Xenophobia in the Time of a Pandemic: Social Media Use, Stereotypes, and Prejudice against Immigrants during the COVID-19 Crisis

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Funding

This research was supported by the Ministry of Education Grant number MOE2017-T2-2-145.
Abstract

This study examines the relationship between social media use, disease risk perception, social and political trust, and out-group stereotyping and prejudice during a social upheaval. Analyses of primary data collected during the COVID-19 outbreak in Singapore found that disease risk perception is positively related to stereotyping and prejudice against Chinese immigrants. Individuals who used social media for news were more likely to stereotype and express prejudice. However, those who engaged in frequent heterogenous discussions, and had more extensive social networks, were less likely to stereotype and express prejudice. Higher social and political trust was also associated with lower stereotyping and prejudice. Finally, moderation effects of network characteristics on the relationship between risk perception, social trust, and prejudice were observed.

Keywords: Coronavirus, nativism, network heterogeneity, social trust, political trust, China
A growing body of research discusses social media's political effects on users (Cho et al., 2018; Colleoni et al., 2014; Gil de Zúñiga et al., 2014), but its impacts on anti-immigrant attitudes are not entirely understood. Previous research has confirmed that exposure to positive media coverage tends to reduce (Schemer, 2012; Vliegenthart, & De Vreese, 2015) while negative coverage is found to heighten anti-immigrant attitudes (Igartua, Moral-Toranzo, & Fernández, 2012; Boomgaarden & Vliegenthart, 2009). However, empirical evidence highlighting the effects of social media use are less explored. Social media, which increasingly functions as a major source of news and information (Shearer & Grieco, 2019) and an essential communication tool for billions across the globe, can potentially influence user attitudes about out-groups. This study offers a rare insight into citizens’ use of social media and attitudes against an immigrant out-group in the context of a national crisis.

Situated in the context of the COVID-19 outbreak in Singapore, this study explores the relationship between Singaporeans’ social media news use, network characteristics (network size and discussion network heterogeneity), and their anti-immigrant attitudes against immigrants from the People’s Republic of China (henceforth Chinese). The influence of risk perception of the disease and generalized trust factors, social and political trust, are also examined. Additionally, we test the moderation effects of network characteristics on these relationships.

We adopt an approach to measure anti-immigrant attitudes via multiple measures. We focus on both a measure of negative stereotypes of Chinese immigrants (see Vedder et al., 2016; Velasco González et al., 2008) and a measure of prejudice – a feeling thermometer to measure unfavorable feelings (see McConahay, 1986; Meleady et al., 2017).

Singapore is a critical case in the inquiry of the role of social media in anti-immigrant attitudes. Most Singaporeans share a common ethnicity with the Chinese immigrants
(Department of Statistics Singapore, 2020), who form the second-largest immigrant group in Singapore, where nearly 40% of the residents are foreigners (Chia, 2020). Within this milieu, the COVID-19 outbreak brought the debates about the socio-political influences of social media to the forefront. On 23 January 2020, the first case of COVID-19 in the country was confirmed when a Chinese national from Wuhan flew to Singapore. The Chinese tourist was identified as the source of infection during reporting of the first local transmission; consequently, the anticipated fear of the disease resulted in vitriolic and anti-Chinese xenophobic discourses on social media (Xinghui, 2020). The government urged calm, reassuring citizens that necessary actions were being undertaken (Sen, 2020). Simultaneously, the unfolding of nationalistic policy actions globally, such as the banning of flights from certain countries, was accompanied by reports of nativist behaviors such as the blaming of particular ethnic groups (Coll, 2020; Illing, 2020). This context is worthwhile for a theoretical understanding of the role of social media in anti-immigrant attitudes, especially during a crisis event when an epidemic causes an infodemic of misinformation (Cinelli et al., 2020). A survey in Singapore found that 6 out of 10 residents had received fake news about COVID-19 on social media platforms (Hui Min, 2020). Since the outbreak, the government has debunked 40 instances of fake news, which included a rumor that a Chinese employer’s maid had died of the disease and two men infected with COVID-19 had broken quarantine orders and escaped from a hospital (Chong, 2020; Mahmud, 2020).

Social Media Use and Anti-Immigrant Attitudes

Attitudes towards out-groups are learned through social environments and exposure to the media (Schemer, 2012). The valence of social media effects, to amplify or reduce anti-immigrant attitudes, is yet unresolved. On social media, individuals have the opportunity to subscribe to diverse news sources unrestricted by region or ideologies, with some suggesting a
higher tendency to encounter counter-attitudinal information compared to traditional media venues (Anspach, 2017). Therefore, individuals face varying degrees of exposure to cross-cutting content that goes beyond their personal choices, and is further influenced by the news sources they subscribe to, the composition of their network, and algorithms for ranking content (Bakshy et al., 2015). Combined with the fact that social context cues are weakened in social media communication, some users would be likely to challenge majoritarian views. Consequently, exposure to the news on social media, often with an endorsement from friends and family, has been found to reduce prejudice against selected minority groups but not for all out-groups (Davidson & Farquhar, 2020).

On the other hand, social media has been found to be a breeding ground for hate-speech (Ben-David & Fernández, 2016) amongst a broader anti-immigrant sentiment (Benkler et al., 2017). Soral and colleagues (2020) found that those who frequently use social media reported higher levels of islamophobia and acceptance of anti-Muslim hate speech as compared to those who primarily used traditional media. Due to a lack of directionality in expected findings, the following research question is proposed:

How is social media news use related to stereotypes and prejudice against Chinese immigrants? (RQ1)

There is an emerging consensus on the role of factors leading to the counter-attitudinal effects of social media, such as users’ network size and network heterogeneity. A more extensive social network increases the likelihood of information opportunities and gives individuals a greater sense of social cohesion (Chan, 2016; Burke et al., 2011), a previously demonstrated factor in reducing prejudice against out-groups (Herreros & Criado, 2009). Similarly, engagement within a diverse network increases the opportunity to interact with groups dissimilar
to self. Consistent with contact theory, interaction with diverse groups predicts less prejudice towards groups different from oneself (Allport, 1954). Exchanges within a heterogenous network also force individuals to reconsider their views (Smith et al., 1996; Keele & Wolak, 2008) and increase the likelihood of persuasion (Huckfeldt et al., 2004). Levitan (2011) also found that when individuals are exposed to differing views in heterogeneous social networks, it destabilizes their prejudice toward out-groups. To summarize, the main findings of the literature suggest that having more extensive networks and engagement within heterogeneous networks is advantageous to limiting biases and promoting acceptance of inter-group differences. However, due to a lack of studies examining online network characteristics’ relationship with anti-immigrant attitudes, the following research questions are proposed (instead of hypotheses):

How are network size (RQ2) and discussion network heterogeneity (RQ3) associated with stereotypes and prejudice against Chinese immigrants?

**Disease Risk Perception and Anti-Immigrant Attitudes**

Group conflict theories argue that people become hostile toward an out-group because they perceive a threat from that out-group (Stephan & Stephan, 1996; Verkuyten, 2009). This threat perception can happen at either the individual level or at the group level. Simply put, individuals can perceive a threat from an out-group to either negatively affect themselves or their in-group at large (McLaren, 2003). Empirical evidence supports the view that individuals are not necessarily rational and are often worried about their own community (Funk, 2000). Attitudes against out-groups is then rationalized in terms of a concern for their community, and is often observed after specific crises events (Ahmed & Matthes, 2017; Prati & Pietrantoni, 2016).

In the context of global health crises, an increased risk-perception of diseases has reportedly influenced negative attitudes toward members of out-groups and foreign immigrants.
(Faulkner et al., 2004; Navarrete & Fessler, 2006). More recently, evidence from Italy suggested that the risk perception of Ebola was positively associated with prejudice against African immigrants (Prati & Pietrantoni, 2016). The heightened discrimination against out-groups can happen due to an emotional response to the threat of the disease or a lack of knowledge of the disease (Piţigoi et al., 2018). Thus, within the context of COVID-19 in Singapore, there is a possibility that those who had a high risk-perception of the disease would stereotype and be prejudiced against Chinese immigrants. Therefore, the following hypothesis is proposed: Risk perception of COVID-19 will be positively associated with stereotypes and prejudice against Chinese immigrants (H1).

Beyond the direct effect of risk perception, we also explore if network characteristics can varyingly affect the influence of risk perception on anti-immigrant attitudes. When users engage in information consumption or conversations within extensive and more diverse discussion networks, there is a possibility that it can shape their risk perception. Heterogenous networks provide essential context for information interpretation (Bloom & Levitan, 2011). Some scholars argue that individuals within diverse networks do not necessarily follow a normative attitude, but the information environment provides them with counter-attitudinal evidence that increases their uncertainty (Visser & Mirabile, 2004). The perceived severity of COVID-19 has been found to increase cyberchondria on social media, a condition where anxiety regarding an individual’s health is formed or aggravated (Laato et al., 2020). As such, there is a possibility that within the explored setting, network characteristics could influence the relationship between risk perception and negative attitudes by raising the uncertainty about COVID-19 and altering the degree of perceived threat. Based on the above discussion, the following research question is proposed:

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How do network characteristics (size and heterogeneity) moderate the relationship between COVID-19 risk perception and stereotypes and prejudice against Chinese immigrants? (RQ4)

**Trust and Anti-Immigrant Attitudes**

The Singapore government called for the citizens to build social trust during the outbreak to better combat the disease situation (U-Wen, 2020). Social trust, defined as ‘trust in strangers and trust in people with whom we are not previously acquainted’ (Herreros & Criado, 2009), is often considered a critical factor for more integrated societies (Li et al., 2005). Those with high levels of social trust extends it not just to in-groups but also to people from diverse backgrounds, including immigrants. Social trusters are better suited to ignore the systematically biased heuristics on racist and cultural stereotypes and trust strangers (Herreros & Criado, 2009). As such, numerous studies have found an association between higher social trust and positive attitudes toward out-group and immigrants (Berning & Ziller, 2017) and an acceptance of multiculturalism (Jung et al., 2017). To summarize, higher levels of social trust are expected to be associated with more positive views and reduced prejudice against immigrants. Thus, we propose the following hypothesis:

Social trust will be negatively associated with stereotypes and prejudice against Chinese immigrants (H2).

Political trust is generally defined as citizens’ belief or confidence that the government will work to produce outcomes consistent with their expectations (Citrin, 1974; Hetherington, 1998). High levels of political trust relate to higher compliance and cooperative attitudes of citizens and support of government policies (Abrajano & Alvarez, 2010; Marien & Werner, 2019). Low political trust, on the other hand, can undermine the legitimacy of government decisions and the willingness to obey legislation (Lindström, 2008). If people do not trust
institutions to protect their rights and interests, they may be less tolerant of immigrants (Halapuu et al., 2013). People who have higher trust in political institutions are more tolerant of immigrants and do not overly worry about possible threats that immigrants might represent (Paas & Halapuu, 2012).

Conversely, individuals who feel political alienation are more likely to blame immigrants for problems happening in society (Espenshade, 1996). Thus, low political trust is also related to xenophobia and refusal to interact with immigrants (Canetti-Nisim et al., 2004; Hjerm, 2005). In short, we expect political trust to influence anti-immigrant attitudes against Chinese immigrants. The following hypothesis is proposed:

Political trust will be negatively associated with stereotypes and prejudice against Chinese immigrants (H3).

We further explore if the network characteristics of social media can separately affect the influence of trust levels on stereotypes and prejudice against Chinese immigrants. Individual’s social and political trust can vary depending on the information they get from their social networks and the conversations they engage within their network. Previous research indicates that high levels of heterogeneity can lower generalized trust and increase the perceived threat from different out-groups and thereby increase prejudice (see Stolle et al., 2018). Moreover, network size has also been found to be negatively associated with social trust, as more extensive networks do not foster close associations that enhance trust within its members (Shen & Gong, 2018). While both heterogeneity and size are more commonly found to be negatively associated with trust, a lack of evidence about how it would shape the levels of anti-immigrant attitudes suggests proposal of a research question instead of a hypothesis:
How do network characteristics (size and heterogeneity) moderate the relationship between trust factors (social and political) and stereotypes and prejudice against Chinese immigrants? (RQ5)

**Method**

**Sample**

This study collected survey responses ($N = 1036$) from an online panel composed of Singaporean citizens administered by Qualtrics. The sample closely mirrored the population parameters focusing on age and gender. The survey was fielded in early February 2020, two weeks after the first confirmed case of COVID-19 in Singapore. The demographics are included in the supplementary appendix (Appendix A).

**Measures**

Negative stereotype was adapted from an existing validated measure (Vedder et al., 2016; Velasco González et al., 2008). Respondents were asked to what extent (1 = strongly disagree to 5 = strongly agree) do they agree that Chinese immigrants in Singapore are a) violent, b) dishonest, c) intelligent, d) friendly, e) arrogant, f) kind. Positive items were reverse-coded. A scale of negative stereotype was created by averaging the six responses, $M = 3.02; SD = .66, \alpha = .80$.

Feelings for Chinese immigrants were adapted from a frequently used existing measure (Abramowitz & Webster, 2018; Valentino et al., 2013; Verkuyten & Yildiz, 2009). Respondents were asked to rate their feelings towards Chinese immigrants in Singapore (0º very cold to 100º very warm). The item was reversed so that a higher value represents more unfavorable feelings, $M = 52.23; SD = 24.27$. 

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COVID risk perception was measured by asking the respondents if they thought (1 = strongly disagree to 5 = strongly agree) that the residents in Singapore are at a major risk of the coronavirus infection, $M = 3.61; SD = 1.04$.

Social ($M = 3.76; SD = 1.19$) and political trust ($M = 4.49; SD = 1.30$) were single-item measures asking respondents how much they trust (1 = never to 7 = always) people in society and the government (Ceron, 2015; Gershtenson et al., 2006).

Social media news use was measured by asking the respondents how frequently (1 = never to 7 = several times a day) do they get news and information from social media sites, $M = 5.52; SD = 1.62$ (Ahmed, 2020; Lee et al., 2017).

Network size was measured by asking respondents to estimate the approximate number of friends (1 = 0-50 people to 6 = more than 2000 people) they have on the social network that they use the most, $M = 2.00, SD = 1.21$.

Discussion network heterogeneity was assessed using a previously validated four-item scale (Diehl et al., 2016; Choi et al., 2017). Respondents were asked how frequently (1 = never to 7 = several times a day) they talk to people on social media who are from a different a) race, b) social class, and c) whose views are different than theirs, and d) who disagree with them. A scale of network heterogeneity was created by averaging the four responses ($M = 2.61; SD = 1.69, \alpha = .96$).

Demographic variables and traditional media news use were used as controls. The details of the controls and the correlations among variables of interest are presented in the supplementary appendix (Appendix A and B). We employed hierarchical regression analyses to examine the relations proposed in this study.\(^2\)

**Results**
Social media news use was found to be positively associated with both negative stereotypes ($\beta = .105, p < .001$) and unfavorable feelings ($\beta = .146, p < .001$). Simply put, those respondents who frequently used social media as a news source reported higher levels of stereotypes and prejudice against Chinese immigrants (RQ1).

Recall RQ2 and RQ3 examined the relationship between network characteristics and anti-immigrant attitudes. The results suggested that both, having a larger online network (RQ2: stereotype: $\beta = -.072, p < .001$; feelings: $\beta = -.146, p < .001$) and a frequent engagement within a heterogeneous discussion network (RQ3: stereotype: $\beta = -.087, p < .001$; feelings: $\beta = -.150, p < .001$) are negatively associated with stereotypes and prejudice against Chinese immigrants.

The threat perception results suggest that COVID-19 risk perception was positively associated with both negative stereotype ($\beta = .161, p < .001$) and unfavorable feelings ($\beta = .201, p < .001$). Therefore, those who felt that Singaporean residents were at a greater risk of coronavirus infection reported higher levels of stereotypes and prejudice against Chinese immigrants than those who did not (H1 supported). Both social (stereotype: $\beta = -.218, p < .001$; feelings: $\beta = -.187, p < .001$) and political trust (stereotype: $\beta = -.234, p < .001$; feelings: $\beta = -.191, p < .001$) were found to be negatively associated with negative stereotype and unfavorable feelings. Consistent with previous research, it can be inferred that those who had higher levels of social and political trust were less likely to stereotype and be prejudiced against the Chinese immigrants (H2 and H3 supported).

Next, the analyses investigated the moderation effects of network characteristics on the relationship between COVID-19 risk perception, stereotypes and prejudice (RQ4). It was found that the interaction between disease risk perception and network heterogeneity ($\beta = -.350, p < .001$).
.01) was statistically significant in predicting unfavorable feelings. The relationship is plotted in Figure 1a. None of the other interactions involving COVID-19 risk perception were significant.

Further, the analyses investigating the moderation effects of network characteristics on the relationship between trust factors (social and political), stereotypes and prejudice found that the interactions between social trust and network size ($\beta = -.268, p < .05$) and social trust and network heterogeneity ($\beta = .579, p < .001$) were statistically significant in predicting unfavorable feelings. These interactions are plotted in Figures 1b and 1c. Similarly, the interaction between social trust and network heterogeneity ($\beta = .366, p < .001$) was also found to be statistically significant in predicting negative stereotypes. This interaction is plotted in Figure 1d. Based on the results presented in Table 1 and Figure 1, it can be inferred that the moderation effects were as expected from the literature, except for the interaction between social trust and network heterogeneity on unfavorable feelings (see Figure 1c).

[Table 1 and Figure 1 here]

**Discussion**

This is one of the first studies to provide empirical support for the conjecture that the COVID-19 outbreak has had negative social consequences. Overall, the findings largely correspond with the existing literature, suggesting that higher risk perception of the disease and using social media for news purposes are related to higher levels of stereotypes and prejudice against Chinese immigrants. On the other hand, we find that having a more extensive and diverse social network is associated with lower levels of stereotypes and prejudice. Social and political trust is also found to be negatively associated with the outcome variables.

The relationship between social media news consumption, stereotypes, and prejudice may reflect selective exposure, wherein individuals are consuming news sources that are biased
against immigrants. Recent research does confirm that social media news use is associated with more significant prejudice than traditional news media (Soral et al., 2020). While these findings may dampen the optimism, the role of the social network characteristics suggests that existing stereotypes and prejudices can be lessened if users are exposed to information from multiple sources and engage in conversation with different groups. This underscores the importance of extensive information and diverse discussion environments in breaking away from echo chambers that can reinforce existing biases promoting extremism.

We also found the risk perception of COVID-19 to be positively associated with stereotypes and prejudice. The outbreak has possibly provoked xenophobic attitudes because some in-group members have blamed the Chinese for the disease. The in-group favoritism and out-group prejudice are in line with existing sociological theories explaining prejudice. Further, this negative rhetoric is not limited to civic discourse, because global political leaders too have labeled the disease to be a ‘Chinese virus,’ ‘Wuhan pneumonia,’ ‘China Wuhan pneumonia’ (Everington, 2020; Orbey, 2020). More efforts are required to control panic based on misinformation and raise public knowledge regarding the disease.

While these findings indicate that it is difficult to control how individuals engage in information seeking, we observe social and political trust to be negatively associated with stereotypes and prejudice. This is perhaps a reflection of policy interventions in the country. The Singapore government addressed the rise in anti-China sentiment by praising China’s efforts in tackling the pandemic. They simultaneously addressed the infodemic by issuing online clarifications on misinformation regarding Covid-19 (Republic of Singapore, 2020), urging the public not to share fake messages and unfounded rumors.
Frequent heterogenous discussions are also associated with lower levels of stereotypes and prejudice across varying risk-perception groups. Among individuals with low social trust, having a more extensive social network and frequently engaging in conversations within heterogeneous networks are advantageous in reducing stereotypes and prejudices. We note a limitation, unexplained by current theorizing, in the significant interaction suggesting that among individuals with high social trust, engaging in conversations within heterogeneous networks is associated with greater unfavorable feelings against immigrants.

Also, the significant moderation effects are primarily observed for the less reactive measure of prejudice in unfavorable feelings and not for the explicit measure of negative stereotypes. It is plausible that online network characteristics are more likely to moderate the effects of trust and risk perception on general feelings toward immigrants than negative stereotypes, since feelings are cognitively momentary (Clore, 1992) but stereotypes are more deeply rooted (Bell, 1992). Further research is required to monitor if the patterns are replicated in other contexts.

Next, it is essential to acknowledge the study limitations. First, the study utilizes cross-sectional data, which limits causal inferences. Second, some of the independent variables were measured using single-item measures. Future studies should use multi-item scales for greater robustness of the relationships. Third, we have investigated a specific multicultural context. Future studies should explore this framework in other contexts to examine how the relationships play out.

Before we end, we would like to discuss some policy implications. The first implies that social media companies should enforce more significant content moderation on their platforms. The COVID-19 health crises witnessed a flood of conspiracy theories against Chinese
communities being propagated on social media platforms (Sardarizadeh & Robinson, 2020). Since fake news is more likely to be seen as novel than real news (Vosoughi et al., 2018) it is necessary to apply firmer guidelines to restrict false claims against minority communities. The second concerns policy implications at the national level. The findings suggest that increased social and political trust are associated with lower stereotyping and prejudice against Chinese immigrants. Thus, it is in the interest of governments worldwide to implement societal interventions targeted to increase social and political trust within the citizenry to achieve greater harmony within communities.

To conclude, this study indicates that the effect of social media must be understood with a broader focus on citizen’s news consumption behavior along with network characteristics. The results also emphasize that social and political trust and threat-perception are essential predictors of stereotypes and prejudice.
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Footnotes

1Previous studies have used a variety of ways to analyze anti-immigrant attitudes. Some have used feeling thermometers (Abramowitz & Webster, 2018; Valentino, Brader, & Jardina, 2013; Verkuyten & Yildiz, 2009), while others utilized explicit prejudice measures focusing on negative evaluations about out-groups (Dhont, Roets, & Van Hiel, 2013; McLaren, 2003). Some also focus on opinions regarding policies concerning immigrants (Berg, 2009; Scheepers, Gijsberts, & Coenders, 2002). Hainmueller and Hopkins (2015) suggest that such variations in operationalization make it challenging to compare the findings across studies. Therefore, we adopt an approach to measure anti-immigrant attitudes via multiple measures – negative stereotypes and feeling thermometer.

2All variables met assumptions of normality, and analyses were below the multicollinearity threshold (Kim, 2013; Kline, 2005). To diminish issues associated with multicollinearity between interaction terms and their respective components, we followed the practice of standardizing all component variables before the creation of interaction terms (Campbell & Kwak, 2011; Cronbach, 1987; Jaccard, Turrisi, & Wan, 1990).

3Since the dominant ethnic group in Singapore is Chinese, we statistically compared the ethnic differences in the levels of prejudice toward Chinese immigrants. Such analyses allowed us to examine if there was a “black sheep effect” (see Marques et al., 1988). We did not find the Chinese Singaporeans (vs other ethnic groups) to be more prejudiced against the Chinese immigrants. Indian Singaporeans reported the highest negative attitudes toward Chinese immigrants. It should be noted that this is a supplementary analysis, and ethnicity was controlled for in the regression models presented in the main analysis. The results of the supplementary analyses are included in the supplementary appendix (Appendix C and D).
Table 1

Predicting negative stereotype and unfavorable feelings against Chinese immigrants

|                      | Negative Stereotype | Unfavorable Feelings |
|----------------------|---------------------|----------------------|
|                      | $\beta$             | $\beta$              |
| **Step 1: Controls** |                     |                      |
| Age                  | .008                | .066                 |
| Gender (females)     | -.008               | .020                 |
| Education            | -.107**             | -.101                |
| Income               | -.187***            | -.111**              |
| Religion (reference = Christianity)$^d$ |                     |                      |
| Buddhism$^d$         | -.057               | .001                 |
| Islam$^d$            | .074                | .114*                |
| Free-thinking$^d$    | -.007               | .041                 |
| Others$^d$           | .100**              | .178***              |
| Ethnicity (reference = Chinese)$^d$ |                     |                      |
| Malay$^d$            | -.053               | -.076                |
| Indian$^d$           | .098**              | .111***              |
| Others$^d$           | -.139***            | -.146***             |
| Traditional media news use | -.092**          | -.088**              |
| $R^2$ change (%)     | 12.7***             | 11.1***              |
| **Step 2: Variables of interest** |                      |                      |
| Social media news use | .105***            | .146***              |
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|                              |      |      |
|------------------------------|------|------|
| Social media network size    | -.072*** | -.146*** |
| Social media discussion network heterogeneity | -.087*** | -.150*** |
| COVID-19 threat perception   | .161*** | .201*** |
| Social trust                 | -.218*** | -.187*** |
| Political trust              | -.234*** | -.191*** |

**R^2 change**

|      | 17.5*** | 18.0*** |

### Step 3: Moderation effects

|                                      |      |      |
|--------------------------------------|------|------|
| COVID-19 risk perception X network size | .018 | .006 |
| COVID-19 risk perception X network heterogeneity | -.009 | -.084** |
| Social trust X network size          | .036 | -.078* |
| Social trust X network heterogeneity | .097*** | .154*** |
| Political trust X network size       | -.056 | -.014 |
| Political trust X network heterogeneity | .004 | -.012 |

**R^2 change**

|      | 1.2** | 2.4*** |

**Total R^2**

|      | 31.3*** | 31.6*** |

**Notes:** cell entries are final-entry OLS standardized Beta coefficients, N = 1020, d = dummy variable, *p < .05; **p < .01; ***p < .001.
Figure 1. Visualization of the moderation effects

292x335mm (300 x 300 DPI)
Supplementary Files

Appendix A

Descriptive for control variables

| Variable      | Description | Descriptive |
|---------------|-------------|-------------|
| Gender        |             | 52.3% males |
| Religion      |             | 33.1% Christianity (majority) |
| Ethnicity     |             | 81.8% Chinese (majority) |

|            | M  | SD  |
|------------|----|-----|
| Age        | 40.61 | 12.91 |
| Education  | 7.26  | 1.41 |
| Income     | 5.61  | 2.63 |
| Traditional Media News Use | 4.44  | 1.57 |

A scale of three items asking the respondents how frequently (1 = never to 7 = several times a day) do they get news and information from a) television b) print news and c) radio. The responses were averaged to create a scale of traditional media use, $\alpha = .70$

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**Correlations between variables of interest**

|   | 1   | 2   | 3   | 4   | 5   | 6   | 7   |
|---|-----|-----|-----|-----|-----|-----|-----|
| 1 | Negative Stereotype | -   |     |     |     |     |     |
| 2 | Unfavorable Feelings | .715** | -   |     |     |     |     |
| 3 | COVID risk perception | .190** | .205** | -   |     |     |     |
| 4 | Social trust         | -.353** | -.307** | .025 | -   |     |     |
| 5 | Political trust      | -.401** | -.341** | -.224** | .402** | -   |     |
| 6 | Social media news use | .083** | .127** | .057 | -.001 | -.042 | -   |
| 7 | Network size         | -.105** | -.143** | .081** | .059 | -.043 | .184** | -   |
| 8 | Discussion network heterogeneity | -.105** | -.146** | .113** | .158** | -.082** | .175** | .376** |

*Note: ** p < .01; * p < .05.*
Appendix C

A one-way ANCOVA was conducted to determine a statistical difference between different ethnic groups on the negative stereotype about Chinese immigrants controlling for age, gender, education, income, social media use, social and political trust. There is a significant effect of ethnicity on negative stereotypes after controlling for the above-mentioned variables ($F = 9.40$, $p < .05$). Comparing the estimated marginal means showed that Indians ($M = 3.33 SE = .08$) rated the highest negative stereotype followed by Malays ($M = 3.09 SE = .06$), Chinese ($M = 3.02 SE = .02$) and Others ($M = 2.64 SE = .11$). Post hoc tests showed there were significant differences between all pairwise comparisons except Indians and Malays and Malays and Chinese. The post hoc results are presented in Table C1, and the estimated marginal means are plotted in Figure C1.

### Table C1

| (I) Ethnicity | (J) Ethnicity | Mean Difference (I-J) | Std. Error |
|---------------|---------------|-----------------------|------------|
| Chinese       | Malay         | -.062                 | .067       |
|               | Indians       | -.310*                | .080*      |
|               | Others        | .383*                 | .114*      |
| Malay         | Indians       | -.248                 | .100       |
|               | Others        | .446*                 | .129*      |
| Indians       | Others        | .693*                 | .137*      |

Notes: 1. Based on estimated marginal means,
2. The mean difference is significant at the .05 level.*
3. Adjustment for multiple comparisons: Bonferroni.
Figure C1. Estimated Marginal Means Plot of Negative Stereotype
Appendix D

A one-way ANCOVA was conducted to determine a statistical difference between different ethnic groups on unfavorable feelings towards Chinese immigrants controlling for age, gender, education, income, social media use, social and political trust. There is a significant effect of ethnicity on unfavorable feelings after controlling for the above-mentioned variables ($F = 15.02, p < .001$). Comparing the estimated marginal means showed that Indians ($M = 69.01 \ SE = 2.98$) rated the highest unfavorable feelings toward Chinese immigrants followed by Chinese ($M = 52.54 \ SE = .72$), Malays ($M = 52.07 \ SE = 2.46$) and Others ($M = 35.74 \ SE = 4.34$). Post hoc tests showed there were significant differences between all pairwise comparisons except Malays and Chinese. The post hoc results are presented in Table D1, and the estimated marginal means are plotted in Figure D1.

Table D1

| (I) Ethnicity | (J) Ethnicity | Mean Difference (I-J) | Std. Error |
|---------------|---------------|-----------------------|------------|
| Chinese       | Malay         | .475                  | 2.577      |
|               | Indians       | -16.468*              | 3.070*     |
|               | Others        | 16.806*               | 4.409*     |
| Malay         | Indians       | -16.943*              | 3.869*     |
|               | Others        | 16.331*               | 4.968*     |
| Indians       | Others        | 33.274*               | 5.274*     |

Notes: 1. Based on estimated marginal means,
2. The mean difference is significant at the .05 level.*
3. Adjustment for multiple comparisons: Bonferroni.
Figure D1. Estimated Marginal Means Plot of Unfavorable Feelings