Manuscript Title:
Does Labeling COVID-19 as "Chinese Virus" Trigger Perceived Foreign Threats and Reduce the Blame?

Abstract

Connecting a life-threatening crisis with geographic localities is suggested to stigmatize people from that area. However, such strategy may reduce the public blame attributable to the government because the perceived foreign threat establishes a scapegoat which transfer the blame. In the context of the COVID-19 pandemic, we investigated whether the "Chinese Virus" label placed on COVID-19 may have triggered opposition to Chinese immigrants and reduced public blame attributed to the federal government during the pandemic. Through a survey experiment embedded with a list experiment approach, this study suggests a heterogeneous treatment effect of such label: although no treatment effect overall was detected, the "Chinese Virus" label led to a significant increase of perceived threat of Chinese immigrants among liberals but no influence on conservatives. However, the "Chinese Virus" label showed no effect on reducing the blame attributed to the federal government.

Keywords: COVID-19, Stigma, Blame, Identity, List experiment

The COVID-19 has infected more than 34 million people worldwide, and more than 7 million in the U.S. with over 200,000 deaths (World Health Organization, 2020a, 2020b). Although all the people and communities were suffering from the pandemic, minorities groups such as Chinese Americans and Chinese immigrants, or even broadly defined Asian Americans, are going through a unique threat. During the pandemic, COVID-19 was frequently linked to China and Chinese government by political leaders. On March 16, 2020, President Trump referred to COVID-19 as "Chinese Virus", which stimulated large discussion and criticism. Right after announcing this controversial label, there have been increasing numbers of cases that have reported hate language and violations against Chinese communities in multiple localities in the U.S. (Tavernise & Oppel, 2020). A descriptive analysis of social media content suggests that there was an increase in Sinophobic racial slurs on Twitter and 4chan's /pol/ after President Trump labeled COVID-19 as "Chinese Virus" (Schild et al., 2020). However, it is questionable whether observed violence increase against Chinese communities in the U.S. was casually caused by the "Chinese Virus" label in such a short term, which is a symbolic action that potentially stigmatizes Chinese people.

As immigration policy is becoming one of central concern of candidates' political agenda, changes of public opinions on immigrants may well influence the current political landscapes (Aaroe et al., 2017). In this study, we argue that the "Chinese Virus" label can be understood as a strategy to enhance the "in-group identity" as Americans to reduce people's blame attributed to the federal government, as triggering perceived threat from foreign members creates a scapegoat which transfer the blame. In a performance-based accountability system, especially when government performance directly connects to people's lives, how the people perceived the government performance may influence their support of the elected leader of the administration, for example, the president. As the COVID-19 coincidentally out-broke in the U.S. during the important period of presidential campaign in 2020, how the incumbent president handles the threatening event will largely influence

the reelection outcome. Therefore, it is expected that while actively handling the spread of COVID-19, the president will take advantage of such event to reduce public blame strategically. Evidence from this study not only helps us to understand the effectiveness of one common blame-avoidance strategy in a more polarized political environment but also how vulnerable immigrants are, as a growing part of the U.S., during a public health emergency.

In sum, we suspect that the "Chinese Virus" label may stigmatize Chinese immigrants and trigger perceived threat from Chinese communities, while also reduce the blame people attribute to the federal government because the label enhances a shared national identity through emphasizing the foreign threat. To test our hypotheses, we design an online survey experiment, where we manipulated the name of COVID-19, and examine the level of perceived threat of Chinese immigrants by a list experiment and people's blame attributed to the federal government at the early stage of the pandemic.

Hypotheses

Stigmatization and Perceived Threat

We hypothesize that labeling COVID-19 the "Chinese Virus" will stigmatize Chinese or even broader East Asian communities in the U.S. In consequence, a perceived threat of Chinese immigrants during the pandemic will be enhanced. The guidance of naming new diseases the World Health Organization (WHO) issued suggests that naming a newly discovered contagious disease with geographic locality will stigmatize people from that area (Fukuda et al., 2015). Stigma are attributes that "...extensively discredits an individual, reducing him or her from a whole and usual person to a tainted, discounted one" (Goffman, 1963, p. 3). They are natural reflections of a tangible threat to physical health or symbolic threat to group identity, and therefore, stigmatizing out-group members is a defensive function to protect in-group members. In fact, connecting the disease with foreign

groups primes tropes of immigrants as disease vectors easily, as political opinions of immigration policy have a close relationship with people's behavioral immune system (Aaroe et al., 2017).

Social stigma is constructed by a combination of biological process and social forces. Stangor and Crandall (2000) proposed a mixed model that suggests that the initial perception of a tangible (health, safety, wealth, or social position) or symbolic (beliefs, values, or ideology) threat triggers the formation of a specific type of social stigma, which is accentuated, in turn, through the perception of differences that amplify group differences and finally form by sharing and conformity on the part of members within the group. Following this logic, Chinese communities in the U.S. may be particularly vulnerable to cues that lead to stigmatization because of the combination of the current tangible threat of the contagious, often fatal disease and the long-term Sinophobia that contains symbolic threats with respect to ideology and current intensive U.S.-China relation (Lew-Williams, 2018). Therefore, our first hypothesis on the "Chinese Virus" effect is as follows:

H_1: The "Chinese Virus" label will enhance people's perceived threat of Chinese immigrants in the U.S.

Given growing discussions of racial bias and stereotyping (Greenbaum, 2019), we assume that there has been a moderate level of social pressure against discriminating and stereotyping Chinese immigrants, even though the Chinese and the broadly defined East Asian communities have long been considered "perceptual foreigners" in the U.S. However, as stigmatizing foreign groups enhances in-group identity, the "Chinese Virus" label, especially when being referred by national leaders, will legitimize the stigmatization against Chinese immigrants. Thus, expressing perceived threat of Chinese immigrants will no longer be considered socially undesirable when the virus is labeled the "Chinese Virus."

H_2: The "Chinese Virus" label justifies stigmatization and therefore will lead to less social desirability bias in expressing the perceived threat of Chinese immigrants.

Scapegoat and the Transfer of the Blame

Blame avoidance is a ubiquitous political tactic of government officeholders (Hood, 2011), and finding a scapegoat is a common strategy that transfers the blame from the original target to a new entity. For example, such blame transfer/shift was identified by Moynihan (2012) as one of the blame-avoidance strategies within the Katrina response network. Although the effectiveness of finding a scapegoat for blame avoidance varies according to different situations, social identity theory suggests that highlighting the out-group threat is more likely to consolidate the in-group congruence and reduce blames on in-group members.

One example of triggering group identity in the public sector is the "rally effect", a phenomenon in which "...specific, dramatic, and sharply focused international events directly involving the United States...redound to the benefit, albeit short-lived, of an incumbent president's public approval rating" (Mueller, 1973, p. 21). Previous evidence implies that triggering the "rally effect" is a strategy that primes the in-group identity the major public share. Research on behavioral economics and psychology also implies that a shared group identity may ease blame and increase support (Chen & Li, 2009; Levendusky, 2018, e.g.). Identities can be constructed socially and primed in multiple ways. For example, addressing events that threaten the group strategically, for example, naming one contagious and life-threatening disease with some foreign localities, may prime and consolidate in-group identity (Haidt, 2012). Therefore, depicting China as a scapegoat for the pandemic will prime U.S. citizens a national identity that reduces the blame on their own government.

H_3: The "Chinese Virus" label will reduce the blame of the federal government's management of the pandemic.

As both the effects of the finding-a-scapegoat strategy and social stigmatization are related closely to social identity, we also address the "Chinese Virus" label's heterogeneous effects on ideological subgroups. Following the moral foundation theory (Graham et al., 2009), we propose that the label will have smaller effect on liberals than on conservatives in the U.S. The moral foundation theory suggests that people construct their moral system on five fundamental domains: Harm/care, Fairness/reciprocity, Ingroup/loyalty, Authority/respect, and Purity/sanctity (Graham et al., 2011). It further shows that people's value judgments on these domains vary depending on political ideologies. In our case, different values on two moral domains help to explain the heterogeneous effect of the "Chinese Virus" label. First, liberals care more about Harm/care, which supports ideals of social justice and political equity, than conservatives. In consequence, liberals may ignore or even condemn the "Chinese Virus" label, and the blame from liberals may increase, because the label "Chinese Virus" offends the moral standard of Harm/care explicitly. Second, conservatives construct their systems on Ingroup/loyalty more than liberals. Therefore, liberals tend toward universalism and away from nationalism. The "Chinese Virus" label may arouse nationalism and patriotism in the U.S, given a long-term Sinophobia and recent increasing tension of U.S.-China relations. As such, conservatives will be more defensive psychologically than liberals and perceive Chinese immigrants in general as a foreign threat when the "Chinese Virus" label is applied. In sum, we expect to find an ideologically polarized opinion of Chinese immigrants and the federal government's blameworthiness when the "Chinese Virus" label is mentioned:

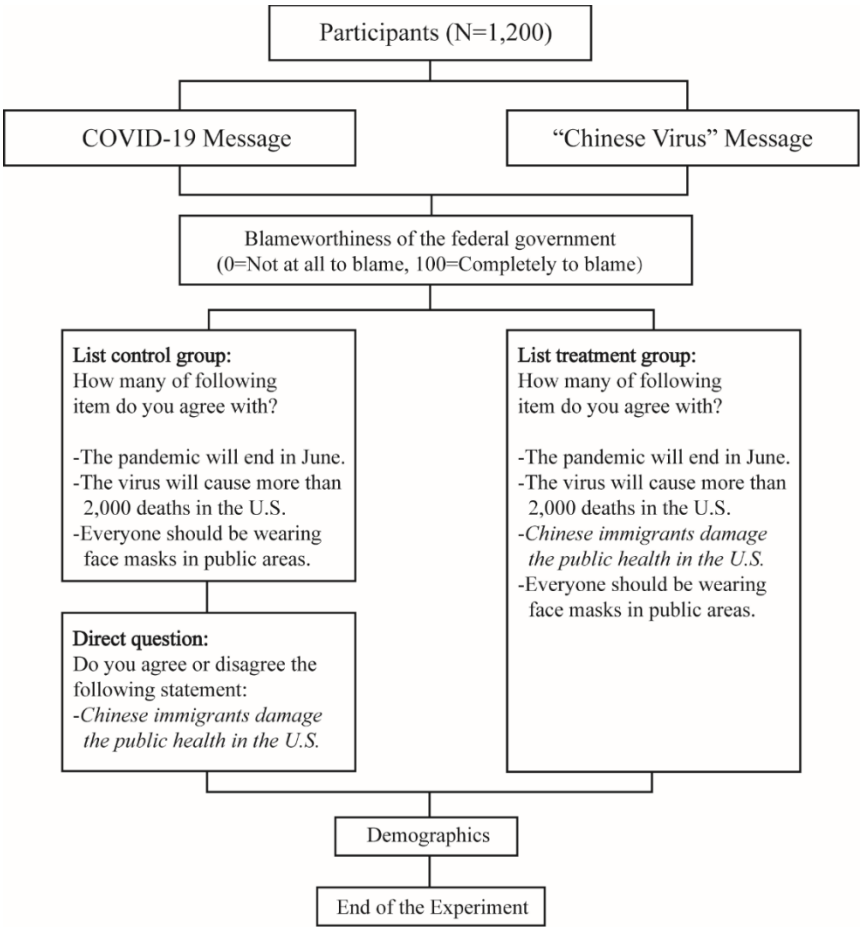
H_4: The effect of the "Chinese Virus" label is divided based on people's political ideology: Liberals are less likely to be affected by the label than conservatives in terms of perceived threat of Chinese immigrants and blame attribution.[1]

Design

We conducted an online survey experiment with a between-subject design (see Appendix A for the preregistration). The participants were assigned randomly to two different groups and read a message about the spread of COVID-19; however, the name of the virus was presented either as COVID-19 (control group) or the "Chinese Virus" (treatment group). The exact experimental vignette and the full survey is presented in the Appendix B. The experimental procedure is illustrated in Figure 1. The survey was delivered on March 25, 2020 and closed on March 26 when the total number of participants met the preregistered sample size.

Figure 1

Experimental Procedure



Participants

A total of 1,247 adult participants in the U.S. (53.42% female, $M_{age} = 36$) were recruited through Amazon Mechanical Turk (MTurk). 47 (3.8%) were eliminated because their surveys were incomplete, and 86 (7.2%) were excluded because they failed to answer the manipulation check question. The final sample size was 1,114. Detailed information about the sample size and randomization balance check are included in the Appendix C. We also include manipulation check failure subjects in our full sample robustness checks in the Appendix G.

Measurement

Perceived Threat. If the Chinese are stigmatized by labeling COVID-19 the "Chinese Virus", an increase of perceived threat from Chinese immigrants can be expected. To capture such perception, we ask about people's attitude (agree or disagree) toward the statement "Chinese immigrants damage the public health in the U.S." To measure opinions about sensitive issues such as racial prejudice and support for militant groups has long been considered being suffered from social desirability bias (Imai, 2011). In our situation, media coverage that criticizing the "Chinese Virus" label may have created a sense of social pressure which may lead to dishonest answers. Therefore, we embedded a list experiment to address this problem. The list experiment provides respondents a greater degree of privacy by asking only the number of statements with which they agree. In the list experiment, participants were assigned randomly into two groups, where there were three controversial statements in the list control group (3-item group), while the list treatment group (4-item group) included the same statements as those in the list control group, as well as one additional sensitive statement ("Chinese immigrants damage the public health in the U.S."), which was the statement of our interest. Because people were assigned randomly to the two groups, the proportion of the respondents whose answer to the sensitive statement was affirmative can be estimated by computing

the difference in the mean responses between the two groups. In the 3-item group, we also directly asked participants about their opinion on the sensitive statement, which helps us to gauge the magnitude of social desirability bias and test H_2. The full text of the list experiment is showed in Figure 1.

Blameworthiness. To capture whether the "Chinese Virus" label reduce the blame on the federal government, we adapted McGraw's (1990) measurement to gauge people's perceived blameworthiness of the way the federal government is managing the pandemic. Specifically, we asked the participants to indicate "To what extent do you believe the federal government deserves blame for the current COVID-19 (in the control group)/the "Chinese Virus" (in the treatment group) outbreak" on a 0-100 scale (0=not at all to blame, 100=completely to blame).

Results

H1: Perceived Threat of Chinese Immigrants

Our list experiment strategy detected a moderate level of perceived threat of Chinese immigrants, but the analysis found no supportive evidence to our first hypothesis in general. Table 1 shows the summary of item counts in the list experiment as a measure of perceived threat of Chinese immigrants. Our list experimental design provided an effective measure of perceived threat of Chinese immigrants. First, in the 4-item subgroups of both the COVID-19 (CO) and "Chinese Virus" (CV) groups, the percentages of reports of extreme item counts (1 or 4) were less than 9%. As we could not detect over 90% of the respondents' opinions of each item, our list design provided good protection for the respondents' truthful answers. Second, there was no evidence that respondents concentrated their answers on any single item's choice, so none of the items demonstrated a ceiling or floor effect. Moreover, we ran Blair and Imai's (2012) statistical test to

diagnose whether the design effect failed to reject the null hypothesis that the sensitive item of our interest changed participants' attitudes toward other non-sensitive items ($p = 1.00$).

Table 1

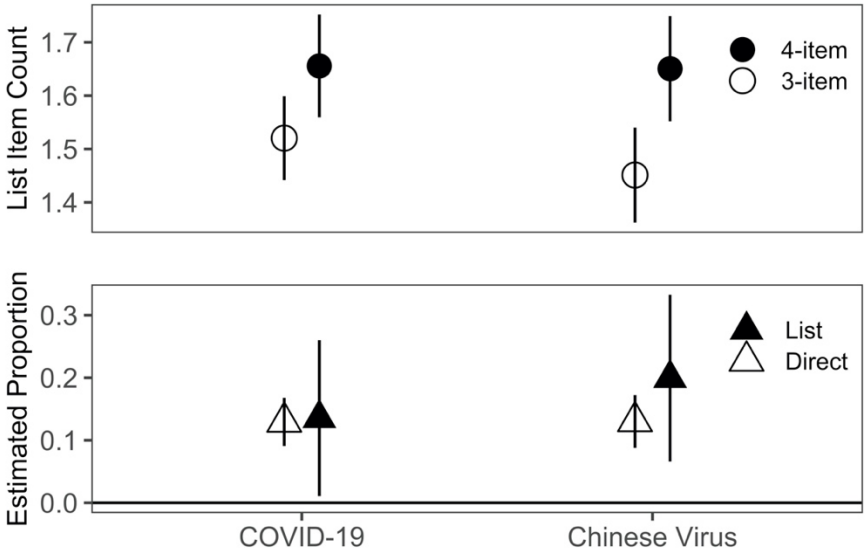
Item Count in the List Experiment

	COVID-19 Group				"Chinese Virus" Group			
	Frequency	Proportion	Frequency	Proportion	Frequency	Proportion	Frequency	Proportion
0	13	4.42%	15	4.92%	16	6.50	9	3.35%
1	134	45.58%	126	41.31%	118	47.97%	118	43.87%
2	128	43.54%	124	40.66%	97	39.43%	109	40.52%
3	19	6.46%	29	9.51%	15	6.10%	24	8.92%
4			11	3.61%			9	3.35%
Sample size	294		305		246		269	

The upper panel of Figure 2 reports the item count means for the 3- and 4-item subgroups in both the CO and CV groups. The difference-in-means estimation (DIM) of the item count reflects the true proportion of participants who perceived Chinese immigrants as a threat to the public health in the sample, and the proportion comparisons between the direct and indirect measurements are shown in the lower panel of Figure 2. In the CO group, the proportion was 12.93% (95% CI: [0.09, 0.17]) from the direct question measurement and 13.53% ($SE = 0.06$, $p = 0.03$) from the list item count estimation. In the CV group, the proportion was 13.00% (95% CI: [0.09, 0.17]) from the direct question measurement and 19.93% ($SE = 0.07$, $p = 0.00$) from the list item count estimation.

Figure 2

List Item Count and Proportion of Participants with Perceived Threats



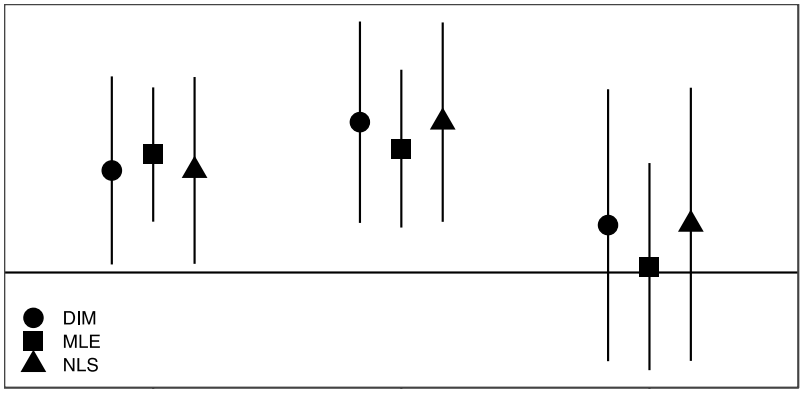
Note: The upper panel is the mean comparisons between 3-item and 4-item subgroups. The lower panel is the comparison between direct perceived-threat proportion (direct) and the list item count difference-in-means estimation of perceived-threat proportion (list). Bars are 95% confidence intervals.

Further analysis suggested that the "Chinese Virus" had no main effect on the level of perceived threat, which did not support H_1. We employed the nonlinear least square (NLS) estimation as our major strategy to capture the treatment effect of the "Chinese Virus."[2] Rather than simply comparing DIMs of the item-count between groups, scholars have suggested using either the maximum likelihood estimation (MLE) or NLS estimation for subgroup analyses (Blair et al., 2019). As a robustness check, we also compared the estimates of DIM (with the bootstrap CI), MLE, and NLS (Figure 3). The MLE estimates were more efficient (as suggested by the smaller standard errors), but the coefficients were biased (deviated from the DIM and NLS estimates). Although it shows that the MLE results were very similar to those of the other two estimations, its biases would increase greatly in the subsample analysis in which sample sizes are smaller. Accordingly, we decided

to use NLS as our major estimation strategy. The results showed that labeling COVID-19 the "Chinese Virus" led to a 6.4% increase in perceived threat, but this effect was not statistically significant ($SE = 0.09$, $p = 0.49$).

Figure 3

The "Chinese Virus" Label Treatment Effect



Note: "Difference" is the treatment effect of the "Chinese Virus" message. Bars are 95% confidence intervals.

Pre-treatment Effect

The null effect of the "Chinese Virus" label may be owing substantially to the pretreatment effect of news coverage and social media post of "Chinese Virus". Druckman and Leeper (2012) proposes that the pre-treatment effect will be more likely to occur when individuals are "exposed and attentive to earlier communications similar to the experimental stimuli" (p. 878). As people increased the use of social media such as Facebook and Twitter to get and share information particularly during lock-downs, we suspect that people rely less on social media will be more sensitive to the treatment. We thus conducted subgroup analyses on the treatment effect conditioning on the usage of Facebook or Twitter, taking both the proportion of participants

affirming the threats detected from the list experiment and direct answers to the statement as the dependent variable. The subgroup analyses show that the proportion of participants who perceived Chinese immigrants as a threat increased 14.47% due to the "Chinese Virus" label among those who spend less than about half of the time using Facebook/Twitter to get news/information, but such effect is not statistically significant ($SE = 0.12$, $p = 0.22$) (see Appendix E).

H2: Justification of Perceived Threat of Chinese Immigrants

We found no statistically significant social desirability bias when participants expressing perceived threats of Chinese immigrants, except for the liberals (see Appendix F for the estimation strategy). In addition, our analysis suggests no support for H_2, as we did not detect that the "Chinese Virus" label further justified the opposition to Chinese immigrants. Table 2 presents an estimation of social desirability in both the CO and CV groups in the full sample and political ideology subgroups. Liberals expressed perceived threat explicitly in the CO group, while 16% ($SE = 0.09$, $p = 0.08$) of liberals concealed the perceived threats of Chinese immigrants in the CV group. Our additional analysis also showed that the "Chinese Virus" label had no treatment effect on the proportion of overt perception of threat in 3-item subgroups (see Table F.1). In summary, the perceived threats of Chinese immigrants during the pandemic was generally expressed explicitly with limited social pressure, and the "Chinese Virus" label did not further justify overt expression of perceived threats.

Table 2

Estimation of Social Desirability Bias

	COVID-19 Group			"Chinese Virus" Group		
	Overt Perceived Threat	Social Desirability	P-value	Overt Perceived Threat	Social Desirability	P-value
Overall	0.13	0.01	0.93	0.13	0.07	0.34
	(0.34)	(0.07)		(0.34)	(0.07)	
Liberal	0.08	-0.07	0.41	0.06	0.16	0.08
	(0.27)	(0.09)		(0.24)	(0.09)	
Conservative	0.21	0.13	0.44	0.23	0.11	0.56
	(0.41)	(0.17)		(0.42)	(0.18)	
Moderate	0.15	0.00	0.98	0.17	-0.08	0.58
	(0.36)	(0.12)		(0.38)	(0.14)	

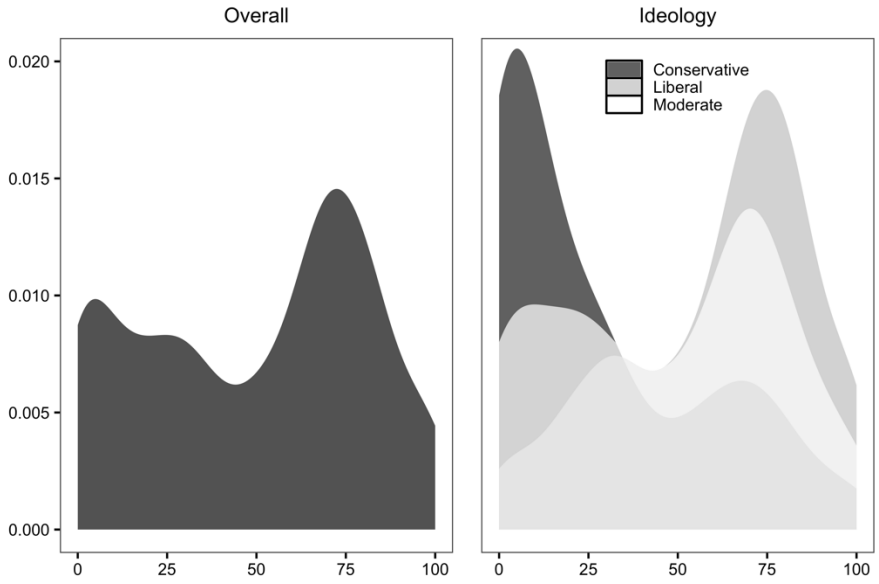
Note: Standard deviations of overt perceived threat and standard errors of social desirability effects are in brackets. See Appendix F for model specification. The social desirability effect is the coefficient μ on y_i.

H3: Blameworthiness

Figure 4 shows that the blame assigned to the federal government was highly polarized (M_{blame} = 49.37, SD = 31.16), which is potentially attributable to the different opinions in ideological groups. Most conservatives attributed much less blame (M = 27.81, SD = 29.17) to the way the federal government is managing the pandemic than did liberals (M = 61.22, SD = 26.18). We found no supportive evidence for hypothesis H_3 with respect to blameworthiness, as no main treatment effect of "Chinese Virus" label was detected (see Table 3). Respondents' opinions on the federal government's blameworthiness were nested at 50 points for both the CO and CV groups[3].

Figure 4

Distribution Density of Blameworthiness



H4: Heterogeneous Treatment Effects on Perceived Threat and Blameworthiness

Our subgroup analyses supported H_4 partially. While the null effect on blameworthiness was shown across all ideological groups (see Table 3), the "Chinese Virus" effects on perceived threats of Chinese immigrants were statistically significant among liberals. In detail, the "Chinese Virus" led to a 21.55% increase in liberals who expressed perceived threats of Chinese immigrants (SE = 0.12, p = 0.07). The proportion of liberals who reported perceived threats increased from 0.73% (SE = 0.08, p = 0.93) in the CO group to 22.27% (SE = 0.09, p = 0.01) in the CV group. Although conservatives had no attitude changes attributable to the "Chinese Virus" treatment effect, the levels of perceived threats they expressed were highest among all ideological subgroups. The proportion of conservatives who expressed perceived threats was 33.88% (SE = 0.15, p = 0.02) in the CO group and 33.33% (SE = 0.16, p = 0.04) in the CV group, which was unaffected by the treatment. We

found no significant prevalence of perceived threats among moderates in either experimental group. The results of each ideological subgroups are shown in Figure 5.

Table 3

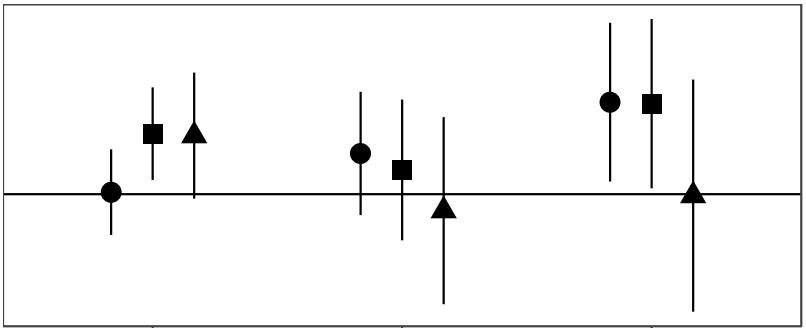
Blameworthiness of the Federal Government

	Overall	Liberal	Conservative	Moderate
"Chinese Virus"	-0.283	-0.377	0.649	-5.659
	(1.874)	(2.258)	(3.631)	(3.478)
Constant	49.498***	61.400***	27.527***	49.630***
	(1.275)	(1.580)	(2.386)	(2.312)
N	1,113	539	264	310
R^2	0.00002	0.0001	0.0001	0.009

Note: All models are estimated with ordinary least squares. Standard errors are in brackets. $^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$

Figure 5

The Heterogeneity of the "Chinese Virus" Label Treatment Effect



Note: "Difference" is the treatment effect of the "Chinese Virus" message. Bars are 95% confidence intervals.

Discussion and Conclusion

Evolution makes people responsive to life threats even in terms of their attitudes. Therefore, how a deadly contagious disease such as COVID-19 be labeled is an important public issue. This study provides several important findings regarding Americans' opinion on Chinese immigrants. First, although from a less representative sample, the finding of our list experiment shows that during the early stage of the pandemic, Chinese immigrants are perceived negatively by a significant proportion of Americans, among which there are more conservatives than moderates and liberals. Second, we did not detect significant effect of "Chinese Virus" label on perceived threats of Chinese immigrants. However, the "Chinese Virus" label had heterogeneous treatment effects on different ideological subgroups. Opposite to our expectation, the label showed no effect on conservatives and moderates, but it had a significant effect on liberals who generally favor immigrants in the U.S. This finding conforms with Aarøe et al (2017) that people's opinion on immigrants is closely related to the sensitivity of their behavioral immune system. In general, anti-immigration sentiments are more likely to be triggered for people with high sensitivity (e.g., people who feel disgust easily). Importantly, Aarøe et al (2017) points out that the sensitivity of behavioral immune system affects the anti-immigration attitude of conservatives and liberals differently. Conservatives will oppose immigration by the nature of their ideology, whereas liberals will present an ideological inconsistency: treatments which directly suggests a connection between infectious disease and an immigration group will trigger a psychological defensive motivation that prompts them to perceive immigrants negatively, even though it is incoherent with their ideology.

However, there are several important limitations in our study, for which we urge readers to understand our finding cautiously. First, the overall null treatment effect of the "Chinese Virus" label may result from a substantial pre-treatment effect. That is, participants in this study had established their opinions on the "Chinese Virus" label prior to the treatment. When the treatment

matches their prior attitude, people did not react; in contrast, participants may reject the contrary experimental treatment. The magnitude of the pre-treatment effect depends on the extent to which participants were exposed to the pre-treatment and how strongly they held their prior-attitude when responding to the experimental treatment. Our additional analysis adjusting for participants' daily usage of social media implies that most participants might have been exposed to news about "Chinese Virus" before the experiment. However, we did find an important sign that people with less usage of social media were more likely to be affected by the treatment. It indicates that our finding is a rather conservative inference of the "Chinese Virus" effect. Another facet of the pre-treatment effect may include participants' opinions on Chinese immigrants during the pandemic. Such opinion may not be related to the label "Chinese Virus" but to people's political attitudes caused by their behavioral immune sensitivity (Aarøe et al, 2017). That is, it is possible that media reporting and discussion on social media about COVID-19, which were mostly related to China at the early stage of the pandemic, had formed a connection between COVID-19 and Chinese people unintentionally. However, even though our study might have suffered from the pre-treatment, our analysis still shows that liberals were more likely to be affected by the "Chinese Virus" label, which led to negative perceptions of Chinese immigrants.

Second, our findings were drawn from a convenience sample on MTurk that has limited generalizability. A particular important disadvantage of our MTurk sample is that conservatives were underrepresented. Therefore, considering our subgroup analyses on opinions of Chinese immigrants, the proportion of people in the U.S. who perceived Chinese as a foreign threat of U.S. public health may be underestimated. In addition, the MTurk sample largely ignored people with limited access to the internet, and these people might be more reactive to the treatment effect. Finally, we may reasonably expect that the effect of the "Chinese Virus" label may work differently on the state level, given that Chinese immigrants are distributed unevenly across the country. A

convenient sample on MTurk did not allow us to capture such variation with sufficient statistical power. However, we do believe our findings on liberals shed lights on how the label affects the opinion of Chinese immigrants on the internet.

Third, our experiment only shows the short-term effect of stigmatization, and thus, we recommend analysis of the "Chinese Virus" label's causal effect in the long-term. How such label will affect people's perception of Chinese immigrants and political attitude toward immigration policy in the U.S. depends on public discussion among political elites.

Recognizing all aforementioned limitations, we encourage future studies to replicate our experiments during different contexts, using a more representative sample. However, our study still provides several important insights. First, our findings suggested that the label "Chinese Virus" did lead to negative perceptions of Chinese immigrants in liberals. Liberals occupied 57% of our full sample, and therefore, we argue that it is not an ignorable effect. Second, our list experiment strategy revealed that people demonstrated negative perception of Chinese immigrants overtly during the pandemic. This result provides a preliminary observation of current public opinion regarding Chinese immigrant. Different from that of other ethnic groups, U.S. residents' opinion of Chinese immigrant may be influenced by the image of China and the U.S.-China relation rather than their political standpoints of immigration in general. Indeed, a recent poll showed that during the COVID-19 outbreak, more than 60% of respondents reported a negative opinion of China (Devlin et al., 2020).

Thirdly, our experiment indicates that the label "Chinese Virus" is not an effective strategy to prevent the public from blaming the federal government for handling the pandemic. In an increasingly polarized political environment where ideological identities are more salient, the effectiveness of blame-avoidance strategies may be reduced by people's political standpoints. Using ideological related issue such as immigration for blame-avoidance has no effect on the people who

share the same ideology because the blameworthiness of the government was predetermined. Similarly, when ideological conflict persists, finding a scapegoat does not affect the level of blame, even though a negative perception against the scapegoat was triggered. This finding echoes to previous research on political motivational reasoning, which suggests that people explain or assign biased weight even on hard evidence and data in a way that justifies expectations that are based strongly on their ideological or partisan identities (Hart & Hisbet, 2012; James & Van Ryzin, 2017).

In conclusion, this study provides evidence demonstrating that labeling of the disease by locality can lead to perceived threat of that group even in short term, while a following question is how long such attitude will hold. In addition, we show that taking one foreign group as a scapegoat does not reduce the blame attributed to the government during the pandemic. Thus, the label brings no political benefits but may substantially harm Chinese immigrants and even broadly defined Asians. President Trump's frequent use of similar phrases such as "Wuhan Virus" and "Kung Flu" during his campaign may further undermine the Chinese community in a longer period (Lee, 2020). As our findings suggest significant effect of the label in liberals who disapprove President Trump, we suspect whether the negative attitude and potential xenophobia will be shared by the general public. Compared to studies of other ethnic groups, research that has focused on Chinese or broadly defined Asian Americans has attracted less attention. Because social judgment of Asian Americans developed through a different trajectory compared to that of African Americans and Hispanics, research that focuses on Asian Americans may offer additional insights into understanding the decision-making process in an increasingly diverse political environment.

Notes

1. This hypothesis was modified compared to our preregistration. In our preregistration, we proposed a heterogeneous effect of the "Chinese Virus" label based on people's partisanship.

However, our diagnose of the data following Blair, Chou, and Imai (2019) showed an unexpected measurement error of perceived threat using the list experiment in the Republican group (see the Appendix D for the design effect tests for the overall sample and each subgroup). Though the error may result from a small portion of republicans in the sample, it made the analysis impossible to test the hypothesis in an unbiased way. Thus, following Duflo et al. (2020)'s suggestion, we switched to political ideology, which is a broader concept that shapes people's political opinion (Jost et al., 2009), to demonstrate the heterogeneous effect.

2. The analytical method was determined after data collection to fit the feature of the data, and thus it was not preregistered.
3. Our effect size estimate of blameworthiness is d = .009, with a 95% confidence interval of [-.109, .127]. A total of 381,498 participants are needed to have an 80% chance to detect the estimated effect size at .05 level.

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Appendix A: Preregistration

1. **Data collection:** Have any data been collected for this study already?
   No, no data have been collected for this study yet.

2. **Hypothesis:** What's the main question being asked or hypothesis being tested in this study?
   In this survey experiment, we ask two major research question:
   1) Does mislabeling COVID-19 as "Chinese Virus" lead to social stigmatization against Chinese immigrants in the U.S.?
   2) Does mislabeling COVID-19 as "Chinese Virus" reduce the blameworthiness of the federal government in response to the pandemic?

   We raise four hypotheses to be tested in this study:
   H1a: The label "Chinese Virus" will lead to social stigmatization against Chinese immigrants in the U.S.
   H1b: The label "Chinese Virus" justifies stigmatization and therefore will lead to less social desirability bias in answering the question regarding stigmatization.
   H2: The label "Chinese Virus" will lead to less blame against the federal government in handling the pandemic.
   H3: The effect of "Chinese Virus" is divided based on people's partisanship.

3. **Dependent variable:** Describe the key dependent variable(s) specifying how they will be measured.
   a. Social stigmatization. This construct is measured by asking whether or not the respondent agree with the statement, "Chinese immigrants damage the public health in the U.S." It is a dichotomic variable (1=Agree, 0=Disagree). To filter the socially desirable responses, the statement is embedded in a list experiment. In the treatment group of the list experiment, we ask how many of the 4 listed statements (above statement included) do people agree with. In the control group of the list experiment, we ask how many of the 3 listed statements (above statement not included) do people agree with. The true support of the statement is the difference between the number of agreed statements in the treatment group and that in the control group.
   b. Social desirability bias. Social desirability bias will be detected through the analysis of the list experiment. See the Analyses Section for details.
   c. Blame. This construct is measured by asking "overall, to what extent do you believe the federal government is deserving for blame for the current COVID-19/Chinese Virus outbreak?". Responses are to be recorded on a 0-100 scale (0=Not at all to blame, 100=Completely to blame).

4. **Conditions:** How many and which conditions will participants be assigned to?
   Participants will be randomly assigned to one of four conditions. There will be two experimental conditions for hypothesis testing. The intervention is to be delivered in terms of a vignette, which narrates the current situation of COVID-19 in the U.S. While keeping everything consistent, the vignette in the control group label the virus as COVID-19, and the virus name in the treatment group is manipulated as "Chinese Virus". To measure social stigmatization, we will apply list experiment technique which further include two conditions in each experimental condition. The control list experimental condition includes three controversial statements, while

the treatment list experimental condition includes three same controversial statements plus one sensitive statement regarding social stigmatization.

5. **Analyses:** Specify exactly which analyses you will conduct to examine the main question/hypothesis.
   Our analysis separate in three parts: blame, social stigmatization, and social desirability effect.
   A. Blame
      1. The Average Treatment effect (ATE) will be visualized by a difference-in-means graphic.
      2. State fixed effect linear model with control covariates and clustered standard errors at the State level ("blame model").
   B. Stigmatization (answering "Agree" in the sensitive statement)
      1. [Direct Question] We use difference-in-means to examine the Chinese Virus treatment effect on the direct question. We will also report the percentage of answering "Agree" in the direct question. Finally, we will report a logit regression model with covariates ("direct model").
      2. [List item count] We will report ATE with difference-in-means between the 4-item list and 3-item list in both control and Chinese Virus treatment groups.
   C. Social desirability effect (Coffman et al. 2017)
      We subgroup our sample by control and Chinese Virus treatment groups. The following analysis will be done in both groups. We will compare results for both groups.
      1. [Change in sensitive "Agree"] We observe direct question answer as d_i (0,1), and 3-item count answer as c_i (between 0 to 3). We measure the sum of both questions as $y_i^D = d_i + c_i$. We measure the 4-item count answer with one sensitive statement as y_i^S (between 0 to 4). Ideally, if there is no social desirability effect, $y_i^D = y_i^S$. So, we define the change in sensitive "Agree" as $\mu = y_i^S - y_i^D$. To have a more precise analysis, we put our estimators into a regession to control geogrphical effects. The model is:

$$y_i = \beta X_i + \mu S_i, \begin{cases} y_i = y_i^D \ when \ S_i = 0 \\ y_i = y_i^S \ when \ S_i = 1 \end{cases}$$

         Where, S_i (0,1) is the item-count list treatment and X_i is a matrix of control covariates. We use State fixed-effect to control heterogenous COVID-19 confirmed cases by different states, and we also cluster standard errors at the State level.
      2. [True fraction of sensitive "Agree"] $= \bar{d} + \mu$
      3. [Percentage increase in sensitive "Agree"] $= {}^{\mu}/_{\bar{d}}$

6. **Outliers and Exclusions:** Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
   An outlier is defined as being any point of data that lies over 1.5 IQRs below the first quartile (Q1) or above the third quartile (Q3)in a data set. We will compare and report the analytical results with and without outliers.

7. **Sample Size:** How many observations will be collected or what will determine the sample size? No need to justify decision, but be precise about exactly how the number will be determined.

We will stop data collection once 1,200 subjects (approximately 300 per cell) have submitted a response on MTurk. Deviations from this goal are entirely due to MTurk software and outside of our control.

8. Any secondary analyses?
   A. Subgroup analysis
      To test H3, subgroup analysis will be conducted based on respondents' reported partisanship.
   B. Covariate analysis
      1. [Blame] explain correlations between control variables and blame in the "blame model".
      2. [Direct] explain correlations between control variables and driect "Agree" in the "direct model".
      3. We will compare results for who passes or failed the manipulation check question.
   C. Re-weighted analysis
      We will weight our data with iterative proportional fitting technique (raking) to match the US population. We will compare results for the original data and the weighted data.

9. Anything else you would like to pre-register? (e.g., data exclusions, variables collected for exploratory purposes, unusual analyses planned?)
   Subjects' demographic information will be collected after they have answered the questions regarding key dependent variables. The information is collected for detecting the heterogeneity of the treatment effect and for the randomization balance check. Since we only recruit adult subjects in the U.S., VPN and proxy identifier will be applied at the beginning to filter out disqualified subjects.

Appendix B: Survey instruments

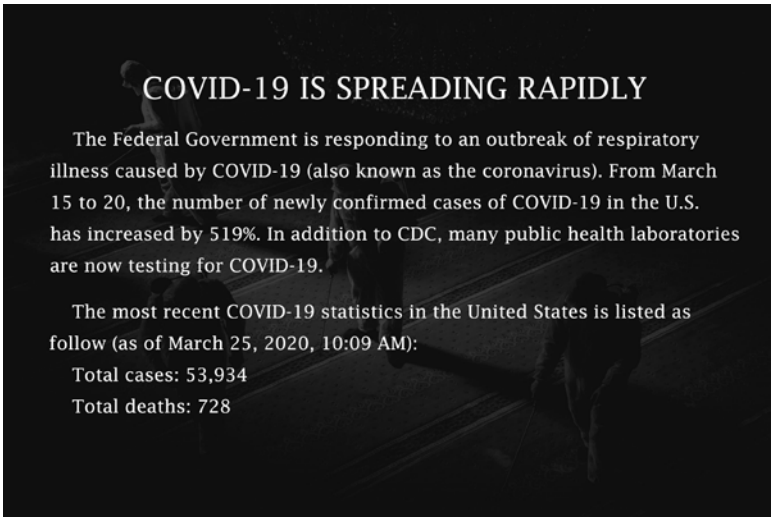
[Survey begin]

[VPN and Proxy Check]

[IRB Consent Form]

In this study, we invite you to share your opinion of the federal government's response to the current epidemic outbreak.

[COVID-19 Condition] Please read the post below and answer following questions with this post in your mind.



Overall, to that extent do you believe the federal government is deserving of blame for the current COVID-19 outbreak?
(0) Not at all to blame (100) Completely to blame

[Chinese Virus Condition] Please read the post below and answer following questions with this post in your mind.

Overall, to that extent do you believe the federal government is deserving of blame for the current Chinese Virus outbreak?
(0) Not at all to blame (100) Completely to blame

To confirm you've read and understood this post, please answer the following question. What is the name of the virus in the post that you have just read:

- Chinese Virus
- COVID-19
- Flu

[3-item list] Now we are going to show you three controversial statements related to the pandemic. After reading all three, just tell us **HOW MANY** of these that you **AGREE** with.
(Remember: We don't want to know which ones, just how many)

The pandemic will end in June.
The virus will cause more than 2,000 deaths in the U.S.
Everyone should be wearing face masks in public areas.

Please also indicate whether you agree or disagree with the following statement: Chinese immigrants damage the public health in the U.S.

- Agree
- Disagree

[4-item list] Now we are going to show you four controversial statements related to the pandemic. After reading all four, just tell us **HOW MANY** of these that you **AGREE** with.
(Remember: We don't want to know which ones, just how many)

The pandemic will end in June.
The virus will cause more than 2,000 deaths in the U.S.
Everyone should be wearing face masks in public areas.
Chinese immigrants damage the public health in the U.S.

[Demographics]

Are you...

- Male
- Female

Your age: _____

Do you consider yourself to be...

- White, not Hispanic or Latino
- Black, not Hispanic or Latino
- Hispanic or Latino
- Asian, not Hispanic or Latino
- Other

What was your total household income before taxes during the past 12 months?

- Less than $25,000
- $25,000 to $34,999
- $35,000 to $49,999
- $50,000 to $74,999
- $75,000 to $99,999
- $100,000 to $149,999
- $150,000 or more

How worried are you that you or someone in your family will be exposed to coronavirus?

- Very worried
- Somewhat worried
- Not too worried
- Not worried at all

How often do you use or get information/news from Twitter/Facebook on an average day?

- Always
- Most of the time
- About half of the time
- Sometimes

- Never

In politics, as of today, do you consider yourself a Republican, a Democrat or an Independent?

- Republican
- Independent
- Democrat

[If Independent is selected] As of today, do you lean more to the Democratic Party or the Republican Party?

- Republican
- Democrat
- No opinion

How would you describe your political views as of today?

- Very conservative
- Conservative
- Moderate
- Liberal
- Very liberal
- No opinion

In which state do your current reside? _____

[Acknowledgment and Debrief Statement]

[End of Survey]

Appendix C: Characteristics of sample

			COVID-19 Group				"Chinese Virus" Group				
	Overall		3-item		4-item		3-item		4-item		
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Pr(>F)
Male	514.00	46.14	151.00	51.36	144.00	47.21	100.00	40.65	119.00	44.24	0.08
Female	600.00	53.86	143.00	48.64	161.00	52.79	146.00	59.35	150.00	55.76	0.08
Age: 18-29	310.00	27.83	87.00	29.59	85.00	27.87	63.00	25.61	75.00	27.88	0.79
Age: 30-49	565.00	50.72	146.00	49.66	156.00	51.15	132.00	53.66	131.00	48.70	0.70
Age: 50 and older	239.00	21.45	61.00	20.75	64.00	20.98	51.00	20.73	63.00	23.42	0.85
White	862.00	77.38	219.00	74.49	227.00	74.43	197.00	80.08	219.00	81.41	0.09
Black	81.00	7.27	22.00	7.48	25.00	8.20	17.00	6.91	17.00	6.32	0.85
Hispanic	64.00	5.75	20.00	6.80	20.00	6.56	12.00	4.88	12.00	4.46	0.54
Asian	88.00	7.90	26.00	8.84	27.00	8.85	16.00	6.50	19.00	7.06	0.65
Other	19.00	1.71	7.00	2.38	6.00	1.97	4.00	1.63	2.00	0.74	0.49
COVID-19: worried	910.00	81.69	242.00	82.31	245.00	80.33	201.00	81.71	222.00	82.53	0.90
COVID-19: not worried	204.00	18.31	52.00	17.69	60.00	19.67	45.00	18.29	47.00	17.47	0.90
≥ half time Twitter/Facebook	562.00	50.45	163.00	55.44	139.00	45.57	128.00	52.03	132.00	49.07	0.10
< half time Twitter/Facebook	552.00	49.55	131.00	44.56	166.00	54.43	118.00	47.97	137.00	50.93	0.10
Democrat	639.00	57.36	166.00	56.46	164.00	53.77	139.00	56.50	170.00	63.20	0.14
Republican	347.00	31.15	94.00	31.97	105.00	34.43	73.00	29.67	75.00	27.88	0.36
Nonpartisan	128.00	11.49	34.00	11.56	36.00	11.80	34.00	13.82	24.00	8.92	0.38
liberal	540.00	48.47	138.00	46.94	138.00	45.25	117.00	47.56	147.00	54.65	0.13
Conservative	264.00	23.70	67.00	22.79	83.00	27.21	57.00	23.17	57.00	21.19	0.36
Moderate	310.00	27.83	89.00	30.27	84.00	27.54	72.00	29.27	65.00	24.16	0.40
Income: Less than $25,000	173.00	15.53	51.00	17.35	45.00	14.75	39.00	15.85	38.00	14.13	0.73
Income: $25,000 to $74,999	558.00	50.09	145.00	49.32	164.00	53.77	116.00	47.15	133.00	49.44	0.46
Income: $75,000 or more	383.00	34.38	98.00	33.33	96.00	31.48	91.00	36.99	98.00	36.43	0.47

Appendix D: Design effect tests for list experiment

The following tables (D.1, D.2, D.3, and D.4) are statistical tests for design effect in overall sample and each subgroup. If the Bonferroni-corrected p-value is below 0.1, we reject the null hypothesis of no design effect. If it is above 0.1, we fail to reject the null (Blair & Imai, 2012).

Table D.1

Overall

	Est.	S.E.
pi(Y_i(0) = 0, Z_i = 1)	0.01	0.01
pi(Y_i(0) = 1, Z_i = 1)	0.05	0.03
pi(Y_i(0) = 2, Z_i = 1)	0.06	0.02
pi(Y_i(0) = 3, Z_i = 1)	0.03	0.01
pi(Y_i(0) = 0, Z_i = 0)	0.04	0.01
pi(Y_i(0) = 1, Z_i = 0)	0.41	0.02
pi(Y_i(0) = 2, Z_i = 0)	0.35	0.03
pi(Y_i(0) = 3, Z_i = 0)	0.03	0.01
Bonferroni-corrected p-value	1.00	

Table D.2

Partisanship

	Democrat		Independent		Republican	
	Est.	S.E.	Est.	S.E.	Est.	S.E.
pi(Y_i(0) = 0, Z_i = 1)	0.03	0.01	0.05	0.06	-0.05	0.03
pi(Y_i(0) = 1, Z_i = 1)	0.08	0.04	-0.03	0.09	0.04	0.05
pi(Y_i(0) = 2, Z_i = 1)	0.05	0.02	0.02	0.05	0.11	0.04
pi(Y_i(0) = 3, Z_i = 1)	0.02	0.01	0.03	0.02	0.06	0.02
pi(Y_i(0) = 0, Z_i = 0)	0.01	0.01	0.10	0.04	0.08	0.02
pi(Y_i(0) = 1, Z_i = 0)	0.46	0.03	0.34	0.08	0.36	0.04
pi(Y_i(0) = 2, Z_i = 0)	0.32	0.03	0.46	0.07	0.37	0.05
pi(Y_i(0) = 3, Z_i = 0)	0.03	0.02	0.03	0.04	0.03	0.03
Bonferroni-corrected p-value	1.00		0.76		0.06	

Table D.3:

Ideology

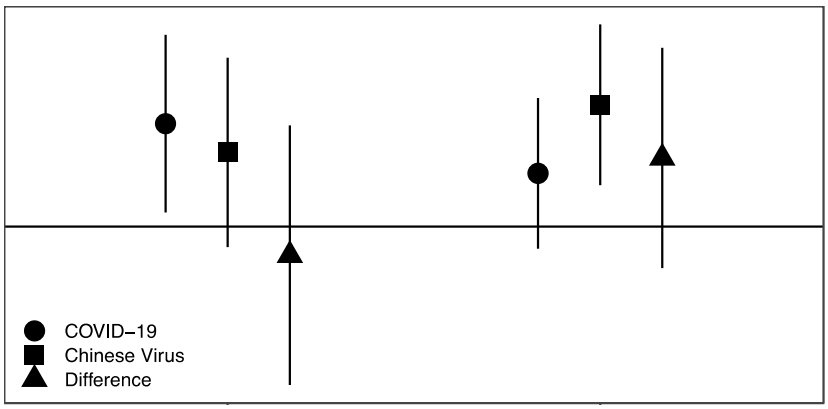
	Conservative		Moderate		Liberal	
	Est.	S.E.	Est.	S.E.	Est.	S.E.
pi(Y_i(0) = 0, Z_i = 1)	-0.01	0.03	0.00	0.03	0.03	0.01
pi(Y_i(0) = 1, Z_i = 1)	0.09	0.06	0.09	0.06	0.02	0.04
pi(Y_i(0) = 2, Z_i = 1)	0.17	0.04	0.02	0.03	0.04	0.02
pi(Y_i(0) = 3, Z_i = 1)	0.09	0.02	0.01	0.01	0.02	0.01
pi(Y_i(0) = 0, Z_i = 0)	0.09	0.02	0.06	0.02	0.01	0.01
pi(Y_i(0) = 1, Z_i = 0)	0.30	0.05	0.35	0.04	0.50	0.03
pi(Y_i(0) = 2, Z_i = 0)	0.31	0.06	0.40	0.05	0.35	0.04
pi(Y_i(0) = 3, Z_i = 0)	-0.03	0.03	0.07	0.02	0.03	0.02
Bonferroni-corrected p-value	0.35		1.00		1.00	

Appendix E: Robustness Check: Heterogeneous Treatment Effect on Social Media Use

People in the U.S. may have cognitively connected China and COVID-19, and have established negative attitude against China and Chinese immigrants prior to our experiment, which may confound the overall effect of the "Chinese Virus" label. Therefore, we conducted a subgroup analysis by breaking down subjects by their frequency of using Facebook/Twitter to get news and information. As COVID-19 was first explicitly labeled as "Chinese Virus" by Trump's tweet and then spread broadly on social media, we suspect that people who use social media more frequently will be less responsive to the "Chinese Virus" label in our experiment, as they may have already read and discussed about this label and established their attitude toward Chinese immigrants. As presented in Figure D.1, we found no significant treatment effect in the high social media usage group. In the low social media usage group, 11.23% (SE = 0.08, p = 0.16) of people perceived Chinese immigrants as threats to U.S. public health in the COVID-19 group, while the proportion reached 25.70% (SE = 0.09, p = 0.00) in the "Chinese Virus" treatment group. Although it is a 14.47% magnitude increase, the difference is not statistically significant (SE = 0.12, p = 0.22).

Figure E.1:

The Heterogeneity of the "Chinese Virus" Label Treatment Effect on Social Media Use



Note: "Difference" is the treatment effect of the "Chinese Virus" message, with the NLS estimation. Bars are 95% confidence intervals. "High social media usage" group includes participants reporting using or getting information/news from Twitter/Facebook more than about half of the time on an average day.

Appendix F: Estimation for Social Desirability Bias in the List Experiment

We follow (Coffman et al., 2017) to estimate the social desirability bias. First, we observed direct question answer as d_i (0,1), and 3-item count answer as c_i (between 0 to 3). Second, we calculated the sum of both questions as $y_i^D = d_i + c_i$. Third, we coded the 4-item count answer with one sensitive statement as y_i^S (between 0 to 4). Ideally, if there is no social desirability effect, $y_i^D = y_i^S$. So, the change in sensitive "Agree" can be defined as $\mu = y_i^S - y_i^D$. Then, we entered our estimators into a linear regression:

$$y_i = \beta X_i + \mu S_i, \begin{cases} y_i = y_i^D \; when \; S_i = 0 \\ y_i = y_i^S \; when \; S_i = 1 \end{cases}$$

in which S_i (0,1) is the dummy variable for the 3- or 4-item list and μ is our coefficient of the social desirability effect.

Table F.1

Overt Perception of Threat of Chinese Immigrants

	Overall	Liberal	Conservative	Moderate
"Chinese Virus"	0.007	-0.308	0.112	0.156
	(0.257)	(0.501)	(0.436)	(0.436)
Constant	-1.908***	-2.446***	-1.331***	-1.766***
	(0.174)	(0.314)	(0.300)	(0.300)
N	540	255	124	161
Log Likelihood	-208.268	-64.873	-64.947	-69.449
AIC	420.536	133.745	133.895	142.898

Note: All models are estimated with logit. Standard errors are in brackets.

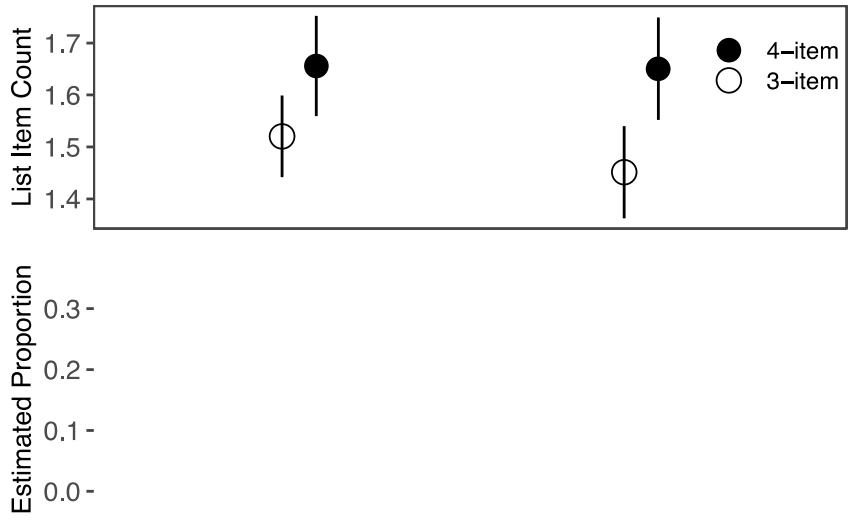
$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$

Appendix G: Robustness check (with manipulation check)

The following figures (F.1, F.2, and F.3) are conducted from full sample estimations including manipulation check failure subjects (N = 1,200). They output similar results as our main analyses.

Figure F.1

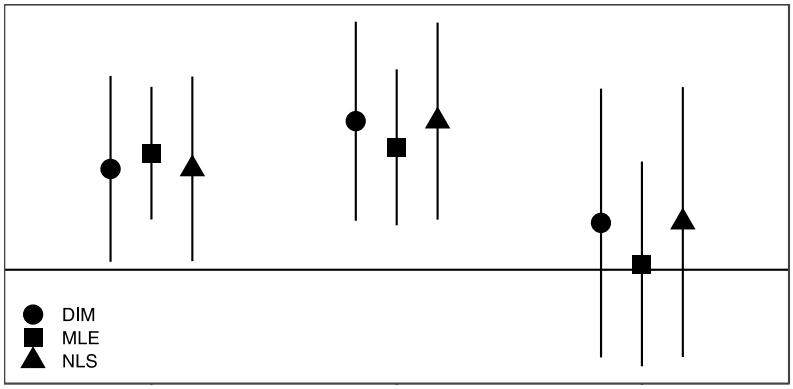
List Item Count and Proportion of Perceived Threat



Note: The upper panel is the mean comparisons between 3-item and 4-item subgroups. The lower panel is the comparison between direct perceived threat proportion (direct) and the list item count difference-in-means estimation of perceived threat proportion (list). Bars are 95% confidence intervals.

Figure F.2

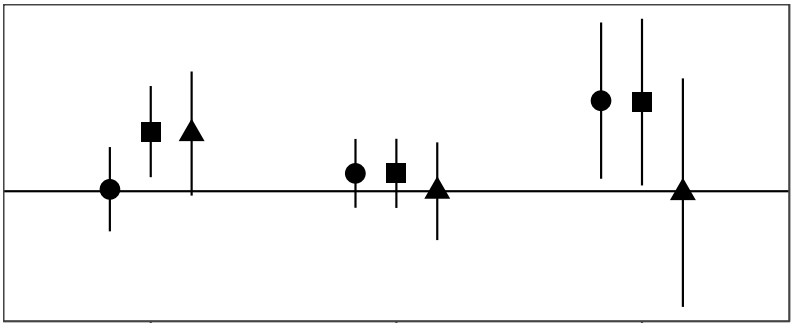
The "Chinese Virus" Label Treatment Effect



Note: "Difference" is the treatment effect of the "Chinese Virus" message. Bars are 95% confident intervals.

Figure F.3

The Heterogeneity of the "Chinese Virus" Label Treatment Effect



Note: "Difference" is the treatment effect of the "Chinese Virus" message. Bars are 95% confident intervals.