Do Trump's Hateful COVID-19 Tweets During the Pandemic Lead to an Increased Hate Crimes Against Asian Americans?
: An Analysis from March 2020 to September 2020

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Abstract

Hate crimes against Asian Americans surged during the COVID-19 pandemic. While the World Health Organization (WHO) recommended refraining from associating the coronavirus with a specific country of origin, some politicians including former President Donald Trump continuously associated the coronavirus with China and Asia by calling it "Chinavirus" or "Chinese virus" in his Twitter account and public speeches throughout the pandemic. In order to find out whether his such statements have a causal effect on increasing the number of hate crimes against Asian Americans, I employed a Poisson regression in which I investigated the effect that the number of Trump's tweets that include derogatory anti-Asian terms in a week(t) has on the number of hate crimes against Asian Americans the following week (t+1). Using my model, I found out that there is a meaningful correlation between the number of Trump's tweets that include derogatory anti-Asian terms in a week (t) and the number of hate crimes reported against Asian Americans the following week (t+1). My model found out that, when the number of Trump's derogatory anti-Asian tweets in a week (t) increases by one point, the average number of predicted hate crimes reported against Asian Americans in the following week (t+1) increases by 54.23. Although future research is needed, the results shed a light on the possibility of a causal link between Trump's tweets and hate crimes against Asian Americans.

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1. Introduction

The World Health Organization (WHO) and many policymakers recommend refraining from referring to the country of origin when discussing the virus, for it may trigger unnecessary stigmatization to the population from which the initial cases of the virus are thought to have originated. In fact, the association of a specific country of origin with the virus has long harmed members of different racial communities throughout the history of the United States. For instance, a commonly known "Spanish Flu," whose original name is H1N1 flu, has associated Spain and Spaniards for the origin of the virus, thereby incurring political damage to the country Spain and its citizens when in fact there is no scholarly consensus on where the virus originated from.[1] Similarly, the news media coverage of the 2003 SARS outbreak as having originated from China harmed many Chinese-owned businesses and Chinese Americans worldwide, especially in Canada. All of those historical cases of epidemics have showcased how dangerous associating a specific country to the virus could be for a specific group of people.

However, COVID-19, whose official name was given by the WHO as severe acute respiratory syndrome coronavirus 2(SARS-CoV-2), was frequently referred to as "Chinesevirus," or "Kungflu" in the media by many politicians, most notably by the former president Donald Trump. The former president has called the COVID-19 "Chinesevirus" or "Chinavirus" multiple times on Twitter throughout 2020 and 2021. Trump stated, for instance, *"The United States will be powerfully supporting those industries, like Airlines and others, that are particularly affected by the China Virus"* on March 16th, 2020, and *"China has caused great damage to the United States and the rest of the World!"* with regards to the COVID-19 pandemic on July 6th, 2020.

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[1] Harmeet Kaur, "Yes, We Long Have Referred to Disease Outbreaks by Geographic Places. Here's Why We Shouldn't Anymore."

His such statements were denounced by many experts for triggering anti-Asian hatred through implicitly placing blame on Asian Americans for the creation and the spread of the virus in the nation. Dr. Yulin Hswen, an assistant professor of epidemiology at UC San Francisco, in his criticism of the former president's tweets claimed that "Anti-Asian sentiment depicted in the tweets containing the term 'Chinese Virus' likely perpetuated racist attitudes and parallels the anti-Asian crimes that have occurred since."[2] Dean Winslow, a professor of medicine at Stanford University, also warned against using the term 'Chinese Virus,' claiming that "It just happened that this particular virus may have arisen in China," and that "If this virus had arisen from a cave in New Mexico, I don't think that people would be tweeting or calling it the 'New Mexico virus.'"[3]

Unfortunately, Asian Americans have been subjected to heightened racial harassment and hate crimes targeted towards them amidst the COVID-19 pandemic. According to an annual report by the Federal Bureau of Investigation (FBI) in 2020, hate crimes targeted against Asian Americans surged from 158 in 2019 to 279 in 2020, which is a 76% increase in a year. Although the increase is alarming, many political pundits claim that the actual number of hate crimes committed will far exceed that of the number released by the FBI due to the nature of the reporting system employed by the FBI and the tendency of not reporting the incident to the police observable in the victims of hate crimes. An organization called the Stop AAPI Hate, a non-profit organization aimed at preventing anti-Asian hatred in the nation, has recently started collecting the number of self-reported hate crimes beginning in March 2020 and found out that over 9,000 hate crimes were reported to have been committed just in the year of 2020.

As this number is quite alarming, the following questions have come to my mind: Why was there a stark increase in the number of hate crimes targeted towards Asian Americans and people of Asian

[2] Mishal Reja, "Trump's 'Chinese Virus' Tweet Helped Lead to Rise in Racist Anti-Asian Twitter Content: Study"
[3] Andrea Salcedo, "Racist anti-Asian Hashtag Spiked After Trump First Tweeted 'Chinese Virus,' Study Finds"

descent? What contributes to the increase and decrease of this number throughout the pandemic? Does the way of calling COVID-19 has any impact on propagating hate crimes against Asian Americans and people of Asian descent? If yes, to what extent? Partially motivated by the recent literature in the discipline of Political Science which confirmed the positive relationship between the former president's tweets which referred to COVID-19 virus as "Chinavirus," "Chinesevirus," "Wuhanvirus," or "Kungflu" and the proliferation of anti-Asian sentiments in an online setting, this study is devoted to examining whether the former president's calling of COVID-19 as "Chinavirus" or "Chinesevirus" has any impact on increasing the number of hate crimes targeted against Asian Americans and people of Asian descent. More precisely, the study will examine whether there is a statistically significant correlation between the former president's such tweets and the number of reported hate crimes targeted against Asian Americans and people of Asian descent in subsequent days in the United States even when taking into account confounding variables that can have an impact on the number of hate crimes committed. Through examining the relationship between the former president's calling of the COVID-19 virus and the number of hate crimes targeted against Asian Americans, I hope to contribute a meaningful asset as to how politicians should avoid referring to the country of origin when discussing the virus.

2. Literature Review

Many studies have linked Trump's derogatory tweets and an increase in anti-Asian sentiment in social media. For instance, after Trump associated the virus with an Asian country and people of Asian descent by calling it "Chinavirus" and "Chinesevirus" on Twitter, there was a sharp increase in the number of tweets that included derogatory terms such as "Chinese virus" or "China virus" in Twitter (Kim and Kesari 2021). These tweets that included words or hashtags such as "#chinavirus," when compared to neutral tweets that included hashtags such as '#covid-19,' were

far more likely to contain further anti-Asian content, as well(Hswen 2021). Moreover, while anti-Asian sentiment clearly existed before Trump's tweets, tweets and google searches including c-words (Lu and Sheng 2021) or "Chinesevirus" or "Wuhan virus" (Chan, Kim, and Leung 2021) both surged significantly immediately after Trump mentioned "Chinavirus" in his Twitter and public speeches.

The mechanism through which Trump's statements can affect the public sentiment surrounding minority groups – which in this case, people of Asian descent is explained by some scholars as an "othering" practice. Othering practice works by placing blame onto an already marginalized group, which is common during the pandemic in which the public's desire to get away with fear and powerlessness is particularly salient (Eichelberger 2017; Li 2021; Kim 2020). Scholars claim that during a health crisis such as that of COVID-19, social boundaries between racial groups intensify, and people become inclined to distance themselves from an identity group that is deemed as primarily responsible for the outbreak of the pandemic. Distancing themselves from a target group not only makes them less frustrated, but it also makes the seemingly invincible pandemic seem more controllable (Kim 2020). Perhaps because of this effect, the othering practice has historically been an attractive strategy to resort to during the pandemic. For instance, during the SARS outbreak, Chinese Americans were scapegoated by the media and politicians for having a culture that is prone to diseases without scientific evidence of a direct link between their culture and an outbreak of epidemic. Media has constructed San Francisco's and New York's Chinatown as a hub for diseases and Chinese Americans and it incurred serious psychological and economic damages to them and their businesses as a consequence. Placing blame on Chinese culture and immigrants for the outbreak of diseases effectively ameliorated the fear and anxiety Americans had about diseases and foreigners (Eichelberger 2007) and provided a ground for excuses for politicians in regard to the management of the pandemic.

Scholars claim that politicians and media play a crucial role in propagating anti-Asian hatred during the pandemic by creating an atmosphere where this othering practice can proliferate. They assert that the way that the virus is covered in media or framed by politicians can affect the public's understanding of the virus (Barreto 2020; Hart 2020; Mach 2021) and thereby invoke racial hostility among the public towards a target group. Politicians – most notably the former president repeatedly associated the coronavirus with China and Chinese by calling it "Chinavirus," "Chinesevirus," "Wuhanvirus," or "Kungflu," and other politicians such as the former Secretary of State Mike Pompeo claimed that the coronavirus had been arbitrarily created in a science lab in Wuhan when this claim hadn't been empirically proven. News media frequently juxtaposed images related to China in its coverage of the coronavirus, as well. These can propagate anti-Asian hatred by distorting the public's perception of the virus. Politicians' premature claims and biased news coverage of the coronavirus can lead the public to falsely believe that China is to be solely blamed for the outbreak of the coronavirus or that the Wuhan lab did create the virus. They can also shift the public's attention from obtaining an objective understanding of the virus to responding emotionally towards a target group.

This can have a serious repercussion on the Asian American community. As well known, Asian American communities have been targets of hate crimes amidst the COVID-19 pandemic. Asian-run businesses were frequently the target of looting by burglaries motivated by racial hostility, and many Asians were verbally and physically attacked by strangers at a public place. The incidence of hate crimes targeted against people of Asian descent soared during 2020 and 2021, and this increase is by far unprecedented. Even among those populations who have not been direct victims of hate crimes, 32% of surveyed reported that they fear being threatened or attacked. Considering the significant psychological damage it can bring about (Misra 2020; Cheah 2020), the impact that the coronavirus had on the Asian community seems devastating. The true danger of this increase lies

in the fact that it wasn't originated from the vacuum. Rather, it seems to be connected to politicians' hateful comments on the coronavirus. One study found that retweets of "Chinavirus," which is the term initially used by the former president, provoke discriminatory behaviors towards Asian Americans and thereby put the welfare of Asian Americans at risk (Hammond 2020). Dr. Jeung from San Francisco State University also claims that this increase in hate crimes correlates with xenophobic languages used by politicians (Cabanatuan 2020; Jeung 2020). He especially points to a stark increase in hate crimes after the former president's usage of the term "Chinavirus" and asserts that his statements have the capability of invoking real-world violence.

In fact, there is some evidence that Trump's tweets might lead to more hate crimes against racial minority groups. Karsten and Muller's research in 2018 found out that Trump's anti-Muslim tweets led to more hate crimes targeted against Muslims on the following days (Karsten and Muller 2018). Another study also found out that anti-Muslim violence increased within the duration of Trump's campaign (Maali, 2018). Moreover, there is a more general discussion about Trump's negative effect on the minority population in the United States, which claims that Trump's policy preferences and rhetoric which are unfavorable towards a minority population affect the well-being of the racial minority population (Clayton 2019).

However, whether or not Trump's derogatory calling of the virus has a causal effect on an increase in hate crimes can be a complicated question. This partially has to do with the complex nature of hate crimes. The department of justice defines hate crimes as a "crime motivated by bias against a race, color, religion, national origin, sexual orientation, gender, gender identity, or disability" ("U.S. Department of Justice"). But proving out the motivation part of the crime is not easy as it sounds. In the case of the Atlanta shooting in March 2021, in which a white perpetrator's mass shooting in two different spas in Atlanta resulted in primarily Asian casualties, a captain with the Cherokee County Sheriff stated that the perpetrator might not have been motivated by anti-

Asian hatred, but sexism. This led to a fierce debate among the public about whether the committed crime in question was a hate crime or not. Since individuals' motivation behind committing a hate crime against racial minority can be hard-to-discern, Daisy Grewal rightly points out in his direct commentary on Karsten and Muller's study that in order for the study to claim a causal relationship between Trump's tweets and hate crimes, it needs to demonstrate that "the exposure to such messages leads people to act out in hateful ways"("Do Trump Tweets Spur Hate Crimes?"). There has been a voice about the need for more research in general on the relationship between Trump's tweets and hate crimes during the COVID-19 pandemic (Gover and Harper 2020), too. Previous studies that have found a meaningful link between Trump's tweets and hate crimes are not pertaining to Asian Americans nor to the COVID-19 pandemic. Since the research specifically pertaining to the context of COVID-19 is lacking in quantity, the concern about a premature diagnosis of the causal effect of Trump's tweets on hate crimes seems reasonable.

Still, this doesn't preclude the possibility between Trump's hateful tweets and hate crimes against Asians. Trump's remarks on Asian Americans during the pandemic have been especially outstanding and given the previous research about the negative effect of Trump's remarks on racial minorities, a close look at the hate crime dataset against the Asian population in the COVID-19 pandemic might reveal an important result about the correlation between those two.

3. Research Design

3.1 Data and Background

3.1.1 Data on Hate Crimes

The Federal Bureau of Investigation (FBI) defines a hate crime as "a criminal offense against a person or property motivated in whole or in part by an offender's bias against a race, religion, disability, sexual orientation, ethnicity, gender, or gender identity." Therefore, physical or verbal

attacks against Asian Americans motivated in whole or in part by an offender's bias against an Asian country or people of Asian descent would count as a hate crime based on the FBI's definition of a hate crime. However, when it comes to the data on hate crimes against Asian Americans, whether the dataset provided by the FBI accurately reflects the number of hate crimes actually committed is debatable. Although the FBI reports that the number of hate crimes targeted against Asian Americans has increased by 76% from 158 in 2019 to 279 in 2020, many political pundits and experts expect that the number of hate crimes that actually happened will far exceed that of the number released by the FBI due to the nature of the hate crime and the greater tendency visible in the victims of hate crimes to not report the incident to the police.

On the other hand, a non-profit organization called the Stop AAPI Hate has collected the self-reported hate crimes targeted against Asian Americans and people of Asian descent beginning in March 2020. One of the major differences between the dataset collected by the FBI and the dataset collected by the Stop AAPI hate is that while the former dataset only includes a hate crime that goes through the criminal prosecution or proper procedure of equal value, the latter also includes self-reported hate crimes, which can be a lot in numbers. In fact, the number of self-reported hate crimes collected in 2020 by the Stop AAPI Hate exceeds 9,000. Since I hypothesize that the relatively higher level of procedural barrier entailed in reporting hate crimes through a criminal investigatory agency like the FBI can discourage victims of hate crimes to not report, I will use the dataset published by the Stop AAPI Hate. By incorporating self-reported hate crimes, I hypothesize that I will better encapsulate different forms of verbal harassment and physical intimidation that would have not necessarily amounted to a criminal investigation.

3.1.2. Data on Trump's Twitter

Since the former president's Twitter account was banned by Twitter in January 2021, I will utilize the archive available to the public and various news articles which contain the timeline of the former president's remarks on the COVID-19 as further verification if needed. The data on the former president's Twitter is comprised of two parts: 1) the number of regular COVID-19-related tweets and 2) the number of hateful COVID-19 tweets.

3.1.2.1. Regular COVID-19-Related Tweets

The former president's tweets can be related to COVID, but not derogatory. I define that tweets whose main content is pertaining to the COVID-19 pandemic would be considered regular COVID-19-related tweets. If a tweet contains the following words such as "Coronavirus," "COVID-19," "COVID", "pandemic," "virus," "cases," "vaccine," "social distancing," "mask," or "testing," it will be considered a regular COVID-19-related tweet. This regular COVID-19-related tweets will then be analyzed separately from hateful COVID tweets.

3.1.2.2. Hateful COVID-19 Tweets

In terms of the operationalization of what amounts to hateful COVID-19 tweets, here's how I will determine whether a tweet would be considered a hateful COVID-19 tweet. If it refers to COVID-19 by using words that associate the virus with Asian countries or people of Asian descent (i.e., "Chinavirus," "Chinesevirus," "Wuhanvirus," or "Kungflu"), it would be considered a hateful COVID-19 tweet. Even if it doesn't explicitly mention those aforementioned words, if it refers to Asian countries or people of Asian descent in a derogatory way (i.e., "China is to blame for the COVID-19"), it would be considered a hateful COVID-19 tweet. Below is an example from the former president's tweet from March 2020 which I categorized as a hateful COVID-19 tweet.

March 16th, 2020	"The United States will be powerfully supporting those industries, like Airlines and others, that are particularly affected by the **China Virus**."
March 18th, 2020	"I will be having a news conference today to discuss very important news from the FDA concerning the **China Virus**!"
March 18th, 2020	"I always treated the **China Virus** very seriously, and have done a very good job from the beginning…"
March 22nd, 2020	"My friend (always there when I've needed him!), Senator @RandPaul, was just tested "positive" from the **Chinese Virus**. That is not good!..."

3.2. Methodology

3.2.1. Statistical Analysis Using a Poisson Regression

In order to investigate the potential relationship between the hateful COVID-19 tweets and the number of hate crimes reported in the following days, I will employ a Poisson regression, which is a type of regression suited to measure the impact of one or more independent variables on a dependent variable that is a count variable. Poisson regression is often used to deal with a dependent variable that is a discrete count variable, which is the case with my dependent variable: the number of hate crimes reported each day. A Poisson regression also rules out the possibility of having a negative number as an outcome variable since it assumes that a variable of interest is a positive continuous number. The mathematical equation for a Poisson regression is as follows:

$log(\lambda_i) = \beta_0 + \beta_1 x_i$

The regression result of a Poisson regression is interpreted differently from that of a linear regression or a logistic regression. The coefficient for each independent variables and confounding variables should be interpreted as follows:

One unit increase in x multiplies y by $e^{\wedge}\lambda$

Using the Poisson regression model, I will generate the predicted value of the outcome variable, the number of hate crimes reported, and then investigate the effect that hateful COVID tweets and regular COVID tweets in a week (t) have on the number of hate crimes reported the week after (t+1).

3.2.2 A Lagged Independent Variable

Two independent variables are the number of Trump's hateful COVID-19-related tweets lagged by 7 days (one week) and the number of Trump's regular COVID-19-related tweets lagged by 7 days (one week). I lag each of my independent variables by one week since it's not practical for one to commit a hate crime on the same day he or she is exposed to tweets, assuming that being exposed to tweets causes one to commit a hate crime. Thus, to allow for a practice time window between being exposed to hateful tweets and committing hate crimes, I lag the values of my independent variables by one week.

3.2.3. Dependent Variable

The dependent variable is the number of hate crimes against Asian Americans reported in the United States by each week from March 19th, 2020, to September 31st, 2020.

3.2.4. Lagged Confounding Variables

The periodical fluctuation in the severity of COVID-19 may affect the number of hate crimes committed against Asian Americans by making people more or less anxious about the pandemic. In order to account for this, I will take into account the following variables: 1) the weekly number of positive COVID-19 cases and 2) the weekly number of deaths caused by COVID-19. These confounding variables are also lagged by 7 days(one week), for the same reason stated above.

4. Results

4.1. Multivariate Poisson Regression Result

4.1.1. Hateful COVID tweets

Using the Poisson regression model, I fit Poisson model with the number of hateful COVID tweets and two control variables, which are the number of weekly coronavirus cases and the number of weekly coronavirus deaths. The Poisson regression result is as follows:

|	Estimate	Std. Error	Z value	Pr(>|z|)
(Intercept)	6.088e+00	4.198e-02	145.005	< 2e-16 ***
lagged_hateful_COVID_tweets	2.903e-01	1.662e-02	17.895	< 2e-16 ***
lagged_new_cases	-8.052e-06	2.494e-07	-32.287	< 2e-16 ***
lagged_new_deaths	-3.348e-05	5.827e-06	-5.745	9.2e-09 ***

Signifi. Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Then I let my model take the full value of hateful COVID tweets while keeping control variables at their median values to generate the predicted value of the number of hate crimes.

lagged_hateful_CO VID_tweets	lagged_new_cases	lagged_new_deaths	.fitted	.se.fit
0	251168	6426	47	1.83
1	251168	6426	62.8	1.77
2	251168	6426	84	2.05
3	251168	6426	112	3.42
4	251168	6426	150	6.34

5	251168	6426	201	11.3
6	251168	6426	268	19.1
7	251168	6426	359	31.1

Then I examined the relationship between the number of hateful COVID tweets in a week and the number of predicted hate crimes reported the week after. The anticipated relationship between the number of hateful COVID tweets in a week and the number of predicted hate crimes the week after is shown in the graph below:

Relationship between Hateful COVID-related Tweets and Predicted Hate Crimes
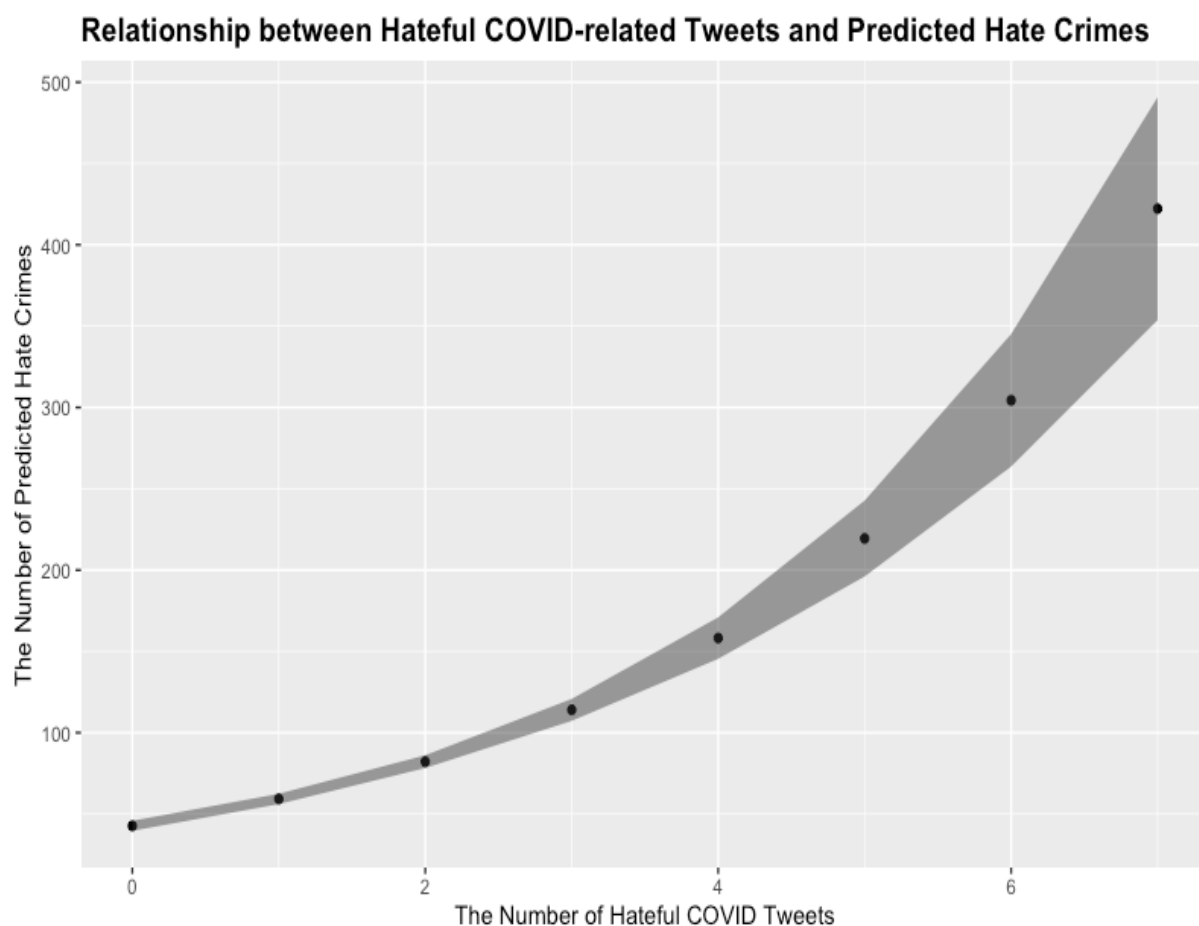
As shown above, the number of hateful COVID tweets ("lagged_hateful_COVID_tweets") was found out to be statistically significant indicator of the number of hate crimes reported. When

the number of hateful COVID tweets increases from 0 to 1 in a week, the number of hate crimes

reported the week after increases by 16.5. When the number of hateful COVID tweets increases

from 1 to 2 in a week, the number of hate crimes reported the week after increases by 22.9. When

the number of hateful COVID tweets increases from 2 to 3 in a week, the number of hate crimes

reported the week after increases by 31.8. When the number of hateful COVID tweets increases

from 3 to 4 in a week, the number of hate crimes reported the week after increases by 44.2. When

the number of hateful COVID tweets increases from 4 to 5 in a week, the number of hate crimes

reported the week after increases by 61.2. When the number of hateful COVID tweets increases

from 5 to 6 in a week, the number of hate crimes reported the week after increases by 85. The

number of hateful COVID tweets increases from 6 to 7 in a week, the number of hate crimes

reported the week after increase by 118.

Increases in the number of hateful COVID tweets in a week (t)	Increase in the predicted hate crimes reported the week after (t+1)
0 -> 1	16.5
1 -> 2	22.9
2 -> 3	31.8
3 -> 4	44.2
4 -> 5	61.2
5 -> 6	85
6 -> 7	118

4.1.2. Regular COVID tweets

I repeated the same procedure now using the number of regular COVID tweets in a week as

an independent variable. I ran a Poisson regression using the number of regular COVID tweets in a

week as an independent variable and the number of hate crimes reported the week after using two

control variables - the number of weekly coronavirus cases and the number of weekly coronavirus

deaths. The Poisson regression result is as follows:

	Estimate	Std. Error	Z value	Pr(> |z|)
(Intercept)	3.687e+00	1.002e-01	36.801	< 2e-16 ***
lagged_hateful_COVID_tweets	5.979e-02	2.103e-03	28.429	< 2e-16 ***
lagged_new_cases	-2.713e-07	2.709e-07	-1.001	0.317
lagged_new_deaths	-3.484e-05	4.827e-06	-7.217	5.31e-13***

Signifi. Codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Then I let my model take the full value of regular COVID tweets while keeping control

variables at their median values to generate the predicted value of the number of hate crimes.

lagged_hateful_COVID_tweets	lagged_new_cases	lagged_new_deaths	.fitted	.se.fit
0	251168	6426	47	1.83
1	251168	6426	62.8	1.77
2	251168	6426	84	2.05
3	251168	6426	112	3.42
4	251168	6426	150	6.34
5	251168	6426	201	11.3
6	251168	6426	268	19.1
7	251168	6426	359	31.1

Then I examine the relationship between the number of regular COVID tweets in a week and the number of predicted hate crimes reported the week after. This anticipated relationship is shown in the graph below:

Relationship between Regular COVID–related Tweets and Predicted Hate Crimes
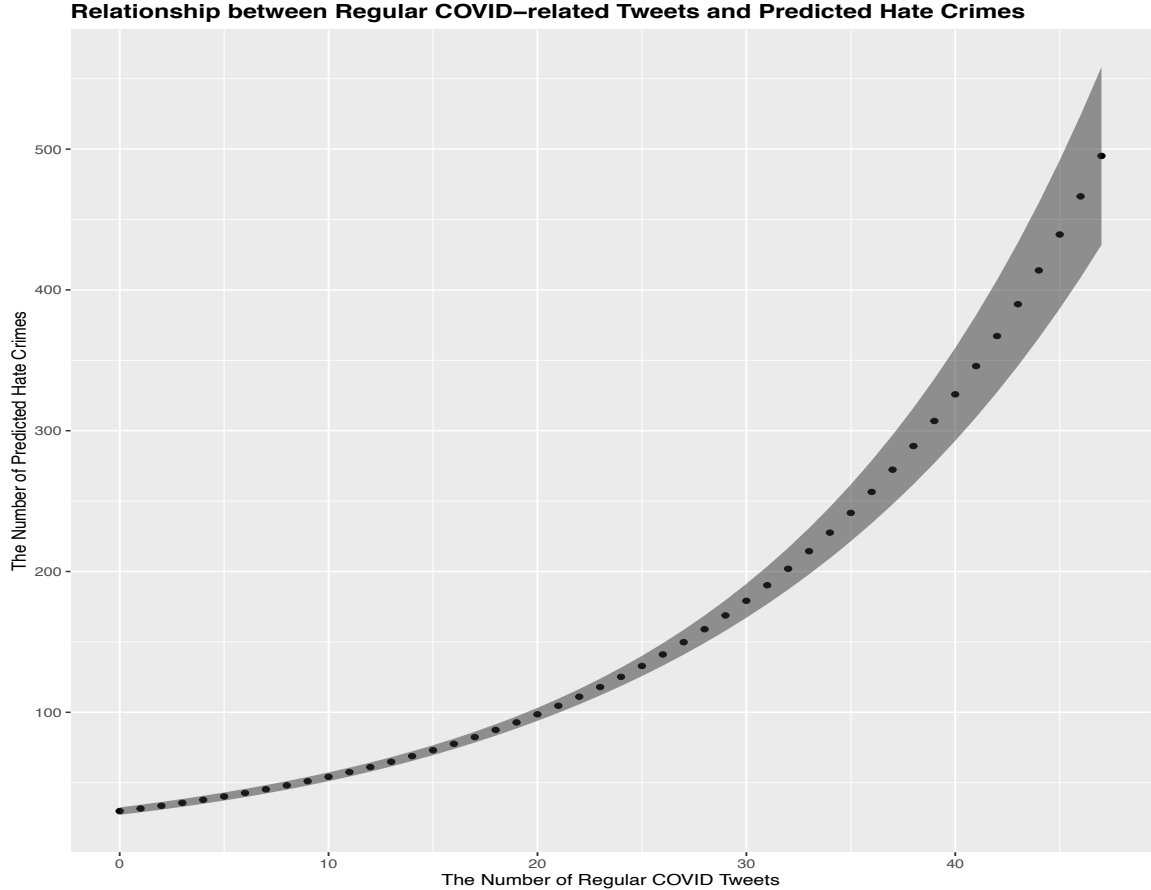
As shown in the graph above, the number of regular COVID tweets was also found out to be positively correlated with the number of hate crimes reported. When the number of regular COVID tweets increases from 0 to 10 in a week, the number of hate crimes reported the week after increases by 24.4. When the number of regular COVID tweets increases from 10 to 20 in a week, the number of hate crimes reported the week after increases by 44.4. When the number of regular COVID tweets increases from 20 to 30, the number of hate crimes reported the week after increases

by 80.6. Finally, when the number of regular COVID tweets increases from 30 to 40, the number of hate crimes reported the week after increases by 147.

Increases in the number of regular COVID tweets in a week (t)	Increase in the predicted hate crimes reported the week after (t+1)
0 -> 10	24.4
10 -> 20	44.4
20 -> 30	80.6
30 -> 40	147

5. Discussion

According to the Poisson regression result, there seems to be a positive correlation between both Trump's hateful COVID tweets and regular COVID tweets in a week (t) and the number of hate crimes against Asian Americans reported the week after (t+1). This correlation is meaningful since it shows that both Trump's hateful tweets and regular tweets have the potential to increase significantly the number of hate crimes against Asian Americans reported in the following week.

However, this model is limited to concluding a causal relationship between each of the independent variables – the number of hateful COVID tweets and the number of regular COVID tweets and the dependent variable – the number of hate crimes against Asian Americans. To claim a causal relationship between each of the independent variables and the dependent variable, not only two variables must vary together, but also correlation must not be due to a third factor that is affecting both the independent variable and the dependent variable. As this model only takes into account the effect of a prevalence of COVID ("lagged_new_cases" and "lagged_new_deaths") as

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control variables, there is a chance that an unintroduced third factor may have affected both the independent variables and dependent variable.

However, still, COVID is the most significant control variable in my case. Since hate crimes against Asian Americans occur during the COVID pandemic, taking into account COVID-related control variables is the most important task in terms of ruling out possible third factors that may affect both the independent variables and the dependent variable. As controlling for COVID-related variables still yielded a positive correlation between Trump's tweets and hate crimes, this result can still be considered significant. Yet, further research is needed to assess in-depth the plausibility of a causal relationship between Trump's tweets and hate crimes against Asian Americans.

6. Conclusion

This thesis sought to investigate the relationship between Trump's tweets and hate crimes against Asian Americans. In order to find out whether Trump's tweets are associated with the number of hate crimes reported against Asian Americans, I employed a Poisson regression which is a type of regression method suited to deal with count data. To account for a practical time window between being exposed to Trump's tweets and committing hate crimes, I lagged each of my independent variable and control variables by seven days (one week). Then I let my Poisson regression model predict the number of hate crimes reported taking into the values of my control variables. Thus, the relationship that I was seeking to examine was the number of hateful COVID tweets in a given week (t) and the number of predicted hate crimes reported against Asian Americans in the following week (t+1). I did this with both Trump's hateful COVID tweets and regular COVID tweets to separately examine their effects on the number of hate crimes reported against Asian Americans.

The results showed that both hateful COVID tweets and regular COVID tweets are correlated with the number of predicted hate crimes reported against Asian Americans. An increase in the number of hateful COVID tweets and regular COVID tweets both led to a significant increase in the number of predicted hate crimes against Asian Americans. One point increase in the number of hateful COVID tweets in a week (t) led to an average of 55.23 increase in the number of predicted hate crimes reported against Asian Americans in the following week (t+1), and similarly, ten points increase in the number of regular COVID tweets in a week (t) led to an average of 74.6 increase in the number of hate crimes reported against Asian Americans in the following week (t+1).

Further research is needed to claim whether this relationship is causal, but the results raise the possibility that Trump's tweets lead to an increase in hate crimes against Asian Americans.

7. Appendix

1. List of hateful COVID tweets from March 2020 to September 2020

March 2020
March 16:"The United States will be powerfully supporting those industries, like Airlines and others, that are particularly affected by the **China Virus**."
March 16: "Cuomo wants "all states to be treated the same." But all states aren't the same. Some are being hit hard by the **China Virus,** some are…"March 18: "I will be having a news conference today to discuss very important news from the FDA concerning the China Virus!"
March 18: "I always treated the **China Virus** very seriously, and have done a very good job from the beginning…"
March 18: "I only signed the Defense Production Act to combat the **Chinese Virus** should we need to invoke it in a worst case scenario in the future…"
March 22: "My friend (always there when I've needed him!), Senator @RandPaul, was just tested "positive" from the **Chinese Virus**. That is not good!"
March 23: "@TrumpWarRoom: President @realDonaldTrump took decisive action from the beginning to protect Americans from the **Chinese coronavirus**…"

April 2020
April 10: "@SenTomCotton: .@Max_Fisher claims - without evidence- that I believe the **China Virus** was "produced by a Chinese weapons lab.""
April 19: "@ArthurSchwartz: She calls it "the flu" and says that calling it the **China Virus** is racist towards Asian Americans. Just as Xi Jinping ordered."
April 26: "@dbongino: Here's what serial fraudster & generational corruptocrat, Nancy Pelosi was REALLY up to when the **Wuhan Virus** was raging."

May 2020
May 20: "Some wacko in China just released a statement blaming everybody other than China for the Virus which has now killed hundreds of thousands of people. Please explain to this dope that it was the "incompetence of China", and nothing else, that did this mass Worldwide killing!"
May 25: "Great reviews on our handling of Covid 19, sometimes referred to as the **China Virus**. Ventilators, Testing, Medical Supply Distribution, we made a lot of Governors look very good - And got no credit for so doing. Most importantly, we helped a lot of great people!"
May 28: "All over the World the CoronaVirus, a very bad "gift" from China, marches on. Not good!"

June 2020
June 25: "The number of **ChinaVirus** cases goes up, because of GREAT TESTING, while the number of deaths (mortality rate), goes way down. The Fake News doesn't like telling you that!"

July 2020
July 6: "New China Virus Cases up (because of massive testing), deaths are down, "low and steady". The Fake News Media should report this and also, that new job numbers are setting records!
July 6: "China has caused great damage to the United States and the rest of the World!"
July 6: "Deaths from the China Virus are down 39%, while our great testing program continues to lead the World, by FAR! Why isn't the Fake News reporting that Deaths are way down? It is only because they are, indeed, FAKE NEWS!"

July 6: "BREAKING NEWS: The Mortality Rate for the China Virus in the U.S. is just about the LOWEST IN THE WORLD! Also, Deaths in the U.S. are way down, a tenfold decrease since the Pandemic height (and, our Economy is coming back strong!)"

July 6: "Why does the Lamestream Fake News Media REFUSE to say that China Virus deaths are down 39%, and that we now have the lowest Fatality (Mortality) Rate in the World. They just can't stand that we are doing so well for our Country!"

July 7: "'COVID-19 (China Virus) Death Rate PLUNGES From Peak In U.S.' A Tenfold Decrease In Mortality. The Washington Times @WashTimes Valerie Richardson. We have the lowest Mortality Rate in the World. The Fake News should be reporting these most important of facts, but they don't!"

July 8: "Economy and Jobs are growing MUCH faster than anyone (except me!) expected. Job growth is biggest in history. China Virus Mortality Rate is among the LOWEST of any country. Shaping up for a good third quarter, and a great next year! NASDAQ at new record high, 401k's way up!!!!"

July 14: China "fully responsible" for concealing the coronavirus and "unleashing it" upon the world."

July 20: "We are United in our effort to defeat the Invisible China Virus, and many people say that it is Patriotic to wear a face mask when you can't socially distance. There is nobody more Patriotic than me, your favorite President! https://t.co/iQOd1whktN"

July 21: "You will never hear this on the Fake News concerning the China Virus, but by comparison to most other countries, who are suffering greatly, we are doing very well - and we have done things that few other countries could have done!"

July 26: "Because of my strong focus on the China Virus, including scheduled meetings on Vaccines, our economy and much else, I won't be able to be in New York to throw out the opening pitch for the @Yankees on August 15th. We will make it later in the season!"

August 2020

August 2: "Big China Virus breakouts all over the World, including nations which were thought to have done a great job. The Fake News doesn't report this. USA will be stronger than ever before, and soon! https://t.co/pZwjvgmVTO."

August 3: "With the exception of New York & a few other locations, we've done MUCH better than most other Countries in dealing with the China Virus. Many of these countries are now having a major second wave. The Fake News is working overtime to make the USA (& me) look as bad as possible!"

August 3: "So Crazy Nancy Pelosi said horrible things about Dr. Deborah Birx, going after her because she was too positive on the very good job we are doing on combatting the China Virus, including Vaccines & Therapeutics. In order to counter Nancy, Deborah took the bait & hit us. Pathetic!"

August 7: "I called the politicization of the China Virus by the Radical Left Democrats a Hoax, not the China Virus itself. Everybody knows this except for the Fake and very Corrupt Media!"

August 7: "Pelosi and Schumer only interested in Bailout Money for poorly run Democrat cities and states. Nothing to do with China Virus! Want one trillion dollars. No interest. We are going a different way!"

August 7: "I will be doing a news conference on the ChinaVirus, the just announced very good economic numbers, and the improving economy, at 7pm from Bedminster, New Jersey. Also, the subject of the Beirut, Lebanon catastrophe will be discussed."

August 11: "More Testing, which is a good thing (we have the most in the world), equals more Cases, which is Fake News Gold. They use Cases to demean the incredible job being done by the great men & women of the U.S. fighting the China Plague!"

August 15: "Great work by the Governors of AZ, IA, LA, and NM (@DougDucey @IAGovernor @LouisianaGov & @GovMLG) who responded to my Executive Action and promptly submitted applications, that we APPROVED QUICKLY, to support Americans out of work because of the ChinaVirus. More states to come!

September 2020

September 3: "Governors Andrew Cuomo of New York has the worst record on death and China Virus. 11,000 people alone died in Nursing Homes because of his incompetence!"

September 3: "Sleepy Joe Hiden' was acknowledged by his own people to have done a terrible job on a much easier situation, H1N1 Swine Flu. The OBiden Administration failed badly on this, & now he sits back in his basement and criticizes every move we make on the China Virus. DOING GREAT JOB! https://t.co/p2H40mD7Sh"

September 3: "@NYGovCuomo should get his puppet New York prosecutors, who have been illegally after me and my family for years, to investigate his incompetent handling of the China Virus, and all of the deaths caused by this incompetence. It is at minimum a Nursing Home Scandal - 11,000 DEAD!"

September 7: "Starting to get VERY high marks in our handling of the Coronavirus (China Virus), especially when compared to other countries and areas of the world. Now the Vaccines (Plus) are coming, and fast!"

September 8: "My Campaign spent a lot of money up front in order to compensate for the false reporting and Fake News concerning our handling of the China Virus. Now they see the GREAT job we have done, and we have 3 times more than we had 4 years ago - & are up in polls. Lots of $'s & ENERGY!"

September 8: "Because of the China Virus, my Campaign, which has raised a lot of money, was forced to spend in order to counter the Fake News reporting about the way we handled it (China Ban, etc.). We did, and are doing, a GREAT job, and have a lot of money left over, much more than 2016...."

September 18: "Biden FAILED BADLY with the Swine Flu. It was the Gang That Couldn't Shoot Straight". He didn't have a clue. We have done an incredible job with the much tougher China Virus!"

8. Citation

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