

Will Religious People Listen to Science?

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Research Proposal

Summer 2020

Abstract

filled

*See [Tex4Econ](#) for more latex examples.

1 INTRODUCTION

Since all the policies are new to most Americans, not most people easily accept voluntary protective behaviors. Also, regional leaderships often conflict with health experts' advises causing more confusions to general public. Hence, people need some tangible experience in which they feel the threat is real such as school closures.

I focus on the effect of attendance on religious services. When around the national emergency announcement, most big religious gatherings are turned into online platforms or canceled. But, there were physical gatherings regardless of the order. And it was possible since in many states religious gatherings were labeled as essential.

I think that many churchgoers go to the physical services as long as the churches are open, and the smaller churches people more stick to. Because many people church is an anchor of their life.

People who attended the services disregard the danger since the church is closed (or believe that they feel safer because of attending it), and hence practice less social distancing than those who did not attend.

In this project, I want to explore the effect of the service attendance on SD with health outcomes.

The current pandemic raises the question how general public assess the information.

A IDENTIFY RELIGIOUS WORSHIP PLACES

From the list of entire POIs¹, we select religious organizations using the NAICS code². Among 234,665 POIs, it is not clear whether the selected POIs are served for religious gatherings such as a weekend service. We set two criteria to distinguish them. First, the number of weekly unique visitors are more than 15 on average prior to pandemic. Secondly, the most popular (crowded) day should be either Friday, Saturday or Sunday, because most major religious services happen between Friday and Sunday. There are 42,907 POIs meeting these requirements.

POIs are not evenly distributed among states. On top, Texas has 4,585 POIs, and there are 8 POIs in Vermont at bottom. We select four states, Texas, California, Florida and Illinois, having the largest number POIs³. Hence, there are 13,062 POIs in total of interest.

We set the baseline period prior to pandemic, selecting the nine waves from 11.25.2019 to 1.20.2020. We calculate the average number of visitors during the periods and set the 45 as a threshold to indicate whether the POI is large or not. There are 2,794 large POIs and 10,268 small POIs, and total number of visitors in the two groups are similar.

B REGIONAL DISTRIBUTION

SafeGraph shows the visitor's home census block group for each POI. In other words, for each census block group, we can explore what POIs the residents visit as long as the number is not too small.

There are 38,855 CBGs in which the residents visit the selected POIs in four states. Since most Covid related data are accessible at county level, we aggregate it into county level.

how many residents attend a service happening at the religious POIs. For example, we can explore how many POIs are and their attendance in each census block every week. It is possible that a Californian attends the worship in different states. We will restrict the focus onto Alameda and San Francisco counties which are very far from the border, so it won't be a concern.

B.1 POI MAP

In Alameda and San Francisco counties, there are 521 POIs. Figure 3 shows the POIs in two counties. The center of the circle points to the worship place, and the size of

1. Use July 2020 release Core POI data.
2. 813110.
3. TX: 4,585, CA: 4,009, FL: 2,438, IL: 2,303.

the circle implies the number of visitors. Red POI indicates the average visitors at the baseline periods, and the blue indicates the pandemic periods.

C DATA ANALYSIS

Thus far, data have been analyzed at census block level (cbg). For each census block, we know how many people attend religious services (and their size). Also, Social Distancing Metrics data provide the measures for social distancing for each POIs. In two counties, there are 1626 cbgs, and religious visitors are found in 904 cbgs. Many census block has very few visitors, and Covid data are mostly available at zip code level, and hence we need to aggregate cbgs into county level.

D MODEL

As a preliminary

$$Y_{ct} = \alpha_c + \lambda_t + \beta D_{ct} + \gamma X_{ct} + \epsilon_{ct}$$

Y_{ct} is the outcome. It is either new cases (or death) per capita in county c at time t , or proportion of people staying at home. D_{ct} is the exposure to service visitors, $\frac{\text{num visit}}{\text{num device}}$ in county c at t .

Prior to analyze the main model, note that the simple first stage. We define the pre period before February and pandemic period is march. It is very uncertain that attendance has a causal effect after March since most measures converge at early April. We hypothesize that the change in exposure rate during March depends on the size of POIs, since the large gathering places more quickly respond at the beginning. Hence, the difference in exposure rate at this moment could be proportionally related to the size.

$$\% \Delta D_{c,\text{prior-pandemic}} = \beta Z_{c,\text{prior}} + \text{County}_c + \text{numvisit}_{\text{prior}} + \eta_c$$

where

$$Z_{c,\text{prior}} = \frac{\text{num large visitors}_{c,\text{prior}}}{\text{numvisit}_{c,\text{prior}}}$$

Figure 1: Percentile distribution of religious POIs in CA

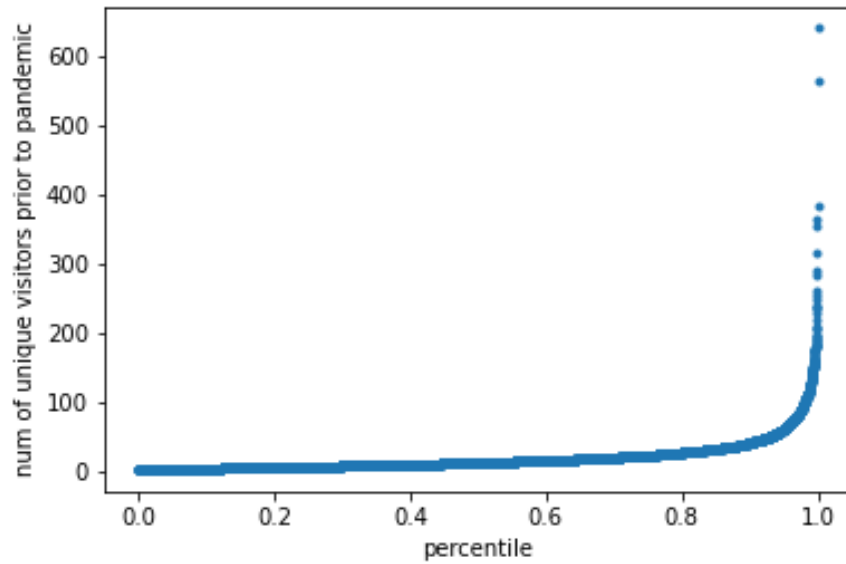


Figure 2: Changes in average visitors in CA

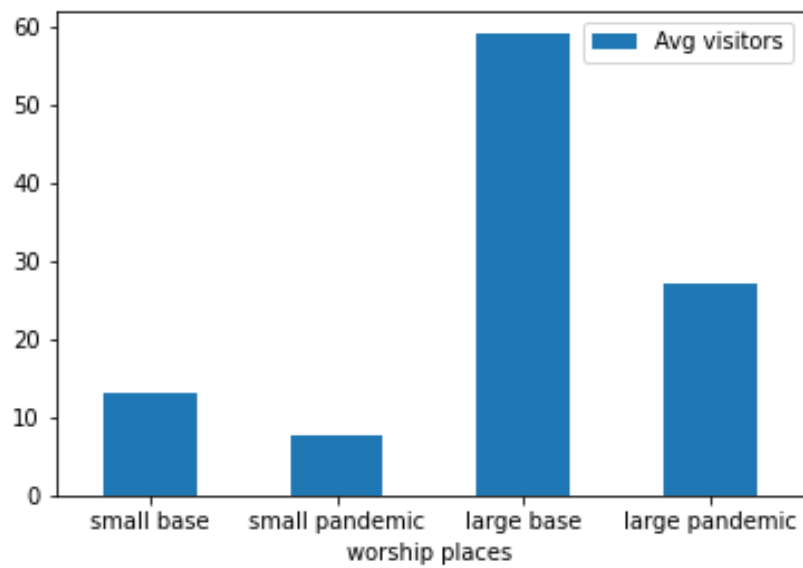


Figure 3: Distribution of religious POIs in Alameda and San Francisco counties

