The Effect of Religious and Political Factors on the Adoption of Covid Mitigation Protocols

Preanalysis Plan

Mark Brockway
Department of Political Science
Department of Religion
Syracuse University
mdbrockw@syr.edu

Shana Kushner Gadarian
Department of Political Science
Syracuse University
sgadaria@maxwell.syr.edu

Sara Wallace Goodman
Department of Political Science
UC-Irvine
swgood@uci.edu

Sarah Jones
Department of Political Science
Syracuse University
sjones30@syr.edu

Thomas B. Pepinsky
Department of Government
Cornell University
pepinsky@cornell.edu

Contents

1. Introduction

2. Summary of Data
    2.1 Panel Study Overview
    2.2 General Description of Survey Variables
    2.3 Detailed Description of Variables included in the current study

3. Methodology

4. Evaluation Framework

5. Updates and References

1. Introduction

This plan describes the data and methodological strategy for an analysis of a multi-wave panel survey of the American population. The current study is designed to measure the impact of religious and political factors on individual adoption of covid mitigation protocols. This analysis is potentially useful to applied and theoretical researchers because it tests the impact of religious and political identities and behaviors throughout the course of the covid pandemic as opposed to at a single point in time (e.g. Smothers, Burge, and Djupe 2020; Whitehead and Perry 2020). Religious and political factors have been shown independently to effect adoption of covid mitigation protocols (e.g. Gadarian, Goodman, and Pepinsky 2021; Perry, Whitehead, Grubbs 2020) but their interactive effect, and the evolution of that effect throughout the course of the pandemic, has yet to be explored. Our methodological strategy draws on existing general best practices for the analysis of panel data and interactive effects (Brambor, Clark, and Golder 2006; Hainmueller, Mummolo, and Xu 2019; Finkel 1995). The purpose of this project is to analyze

the effect of baseline religious and political characteristics, as measured at the start of the study, on individual adoption of mitigation protocols throughout the course of the pandemic as measured on each subsequent survey wave.

2. Summary of Data

2.1 Panel Study Overview

The panel study, which was conducted by the YouGov survey research firm, contains six waves and was fielded from March 2020 through March 2021 at regular intervals. The sample for the survey was drawn from YouGov's existing panel of survey respondents. Respondents were invited to the panel to complete the survey based on a preexisting sample frame. The sampling frame is constructed by YouGov to match the demographic characteristics of the most recent American Communities Survey as well as voter registration and turnout. Yougov then employs a post-stratification strategy that matches the included respondents to the sample frame and uses propensity scores for final inclusion in the frame. There is no replacement in the panel. Wave 6 of the panel includes a new cross-sectional sample. The primary purpose of the panel design, as relevant to this study, is to measure within-subject variation in the adoption of covid mitigation protocols throughout the pandemic and the effect of early, or baseline, religious and political identities and behaviors on protocol adoption.

2.2 General Description of Survey Variables

The panel study includes a wide range of demographic and attitudinal questions. The survey also includes questions related to the covid pandemic. These include an individual's direct experience with covid (e.g. a family member contracting covid), general perceptions of the covid

pandemic (e.g. thought that the pandemic is overblown), covid-related behavior (e.g. adopting mitigation protocols or altering behavior), and individual thoughts about potential mitigation strategies (e.g. banning travel). The survey also asked a host of demographic, political, and economic questions. These include standard questions (e.g. political partisan identity, occupation, race/ethnicity, health status), and questions that tap the intersection of the characteristics and covid (e.g. covid employment restrictions and economic impact, political institutions and responsibility for covid). Many survey questions are asked on each wave of the survey. Others are asked on only one wave or a few waves. For the purposes of this study, we focus on the questions related to individual covid mitigation behaviors, political identity, ideology, and vote choice, and religious tradition and behaviors.

2.3 Detailed Description of variables included in the current study

Covid mitigation behaviors

The survey asks a set of ten questions about specific activities respondents may have taken to reduce the spread of covid to themselves and others. Responses were given on a dichotomous scale (have/have not adopted the practice). These questions were asked on each wave of the survey (except the question about whether an individual stopped attending religious services, which was not asked on the first wave).

These activities are:

- Washing hands more often
- Bought hand sanitizer
- Gone to the doctor
- Altered travel plans
- Avoided physical contact
- Avoided large gatherings
- Looked for information about the Coronavirus

- Self-quarantined
- Worn mask in public
- Stopped attending religious services

Political Variables

The study uses three variables to capture political factors:

- Political partisanship (7-point scale, as measured on wave 1)
- Political ideology (5-point scale, as measured on wave 1)
- Trump support

For political partisanship and political ideology, the current study will use the baseline measures of each variable asked on wave 1 as categorical variables. Partisanship will be scaled as the standard 7-point scale with 5-point and 3-point scales as robustness checks. Trump support is measured in four ways. The first wave of the survey asks about presidential vote choice in 2016 and waves 1-5 ask about potential 2020 vote choice and wave 6 actual 2020 vote choice. We also combine these two measures to make 2 change variables to capture if respondents changed to or away from Trump from 2016 to 2020.

Religious Tradition

The survey uses the Pew strategy to capture a respondent's religious tradition. The initial categories are:

1. Protestant
2. Roman Catholic
3. Mormon
4. Greek Orthodox
5. Jewish
6. Muslim
7. Buddhist
8. Hindu
9. Atheist
10. Agnostic
11. Nothing in particular

12. Something else

Respondents are also asked whether they identify as "born-again or evangelical Christian". The current study identifies three additional subgroups following the standard practice: white evangelical Protestants, mainline Protestants, and black Protestants. White evangelicals are respondents who answered "Protestant" or "Something else", indicate that they identify as born-again or evangelical Christian, and identify as white on a separate question about racial/ethnic background. White Mainline Protestants identify as Protestants but not as born-again or evangelical Christian. Black Protestants identify as Protestant and black on a separate question about racial/ethnic background.

Religious Beliefs and Practices

The survey also asks standard Pew questions to capture religious beliefs and practices:

- Importance of religion (4-point scale)
- Frequency of prayer
- Frequency of church attendance

For all religion variables (religious tradition and religious beliefs and practices), the study will use the baseline measures captured on wave 1.

Demographic and Control Variables

The study will also use the following relevant demographic variables:

- Age
- Gender
- Race/Ethnicity
- Income
- Education
- Marital status
- Employment status (unemployed or not)
- State of residence

- Urban/rural county

Covid Context

To control for the changing landscape related to the spread of covid, the current study uses county-level measures of covid cases and deaths relative to the 14 days prior to the first day of each survey wave.

- County-level covid rates (at each wave of the survey)
- Growth in total cases and growth in total deaths (both raw and per capita relative to the fourteen days prior to the first day of each survey wave)

3. Methodology

The quantity of interest in the current study is the interactive effect of religious and political variables on individual adoption of covid mitigation protocols. First, we will estimate a baseline model on the pooled data for all waves as follows:

$$y_i = \alpha\mathbf{Political}_{i,t=1} + \eta\mathbf{Religion}_{i,t=1} + \beta(\mathbf{Political}_{i,t=1} \times \mathbf{Religion}_{i,t=1}) + \boldsymbol{\gamma}\mathbf{X}_{i,t=1} + \boldsymbol{\delta}\mathbf{Z}_{it} + \mathbf{Wave}_t + \varrho_i + \varepsilon_{it}$$

Where $\alpha\mathbf{Political}_{i,t=1}$ is a set of elements that capture the three political elements and $\eta\mathbf{Religion}_{i,t=1}$ is a set of religious elements outlined above as measured on the first wave of the survey. Individual elements will be estimated as pairwise (e.g. including only Partisanship×church attendance) and complete including each of the elements in the same model. The effects of demographic factors and in $\boldsymbol{\gamma}\mathbf{X}_{i,t=1}$. The county-level covid rates are captured in $\boldsymbol{\delta}\mathbf{Z}_{it}$. The baseline model includes fixed effects for survey wave captured by $\mathbf{Wave}_t$. The model will estimate the interactive effect on each covid mitigation protocol individually (y_i). As a robustness check, we will also estimate the model on an additive scale of mitigation protocols with and without the mitigation question that asks about religious service attendance.

To capture the evolution of the relationship between religion and politics across the time period covered by the survey, the current study will also estimate the interactive effect outlined above for each panel wave as follows:

$$y_{it} = \alpha \mathbf{Political}_{i,t=1} \times \mathbf{Wave}_t + \eta \mathbf{Religion}_{i,t=1} \times \mathbf{Wave}_t + \beta(\mathbf{Political}_{i,t=1} \times \mathbf{Religion}_{i,t=1}) \times \mathbf{Wave}_t + \boldsymbol{\gamma} \mathbf{X}_{i,t=1} \times \mathbf{Wave}_t + \boldsymbol{\delta} \mathbf{Z}_{it} + \varrho_i + \varepsilon_{it}$$

This strategy allows us to capture changes in the interactive effect across survey waves while not assuming any particular relationship (e.g. linear) between the interactive effect and time. We also interact $\boldsymbol{\gamma} \mathbf{X}_{i,t=1}$ with each survey wave to allow demographic effects to vary across survey waves.

In addition we estimate the independent (non-interactive) effect of the religion variables on adoption of covid protocols with and without inclusion of the political variables in the model:

$$y_i = \eta \mathbf{Religion}_{i,t=1} + \boldsymbol{\gamma} \mathbf{X}_{i,t=1} + \boldsymbol{\delta} \mathbf{Z}_{it} + \mathbf{Wave}_t + \varrho_i + \varepsilon_{it}$$

and

$$y_i = \alpha \mathbf{Political}_{i,t=1} + \eta \mathbf{Religion}_{i,t=1} + \boldsymbol{\gamma} \mathbf{X}_{i,t=1} + \boldsymbol{\delta} \mathbf{Z}_{it} + \mathbf{Wave}_t + \varrho_i + \varepsilon_{it}$$

4. Evaluation Framework

The results from the models outlined above will be interpreted using standard practices for interpretation of interactions in the context of linear models of panel data (see Brambor, Clark, and Golder 2006; Hainmueller, Mummolo, and Xu 2019; Finkel 1995). Specifically, as our models contain interactions of categorical indicators, we will rely on estimations and plots of marginal effects and standard errors at each level for our primary interaction of interest and apply that framework to the pooled model and the model that contains an interaction for each survey wave. Statistical significance will be judged using the standard .05 level.

5. Updates and References

This plan was originally uploaded April 2022. We will use this space to update the plan as necessary and report any changes or additions to the original plan. If we make any changes to this document after uploading it, those changes will be specifically noted and justified.

Brambor, Thomas, William Roberts Clark, and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 14 (1): 63–82.

Gadarian, Shana Kushner, Sara Wallace Goodman, and Thomas B. Pepinsky. 2021. "Partisanship, Health Behavior, and Policy Attitudes in the Early Stages of the COVID-19 Pandemic." *PLOS ONE* 16 (4): e0249596.

Hainmueller, Jens, Jonathan Mummolo, and Yiqing Xu. 2019. "How Much Should We Trust Estimates from Multiplicative Interaction Models? Simple Tools to Improve Empirical Practice." *Political Analysis* 27 (2): 163–92.

Perry, Samuel L, Andrew L Whitehead, and Joshua B Grubbs. 2021. "Save the Economy, Liberty, and Yourself: Christian Nationalism and Americans' Views on Government COVID-19 Restrictions." *Sociology of Religion* 82 (4): 426–46.

Smothers, Hannah, Ryan Burge, and Paul Djupe. 2020. "The Gendered Religious Response to State Action on the Coronavirus Pandemic." *Politics & Gender* 16 (4): 1063–74.

Whitehead, Andrew L., and Samuel L. Perry. 2020. "How Culture Wars Delay Herd Immunity: Christian Nationalism and Anti-Vaccine Attitudes." *Socius* 6: 2378023120977727.