ by a state's generosity to non-

citizens.¹⁷ All pair-wise interactions that are not differenced out by the church dummies are also included.

Non-citizens lost eligibility for four major programs, and states could respond to eligibility restrictions in all, some, or none of these programs. The first column in [Table 7](#) reports results where a generous state is any state that responded to non-citizen eligibility restrictions in all four programs. As in [Borjas \(2004\)](#), for TANF and Medicaid the focus is on state generosity to post-enactment immigrants. The second column expands the definition to include any state that responded to eligibility restrictions in three of the four programs. The final column defines a state as generous if its non-citizens were eligible for General Assistance or a similar program for families and children. In all three cases, the triple-interaction coefficient has the intuitive sign and a Wald test rejects the hypothesis that sum of the triple interaction coefficient and the instrument equals zero. This suggests that churches in non-citizen communities everywhere became more active after welfare reform, and the triple interaction coefficient suggests (imprecisely) that this response was somewhat smaller in generous states, which would be the case if generous state responses partially mitigated the effects of the welfare law.

5. Conclusions

This paper investigates whether church behavior is affected by public policy and in particular government welfare expenditures. To identify the causal effect of government activity on church activity, this paper uses an identification strategy exploiting the decrease in the availability and use of welfare services by non-citizens following the passage of the 1996 welfare law. The results show that church spending in a community is indeed affected by government spending and this finding is consistent under various robustness tests.

These results indicate that future research is needed in a number of different areas. First, there are a number of shortcomings with the present paper. While the PCUSA data set is amenable to this analysis, it is at the congregation level and an improved specification may be possible with individual-level data. Second, the results are for one denomination. Future research could consider the extent to which these results generalize to other faiths and denominations, although [Hungerman \(2005\)](#) investigates the determinants of charitable church activity for congregations from multiple denominations and faiths and finds that the results are similar across denominations. Third, the findings of this paper suggest that the negative relationship between government activity and church activity depicted in [Fig. 1](#) could be more than coincidence; however, a long-term historic relationship between church and state remains speculative.

One might wonder whether churches increased charitable spending in response to welfare reform by increasing income or substituting out of other types of expenditures.

¹⁷ One could estimate the basic two-stage coefficients separately for observations in generous states and not-generous states and compare them. The difference in the coefficients in this case is insignificant (as the results in [Table 7](#) would suggest) and those regressions are omitted.

While the coefficients from regressions on donations and operating expenditures are consistent with both actions, the results are too imprecise to draw a firm conclusion. Additionally, churches often have access to income from sources other than donations, such as bequests and rental income, and have other types of expenditures, such as donations to the national denominational body, that are not captured in the regressions shown. The large standard errors found here may suggest that churches employed a variety of methods to finance charitable church activity in response to welfare reform.

This paper's findings suggest that further research should focus on issues of comparative advantage and privately supplied charitable services. For example, churches may enjoy a comparative advantage in the provision of certain goods that are important to a community's welfare and this could have important policy implications. More generally, while there is a body of research on the determinants of charitable donations made to churches, more research is needed to investigate the determinants of charitable spending decisions made by churches and other religious institutions.

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