# Trust in Government Actions during the COVID-19 Crisis

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## Abstract

The worldwide COVID-19 pandemic puts countries and their governments in an unprecedented situation never experienced before. Strong countermeasures have been implemented in most places, but how much do people trust their governments in handling this crisis? Using data from a worldwide survey, conducted between March 20th, 2020 and April 22nd, 2020, with more than 100,000 participants, we study people's perceptions on government reactions in 57 countries. We find that trust in how governments handle the crisis is mostly related to the amount of action taken (stronger measures leading on average to more trust) and the outcome (number of deaths in the country). Another important factor is freedom of press: it *reduces* the trust in governments. Perceptions of the amount of actions (too much and particularly too little) are the main explanatory factors for government trust. The perception of too much government reaction, however, is not related to the factual amount of actions or the outcome (number of deaths), but to personal characteristics, particularly education. In a separate, smaller survey, we also find that this perception is related to beliefs in conspiracy theories.

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# 1   Introduction

Pandemics are nothing new to humankind, but in our globally interconnected world the spread of a disease can be breathtakingly fast. This was the case of the coronavirus disease 2019 (COVID-19) caused by the SARS-Cov2 virus. After it was first detected in Wuhan, China, in December 2019, it soon started spreading around the globe, forcing already by March 2020 most countries to introduce strict countermeasures to curtail the the spread of the disease in order to avoid a failure of their health care systems. In many instances "lock-downs" have been implemented for several weeks, reducing social and economic activity to the minimum amount possible. The effects, for example, on mobility and on business are well documented (Rieger & Wang 2020, Atkeson 2020, McKibbin & Fernando 2020).

In this article, we want to take a look at how people perceive the actions of their governments, and whether they see these actions as "too little" or "too much". Reactions varied a lot (Hale, Petherick, Phillips & Webster 2020), so it is natural to wonder how people perceived these actions and what were the most important factors contributing to the trust in governments.

Our paper is structured as follows: in Section 2, we present the methodology, our data sources and variable structures in particular. Section 3 describes the results, particularly regarding the heterogeneity of government trust, and the explanatory factors for trust and for perceptions on the amount of government actions. This is followed by conclusions in Section 4.

# 2   Methodology

Our analysis is based on data from the online survey by Fetzer, Witte, Hensel, Jachimowicz, Haushofer, Ivchenko, Caria, Reutskaja, Roth, Fiorin et al. (2020), covering more than 170 countries. This survey was initially advertised worldwide on Twitter and encompasses the time period from March $20^{\text{th}}$, 2020 to April $22^{\text{nd}}$, 2020. We only consider countries with at least 200 participants. This leaves data for 57 countries with $N = 106,010$

participants, out of which 57% were female, with average age 39.1 years, 44% were married or living with a partner.

The most interesting items in this survey for our research question were the following two:

- *government trust:* How much do you trust your country's government to take care of its citizens? (1 = Strongly distrust; 2 = Somewhat distrust; 3 = Neither trust nor distrust; 4 = Somewhat trust; 5 = Strongly trust)

- *perceived reaction:* Do you think the reaction of your country's government to the current coronavirus outbreak is appropriate, too extreme, or not sufficient? (1 = The reaction is much too extreme; 2 = The reaction is somewhat too extreme; 3 = The reaction is appropriate; 4 = The reaction is somewhat insufficient; 5 = The reaction is not at all sufficient)

We decomposed the variable *perceived reaction* into two:

$$reaction\ too\ little := \begin{cases} 0, & \text{if perceived reaction} \leq 3, \\ 1, & \text{if perceived reaction} = 4, \\ 2, & \text{if perceived reaction} = 5, \end{cases}$$

$$reaction\ too\ much := \begin{cases} 0, & \text{if perceived reaction} \geq 3, \\ 1, & \text{if perceived reaction} = 2, \\ 2, & \text{if perceived reaction} = 1. \end{cases} \tag{1}$$

As the control variable, we used the self-reported overall *health* of the participants. On a scale from 1 (poor) to 4 (excellent), they stated their health on average as 3.1.

We use data from Dong, Du & Gardner (2020) on numbers of COVID-19 cases and deaths on country level for each country under study. For our statistical analysis, we focus on deaths, since the number of cases crucially

depends on testing efforts and is, therefore, seen as less indicative of the extend of an outbreak when comparing different countries, while the numbers of deaths are usually considered to be more accurate. We use the data from the previous day to correct for a time lag in reporting.

We use data on policy *stringency* (Hale et al. 2020) that provides us with a numerical value describing the amount of restrictions in place in a given country for each day during the period under investigation. Since perceptions of a government will depend not only on the current measures but also on the past actions, we calculate the average stringency index for each country starting from the beginning of the dataset of Hale et al. (2020) to the day of the survey (*average stringency since start*) and the average from the first confirmed death from COVID-19 in that country (*average stringency since first death*).

As country-level data, we use the World Press Freedom Index (Reporters without Borders 2020) (*press freedom*), the *World Governance Index* (World Bank n.d.) and a few items from the World Value Survey (World Values Survey Association 2014), aggregated on country level, namely: *uncritical patriotism* (willingness to fight for the country whether it is right or wrong), *indulgence* ("to have a good time; to 'spoil' oneself"), and *sociality* ("to do something for the good of society").

All in all, we have a mix of variables on the individual level and on the country level where some of the latter ones vary from day to day. As a statistical method, we use robust regressions with clustered standard errors on country level, weighted to adjust the number of participants per country and the demographics of the participants (see Fetzer et al. (2020) for details). Results will be discussed in Sec. 3.

For additional results we used self-collected data from an online survey in Germany between April 21–23, 2020 among 268 subjects, advertised at a university and conducted using Unipark. 64% of the participants were university students, 63% females, average age was 28 (from 18 to 77). One of the participants won a prize of 50 Euro (as announced in the advertisement

to incentivize participation). In the survey, we asked essentially the same question as Fetzer et al. (2020)[1]: "All in all, how would you assess the reactions of German politicians to the coronavirus?" We provided five answer options: far too slow or lax / rather too slow or lax / balanced / rather too fast or restrictive / far too fast or restrictive. We defined two variables (reactions too little and reactions too much) in the same way as described in (1).

Different to Fetzer et al. (2020) we also elicited information about a tendency to be receptive for conspiracy theories regarding COVID-19, as previous studies clearly have shown a relation between belief in conspiracy theories and distrust in governments (Kim & Cao 2016), even when there is no actual relation between both (Einstein & Glick 2015). More precisely, we asked participants to state whether they agree with the following statements:

- The media want to hide information about the coronavirus from us.

- The hype about corona was only caused by pharmaceutical companies and other groups that benefit from it.

- The virus serves our politicians only as a pretext to undermine our basic rights.

We provided four answer options: do not agree / partially agree / mostly agree / fully agree.

We also elicited directly beliefs in some of the most popular conspiracy theories, namely:

- The US secret service developed the virus and brought it to Wuhan in order to specifically damage China.

- China developed the virus in a laboratory for bio-weapons, from where it spread by accident.

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[1]The wording differs slightly, since we did not copy their survey question, but independently designed basically the same question – a fortunate coincidence.

- Covid-19 is connected to the expansion of the 5G mobile phone network.

- Pharmaceutical companies in conjunction with Bill Gates started the infection in order to make money with a vaccine they had patented.

These items were mixed with statements that reflect the scientific consensus (at least at the time of the survey), e.g., that the virus spread from animals (bats or pangolins) to humans, originated in Wuhan (China) etc. All items could be judged on a five-point Likert scale (very unlikely - unlikely - average probability - probably - very likely).

We defined a composite score ("conspiracies total") as the sum of the answers to all seven of the above items, where scales were coded with the numbers 1 to 4 or 5, respectively. We considered subjects with a score of more than 10 (26.9%) as "conspiracy tendency" subjects.

Regarding the conspiracy theories, we also asked participants whether they had ever heard about them before. Indeed, that was the case for between 43% and 70% of the subjects.

The results of this survey will be discussed in Section 3.5.

## 3   Results

### 3.1   Descriptive results by country

A first look at the average perception of governments in all countries reveals a large heterogeneity (Fig. 1). This comes as no surprise in light of the news full of discussions on countries with very harsh (e.g. China) or very relaxed (e.g. Sweden) policies in tackling the pandemics and when considering the reported differences in performances of governments worldwide in this situation. Sorting the countries by overall government trust puts the Vietnamese government ahead of others on top of the list of the most trusted governments worldwide. Given that the number of infections in Vietnam could be kept very low, despite its close connections with China, this is to some

extent understandable. On the other end of the list, we find countries whose governments have been heavily criticized in the media for their handling of the situation, thus the measurement is in line with expectations.

A glance at Fig. 1 already suggests some relation between the amount of "too much" and "too little" with the overall government trust. This is further illustrated by the two scatterplots (Fig. 2 and Fig. 3). These plots, however, also make clear that the strength of the reaction itself is not the only factor influencing the overall government trust: a government can make other mistakes, there can be differences in the actions of a central government and the stringency measures that are implemented by regional governments, or stringency measures in a country might have been introduced (too) late, even if they already existed at the time of the survey. These factors can explain outliers in Fig. 2 like the US.

## 3.2   General results on government trust

We now take a closer look at the factors leading to a high (or low) trust in the government in handling this crisis. To this end, we conduct a number of regressions (with clustered standard errors on country level). To check the robustness of our results, we vary the specifications (Tab. 1–2).

We see that demographic factors play a small role in government trust.[2] There is a slight effect of health which is understandable: healthy people should worry less about the crisis (as COVID-19 affects people with previous health conditions more severely) and will, therefore, be less critical in their assessment of the government.

The general situation, however, is (as expected) a very strong predictor: the number of deaths (as "output measure") reduces government trust. Stringency measures, on the other hand, tend to increase government trust, particularly if these have already been implemented at the early stages of the outbreak.

We also see another strong factor: freedom of the press. Governments in

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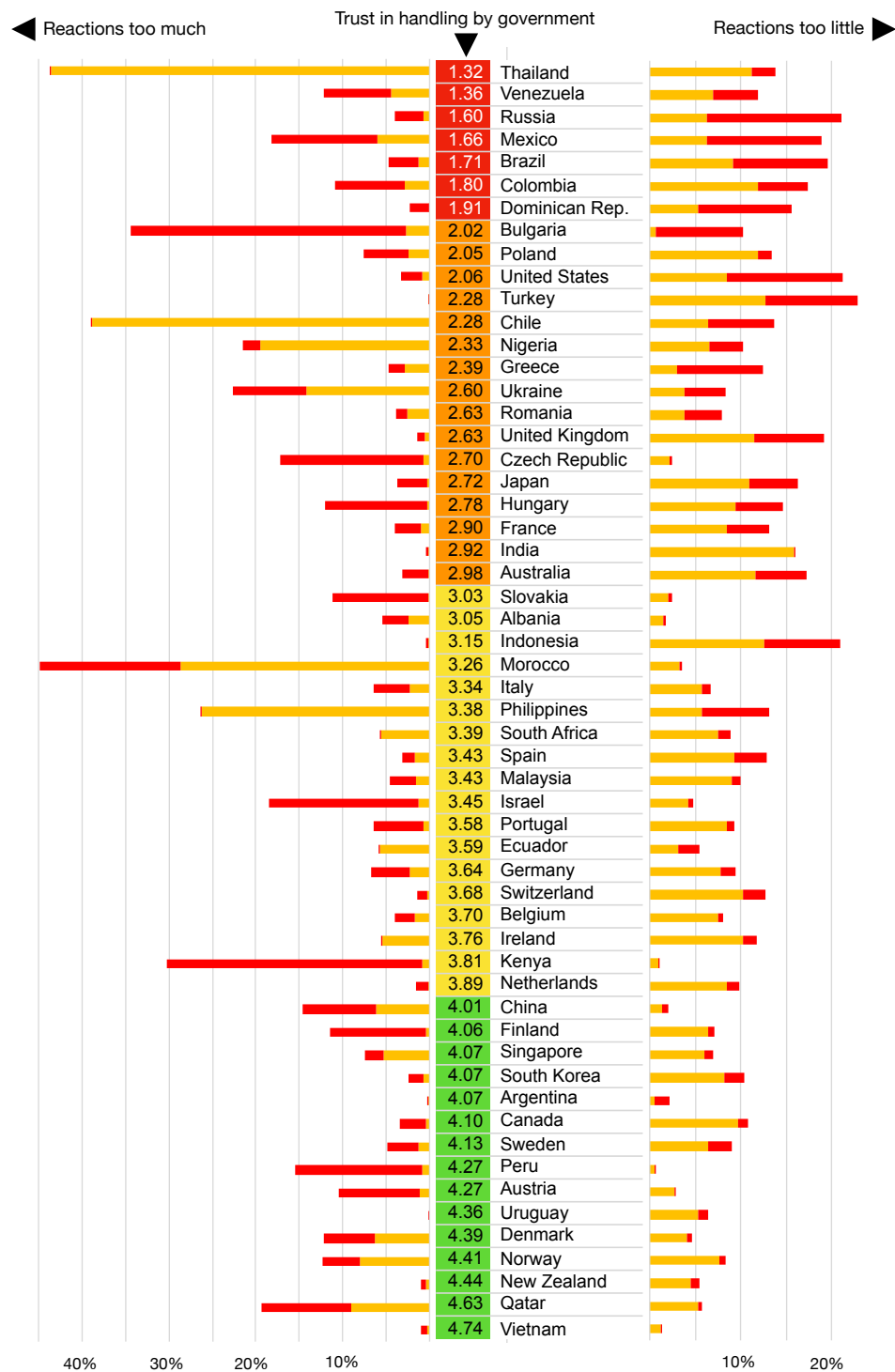[2]Besides, on average, females tend to trust the government less.

Figure 1: Perceptions of governments by participants from the respective countries, sorted by government trust (from 1="strongly distrust" to 5="strongly trust"). Red=reaction much too extreme/not at all sufficient; orange=somewhat too extreme/somewhat insufficient.
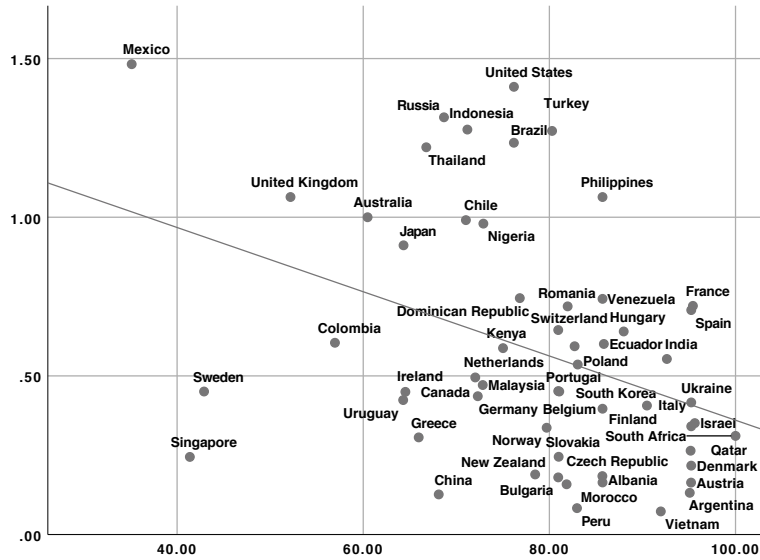
Figure 2: Average stringency on day of survey (x-axis) versus opinion of people in a country that the government measures are not sufficient (y-axis).



Figure 3: Average stringency on day of survey (x-axis) versus opinion of people in a country that the government measures are too extreme (y-axis).

Table 1: Trust in the government in handling the COVID-19 crisis is strongly related to stringency measures and the number of deaths in a country, but there is also an effect of freedom of the press. Females tend to trust the government less.

| Government trust | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Age | 0.008 | 0.002 | 0.003 |
|  | (0.85) | (0.19) | (0.3) |
| Female | -0.216 | -0.244(*) | -0.218 |
|  | (-1.42) | (-1.79) | (-1.64) |
| Years of education | 0.003 | -0.003 | -0.005 |
|  | (0.12) | (-0.16) | (-0.19) |
| Health (self-assessed) | 0.335* | 0.284(*) | 0.33(*) |
|  | (2.4) | (1.88) | (1.76) |
| Married | 0.223 | 0.308 | 0.176 |
|  | (0.92) | (1.41) | (0.92) |
| COVID-19 deaths | -2.006*** | -3.532*** | -4.961** |
| (in thousands) | (-3.53) | (-4.46) | (-3.44) |
| Stringency index | 0.018* | 0.003 | 0.005 |
| (current) | (2.09) | (0.47) | (0.57) |
| Stringency index | 0.045* | 0.069*** | 0.055** |
| (average since start) | (2.59) | (4.93) | (2.92) |
| Press Freedom |  | -0.054*** | -0.041** |
|  |  | (-5.92) | (-3.23) |
| World Governance Index |  | 0.088 | 0.037 |
|  |  | (1.03) | (0.29) |
| Uncritical patriotism |  |  | 2.263(*) |
|  |  |  | (2.02) |
| Sociality |  |  | -0.844(*) |
|  |  |  | (-1.99) |
| Constant | -0.368 | 2.299** | 1,272 |
|  | (-0.42) | (2.7) | (0.56) |
| N | 100605 | 100605 | 67636 |
| Countries | 55 | 55 | 32 |
| $R^2$ | 0.1878 | 0.2899 | 0.3406 |

Table 2: As robustness test, we replace the current stringency index (as of the day when the subjects participated in the survey) by an average from the first confirmed case in that country. The results are very similar.

| Government trust | Model 1 | Model 2 | Model 3 |
| --- | --- | --- | --- |
| Age | 0.006 | <0.001 | <0.001 |
| | (0.65) | (-0.01) | (-0.01) |
| Female | -0.313* | -0.321** | -0.32** |
| | (-2.58) | (-2.93) | (-2.88) |
| Years of education | -0.014 | -0.02 | -0.025 |
| | (-0.63) | (-1.06) | (-0.88) |
| Health (self-assessed) | 0.266* | 0.251(*) | 0.297(*) |
| | (2.1) | (1.9) | (1.77) |
| Married | 0.298 | 0.37(*) | 0.148 |
| | (1.34) | (1.81) | (0.75) |
| COVID-19 deaths | -1.062** | -2.036*** | -1.821*** |
| (in thousands) | (-2.77) | (-4.51) | (-3.79) |
| Stringency index | 0.032(*) | 0.057*** | 0.055** |
| (average since start) | (1.95) | (3.86) | (2.87) |
| Stringency index | 0.022*** | 0.007 | 0.006 |
| (average since first death in country) | (3.6) | (1.21) | (0.83) |
| Press Freedom | | -0.051*** | -0.042** |
| | | (-5.81) | (-2.89) |
| World Governance Index | | 0.039 | 0.021 |
| | | (0.43) | (0.17) |
| Uncritical patriotism | | | 0.955 |
| | | | (0.7) |
| Sociality | | | 0.201 |
| | | | (0.27) |
| Constant | 0.095 | 2.571** | 0.896 |
| | (0.11) | (3.37) | (0.44) |
| N | 100704 | 100704 | 68245 |
| Countries | 56 | 56 | 33 |
| $R^2$ | 0.2071 | 0.2814 | 0.3072 |

countries that have highly censored media tend to be seen as *more* trust-worthy. It seems that, unfortunately, censorship works to some extent to establish trust in governments. This connects to previous results about a basically non-existing link between freedom of press and trust in media (Soon & How Tan 2016). A priori the result might also be induced by self-censorship: participants might not answer honestly in countries with low press freedom, since they might simply be afraid. Recent research, however, suggests that this is usually not the case (Calvo, Razafindrakoto & Roubaud 2019).

We finally see some small and not very robust positive effects of uncritical patriotism and sociality on government trust. All in all, however, cultural factors seem to play a minor role.

We now look at the relation of government trust to the perceived reaction, whether it is too little or too much. We see that both factors play a huge role for government trust (3). In fact, we can explain around 45% of the total variation just by these two variables. In other words: a government is judged during the COVID-19 crisis to a large extent by the amount and timing of its countermeasures.

Demographic factors (gender and age) play a certain role, as does health. The outcome (number of deaths) and the average stringency (but not the current one) are important as well. Freedom of the press, again, reduces government trust. All these additional variables, however, add only 10% to the explanatory power of the regression, and the perception of too little reaction is by far the most important factor in all models.

### 3.3   Perception of insufficient reaction

What factors make people perceive a government reaction as "too little"? Table 4 shows the results of a regression analysis. We find that (as expected) stringency tends to have a negative impact on the "too little" perception, while the number of deaths has a positive impact on it. Similar to the overall government trust, we find that freedom of the press has a significant effect: it increases the perception of too little reaction: censorship can, to some

Table 3: The perception of a too weak or too strong response to the crisis is the strongest factor explaining the trust in the government, even when controlling to the effect of the crisis (number of deaths in the country at time of survey) and a number of other factors.

| Government trust | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Age | | 0.009* | 0.01* | 0.007*** |
| | | (2.4) | (2.58) | (1.76) |
| Female | | -0.404** | -0.334* | -0.324* |
| | | (-2.74) | (-2.18) | (-2.27) |
| Years of education | | <0.001 | 0.006 | 0.003 |
| | | (0) | (0.41) | (0.25) |
| Health (self-assessed) | | 0.207*** | 0.246** | 0.22* |
| | | (3.75) | (3.29) | (2.6) |
| Married | | 0.167 | 0.025 | 0.096 |
| | | (0.94) | (0.16) | (0.63) |
| COVID-19 deaths | | | -1.581*** | -2.37*** |
| (in thousands) | | | (-3.58) | (-5.1) |
| Stringency index | | | 0.032** | 0.044*** |
| (average since start) | | | (3.11) | (4.21) |
| Stringency index | | | 0.004 | -0.002 |
| (current) | | | (0.97) | (-0.47) |
| Press Freedom | | | | -0.029*** |
| | | | | (-5.17) |
| Reaction too little | -1.362*** | -1.366*** | -1.248*** | -1.153*** |
| | (-19.3) | (-13.92) | (-12.1) | (-11.76) |
| Reaction too much | -0.777** | -0.808** | -0.727** | -0.602** |
| | (-2.78) | (-3.44) | (-3.39) | (-2.9) |
| Constant | 4.056*** | 3.502*** | 2.428*** | 3.57*** |
| | (35.74) | (7.07) | (4.9) | (6.46) |
| N | 105057 | 105057 | 100605 | 100605 |
| Countries | 57 | 57 | 55 | 55 |
| $R^2$ | 0.4515 | 0.4877 | 0.5243 | 0.5502 |

extent, cover up a too slow reaction to the crisis. We see, however, from
Fig. 1 that this method has limits, since countries with low freedom of the
press like Russia, Indonesia or Turkey still end up among the four countries
with most people complaining about too little reaction (together with the
US which scores fairly well on the press freedom scale).

We did not find any robust significant effects of cultural variables, the overall
governance efficiency or of demographic variables.

## 3.4   Perception of too extreme reaction

Similarly, we ask what factors make people perceive a government reaction
as "too much"? Table 5 shows that here the picture is strikingly different: we
find little or no evidence for an influence of the actual amount of stringency
on this perception. We also do not find an effect of the number of deaths in a
country. This implies that people complaining about too much government
reaction are *not* triggered by too tight stringency (neither in absolute terms
nor relative to the number of deaths in their country). This is very surprising
and also a bit disconcerting, because it suggests that a sentiment against
too much reactions does not result from a government overdoing things, and
seems quite detached from government policies as well as output measures.
Instead, we find education to be the single most important explanatory
factor: the more years of education the person has, the less likely is the
person to perceive the government reaction as too much.

We also find some weak evidence that indulgence tends to increase this
perception. – Persons who are more fun-loving might be unhappy with
stringency measures that limit, for example, their leisure activities.

## 3.5   A closer look at "too little" and "too much" reactions

While overall government trust can be well-explained with our previous anal-
ysis, there is still need to understand better what factors lead to the per-
ception of too little or too much government reaction. There are obviously
many country-specific factors, as governments responded in different ways

Table 4: The actual amount of stringency (since the beginning of the pandemics) is an important factor explaining the perception of too little action by the government. Freedom of the press increases this perception more, as does the number of deaths (after controlling for press freedom).

| Reaction "too little" | Model 1 | Model 2 | Model 3 |
| --- | --- | --- | --- |
| Age | 0.002 | 0.004 | 0.006 |
| | (0.37) | (0.74) | (0.86) |
| Female | -0.035 | -0.016 | -0.035 |
| | (-0.35) | (-0.16) | (-0.32) |
| Years of education | 0.013 | 0.015 | 0.01 |
| | (1.17) | (1.45) | (0.74) |
| Health (self-assessed) | -0.09 | -0.079 | -0.121 |
| | (-1.24) | (-1.06) | (-1.47) |
| Married | -0.062 | -0.088 | 0.093 |
| | (-0.36) | (-0.5) | (0.45) |
| COVID-19 deaths (in thousands) | 0.513 | 1.018* | 1.911** |
| | (1.08) | (2.05) | (3.15) |
| Stringency index (current) | -0.01 | -0.004 | -0.005 |
| | (-1.07) | (-1.27) | (-1.02) |
| Stringency index (average since start) | -0.009* | -0.02* | -0.02* |
| | (-2.58) | (-2.67) | (-2.33) |
| Press Freedom | | 0.016*** | 0.017* |
| | | (3.59) | (2.64) |
| World Governance Index | | -0.083 | -0.103(*) |
| | | (-1.57) | (-1.66) |
| Uncritical patriotism | | | -0.114 |
| | | | (-0.21) |
| Sociality | | | -0.196 |
| | | | (-0.94) |
| Indulgence | | | -0.138 |
| | | | (-0.55) |
| Constant | 1.583*** | 0.796(*) | 1,705 |
| | (4.09) | (1.85) | (1.24) |
| N | 100605 | 100605 | 67284 |
| Countries | 55 | 55 | 31 |
| $R^2$ | 0.1157 | 0.1565 | 0.1918 |

Table 5: The perception of too much government reaction is basically un-related to the amount of actions taken and the number of deaths in the country. There is, however, an effect of indulgence and education: people who are more fun-loving and have less education are more likely to share the perception of too much action.

| Reaction "too much" | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Age | -0.001 | 0.001 | <0.001 |
| | (-0.27) | (0.18) | (-0.09) |
| Female | -0.103 | -0.09 | -0.164 |
| | (-1.02) | (-0.99) | (-1.58) |
| Years of education | -0.019(*) | -0.018(*) | -0.026** |
| | (-1.83) | (-1.92) | (-2.82) |
| Health (self-assessed) | 0.033 | 0.04 | 0.055 |
| | (0.97) | (1.06) | (1.14) |
| Married | -0.166 | -0.184 | -0.239 |
| | (-0.97) | (-1.09) | (-1.05) |
| COVID-19 deaths (in thousands) | -0.301 | 0.005 | <0.001 |
| | (-0.76) | (0.18) | (0) |
| Stringency index (current) | -0.004 | -0.001 | 0.003 |
| | (-1.58) | (-0.27) | (1.46) |
| Stringency index (average since start) | -0.001 | -0.007 | -0.011 |
| | (-0.06) | (-1.04) | (-1.64) |
| Press Freedom | | 0.011* | 0.002 |
| | | (2.24) | (0.46) |
| World Governance Index | | -0.058 | -0.11* |
| | | (-1.41) | (-2.3) |
| Uncritical patriotism | | | -0.462 |
| | | | (-0.99) |
| Sociality | | | -0.168 |
| | | | (-1.16) |
| Indulgence | | | 0.238* |
| | | | (2.1) |
| Constant | 1.129(*) | 0.591 | 1.395(*) |
| | (1.95) | (1.36) | (2.04) |
| N | 100605 | 100605 | 67284 |
| Countries | 55 | 55 | 31 |
| $R^2$ | 0.0535 | 0.0918 | 0.1698 |

to the pandemic, but we have already seen that the concrete actions of the government and the results (in number of deaths) are not predictive, particularly for whether people perceive the reactions as "too much". To collect further information about people disagreeing with the strength of government reactions we therefore self-collected further data in Germany between April 21–23, 2020, as described in Section 2. In total, 268 persons participated in the survey. After removing subjects who did not answer the survey completely, we retained 197 answers that we analyzed further.[3]

We then correlate the variables "reaction too much" and "reaction too little" with conspiracy tendency (defined as the average answer to all conspiracy related items) as well as to all single conspiracy items. Some of these items are "directional", i.e. they strongly suggest that the reaction is too much (e.g., the Bill Gates conspiracy theory). Others are "neutral" in that they have no visible relation to how much a government should react (e.g., it does not seem to matter much if the virus was produced in a bio lab for the current actions against its spread). If we find a significant correlation for such items, it tells us something about personal characteristics about the persons in the respective category. Finally, some are a priori "symmetric" in that they could be expected to be higher for both groups of people (e.g., the belief that media systematically hides information).

The Pearson correlation results are presented in Table 6. We see that there is a strong asymmetry between the two variables: while perceived reactions as "too little" are not correlated with any conspiracy theory and only with a slight agreement to the statement "the media want to hide information from us", "reactions too much" is correlated significantly for most of the items and also the overall score ("conspiracies total").

It is particularly interesting that a perception of too much reaction is highly correlated with items that are "neutral" towards the needed reactions. Compare, e.g., the Bill Gates conspiracy with the Chinese bio weapon conspiracy:

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[3]There were no statistically significant differences regarding age, gender, student status or university degree between those who completed the survey and those who dropped out after answering the first page of the survey (which contained the demographic questions).

Table 6: Correlations of perceived government reaction too little / too much with various conspiracy related items and proportion of subjects having heard about them before.

|  | Too little | | Too much | | Know |
| --- | --- | --- | --- | --- | --- |
|  | corr. | $p$ | corr. | $p$ | theory |
| The media want to hide information about the coronavirus from us. | .144* | 0.043 | .343** | <0.001 | - |
| The hype about corona was only caused by pharmaceutical companies and other groups that benefit from it. | 0.065 | 0.361 | .344** | <0.001 | - |
| The virus serves our politicians only as a pretext to undermine our basic rights. | 0.064 | 0.374 | .399** | <0.001 | - |
| The US secret service developed the virus and brought it to Wuhan in order to specifically damage China. | 0.061 | 0.396 | 0.043 | 0.550 | 49% |
| China developed the virus in a laboratory for bio-weapons, from where it spread by accident. | -0.008 | 0.916 | .198** | 0.005 | 70% |
| Covid-19 is connected to the expansion of the 5G mobile phone network. | 0.068 | 0.345 | 0.092 | 0.197 | 49% |
| Pharmaceutical companies in conjunction with Bill Gates started the infection in order to make money with a vaccine they had patented. | 0.019 | 0.786 | .176* | 0.014 | 43% |
| Conspiracies total | 0.078 | 0.279 | .307** | <0.001 | - |

while it seems natural that a believer in the former theory might think that COVID-19 is basically just made up and the government is therefore overreacting, there is no such "logical" connection for the second item. The most likely explanation for the positive correlation is therefore that a general tendency to believe in conspiracy theories tends to be aligned with a perception of too much government reaction. That such general tendencies exist, i.e., that beliefs in very different conspiracy theories correlate is a well-known phenomenon (Goertzel 1994).

We need to emphasize here that these results hold for Germany. They probably carry over to some other countries, but we have seen that in some countries the number of people complaining about too much reaction from their government is very high. In this case it is more likely that the problem is with the political decisions rather than with misperception of people with conspiracy tendency. We do also *not* claim that *all* critics of strict government reactions in Germany are following conspiracy theories, but we do see *on average* a strong relation in our data, at least at the time of the survey.

To confirm our findings, we did a number of robustness tests: First, we conducted t-tests between the group of persons that perceived a too strong government reaction and the rest. Again, we obtained a highly significant difference in conspiracies total (12.6 versus 9.6, $p$ <0.001). For too little government reaction, we did not obtain any significant difference (10.4 versus 9.8, $p$=0.33).

We also run linear OLS regressions with dependent variable *reaction too much* or *reaction too little* and as independent variables *conspiracies total* together with demographic controls (female, age, student, university degree). For *reaction too much*, the only significant variables were *conspiracies total* ($p$ <0.001) and female (with females perceiving the reaction less frequently as too much, $p$ =0.03). For *reaction too little*, we did not find any significant factor.

Replacing conspiracy total with conspiracy tendency (a dummy defined as a value of conspiracy total larger than 10), did not change the regression

result decisively: again, no significant independent variables for *reaction too little*, while for *reaction too much* the conspiracy tendency was the most significant factor ($p <0.001$), but this time the coefficient for female failed to be significant.

The connection between conspiracy tendencies and perception of too much reactions can also clearly be seen from Table 7: the proportion of people seeing the reactions as "too much" among people without conspiracy tendency is very low (7%) as compared to people with conspiracy tendencies (30%). Table 8 moreover shows that less than a quarter of the people that do not think the government reacted too strongly have conspiracy tendencies while for the others around two thirds have. This last numbers are particularly interesting, since they demonstrate that among people who see the reactions as too strict a large majority has conspiracy tendencies. Conspiracy theories therefore seem to play an important role in forming this perception, at least in Germany.

Table 7: Distribution of perception of government reactions among people with and without conspiracy tendencies.

| Perception of reaction: | Conspiracy tendency | |
|---|---|---|
| | no | yes |
| not too strict | 94% | 70% |
| rather too strict | 6% | 26% |
| far too strict | 1% | 4% |
| Sum | 100% | 100% |

To sum up: the perception of too much government reaction (at least in Germany) seems to be mostly shared by persons who are receptive to conspiracy theories, whereas this is not the case for the opposite opinion of too little reactions.

Table 8: Distribution of conspiracy tendency among people with different perceptions of government reactions.

|  |  | not too strict | rather too strict | far too strict |
|---|---|---|---|---|
| Conspiracy tendency | no | 79% | 36% | 33% |
|  | yes | 22% | 64% | 67% |
| Sum |  | 100% | 100% | 100% |

## 4    Conclusions

This article provides an overview of perception of government actions during the COVID-19 pandemics in March and April 2020 around the world. Our results show a large heterogeneity between countries. We find that, on average, stronger and faster stringency of anti-pandemic measures and a smaller number of deaths increase the trust in governments. We also find that freedom of the press reduces it.

The most important factor affecting government trust is, however, whether people perceive it as either too little or too much.

While the perception of "too little" reaction is partially grounded in factual parameters (amount of objectively measured stringency and the number of COVID-19 deaths as outcome measure), this is not true for the opposite perception of "too much" that seems to be more driven by sentiments and is more widespread among less educated participants. At least in Germany this perception is also mainly shared by people who have a tendency towards belief in conspiracy theories.

The results of our paper concern a crucial moment of the pandemic where many countries start to slowly ease the lockdowns, hoping to avoid a second wave of the pandemic while trying to make up their economic losses, while others, particularly the developing countries, are only now facing tremendous difficulties. It is, therefore, very much possible that the perceptions of people will change in later stages of the pandemic and it will, of course, be very interesting to follow this development.

We hope that the current article provides a foundation for further studies on this issue.

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