The Effect of Social Capital on Voter Turnout: 
Evidence from Saint’s Day Fiestas in Mexico

Matthew D. Atkinson
University of California, Los Angeles

Anthony Fowler
Harvard University

Abstract

Social capital is thought to increase voter turnout and improve political representation. Measures of social capital are positively correlated with turnout, but reverse causation and omitted variables may bias the results of previous studies. We exploit quasi-random variation in the timing of saint’s day fiestas across municipalities in Mexico to estimate the causal effect of community participation on turnout. Employing both cross-municipality and within-municipality estimates, we find that saint’s day fiestas occurring near an election decrease turnout by 2.5 to 4.5%. This effect is strongest where fiestas have the greatest impact on social capital – namely smaller and more Catholic municipalities. In these contexts, 1 in 5 citizens are demobilized by a fiesta occurring near the election date. Contrary to previous studies, our results suggest that large doses of social engagement can decrease turnout by consuming time, exposing citizens to conflicting views, and providing an alternative route to fulfilling civic obligations.

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Theories of Social Capital and Turnout

Rational-choice theories struggle to explain voter turnout because the expected benefits of voting do not outweigh the costs (Downs, 1957). While voting may not be rational from a self-interested individual’s perspective, high turnout is in the interest of like-minded groups. For example, if every low-income American voted, they would achieve greater political representation, and public policy would shift in their favor (Bartels, 2009). However, voting requires time and information, and there is little chance that one vote will change the outcome of an election. Thus, turnout poses a classic collective action problem (Olson, 1965).

Social capital may provide a solution to the collective action problem of voter turnout. Robert Putnam defines social capital as “citizen engagement in community affairs” (1995, p. 664). In later work, he goes on to say that “the core idea of social capital theory is that social networks have value” (2000, pp. 18-19). This definition is consistent with the first known use of the term by L. J. Hanifan in 1916: “If he [the individual] comes into contact with his neighbor, and they with other neighbors, there will be an accumulation of social capital.” We rely on these definitions throughout this paper, referring to social capital as the degree of connectedness within a community. While the social capital of a community is typically measured through levels of membership in civic organizations and survey responses regarding trust in one’s community, these estimates simply provide proxies for the true level of connectedness and engagement in a community.

Previous researchers have proposed several ways in which social capital can increase voter turnout. We focus on three particular theories. First, the norm of reciprocity is associated with communities high in social capital (Putnam, 1993; Stolle, 1998). Because high turnout serves the common interest in a community, citizens might use social capital to remind one
another of the communal benefits of voting and to enforce cooperation through peer pressure or the threat of social sanctions.

Recent field experiments have demonstrated the substantial effect of social pressure on turnout. Gerber et al. (2008) found that turnout rose from 30% to 38% in a low-salience primary election when the researchers threatened to tell subjects’ neighbors whether or not they voted. Nickerson (2008) demonstrates the contagion of voting using a door-to-door experiment. Subjects who received a reminder to vote were 20% more likely to vote and other members of the treated household were 15% more likely to vote. These experiments demonstrate that social connections enhance the potential for voters to be mobilized.

Second, social capital can increase turnout by increasing the flow of political information through a community. While the direct costs of voting are a significant barrier to voter turnout, the cognitive costs of becoming engaged and informed about politics are equally significant (Fiorina, 1990; Berinsky, 2005). Social connections allow members of a community to share political information and engage in the discussion of political issues. As a result, community involvement may increase political interest and cause individuals to develop informed opinions regarding an upcoming election that they otherwise would not have reached. All else being equal, these lowered costs of opinion formation should increase the likelihood of voting.

Research on civic organizations presumes that political communication develops in the course of ordinary conversation. For example, Cramer-Walsh (2004) argues, “Much political interaction occurs not among people who make a point to specifically talk about politics but emerges instead from the social processes of people chatting with one another.” Therefore, theories of social capital predict that political discussion will be positively correlated with social activities such as bowling leagues, book clubs, churches, and community festivals.
Lastly, social capital may increase voter turnout by exposing citizens to potential benefits for others. Voters typically look beyond their own personal interests toward the benefit of others (Kinder and Kiewiet, 1981), and altruistic individuals are more likely to vote (Fowler, 2006). Thus, altruistic individuals who perceive the social benefits of voting should have more incentive to vote (Edlin et al, 2007; Rotemberg, 2009). As social capital increases, the exposure to outside interests may increase. In this way, social connections could increase turnout by causing individuals to internalize the collective benefits of voting.

Despite these theoretical predictions that social capital will increase turnout, there are competing possibilities. Verba et al. (1995) argue that time is an essential resource for political participation, and community involvement can consume much of an individual’s available time. Time is a scarce resource and if citizens spend too much of it on community involvement, they may have little left for other civic activities (Rupasingha et al., 2006). Putnam’s social capital hypothesis anticipates that civic involvement in one domain begets civic involvement in other domains. Since time is a finite resource, this conclusion is not obvious. We suggest the counter-hypothesis that time spent on community activities will detract from turnout.

Another consequence of social capital is a citizen’s exposure to conflicting views. Mutz (2002) argues that social connectedness may decrease voter turnout in cases where an individual’s social network includes political disagreement. Increasing social capital in a heterogeneous community may create uncertainty about political views and reduce voter turnout. Mutz finds that an individual’s exposure to conflicting political opinions is negatively correlated with voting and political participation.

A final mechanism by which social capital could decrease turnout is personal satisfaction. Previous theories suggest that voters derive satisfaction from political participation (Riker and
Ordeshook, 1968). However, voting is only one form of participation that generates this sense of fulfillment. Perhaps community involvement also creates the same sense of satisfaction that one typically derives from voting. A citizen may not feel the need to vote because she has already contributed to the community in other ways. Under this possibility, an exogenous increase in social capital would decrease voter turnout because it offers an alternative way in which citizens can achieve the personal fulfillment that arises from a contribution to their community.

Putting all of the theoretical arguments together, there are good reasons to think that social capital might have positive or negative effects on voter turnout. Social capital could potentially serve as either a complement or a substitute for political participation. In this paper, we attempt to determine which theories are at work in one political context by estimating the effect of exogenous shocks to social capital.

**Previous Observations and the Bias of Reverse Causation and Omitted Variables**

The existing empirical evidence for the effect of social capital on turnout is correlational: trends in measures of social capital over time correspond to trends in turnout (Putnam, 2000), regions with high measures of social capital tend to have higher turnout (Putnam, 2000), and individuals who are socially connected are more likely to vote (Lake and Huckfeldt, 1998; Fowler, 2005). Moreover, citizens who participate in their community are more likely to participate in politics (Verba et al., 1995). However, these correlations lack a causal interpretation due to reverse causation and omitted variable bias. Social capital is not randomly assigned but rather an endogenous characteristic of generations, regions, and individuals. For instance, the act of participating in politics may generate social capital. Additionally, the types of individuals who are socially connected are probably the types of citizens who would vote regardless of their social situation.
Even in 1840, Alexis de Toqueville acknowledged the possibility that social activities are endogenous to political activity: “Civil Associations, therefore, pave the way for political associations; on the other hand, political associations develop and improve in some strange way civil associations” (Volume 2, Part 2, Chapter 7). This type of reverse causation would lead any correlational finding to overestimate the true causal effect of social capital on political participation.

One important omitted variable in these studies is an individual’s underlying level of sociability. Researchers have shown that personality traits such as extroversion, social aggression, and self-confidence have direct effects on both social capital (Scheufele and Shah, 2000) and voter turnout (Denny and Doyle, 2008; Gerber et al., 2010). Individuals predisposed to be social are more likely to be involved in their communities and are more likely to vote. However, forcing a non-social person to connect with others may have no impact on her decision to vote. Numerous other omitted variables may further cloud the interpretation of the generational, regional, and individual correlations between social capital and turnout.

Ideally, we could obtain an unbiased estimate of the effect of social capital on turnout through a randomized, controlled experiment. In the correlational observations, socially connected individuals or groups are significantly different from those who are unconnected. Randomization would remove selection bias and omitted variable bias because we could be sure that the treatment and control groups are comparable to one another. We would randomly assign some individuals or groups to be socially connected and others to be disconnected. Unfortunately, such an experiment would be practically, financially, and ethically unfeasible. Therefore, we employ a natural experiment in which doses of social capital are assigned in a quasi-random manner. Saint’s day fiestas in Mexico provide exogenous shocks of social capital.
Further, parish communities receive this shock at different times throughout the year as determined by the feast day associated with each parish’s patron saint.

We are aware of only one other study that employs a quasi-experimental approach to determine the causal effect of social capital on turnout. Condon (2009) conducts an ongoing study of U.S. elementary schools randomly assigned into the FAST (Families and Schools Together) program. Parents of students in the treated schools are encouraged to become more involved in their child’s school. Condon (2009) estimates a negative effect of the treatment on turnout. Parents assigned to the FAST program were less likely to vote than the control parents. Unfortunately, the way in which subjects were recruited for the study led to significant pre-treatment differences between parents in the treatment and control groups. Specifically, treatment parents were typically poorer and less likely to vote before the study, potentially leading Condon (2009) to underestimate the effect of social capital on turnout. The author admits these limitations and hopes to remedy these problems in future waves of the study. We admire this approach and exploit a separate quasi-experiment to address the same question in a different political setting.

Saint’s Day Fiestas: Exogenous Shocks to Social Capital

The generation of social capital is not a formal process. Rather, citizens become connected to one another by coming together, engaging in casual conversation, eating, drinking, and having fun. In their review of communities which succeed in generating social capital, Putnam and Feldstein (2003) identify dinner parties, picnics, music, local art, and dancing as sources of social capital. In one specific example, the authors argue that a multicultural festival helped the Dudley Street Neighborhood Initiative to build social capital in a previously deteriorating Boston neighborhood: “At countless community meetings, at the multicultural
festival, through hard side-by-side labor, they [the initiative] helped people connect and reconnect” (p. 80). According to Putnam and Feldstein, social capital arises from casual community interaction, and it can arise quickly over the course of days or weeks. By this account, saint’s day fiestas in Mexico supply social capital in abundance. These are exactly the types of events that scholars would prescribe to increase the social capital of a community.

Saint’s day fiestas offer a unique opportunity to test the effects of social capital on turnout. Roman Catholic churches are predominant throughout Mexico, and each church or parish has a patron saint. Each patron saint has a particular feast date, typically the day of the year that the saint died. Around the feast date of a particular church’s patron saint, the members of the church community throw a fiesta, celebrating their saint and their community. In most Mexican communities, these saint’s day fiestas are the biggest social event of the year, comparable to if not bigger than the celebrations coinciding with Easter and Christmas. Church communities typically suspend their normal activities and celebrate the fiesta for multiple days.

Our subsequent analysis makes two assumptions about saint’s day fiestas in Mexico. First, the time of year at which each parish celebrates its fiesta is exogenous to other features of the communities. For example, a community that celebrates its fiesta in January is on average no different from one that celebrates its fiesta in July. Second, these fiestas temporarily increase the social capital within the community. For a few weeks leading up to and following the fiesta, the community experiences an increase in social connectedness, sense of belonging, trust in the community, and discussion of important issues in the community. To test these assumptions, we sent an internet survey to Catholic priests and officials in Mexico whose e-mail address were listed in online church directories. The survey ran for one month and generated 14 valid

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2 E-mail addresses were obtained from online directories of the 68 dioceses and 18 archdioceses in Mexico. Links to each diocese website are located at http://www.cem.org.mx/diocesis/.
responses. These responses are not representative of all Catholic communities in Mexico, but they provide general, qualitative support for our assumptions about when fiestas occur and how they affect social capital.

The patron saint of each church is often chosen for historical or idiosyncratic reasons. Moreover, the particular fiesta date for each Saint is somewhat arbitrary, typically the day of the year that the saint died centuries ago. In our survey, we asked respondents how their particular parish chose its patron saint. No respondent indicated that the time of year for the fiesta was considered in this decision. Rather, patron saints often resulted from idiosyncratic events or the preferences of one particular priest or bishop. For example, one respondent from a church called “Our Lady of Refuge” provided the following account: “The people of God were consulted with the approval of the bishop. Here in Tamaulipas, there is great devotion to Our Lady of Refuge because we were officially put under the patronage of Our Lady of Refuge by the Spanish royalty during colonial times.”

These types of stories indicate that the fiesta date of a particular parish is exogenous to the characteristics of the community. In the results section, we will provide further empirical indication that the fiesta dates are exogenous.

To discern whether saint’s day fiestas increase the short-term social capital of their communities, we asked a series of questions regarding the nature of these fiestas. Respondents indicated that their fiestas last anywhere from 1 to 10 days, require 8 to 30+ days of preparation, and involve 400 to 5000 attendants. When asked about the types of activities at the fiestas, respondents listed numerous social and religious activities including eating, dancing, theatrical performances, wheelbarrow races, egg tosses, lotteries, singing, musical performances, mass, communion, confession, and religious processions. Since the respondents are priests and

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3 All responses have been translated from Spanish.
religious officials, we expected that they would focus on the religious aspects of the event. However, more than half of the activities mentioned were social and secular. Several respondents specifically mentioned that coexistence of neighbors is a primary component of the fiestas.

When we asked more specifically whether fiesta attendants discussed important political issues, respondents indicated that community members discuss municipal administration, public safety, unemployment, and the performance of political leaders at the fiestas. Finally, we asked whether the fiesta helps to build trust within the community. All 12 of the respondents who answered the question confirmed that this was the case. Community trust and discussion of important issues are critical elements of social capital, and it appears that the fiestas are successful in fostering these phenomena. Saint’s day fiestas increase social capital by bringing members of a community together. By preparing food, singing, dancing, and discussing important issues, the citizens are raising the social capital of the entire community. As one clergy-member remarked, “Saint’s day fiestas are a means to increase communion between the faithful.”

Lastra et al. (2009) conducted an in depth ethnographic study of two saint’s day fiestas in Central Mexico. In their descriptive account, the authors note the significance of these events for community connectedness: “The event reinforces peoples’ sense of community. . . . It is striking that all the events of the patron saint fiesta are group activities that require collaboration. . . . Every year the collaboration necessary for the complex organization of the fiesta reaffirms its [the community’s] social and ritual structure. . . . One aspect of sociability that is prevalent during fiestas is the cultural theme of accompanying, that is, or being with, sharing the moment
with, friends, *compadres*, and the saint.” (pp. 116-117) This account affirms our claim that saint’s day fiestas temporarily increase a community’s social connectedness.

The account of Lastra et al. (2009) and our survey responses suggest that saint’s day fiestas provide quasi-random shocks to social capital. Every community receives this positive shock at some point throughout the year, but the particular time of year is essentially random. We focus our study on Mexican municipalities with one Catholic church. On average, municipalities which celebrate their fiesta around an election should be no different than those that do not, except for the timing of their fiesta date. Both sets of municipalities have the same general level of social capital, but they receive these treatments of social capital at different times. We exploit this quasi-random variation to estimate the effect of a boost of social capital on voter turnout.

**Methods and Results**

We have collected census and electoral data for all municipalities across Mexico in which there is only one Catholic church and in which we could confidently identify the patron saint and corresponding feast date of the church.⁴ We focus specifically on municipalities with one church because we want to ensure that the saint’s day fiesta and corresponding social capital is treating a large proportion of the community that we observe.⁵ In total, we examine 325 municipalities across 7 national elections for a total of 2255 observations.⁶ Table 1 presents summary statistics

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⁴ Census data were downloaded from the web site of the Instituto Nacional de Estadística y Geografía, the Mexican government agency which administers the census. Electoral data were downloaded from the web site of the Instituto Federal Electoral, the Mexican government agency charged with administering elections and certifying the results.
⁵ We identified single parish municipalities by collecting online diocese directories and determining which municipalities are served by only a single church.
⁶ The total number of observations is less than 325*7 = 2275 because turnout data is missing in 1 case, and 19 cases were dropped because the reported turnout was greater than the voting age population.
for all municipalities in the data set. These communities are predominantly rural, agricultural, low-income, and Roman Catholic.

[Table 1]

Our surveys indicate that saint’s day fiestas increase social capital for several weeks before and after the actual fiesta date. As a result, we code a treatment variable, \textit{Fiesta}. This variable takes a value of 1 if the fiesta date is within 2 weeks of the election date and 0 if the fiesta date is further from the election. We will say that a municipality is receiving the treatment of social capital if its fiesta date lies anywhere within the four week window surrounding the election in that particular year.

Municipalities with fiesta dates after the election are included in our treatment, because fiesta preparations begin weeks before the actual fiesta date. The treatment of social capital begins several weeks before the fiesta date and continues for several weeks afterward. Moreover, rational individuals will smoothly allocate their free time (Becker, 1965), so an upcoming fiesta will consume time and affect citizens before it begins. However, our subsequent results are unchanged if we only include municipalities with a fiesta date before the election in our treatment. For any of the 7 election years in our data set, there are 52 to 54 municipalities that fall under the “fiesta” treatment.

With these data in hand, we can now quantitatively test our assumption that fiesta dates are as good as randomly assigned and then evaluate whether social capital is a complement or a substitute for political participation.

We have previously made the case that fiesta dates are “as good as” randomly assigned. Therefore, our treatment variable can also be thought of as quasi-randomly assigned. If this is the case, there should be no significant differences in observable characteristics between
municipalities which are in the treated and untreated groups. One way to test this is to measure
the balance of census demographic variables across these two groups of municipalities. Table 2
shows the balance of several key census variables across municipalities in the treatment and
control groups for the 1991 election. There are no statistically or substantively significant
differences between the two treatment groups. This suggests that the treatment and controls
groups are truly comparable and is consistent with our prior argument that the fiesta treatment is
“as good as” randomly assigned.

[Table 2]

We can also assess the comparability of municipalities in the treatment and control
groups by estimating a propensity score. We estimate a probit model, regressing the fiesta
treatment on all demographic variables from the census.⁷ A municipality’s propensity score is its
predicted value from the regression, representing the a priori predicted probability that the
municipality would be in the fiesta treatment given its demographic characteristics. Figure 2
shows the distribution of propensity scores for both the treated and untreated municipalities.

[Figure 1]

Ideally, every municipality would have the same propensity score. However, slight
imbalances of demographic characteristics across treatment and control groups could arise by
chance, leading some municipalities to have greater propensity scores than others. Fortunately,
the distribution of propensity scores is similar for both the treatment and control observations.
We find common support between the treatment groups, meaning that for every observation in
which the treatment was received, there are untreated observations with similar propensity

⁷ Our propensity model includes so many census variables that we likely “over-fit” the data. If this is the
case, the propensity scores of treated and untreated observations will diverge, leading us to under-estimate
the true degree of comparability between treatment and control. In this way, Figure 1 provides a
conservative estimate of the true similarity of our treatment groups.
scores. Not all municipalities are comparable, but those with similar propensity scores can be compared to obtain an unbiased causal estimate of the treatment effect. This is the motivation for propensity score matching (Rosenbaum and Rubin, 1983). Having established that our treatment variable can be thought of as randomly assigned, we now turn to evaluating the effect of social capital on turnout.

If social capital influences voter turnout, we expect turnout to vary with our treatment variable. If this exogenous shock of social capital increases voter turnout, we should see the average turnout levels increase for municipalities with fiestas closer to the election date. Conversely, we should see the opposite trend if the shock to social capital decreases turnout.

We take several approaches to estimating the effect of fiestas on turnout. We begin by presenting a nonparametric approach, a kernel regression. We calculate residual turnout for each observation removing variation associated with different election years and the mean turnout levels in each state. Figure 2 shows the predicted level of residual turnout relative to the number of weeks that a municipality’s fiesta occurs before or after the election. Turnout is significantly lower for municipalities holding a fiesta close to the election date. Even five weeks before the election we begin to see the negative effect, and it continues for municipalities holding fiestas five weeks after the election.

Next, we employ four different approaches to estimate the effect of the Fiesta treatment on voter turnout. All four results are presented in Table 3. First, we match treated and untreated observations based on the propensity score calculated previously (PS Matching), with the requirement of exact matching on the election year. Using the matching estimator suggested by Abadie et al. (2004), we estimate that holding a fiesta within two weeks of the election reduces voter turnout by 4.3 percent. Next, we employ the nearest-neighbor matching estimator of
Abadie et al., again matching observations from the same year based on their census demographics (NN Matching). Here we estimate a 3.4 percent reduction in voter turnout. For our third approach, we estimate the treatment effect by ordinary least squares (Pooled OLS). We include year fixed effects and all census covariates in the model. This approach estimates a 3.2 percent reduction in voter turnout. All three of these negative estimates are statistically significant at the .01 level. This negative effect is robust to the inclusion or exclusion of any census variables. We show a number of these robustness checks in the appendix.

[Table 3]

As a final test of the effect of the festivals, we leverage a shift in the federal election date. For the 1991 and 1994 elections, elections took place in mid-August, but the subsequent 5 elections took place in early July. Therefore, we can test for changes in voter turnout for individual municipalities which fell in or out of the fiesta treatment as a result of the change in election date. Our fourth estimate in Table 3 includes municipality fixed effects, removing any variation in turnout across different municipalities. We find that the fiesta treatment reduces turnout by 2.5 percent on average for those municipalities which fall into the treatment as a result of the change in the time of federal elections (p < .01). In the next section, we will explain why our fixed effects estimate is slightly smaller (closer to zero) than the cross-sectional estimates.

We reject the hypothesis that social capital increases turnout. Rather, a fiesta occurring within two weeks of a federal election will reduce voter turnout in the municipality by 2.5 to 4.5 percent. This result is inconsistent with previous correlational observations regarding social

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8 We conduct a Hausman test (Hausman, 1973) comparing our fixed effects estimates to those from a random effects model. The resulting p-value of .999 tells us two things. First, we have no evidence that our fixed effects estimate is statistically different from our cross-sectional estimates. Second, we cannot reject the null hypothesis that the independent effect of each municipality is uncorrelated with the treatment variable. This provides further support for our claim that saint’s days are “as good as” randomly assigned.
capital and turnout, suggesting that those analyses are biased upward due to reverse causation and omitted variable bias. While social individuals and groups are more likely to vote, the random assignment of community involvement does not increase but rather decreases voter turnout.

**Persistence of the Fiesta Effect across Subsequent Elections**

If saint’s day fiestas decrease turnout in one election, we expect that such demobilization will continue to have an effect in subsequent elections. Empirical research suggests that voting is habitual (Putzer, 2002; Gerber et al., 2003), so the decision to abstain from voting in one election will decrease the probability of voting in future elections. To explore this possibility we take a closer look at the switchers, those municipalities which fell into or out of the fiesta treatment over time.

Our cases fall into three categories in regard to their receipt of the treatment. There are approximately 50 municipalities with August feast dates which only received the treatment in 1991 and 1994. There are approximately 50 municipalities with late June or early July feast dates which only received the treatment in the five elections following 1994. And there are approximately 220 municipalities with other feast dates which never received the fiesta treatment.⁹

Figure 3 shows the residual turnout rates for all three of these groups across each election year. We can see that the June/July municipalities voted at the same rate as the untreated municipalities in 1991 and 1994 when they had not yet received the treatment. Then, after the election date moved toward their fiesta date, their turnout rates dropped and remained lower through all subsequent elections. The August municipalities initially began with lower turnout rates.

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⁹ These numbers are approximate, because the election date does move slightly from year to year. However, the only big change occurred between 1994 and 1997, so we simplify our analysis here to designate only three groups of municipalities.
rates because they received the treatment in 1991 and 1994. Following the change in election date, turnout remained low through subsequent years even though these municipalities no longer received the treatment. The observed trend is consistent with our prediction that the fiestas’ negative effects are persistent.

[Figure 3]

Looking more closely at the municipalities treated from after 1994, we see further evidence that the fiesta treatment is persistent. Residual turnout is initially similar between the two groups before either receives the treatment, but once the election date switches, residual turnout progressively declines with each election. The longer a municipality has been treated, the greater the negative effect. By 2006 when these municipalities receive their fourth treatment, their turnout is 4.5% lower than their untreated counterparts. The repeated existence of a community event around the time of multiple elections has a particularly strong demobilizing effect.

The persistence of the fiesta effect explains why our fixed effects estimate is smaller (closer to zero) than our cross-sectional results. The fixed effects analysis focuses on individual municipalities in which the treatment changed. When the election date changed, the municipalities with August elections were no longer treated. However, the negative effects of their previous treatments persisted, causing turnout to remain low. For this reason, our fixed effects estimate is biased toward zero, suggesting that we should rely more heavily on our cross-sectional results.

Variance of the Fiesta Effect across Municipalities

If saint’s day fiestas truly decrease voter turnout, we expect the effect to vary across different type of municipalities. We modify our pooled OLS model to include interaction terms,
which indicate the conditions under which the fiestas will have a stronger or weaker effect on voter turnout. Table 4 shows the results of three regressions which include various interaction terms. In every case, the interaction variables have been re-coded to range from 0 to 1. Therefore, we can interpret the coefficient on an interaction term as the change in treatment effect as we move from municipalities with the lowest level of the explanatory variable to those with the highest level.

[Table 4]

First, we expect the effect to be larger in municipalities with a higher percentage of Catholics. In these municipalities, the fiesta will involve a higher proportion of residents and the treatment will be more intense. Column 1 shows that the effect is 5.9% greater (more negative) as we move from the municipalities with the lowest proportion of Catholics to those with the highest proportion of Catholics.

Second, the effect should be greater in municipalities with higher levels of turnout, because high turnout communities have more individuals that can be influenced by the treatment. If nobody votes regardless of the fiesta, then the treatment cannot possibly have an effect. Column 2 shows that the negative fiesta effect is stronger for municipalities with higher levels of a priori predicted turnout. We regressed turnout on the census covariates to generate predicted values of turnout, ignoring the fiesta treatment. Consistent with our prediction, municipalities which are most likely to vote at high rates are most sensitive to the fiesta treatment.

Finally, the effect should be greater in smaller municipalities for several reasons. Smaller communities with fewer social alternatives will attract a higher proportion of residents to the fiesta. Also, remember that we have restricted our analysis to municipalities with only one church. Larger municipalities may have other churches that we are unaware of. If this is the
case, our effect will be diluted in these larger municipalities because a smaller proportion of residents will attend the fiesta. Model 3 indicates that the fiesta treatment is strongest for smaller municipalities. Saint’s day fiestas actually decrease turnout by 20 percent for the smallest municipalities in our data set. In a community of 400 to 500 residents, 1 in 5 individuals are demobilized by a fiesta occurring near the election date.

Testing Alternative Explanations

We have presented evidence that the occurrence of a saint’s day fiesta near a federal election significantly decreases voter turnout in a community, and we have argued that this decrease is causally attributable to the social capital generated by fiestas. In this section, we consider alternatives to our causal interpretation. Challenges to our findings will likely come in two forms. First, there may be unobserved differences between municipalities in the treatment and control groups that confound our results. Second, the observed effect may not be due to social capital but rather something else that changes during the time of the fiestas.

We have already attempted to rule out the first challenge regarding the comparability of treated and untreated municipalities. The balance table and distribution propensity scores demonstrate that there are few observable differences between treatment groups. Also, using the Hausman test, we cannot reject the null hypothesis that the independent effects for individual municipalities are uncorrelated with the treatment. All of these results are consistent with our claim that fiesta dates are “as good as” randomly assigned. However, more subtle alternative explanations are still possible.

Catholic parishes choose their patron saints for many reasons. Perhaps certain characteristics are correlated with the type of patron saint that a church will select. Since some saints are quite common, one may worry that the results are driven by the churches of one or a
few particular saints. There are 7 different fiesta dates that are shared by more than 15 churches in our data set. Our results are robust to the exclusion of any of these sets of churches. Another way to address this concern is to measure the degree of similarity within churches sharing a fiesta date. We find that the variance of census covariates within municipalities sharing a fiesta date is the same as the variance of covariates across all municipalities. Therefore, all evidence is consistent with our argument that the fiesta dates are “as good as” randomly assigned.

We assume that saint’s day fiestas influence social capital, and the way in which the fiestas affect voter turnout is through their effect on social capital. Since we cannot obtain a precise measure of social capital, we simply estimate the effect of the fiesta treatment on turnout. If fiestas affect turnout through some mechanism other than social capital, we would obtain a biased result. While we cannot prove the validity of this assumption, we can raise alternative possibilities and assess their plausibility.

As we have discussed, Saints Day Fiestas are large events spanning several days and requiring multiple weeks of preparation. Is there something other than social capital that changes during the fiesta that might explain our result? One possibility is that intense celebration and alcohol consumption exhaust citizens. On one level, exhaustion is not inherently at odds with social capital. We want to test the effect of citizens coming together and connecting. If they happen to consume alcohol or lose sleep when they convene, that would be one byproduct of social capital. However, our results cannot likely be attributed solely to hangovers or sleeping in, because we look at a four week window. Tiredness might influence turnout if the fiesta occurs one or two days before the election. However, we find that fiestas occurring two weeks before or after the election date decrease turnout as much as those occurring the day before the election.
Another possibility is that political candidates or government officials would visit the festivals in order to influence the community’s political participation. Since turnout decreases during the fiestas, this type of political activity would have to decrease turnout in order to work against our conclusions. Perhaps citizens are disillusioned by political campaigning at the festivals or government officials actually attempt to decrease turnout in communities that oppose them. Both possibilities seem unlikely, particularly for the small, rural municipalities in our data set. Most of these communities are so small and so distant from urban centers that it seems implausible that politicians or government officials would go out of their way to even attend the fiestas. Additionally, all of our survey respondents indicated that there is never any official political or government activity at their fiestas. We can also rule out the possibility that voter registration plays a role because the deadline to register is several months before the election date.

A related explanation is that saint’s day fiestas interfere with the campaign activity that would typically mobilize voters. This possibility can be ruled out in several ways. First, these small, rural municipalities are unlikely to experience campaign activity even without the occurrence of a fiesta. Second, we find that fiestas occurring after the election demobilize voters as much as those occurring before the election. It is unlikely that fiesta preparations would interfere with campaign activity in the same way that the fiesta celebration might. If anything, the occurrence of the fiesta should make it easier for campaigns to reach citizens and mobilize them. Again, these municipalities are so small and distant from urban centers that it is unlikely that politicians will ever campaign there, regardless of a fiesta.

Since saint’s day fiestas have an inherently religious purpose, the fiestas may alter the community’s level of personal religiosity which in turn influences turnout. There is no obvious
reason to think that elevated religiosity would decrease voter turnout. In fact, our analysis of Mexican survey data from Latinobarometro indicates that religiosity is uncorrelated with voter turnout and positively correlated with the discussion of politics. Ten of the 12 survey respondents indicate that church attendance increases during the fiesta and 4 of the 12 indicate that it increases a lot. Since church attendance is both a source and consequence of social capital, we take this as supporting evidence that the fiestas temporarily increase the social capital within the community.

Replicating the Findings in an Urban Setting

Our previous analysis has focused solely on Mexican municipalities with just one Catholic Church. Thus, our data set consists of primarily poor, rural, agricultural communities. The questions remain whether our results will generalize to other democratic communities. In order to ensure internal validity, we have limited our study to the subset of regions for which we can make valid inferences. To test for external validity, we turn to the Mexican city of Monterrey. This urban center looks nothing like the previous communities in our data set. Monterrey has over one million residents, a well regarded health care system, four major universities, and a GDP per capita of more than 45,000 U.S. dollars.

For every church in Monterrey, the local archdiocese website lists the saint’s day fiesta date and the neighborhoods served by the church. In many cases, we were able to match these listed neighborhoods to “secciones,” the smallest geographic unit for which electoral results were reported in 2006 and 2009. As a result, we have compiled a dataset of 584 neighborhoods served by 93 different churches for which we know the fiesta date and voter turnout levels for 2006 and 2009. With only 93 churches, two election years, and no census variables our tests will be much
less precise than in our previous analysis. However, we can test for the fiesta effect just as before to see if fiestas have the same type of effect in an urban area.

Table 5 shows the results of this analysis. We conduct OLS to test whether neighborhood turnout changes when the church’s saint’s day fiesta occurs within two weeks of the election date. Both models control for the year, and model 2 includes partisan controls. The partisan controls are the proportion of the vote earned in each neighborhood by the three major political parties - the National Action Party, the Institutional Revolutionary Party, and the Party of the Democratic Revolution. Since we do not have census data for each neighborhood, we rely on these partisan variables to serve as a proxy for the social structure and unobserved characteristics of neighborhoods. These controls simply explain some of the variance in turnout and allow for a more efficient estimate.

[Table 5]

As with the rural municipalities, we estimate a negative effect of the saint’s day fiesta on turnout in Monterrey. Model 2 estimates that the occurrence of a saint’s day fiesta within 2 weeks of an election reduces neighborhood turnout levels by 2.9% (p < .01). While the evidence is not as strong as before due to our lack of data, this analysis suggests that our findings in rural Mexico may apply to a much broader set of democratic communities. Saints Day Fiestas decrease voter turnout in Monterrey just as they do in rural communities, and the same mechanisms by which social capital decreases turnout in rural communities appear to be present in urban centers.

Discussion

Social scientists have long considered vibrant civic political associations a basic requisite of democracy. Lipset (1959) claims, “In a large complex society, the body of the citizenry is
unable to affect the policies of the state. If citizens do not belong to politically relevant groups, if they are atomized, the controllers of the central power apparatus will completely dominate the society." More recently, social capital scholars have argued that non-political civic associations promote participation and effective governance (Putnam 1993, 1995, 2000; Tavits, 2006). This study focuses on the hypothesis regarding social capital and political participation.

We exploit a natural experiment to test the effect of participation in local churches and community festivals on voter turnout. Saint’s day fiestas bring together individuals in a community, allowing them to connect with one another and discuss important issues. Contrary to previous theories and observational findings, this exogenous shock to social capital around the time of a federal election actually decreases voter turnout. This finding is not obvious. In fact, when we described our design to other researchers of social capital, many predicted that turnout would increase and none expected that it would decrease.

While the results presented in this paper undermine one of the most important social capital hypotheses, our findings are not a general indictment of the role of social capital in democratic governance. The mechanisms connecting participation and quality of governance are manifold and complex. The direct effect of turnout is only one component. It is possible that while civic participation has a negative effect on the turnout of peripheral voters, there are other ways that social capital improves the quality of democracy. For example, governments might be more responsive to a socially-connected citizenry. We have no way of testing the overall net effect of social capital on governance in this study, but we are open to the possibility that social capital has benefits outside of turnout.

How can we reconcile our findings with previous observations? In virtually every case, measures of social capital are correlated to political participation. However, these correlations
may be driven by reverse causation or omitted variable bias, in which case they tell us nothing about cause and effect.

Several previous studies are consistent with our finding that social capital decreases turnout. As previously mentioned, Condon (2009) finds that parents randomly assigned into the FAST (Families and Schools Together) program are less likely to vote. However, the nonrandom willingness of parents to share information with the researcher may bias the results of the study. Additionally, Stoker and Jennings (1995) find that young couples experience a decrease in political participation around the time of their weddings. Marriage ceremonies bring families and friends together like no other event, and despite the elevated level of social capital, turnout decreases. However, marriages do not occur at quasi-random times, and there are other changes around a wedding that might explain the lower rates of turnout. We present a similar result but hope to overcome the limitations of previous studies by exploiting the quasi-random timing of saint’s day fiestas.

Community festivals do not always detract from voter turnout. Addonizio et al. (2007) find that festivals held on the election date near the polling location can increase voter turnout by several percentage points. How do festivals increase turnout in their context and decrease it in ours? The key difference is that their festivals were specifically designed to attract voters to the polls. In a sense, their treatment lowers the cost of voting, which increases turnout as expected. Our treatment on the other hand, does not happen on the exact election date (except in a few cases). Instead, saint’s day fiestas bring individuals together at a time and location removed from voting, raising social capital without directly altering the cost of voting. Their result suggests that planned festivals can raise turnout by bringing people to the polls, but their finding says nothing about social capital.
How can a positive shock to social capital decrease voter turnout? We have proposed three ways in which heightened social connectedness might detract from political participation. All three possibilities are plausible, and we have good reason to think that all of them are at work in this context. First, time is an essential resource for political participation (Verba et al., 1995) which is consumed by social capital. Rational individuals will smoothly allocate their free time (Becker, 1965) such that community participation will decrease political participation even when the community event occurs weeks before or after an election. As citizens become more involved with the community, they have less time to learn about the election, form an informed opinion, and visit the polling place.

Second, social interactions present conflicting views to potential voters which might create uncertainty (Mutz, 2002). Our surveys indicate that citizens talk about contentious issues at the fiestas and express discontent with political leaders and the political system. Moreover, Joel and Dina Sherzer, two authors of *Adoring the Saints: Fiestas in Central Mexico* (Lastra et al., 2009), told us that political discontent is pervasive throughout the fiestas. “If you look at the kinds of figures, giant puppets, etc. which parade about during fiestas, they are sardonic, politically biting, and humorously critical of government leaders.”¹⁰ The exposure to conflicting views may cause members of the community to lose confidence in their own political opinions or become disillusioned with politics altogether.

Lastly, citizens often vote because of the sense of civic duty or the fulfillment they derive from the act itself (Riker and Ordeshook, 1968). Perhaps social capital serves as a substitute for that type of satisfaction. When citizens contribute to their community at the saint’s day fiesta, they may no longer feel the need to vote, because they have already achieved the fulfillment that

¹⁰ Quote was taken from e-mail correspondence with Joel and Dina Sherzer.
they would otherwise obtain through voting. Lastra et al. (2009) argue that this sense of duty explains the high levels of participation in saint’s day fiestas. “These networks of relationships are effective because of ethical principles that govern the behavior of the inhabitants of the communities. They feel a sense of duty . . . to carry out one’s promise.” (p. 116)

We are among many political scientists concerned with voice and equality in the political process (Verba et al., 1995). Socioeconomic status is highly correlated to voter turnout, which may bias public policies in favor of the few. Many scholars and activists hope that social capital will open the doors of political representation for underrepresented communities like those in our analysis. If social connections really do increase turnout, then we can improve representation by building community centers, opening parks, and throwing community-wide fiestas. However, we find no evidence that social capital can solve the collective action problem of turnout. Our results indicate that community participation is a byproduct, not a cause, of a healthy democracy. Contrary to previous thinking, social capital is a substitute, rather than a complement, for political participation.
References


De Tocqueville, Alexis. 1840. *Democracy in America*.


The distributions are estimated by a kernel density function. The propensity scores are estimated from a Probit model which regresses Fiesta on all census variables and year fixed effects.
Figure 2. Kernel Regression: Turnout across Fiesta Dates

kernel = epanechnikov, degree = 0, bandwidth = 3.5, pwidth = 3.73

12 95% confidence band is shown.
Figure 3. A Closer Look at the Switchers
Table 1. Sample Summary Statistics: 325 Municipalities, 7 Elections

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>St Dev</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 2000</td>
<td>12198</td>
<td>9517</td>
<td>413</td>
<td>49462</td>
<td>9706</td>
<td>325</td>
</tr>
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<td>Population Density</td>
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<td>51.1</td>
<td>0.9</td>
<td>1743.3</td>
<td>180.7</td>
<td>296</td>
</tr>
<tr>
<td>Pct. w/ some High School</td>
<td>11.2</td>
<td>9.4</td>
<td>1.2</td>
<td>55.0</td>
<td>7.4</td>
<td>325</td>
</tr>
<tr>
<td>Pct. ≤ Min. Wage</td>
<td>16.6</td>
<td>13.4</td>
<td>1.5</td>
<td>58.0</td>
<td>10.7</td>
<td>325</td>
</tr>
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<td>Pct. &gt; 10x Min. Wage</td>
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<td>0.6</td>
<td>0.0</td>
<td>5.6</td>
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<td>325</td>
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<tr>
<td>Pct. Agriculture</td>
<td>51.3</td>
<td>51.1</td>
<td>1.3</td>
<td>96.4</td>
<td>22.7</td>
<td>325</td>
</tr>
<tr>
<td>Pct. Government</td>
<td>3.1</td>
<td>2.8</td>
<td>0.3</td>
<td>14.8</td>
<td>1.9</td>
<td>325</td>
</tr>
<tr>
<td>Pct. &gt; 70 Years Old</td>
<td>1.5</td>
<td>1.3</td>
<td>0.3</td>
<td>5.1</td>
<td>0.7</td>
<td>325</td>
</tr>
<tr>
<td>Pct. &lt; 18 Years Old</td>
<td>44.5</td>
<td>44.9</td>
<td>27.8</td>
<td>56.8</td>
<td>5.2</td>
<td>325</td>
</tr>
<tr>
<td>Pct. Catholic</td>
<td>91.2</td>
<td>93.4</td>
<td>51.7</td>
<td>99.8</td>
<td>8.2</td>
<td>325</td>
</tr>
<tr>
<td>Turnout 2000</td>
<td>61.5</td>
<td>61.8</td>
<td>27.0</td>
<td>96.9</td>
<td>10.2</td>
<td>325</td>
</tr>
<tr>
<td>Fiesta</td>
<td>0.16</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.37</td>
<td>325</td>
</tr>
</tbody>
</table>

Data on population density is missing for 29 municipalities. In all subsequent analyses, we have imputed population density for those cases by estimating a Tobit model. We regressed log population density on all other census variables to obtain predicted values of log population density for the missing cases.
Table 2. Balance of Covariates across Fiesta Treatment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fiesta w/in 2 weeks of Election?</th>
<th>Difference</th>
<th>P-value</th>
</tr>
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<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
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<td>11879</td>
<td>14144</td>
<td>2265</td>
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<td>Population Density</td>
<td>78.5</td>
<td>89.4</td>
<td>10.9</td>
</tr>
<tr>
<td>Pct. w/ some High School</td>
<td>11.0</td>
<td>11.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Pct. Minimum Wage</td>
<td>16.4</td>
<td>17.3</td>
<td>0.9</td>
</tr>
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<td>Pct. &gt; 10x Min. Wage</td>
<td>0.89</td>
<td>0.86</td>
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<tr>
<td>Pct. Agriculture</td>
<td>51.8</td>
<td>48.1</td>
<td>-3.7</td>
</tr>
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<td>Pct. Government</td>
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<td>3.10</td>
<td>-0.01</td>
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<td>Pct. &gt; 70 Years Old</td>
<td>1.54</td>
<td>1.36</td>
<td>-0.18</td>
</tr>
<tr>
<td>Pct. &lt; 18 Years Old</td>
<td>44.5</td>
<td>44.3</td>
<td>-0.2</td>
</tr>
<tr>
<td>Pct. Catholic</td>
<td>91.4</td>
<td>89.7</td>
<td>-1.7</td>
</tr>
</tbody>
</table>
### Table 3. The Effect of Saint’s Day Fiestas on Voter Turnout\(^\text{14}\)

<table>
<thead>
<tr>
<th></th>
<th>(1) PS Matching</th>
<th>(2) NN Matching</th>
<th>(3) Pooled OLS</th>
<th>(4) Fixed Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiesta</td>
<td>-4.298</td>
<td>-3.442</td>
<td>-3.209</td>
<td>-2.525</td>
</tr>
<tr>
<td></td>
<td>(1.186)**</td>
<td>(0.777)**</td>
<td>(0.970)**</td>
<td>(0.916)**</td>
</tr>
<tr>
<td>Year FE’s</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Census Vars.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Turnout</td>
<td></td>
<td>66.480</td>
<td>48.185</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>2255</td>
<td>2255</td>
<td>2255</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td></td>
<td></td>
<td>0.512</td>
<td>0.680</td>
</tr>
<tr>
<td>SER</td>
<td></td>
<td></td>
<td>10.84</td>
<td>9.37</td>
</tr>
<tr>
<td>observations 2255</td>
<td></td>
<td></td>
<td>2255</td>
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<tr>
<td>R²</td>
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<td></td>
<td>0.512</td>
<td>0.680</td>
</tr>
<tr>
<td>SER</td>
<td></td>
<td></td>
<td>10.84</td>
<td>9.37</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
** significant at 1%

---

\(^\text{14}\)Both matching estimators match on year exactly and include a linear bias adjustment. For both matching estimators, we report the standard errors proposed by Abadie et al. (2004). With propensity score matching, this procedure does not account for the uncertainty associated with the estimation of the propensity score. Many researchers bootstrap the standard errors in this case to account for such a problem. However, Abadie and Imbens (2008) show that the bootstrap does not yield valid standard errors for matching estimators. They argue that the closed-form standard errors are adequately conservative to account for uncertainty associated with the propensity score. For our pooled OLS and fixed effects estimates, we report municipality-clustered standard errors. In this case, they are nearly identical to standard errors calculated from a non-parametric bootstrap.
Table 4. Variance of the Fiesta Effect across Municipalities\textsuperscript{15}

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiesta</td>
<td>1.492</td>
<td>-0.925</td>
<td>-20.351</td>
</tr>
<tr>
<td></td>
<td>(4.616)</td>
<td>(1.724)</td>
<td>(3.990)**</td>
</tr>
<tr>
<td>Fiesta * Catholic</td>
<td>-5.861</td>
<td>-5.218</td>
<td>27.003</td>
</tr>
<tr>
<td></td>
<td>(5.614)</td>
<td>(4.132)</td>
<td>(5.790)**</td>
</tr>
<tr>
<td>Fiesta * Predicted Turnout</td>
<td>-5.218</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predicted Turnout</td>
<td>69.549</td>
<td>66.625</td>
<td>66.073</td>
</tr>
<tr>
<td></td>
<td>(36.893)</td>
<td>(5.176)**</td>
<td>(5.088)**</td>
</tr>
<tr>
<td>Fiesta * Log Pop</td>
<td></td>
<td></td>
<td>27.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5.790)**</td>
<td></td>
</tr>
<tr>
<td>Year Fixed Effects</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Census Covariates</td>
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<td>X</td>
<td>X</td>
</tr>
<tr>
<td>State Turnout</td>
<td>66.625</td>
<td>-0.925</td>
<td>66.073</td>
</tr>
<tr>
<td></td>
<td>(5.176)**</td>
<td>(35.386)</td>
<td>(5.088)**</td>
</tr>
<tr>
<td>Observations</td>
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<td>2255</td>
<td>2255</td>
</tr>
<tr>
<td>R-squared</td>
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<td>0.51</td>
<td>0.53</td>
</tr>
<tr>
<td>SER</td>
<td>10.84</td>
<td>10.84</td>
<td>10.70</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

** significant at 1%

\textsuperscript{15} All standard errors are clustered by municipality. The main effects for models 1, 2, 4, and 5 are not shown in the table, but they are included in the regressions as census covariates.
Table 5. The Effect of Fiestas on Turnout in Monterrey

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiesta</td>
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<tr>
<td></td>
<td>(1.610)</td>
<td>(0.738)**</td>
</tr>
<tr>
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<td>X</td>
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<tr>
<td>Partisan Controls</td>
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<td>1160</td>
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<tr>
<td>R-squared</td>
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<tr>
<td>SER</td>
<td>8.99</td>
<td>6.74</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses

** significant at 1%

---

16 Standard Errors are clustered by church.
## Appendix

Table A1. The Effect of Fiestas on Voter Turnout: Robustness Checks

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1.152)**</td>
<td>(0.919)*</td>
<td>(1.118)**</td>
<td>(1.120)**</td>
<td>(1.124)**</td>
<td>(1.076)**</td>
<td>(1.172)**</td>
<td>(1.165)**</td>
</tr>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>State-Year F.E.’s</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td>X</td>
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<td></td>
<td></td>
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<td>X</td>
</tr>
</tbody>
</table>

Observations: 2255 2255 2255 2255 2255 2255 2255 2254
R-squared: 0.28 0.56 0.36 0.31 0.32 0.34 0.34 0.30
SER: 13.01 10.49 12.25 12.76 12.70 12.50 12.45 12.87

Robust standard errors in parentheses
* significant at 5%; ** significant at 1%

Standard errors are clustered by municipality.
Miscellaneous variables are (1) percent residing outside of state, (2) percent residing outside of Mexico, (3) percent speaking indigenous language, (4) percent Catholic, (5) log percent Catholic.