Can correlation between Governor's party and COVID-19 morbidity be explained by the differences in COVID-19 mitigation policies in the states?

Olga Shvetsova, Ph.D, Political Science and Economics, Harpur College, Binghamton University, Binghamton, NY
Andrei Zhirnov, Ph.D., College of Social Sciences and International Studies, University of Exeter, Exeter, UK
Frank Giannelli, Ph.D., School of Health Professions, Rutgers the State University of New Jersey, Newark, NJ
Michael Catalano, M.A. Political Science, Harpur College, Binghamton University, Binghamton, NY
Olivia Catalano, M.S., independent researcher

Drs. Dupont, Chirumamilla, and Paras posed questions about our recent research brief "Governor's Party, Policies, and COVID 19 Outcomes: Further Evidence of an Effect" which we are happy to answer here.[1]

Dupont et al. raise the concern that our findings do not establish causality. We would like there to be no confusion: as explicitly stated in our original paper, we do not make a causal claim but rather test hypotheses (what the letter calls "an a priori conclusion"). Building on Neelon et al.'s findings of a correlation between Governor's party and COVID-19 morbidity and mortality,[2] we hypothesized that at least a part of this correlation can be explained by the differences in COVID-19 mitigation policies made at the state level. To test this, we conducted an observational study, as an experimental design is neither feasible nor ethical in the study of health policies. To be specific, the analysis included two parts. We quantified the association between policy stringency and the rate of state's infection spread and, separately, compared policy stringencies achieved in republican and democrat-led states. The brief reports the model-implied difference in the rate of COVID-19 spread that corresponds to the average policy difference.

The letter also inquires about our measure of case counts. As cited in our research brief, the data source is the Centers for Disease Control and Prevention (reference 8 in the original work). We published the code and data to further facilitate the replication of our analyses.[3]

Our measure of mitigation policy stringency, the Protective Policy Index, is constructed for a global sub-national sample entirely from the COVID-19 policies that carry behavioral public health mandates for the populations and captures the level of policy effort by political incumbents to reduce the spread of infection. This effort, policy stringency, substantially varied across American states. The authors of the brief are among the authors of the dataset, as cited in the brief. As the pandemic started less than two years ago, this index is indeed relatively new.

40   Our first peer-reviewed publications based on the data in the first wave of this dataset were in
41   July and September 2020.[4,5] The data has been referenced or used by scholars other than
42   ourselves in over 20 studies with peer reviewed publications in public health, public policy, and
43   social sciences.

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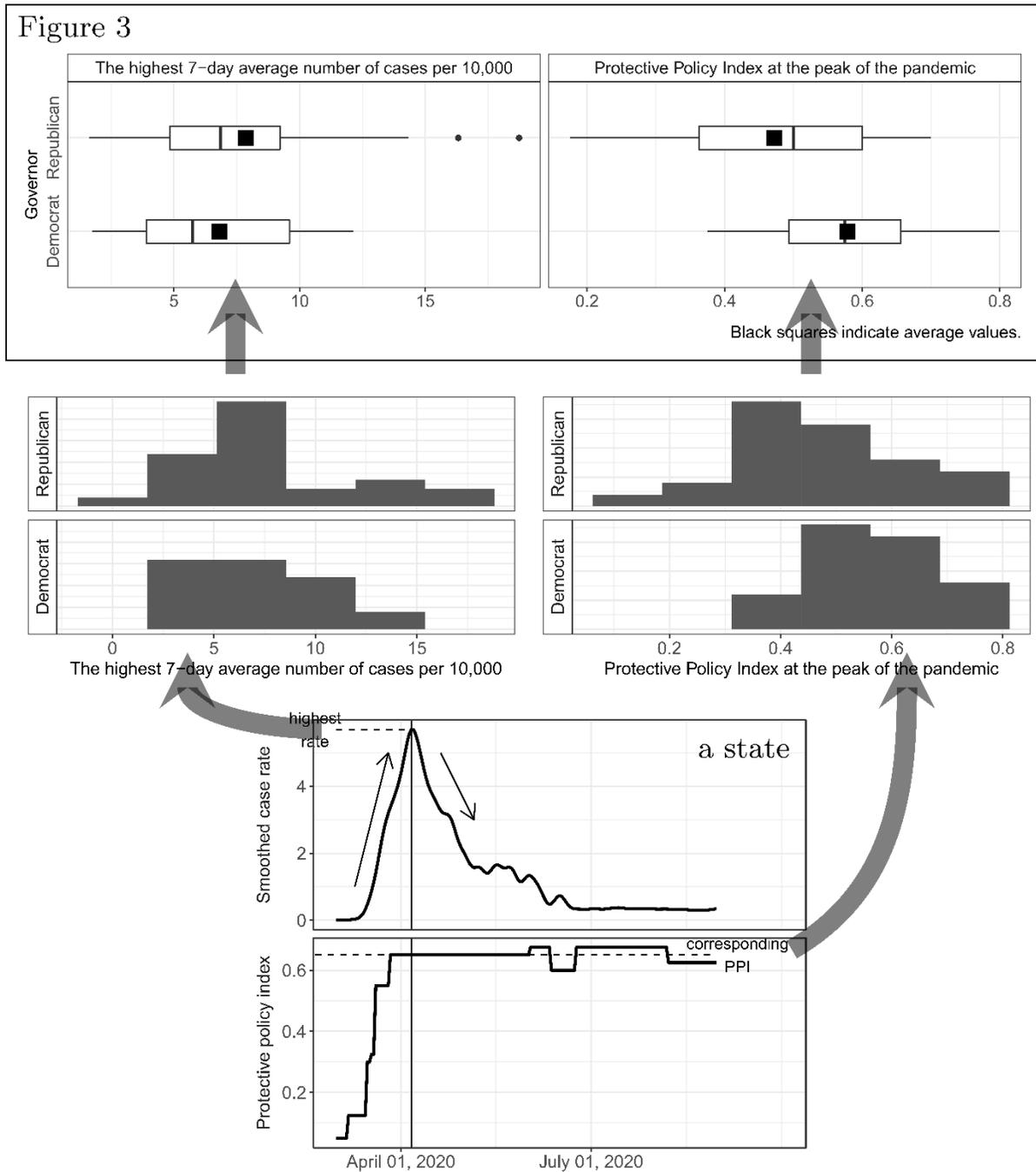
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46   Figure 1. The construction of Figure 3

Regarding Figure 3, we are happy to offer more detail. The figure presents stringency of policies at pandemic peaks which occurred at different times in different states. Such stringency illustrates a government's choice of mitigation effort in the direst situation. We used box plots to show the distributions of these peak stringencies conditional on governor's party.

We hope these clarifications help and would be glad to continue the discussion in greater depth. Our goals are full transparency and replicability and to start, rather than close, a conversation on the political and institutional determinants of public health outcomes in the pandemic.

Sincerely,

Olga Shvetsova, PhD, Andrei Zhirnov, PhD, Frank Giannelli, PhD, PA-C, Michael Catalano, MA, and Olivia Catalano, MHA

References

1. Shvetsova O, Zhirnov A, Giannelli FR, Catalano MA, Catalano O. Governor's party, policies, and COVID-19 outcomes: Further evidence of an effect [published online ahead of print, 2021 Oct 11]. *Am J Prev Med*. 2021; S0749-3797(21)00506-7. https://doi.org/10.1016/j.amepre.2021.09.003

2. Neelon B, Mutiso F, Mueller NT, Pearce JL, Benjamin-Neelon SE. Associations between governor political affiliation and COVID-19 cases, deaths, and testing in the U.S. *Am J Prev Med.* 2021; (61): 115-119. https://doi.org/10.1016/j.amepre.2021.01.034

3. Shvetsova O, Zhirnov A, Giannelli FR, Catalano MA, Catalano O. Replication materials for "Governor's Party, Policies, and COVID-19 Outcomes". https://github.com/andreizhirnov/governors-PPI-cases. doi: 10.5281/zenodo.5781342

4. Adeel AB, Catalano M, Catalano O, Gibson G, Muftuoglu E, Riggs T, Sezgin MH, Shvetsova O, Tahir N, VanDusky-Allen J, Zhao T. COVID-19 policy response and the rise of the sub-national governments. *Canadian Public Policy.* 2020 Dec 1;46(4):565-84. https://doi.org/10.3138/cpp.2020-101

5. Shvetsova O, Zhirnov A, VanDusky-Allen J, Adeel AB, Catalano MA, Catalano O, Giannelli FR, Muftuoglu E, Riggs T, Sezgin MH, Tahir N, and Zhao T. Institutional origins of protective COVID-19 public health policy responses: Informational and authority redundancies and policy stringency. *Journal of Political Institutions and Political Economy*. 2020; 1(4): 585-613. http://dx.doi.org/10.1561/113.00000023