

**Drivers of COVID-19 Stay at Home Orders:
Epidemiologic, Economic, or Political Concerns?**

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Abstract

What factors affected whether or not a U.S. state governor issued a state-wide stay-at-home order in response to the COVID-19 pandemic of early 2020? Once issued, what factors affected the length of this stay-at-home order? Using duration analysis, we test a number of epidemiological, economic, and political factors for their impact on a state governor's decision to ultimately issue, and then terminate, blanket stay-at-home orders across the 50 U.S. states. Results indicate that while epidemiologic and economic variables had some impact on the delay to initiation and length of the stay-at-home orders, political factors dominated both the initiation and ultimate duration of stay-at-home orders across the United States.

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Introduction

Beginning in mid-March, 2020, the majority of governors in states across the U.S. began issuing stay-at-home orders due to the suddenly escalating COVID-19 pandemic. The start and end dates of these orders varied, however, with some states (eight in all) never issuing blanket orders at all.¹ What explains the timing of these orders, including their wide variability?

There is an assumed tradeoff embodied in the issuing of a stay-at-home order. Its primary intent is to protect lives and reduce peak infection rates (i.e. “flattening the curve”), but it invariably comes with the tradeoff of reduced short-run economic activity.² A governor is presumably concerned with both. In the U.S., which concern dominated in influencing the timing of both issuing, and then ending, these stay at home orders?

We explore two hypotheses: first, that the variation in policy response was driven by various epidemiological and economic factors, including population density, age of citizenry, and degree of economic activity. Alternatively, we explore the possibility that the stay at home orders were driven less by any sort of epidemiologic-economic tradeoff, but instead by politics, or ideology, with factors including governor’s party and percent of the state voting for Trump in 2016 affecting the time to response in issuing, and later lifting, the stay-at-home orders. Of course,

¹ Some, like Oklahoma, had orders issued by mayors at the city level, while others, like Arkansas, issued alternative executive orders related to COVID-19.

² Whether or not a state stay-at-home-order actually flattens the epidemiological curve of infection rates is a matter for empirical verification, as a helpful reviewer pointed out. Given that states and counties had varying levels of initial infection rates, and that citizens had varying levels of compliance with any order, a statistically significant flattening of the curve should not be assumed from any particular stay-at-home order. Still, the decision to order one was characterized in the public debate, and by most governor’s themselves (who were the decision-makers), as stemming from an assumed effort to reduce infection rates going forward.

both sets of variables could have some effect on response time and duration of orders, but it would be useful to know if a certain set of factors mattered more, in more places, as that could inform future policy responses to the ongoing COVID-19 pandemic, as well as to predict policy responses to similar health crises in the future.

Further, as researchers seek answers about the impact of policy responses on the eventual numbers of cases and deaths, selection and timing of policy responses are likely to be important factors in eventual mortality rates. One recent study (Pei et al., 2020) found that if stay-at-home orders had been issued just one week earlier, as much as 55% of the subsequent coronavirus-related reported deaths could have been avoided, although if the timing of response orders is endogenous, the modeling and these results would need to be refined. There is also some concern that lack of compliance with any stay-at-home-order reduced its effectiveness, so the ultimate impact of any stay-at-home-order on infection and mortality rates would need empirical verification. This paper provides background on the overall issue.

Literature Review

COVID-19 arrived with startling speed at the beginning of 2020, but with similarly quick response times, the academic community began to study it. Two benefit-cost analyses came out in March, 2020 (Thunstrom, et al., 2020; Greenstone and Nigam, 2020) investigating the benefits versus the costs of social distancing. Both of these studies concluded that the benefits to social distancing (and thus the utility to issuing state-wide stay-at-home orders) far outweighed the

costs³, however the calculation didn't appear as straightforward to governors who had to weigh protecting citizens' health (where most of the benefits in the benefit-cost analyses were calculated to have come from), with economic activity, including job losses and business bankruptcies.

Another academic study also came out quickly in March (Adoph et al., 2020), which analyzed five types of state-wide policy responses to the pandemic from school closures to stay-at-home orders. The main conclusion was that political variables were the primary drivers of all types of state-wide policy responses. Other variables were investigated, but it was the ideological variables that dominated.

This result that politics and political factors dominated policy and public responses to the pandemic is echoed in many other recent studies as well, including Allcott et al. (2020), Barrios and Hochberg (2020), Bursztyn et al. (2020), Gadarian et al. (2020), Makridis and Rothwell (2020), and Painter and Qiu (2020).

The Federal Reserve Bank of St. Louis (Faria e Castro, 2020), also came out with a COVID-19 related study in March of 2020, investigating policy response options at the fiscal policy level, and La et al. (2020) provided one of the first country-wide policy response comparison studies. Various aspects of COVID-19 continue to be investigated by academics from numerous

³ While both studies concluded that there were strong net benefits to social distancing, one study (Greenstone and Nigam, 2020) found heterogeneity in the benefits related to age cohorts.

disciplines,⁴ but perhaps some of the most relevant work to the question posed in this paper, appeared before COVID-19 hit.

One such study (Clay et al., 2019) investigated the 1918 influenza pandemic and factors related to the variation in mortality across U.S. cities. Factors that turned out to be important included pre-pandemic levels of air pollution, and pre-pandemic poverty rates. The analysis is incomplete, however, as the authors themselves note that one thing not modeled, but which likely made a difference, is the policy response to the pandemic by local governments. Indeed, St. Louis is widely touted as an example of a city that reacted to the 1918 influenza in such a way as to significantly improve the mortality rates it experienced, as compared to other U.S. cities whose policy responses were lacking (CDC, 2020).

Baekkeskov (2016) investigated the 2009 H1N1 pandemic, and specifically, federal-level government responses to it. The paper is narrative, as opposed to empirical, but in interviewing policy experts and comparing responses across European governments, the author found that policy drivers had a significant effect on a country's response to a pandemic. Baekkeskov (2016) hypothesized a science-driven versus ideology-driven dichotomy in the impetus for government policy responses, and found that in the H1N1 example, at least, the evidence "best supports" the idea that ideology was more of a driver than, as they put it, the Science-Led Policy-Making Model (SLP).

⁴ See the EEA Registry of COVID-19 Economic Outcome Research Projects at: <https://www.eeassoc.org/index.php?site=JEEA&page=298&trsz=299>

Given such previous evidence for the importance of ideology in government policy responses, this paper tests not just the obvious epidemiological-economic tradeoff to issuing (and then lifting) state-wide stay-at-home orders, but also the importance of ideological drivers. Our hypotheses, then, ask what were the main drivers of U.S. policy responses at the state level to the COVID-19 pandemic: epidemiological and economic factors, or ideology?

Methodology & Data

A simplified theoretical model for the policy decision can be modeled as an epidemiological-based versus economic-based tradeoff,⁵ where the slope of any given state's production possibilities frontier is determined by various epidemiological factors including infection rates and composition of the population, and economic factors related to manufacturing and overall economic activity. Where along the production possibilities frontier a policy point is ultimately chosen is determined by state-based preference functions which are hypothesized to be affected by ideological factors.⁶

⁵ Various economic studies (Thunstrom, et al., 2020; Greenstone and Nigam, 2020) find that the in the *long-run* there may not be a tradeoff between economic activity and controlling peak infection rates as the higher the infection rates, the less people go out and engage in economic activity, but there is at least an immediate *short-run* tradeoff between closing down the economy and controlling coronavirus infection rates. Given the timing of the pandemic in a presidential election year, short run impacts are likely to be important to elected officials in positions to issue stay-at-home orders.

⁶ Note that in other countries, factors related to the decision makers themselves have also been found to be important. Ongoing research by academics in the U.S. and Sweden (Taub, 2020) found that gender of the decision maker appears to be an influential variable in pandemic-related decision making, though not in the U.S. We tested gender in our regressions, and found as well that it did not have a significant effect on U.S. state-wide decision-making, so it is not included in the final results in Table 3.

We use data from a variety of sources to construct a cross-sectional dataset with variables related to each of the fifty U.S. states (see Table 1). Our two dependent variables are: “Stay-at-home Order” and “Length of Stay-at-home Order” (see Table 2 and Figure 2). Stay-at-home-Order is a count variable of the number of days from March 1 until a governor issued a state-wide stay-at-home order.⁷ Length of Stay-at-home Order is also a count variable, and it measures the length in days of the state-wide stay at home order from its initiation until the day it began to be lifted.⁸

The independent variables can be categorized into three groups related to our hypotheses: epidemiological variables (Percent of Population Aged 65+, Population Density, Percent of Population identifying as African American, State Poverty Rate, Excess Death Rate in 2020 from All Causes, and COVID-19 Death Rate), economic-related variables (State GDP per capita, 2019 Economic Growth, Industrial MWh per Total MWh, the Increase in the State’s Unemployment Rate from January to April 2020, and Percent of Residents with a Baccalaureate Degree), and political variables (Percent Urban Population, a Medicaid Expansion dummy variable, Percent Trump Vote in 2016, a Democratic Governor dummy variable, and the state’s Number of Electoral Votes).

The epidemiologic variables describe a state’s vulnerability to the spread of infectious disease and potential for resulting mortality from COVID-19. Percent of Population Aged 65+ is the percentage of each state’s population that is age 65 or older. It comes from the Census Bureau’s

⁷ Use of March 1 is somewhat arbitrary here, and we could have used other dates such as February 26, the date of (at the time) the first known death in the U.S. due to COVID-19, or other such dates, but it is all just a scaling factor.

⁸ Many states lifted their stay-at-home orders in stages, rather than all at once, and so the date used for ENDSAHO coincides with the first date any significant portion of the blanket order was lifted.

American Community Survey data from 2019.⁹ It was recognized early on that COVID-19 had a disparate effect on older segments of the population. Data on state population density come from the “Percent Urban and Rural in 2010 by State” table at the U.S. Census 2010 Census Urban and Rural Classification and Urban Area Criteria website.¹⁰ The more dense a population, the easier it is for any virus to spread, including the coronavirus.¹¹ Data on the racial and ethnic composition of state populations come from the Kaiser Family Foundation and are based on American Community Survey data from 2018.¹² Early in the pandemic the disparate effect of the coronavirus on the African American population was not immediately apparent, and we discuss the implications of this in the results section. State poverty rates are two-year averages over 2017-18 from the U.S. Census Bureau.¹³ Poverty rates are included as they impact the capacity for social distancing and separation from infected or potentially infected individuals.

Data on the number of excess deaths over the period being examined come from the CDC.¹⁴ We include both overall excess death rates from all causes and excess deaths not attributed to non-COVID-19 causes, and use the CDC’s weighted values to correct for reporting lags. Both overall excess death rates and death rates from causes not attributed to non-COVID-19 causes are included to allow for the possibility that while attribution of a death to COVID-19 for a person with multiple co-morbidities may be somewhat arbitrary, calculation of overall death

⁹ <https://www.census.gov/data/tables/time-series/demo/popest/2010s-national-detail.html> Analysis was also done with the percentage of the population aged 75+, but this did not significantly change the results.

¹⁰ <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html>

¹¹ Density is a more justified epidemiologic variable to use than simply population as it isn’t just the number of people in a state that matters for virus spread, but how close they are together.

¹² <https://www.kff.org/other/state-indicator/distribution-by-raceethnicity/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>

¹³ <https://www.census.gov/data/tables/2019/demo/income-poverty/p60-266.html>

¹⁴ https://www.cdc.gov/nchs/nvss/vsrr/covid19/excess_deaths.htm#data-tables

rates is not. (Pappas, 2020) A state's experience with excess mortality might be expected to impact the length of its stay-at-home orders.

The first state-wide economic variable is State GDP per capita, and comes from the Bureau of Economic Analysis from the third quarter of 2019.¹⁵ Next is the 2019 State-level economic growth rate, which is from the U.S. Bureau of Economic Analysis.¹⁶ GDP per capita and 2019 growth rates reflect the general economic robustness of the state's economy, and if preventive measures against the spread of COVID are normal goods, may impact the timing or duration of stay-at-home orders. Industrial MWh per Total MWh is the megawatt hours of industrial electricity use per state, divided by total electrical consumption to yield industrial electricity as a percentage of the state's total electricity use. This serves as a proxy for the portion of the state's GDP represented by the industrial sector.¹⁷ Industrial or manufacturing sectors may have been differently impacted by COVID than other sectors of the economy and those states with larger or smaller industrial sectors could face differing costs of social distancing. Unemployment rates come from U.S. Bureau of Labor Statistics. State economies that were more heavily impacted by COVID and subsequent policy responses - as evidenced by the increase in unemployment from January to April of 2020 - may have been under greater economic pressure to reopen, potentially shortening stay-at-home orders. Finally, data on baccalaureate degrees in the state come from the National Center for Higher Education Management Systems website¹⁸ and give the percent of the population aged 25-64 who have earned a bachelor's degree or higher, based on American Community Survey data from 2018.

¹⁵ https://www.bea.gov/system/files/2020-01/qgdpstate0120_2.pdf

¹⁶ <https://www.bea.gov/news/2020/gross-domestic-product-state-1st-quarter-2020>

¹⁷ <https://www.EIA.gov> is "Sales to Ultimate Customers (Megawatthours) by State by Sector by Provider, 1990-2018"

¹⁸ <http://www.higheredinfo.org/gyod/>

The first four political variables are all indicators for ideology. Percent Urban measures the percentage of each state’s population that lives in urban areas and comes from the “Percent Urban and Rural in 2010 by State” table at the U.S. Census 2010 Census Urban and Rural Classification and Urban Area Criteria website.¹⁹ Data on implementation of expansion of Medicaid coverage under the Affordable Care Act came from the Kaiser Family Foundation.²⁰ Data on the percentage of the state popular vote that went to President Trump in the 2016 presidential election came from the World Population Review.²¹ Finally, party affiliation of governors are from the website 270 to Win.²² The last political variable, State Electoral Votes, is an indicator of the importance of a state in U.S. federal elections.²³

Econometrics

We conducted duration (also called survival) analyses to model the delay from March 1 to initiation of the stay-at-home order, and then the length of the stay-at-home order. The data were analyzed in Stata (version 16.0) with a Weibull distribution ($\lambda(t) = \exp(\beta x)\alpha t^{\alpha-1}$) to allow flexibility in the direction of the duration dependence, positive or negative.²⁴

¹⁹ <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural/2010-urban-rural.html>

²⁰ <https://www.kff.org/medicaid/issue-brief/status-of-state-medicaid-expansion-decisions-interactive-map/>

²¹ <https://worldpopulationreview.com/states/2016-election-results-by-state/>

²² and <https://www.270towin.com/2020-governor-election/>

²³ Other similar variables were tested, including a dummy variable on whether or not a state was considered a battleground state in the upcoming 2020 presidential election, and simply state population - which has a correlation with State Electoral Votes of 0.9996.

²⁴ If α turns out to be less (greater) than one, then there is negative (positive) duration dependence.

In each case, an unrestricted model with the political, scientific and economic variables was estimated. Results from these estimations are in Table 3.

Duration model results for delay from March 1 are shown in the first column of Table 3. The model shown excludes the variable on race, as knowledge of COVID-19's differential impact on African Americans was not well-known early in the pandemic. Indeed, the poverty rate variable holds more explanatory power here than percentage of the population that is African American.²⁵

The most important result from the model in column 1 is that political factors seem to be the primary determinants of when the stay-at-home order was issued. Results suggest that states with Democratic governors initiated orders sooner, while states that voted more heavily for President Trump initiated orders later, if at all. Not all of the political variables turned out to be significant, but those that did, especially the political party of the governor making the stay-at-home order decision, were strongly significant. A joint test of the political variables (noted at the bottom of Table 3) rejected the null hypothesis that they had no explanatory power with a p-value of less than 0.001.

A second conclusion from this first model (column one of Table 3) is that while the epidemiologic variables, as a group, had a slightly significant impact (at the 10% level) on the timing of the stay-at-home orders, this impact was not as strongly significant as that of the political variables. States with higher poverty rates were faster to issue stay-at-home orders,

²⁵ The model presented in the first column is representative of the results from numerous models, some that did include race. Results from all models are available from the authors upon request.

however, other individual epidemiological variables did not have much explanatory power, and the economic variables were wholly statistically insignificant.

Turning to the final columns of Table 3, we investigate the determinants of the length of the stay-at-home orders. As with the previous model, political factors were everywhere strongly collectively significant (as can be seen in the joint tests at the bottom of the table). In particular, states with Democratic governors had significantly longer stay-at-home orders. In addition, the length of stay-at-home orders seems to have been related to a state's electoral weight, with larger states having significantly, or nearly significantly, shorter orders. We can only speculate as to the reason for this relationship between electoral votes and length of stay-at-home, but in advance of the 2020 presidential election it may have been that states with more electoral votes were under greater pressure to reopen. Unlike the delay to initiation, the length of stay-at-home orders seems not to have been impacted by a state's support for President Trump in 2016. Overall, in all four models, a joint test of the political variables rejected the null hypothesis that they had no explanatory power with p-values between 0.01 and 0.02.

In a more significant break with the results on delay, the length of stay-at-home orders was also impacted by some economic factors. Longstanding economic conditions in the state, including state level GDP and the state's reliance on manufacturing lead to longer stay-at-home orders. This suggests that sheltering at home is something of a normal good in the face of a pandemic. By contrast, a state's increase in unemployment from January to April had no significant impact on the duration of the stay-at-home orders. Jointly, the economic variables demonstrated statistical significance similar to that of the political variables in these models.

Neither a state's vulnerability to the pandemic nor its excess mortality seem to have impacted the length of the stay-at-home orders, however. None of the epidemiological variables had significant estimated coefficients. Both overall excess mortality from all causes and mortality not attributed to non-COVID-19 in March and April were examined, but neither yielded significant estimated coefficients. The joint tests as well show that, as a group, the epidemiological variables did not have a significant impact on the length of the stay-at-home orders.

To summarize, political variables were significant in the decision-making for both the initiation, and the lifting of the stay-at-home orders. Epidemiologic factors appear to have played a role in the delay to initiation of stay at home orders, but economic variables came to matter more by the time decisions were being made as to the lifting of those orders.

In terms of the theoretical model posited earlier in this paper, it seems that states either were not maximizing utility as expressed in terms of short run economic growth and reduced mortality or that states had varying preferences as expressed by their underlying political tendencies.

Conclusions

While previous studies (Adolph et al., 2020; Allcott et al, 2020; Makridis and Rothwell, 2020; Baekkeskov, 2016) found that ideology dominates in policy decision making related to

pandemics, we find a more nuanced result that ideology can certainly dominate (and in this case it did by size and consistency of significance of a governor's party affiliation, in particular), but that scientific and economic factors may find their way into these policy decisions related to initiation and lifting of stay-at-home orders as well. One area of useful future research would be to study the shift in focus we found over time, from a clear reliance on political variables and disregard of economic factors, to an increasing concern with economics by the time of the lifting of the stay-at-home orders. Another future research agenda would be to conduct similar studies to this one, but in other countries, to see how important ideology is across the world in pandemic-related policy decision-making. Relating all of these results to subsequent mortality rates would help inform the debate on policy decision-making going forward.

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Table 1: Summary Statistics by State – Mean and Standard Deviation

		All States n=50	No Stay At Home Order n=8	Stay at Home Order n=42
Dependent Variables:	Stay-at-home Order Delay from March 1	31.88 13.14	60.00 0.00	26.52 4.75
	Length of Stay-at-home Order	35.74 18.57	0.00 0.00	42.55 10.74
Epidemiologic Variables:	Pct. of Population Aged 65+	0.17 0.02	0.16 0.02	0.17 0.02
	State Population Density	199.66 264.22	32.45 22.20	231.51 277.23
	African American Pct. Of Population	0.10 0.09	0.04 0.05	0.11 0.10
	Poverty Rate	11.75 2.85	11.06 2.45	11.88 2.93
	March-April Excess Death rate from all Causes	23.85 34.07	6.65 3.09	27.12 36.29
	March-April Not Non-COVID Death Rate	15.70 25.21	2.32 1.07	18.25 26.79
	State GDP per capita	61880 11605	61440 9532	61964 12059
	Economic Growth Rate in 2019	2.09 0.93	1.98 1.20	2.11 0.88
Economic Variables:	Industrial MwH per Total MwH	0.28 0.11	0.38 0.12	0.26 0.10
	Unemployment Rate Increase: Jan to April 2020	9.98 3.78	6.95 1.57	10.56 3.81
	Pct. Residents with a Bach Degree	32.77 5.73	30.10 3.99	33.28 5.90
	Pct. Urban Population	73.58 14.56	66.43 11.22	74.94 14.84
Political Variables:	Medicaid Expansion	0.70 0.46	0.50 0.53	0.74 0.45
	Pct. Trump Vote in 2016	49.24 10.22	59.15 7.35	47.35 9.63
	Democratic Governor	0.48 0.50	0.00 0.00	0.57 0.50
	State Electoral Votes	10.70 9.72	4.87 1.64	11.81 10.23

Table 2: Initiation, End and Length of Stay at Home Orders (SAHO), by State and Governor’s Party

State	Initiation of SAHO	End of SAHO	Initiation Delay from March 1	Length of SAHO	Governor's Party
California	19-Mar	4-May	18	46	D
Illinois	21-Mar	1-May	20	41	D
New Jersey	21-Mar	15-May	20	55	D
New York	22-Mar	15-May	21	54	D
Connecticut	23-Mar	20-May	22	58	D
Louisiana	23-Mar	15-May	22	53	D
Ohio	23-Mar	4-May	22	42	R
Oregon	23-Mar	15-May	22	53	D
Washington	23-Mar	31-May	22	69	D
Delaware	24-Mar	15-May	23	52	D
Indiana	24-Mar	1-May	23	38	R
Massachusetts	24-Mar	18-May	23	55	R
Michigan	24-Mar	11-May	23	48	D
New Mexico	24-Mar	16-May	23	53	D
West Virginia	24-Mar	4-May	23	41	R
Hawaii	25-Mar	7-May	24	43	D
Idaho	25-Mar	1-May	24	37	R
Vermont	25-Mar	6-May	24	42	R
Wisconsin	25-Mar	18-May	24	54	D
Colorado	26-Mar	27-May	25	62	D
Kentucky	26-Mar	11-May	25	46	D
Minnesota	27-Mar	18-May	26	52	D
New Hampshire	27-Mar	11-May	26	45	R
Alaska	28-Mar	24-Apr	27	27	R
Montana	28-Mar	26-Apr	27	29	D
Rhode Island	28-Mar	9-May	27	42	D
Kansas	30-Mar	4-May	29	35	D
Maryland	30-Mar	15-May	29	46	R
North Carolina	30-Mar	8-May	29	39	D
Virginia	30-Mar	14-May	29	45	D
Arizona	31-Mar	8-May	30	38	R
Tennessee	31-Mar	6-May	30	36	R
Nevada	1-Apr	9-May	31	38	D
Pennsylvania	1-Apr	8-May	31	37	D
Maine	2-Apr	1-May	32	29	D
Texas	2-Apr	1-May	32	29	R
Florida	3-Apr	4-May	33	31	R
Georgia	3-Apr	24-Apr	33	21	R
Mississippi	3-Apr	4-May	33	31	R
Alabama	4-Apr	30-Apr	34	26	R
Missouri	6-Apr	4-May	36	28	R
South Carolina	7-Apr	18-May	37	41	R
Oklahoma	varies by city			0	R
Utah	varies by city			0	R
Wyoming	varies by city			0	R
Arkansas				0	R
Iowa				0	R
Nebraska				0	R
North Dakota				0	R
South Dakota				0	R

Figure 2: Histograms of Dependent Variables

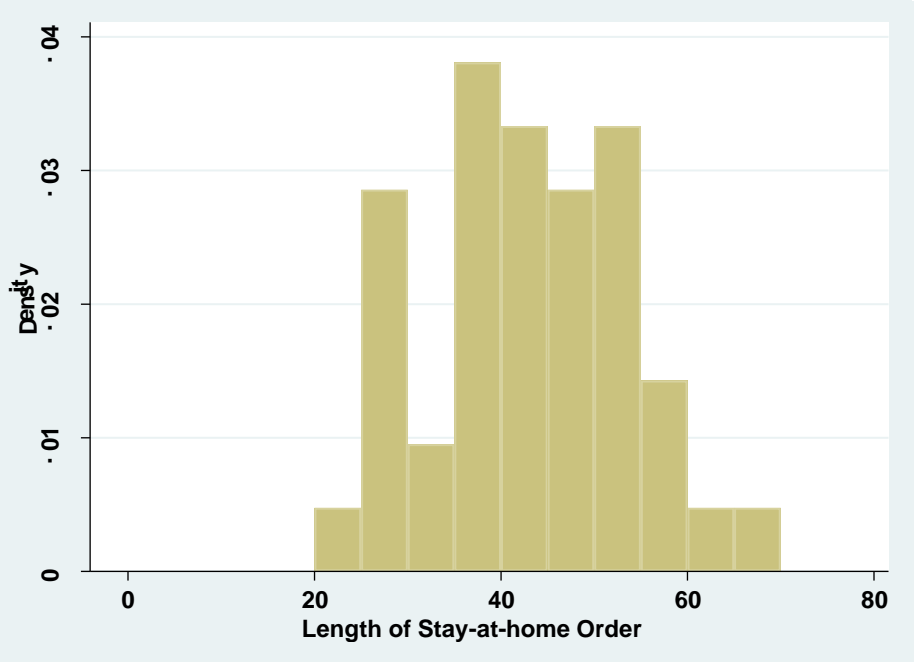
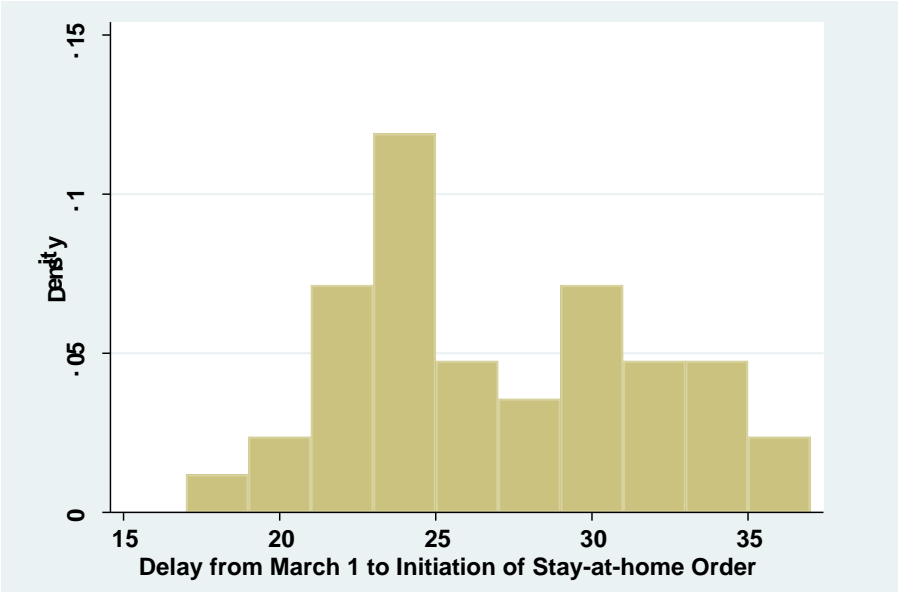


Table 3: Results from Duration Models of Delay from March 1, and Length of SAHO - Hazard Rates and P-values

		Stay at Home Order Delay from March 1	Length of Stay at Home Order			
Epidemiologic Variables:	Pct. of Population Aged 65+	4.70E+03 0.409	9.61E-09 0.247	7.87E-09 0.240	4.81E-08 0.236	5.03E-08 0.237
	Population Density	1.000 0.738	1.000 0.876	1.000 0.863	1.000 0.898	1.000 0.893
	African American Pct. Of Population		0.561 0.802	0.540 0.787		
	Poverty Rate	1.280** 0.011			0.989 0.909	0.993 0.943
	March-April Excess Death rate from all Causes		0.961 0.581		0.957 0.562	
	March-April Not Non-COVID Death Rate			0.945 0.585		0.939 0.577
	Economic Variables:	State GDP per capita (\$MM)	0.837 0.505	0.562** 0.046	0.569* 0.051	0.561** 0.048
Economic Growth Rate in 2019		0.888 0.597				
Industrial Mwh per Total Mwh		0.336 0.660	0.000** 0.012	0.000** 0.013	0.000** 0.013	0.000** 0.013
Unemployment Rate Increase: Jan to April 2020			1.042 0.471	1.042 0.477	1.041 0.553	1.041 0.551
Pct. Residents with a Bach Degree		1.089 0.221	0.932 0.277	0.930 0.263	0.932 0.374	0.933 0.384
Political Variables:	Pct. Urban Population	1.007 0.694	0.976 0.235	0.977 0.250	0.977 0.245	0.978 0.263
	Medicaid Expansion	1.240 0.663	0.617 0.287	0.615 0.283	0.650 0.314	0.647 0.310
	Pct. Trump Vote in 2016	0.931** 0.034	1.019 0.544	1.020 0.536	1.019 0.550	1.020 0.535
	Democratic Governor	4.008*** 0.002	0.331** 0.014	0.332** 0.015	0.337** 0.013	0.339** 0.015
	State Electoral Votes	1.028 0.148	1.036 0.104	1.036 0.108	1.038* 0.096	1.037 0.105
	Constant	5.22E-09*** 0.001	2.71E-08** 0.010	2.60E-08** 0.010	1.93E-08** 0.015	1.47E-08** 0.017
Chi Square and P-Values for Joint Tests of Significance:	Epidemiologic Variables	6.410* 0.094	2.260 0.687	2.260 0.688	2.200 0.698	2.180 0.702
	Economic Variables	1.150 0.886	10.600** 0.032	10.320** 0.035	10.560** 0.032	10.190** 0.037
	Political Variables	28.490*** 0.000	13.880** 0.016	13.580** 0.019	14.460** 0.013	14.170** 0.015

*10% significance
 **5% significance
 ***1% significance