



# Macroeconomic expectations and consumer sentiment during the COVID-19 pandemic: The role of others' beliefs

Dzung Bui <sup>a</sup>, Lena Dräger <sup>b,c,\*</sup>, Bernd Hayo <sup>a</sup>, Giang Nghiem <sup>b</sup>

<sup>a</sup> University of Marburg, Universitätsstraße 24, 35037 Marburg, Germany

<sup>b</sup> Leibniz University Hannover, Königsworther Platz 1, 30167 Hannover, Germany

<sup>c</sup> CESifo, Munich, Germany

## ARTICLE INFO

### JEL classification:

E21  
E37  
E71  
D84  
D83

### Keywords:

Consumer sentiment  
COVID-19  
Randomized control trial (RCT)  
Survey experiment  
Belief updating  
Macroeconomic expectations  
Thailand  
Vietnam

## ABSTRACT

This paper investigates the effect of information about cross-country ratings of the government's and the public's reaction to the COVID-19 pandemic on consumers' macroeconomic expectations and sentiment. We conduct consumer surveys with randomized control trials (RCTs) in two waves in Thailand and Vietnam. The information treatments have the strongest effect when the information shown contradicts consumers' prior beliefs. In the first survey, conducted when the first lockdown was eased, treatment effects are stronger in Vietnam, causing more optimistic expectations and sentiment. In the second survey, conducted at the start of the second wave of infections, treatment effects are stronger in Thailand, causing a more pessimistic outlook.

## 1. Introduction

The COVID-19 virus began spreading around the world in early spring 2020, causing deep crises in many countries. From an economic perspective, the pandemic can be thought of as a triple shock, as it combines elements of a supply, a demand, and an uncertainty shock. These economic shocks likely affect consumer sentiment and, thereby, could dampen current and future spending. At the same time, however, expansive fiscal and monetary policy measures may ease the negative effects of the pandemic on consumer sentiment.

Uncertain times make it difficult for consumers to form expectations about future economic conditions, such as those included in an index of consumer sentiment (Bachmann et al., 2013; Binder, 2020). In a pandemic, this uncertainty also relates to the government's and the general public's reaction to the crisis. As a consequence, the economic optimism or pessimism of consumers depends not only on the effect of the pandemic itself, but also on how well they feel the government and the general public are handling it. In such a situation, individuals may rely on others' beliefs as a guideline, for instance, those contained in cross-country rankings.

In this paper, we thus investigate the effect of cross-country ratings about the appropriateness of the government's response and the inappropriateness of the public's reaction to the pandemic on respondents' macroeconomic expectations and individual

\* Corresponding author.

E-mail addresses: [buid@wiwi.uni-marburg.de](mailto:buid@wiwi.uni-marburg.de) (D. Bui), [draeger@gif.uni-hannover.de](mailto:draeger@gif.uni-hannover.de) (L. Dräger), [hayo@wiwi.uni-marburg.de](mailto:hayo@wiwi.uni-marburg.de) (B. Hayo), [nghiem@gif.uni-hannover.de](mailto:nghiem@gif.uni-hannover.de) (G. Nghiem).

<https://doi.org/10.1016/j.ejpoleco.2022.102295>

Received 10 March 2022; Received in revised form 19 July 2022; Accepted 3 September 2022

Available online 10 September 2022

0176-2680/© 2022 Elsevier B.V. All rights reserved.

consumer sentiment.<sup>1</sup> Consumers in emerging market economies are more vulnerable to income losses, as the social security net is often less developed. We thus study the effect of information treatments about others' beliefs using randomized control trials (RCTs) integrated into online consumer surveys conducted in Thailand and Vietnam. Thailand and Vietnam are interesting case studies in the context of the COVID-19 pandemic, because both countries are neighbors of China and were among the first countries worldwide to be affected by COVID-19.<sup>2</sup> Moreover, the differences and similarities between the two countries make it a unique and very interesting case to compare the treatment effects between the two countries.

The first wave of our survey took place in May 2020, shortly after the easing of the first lockdown in both countries. A follow-up survey was conducted in December 2020, at the start of a second wave of infections in both countries. The first information treatment presents average response shares across countries from another survey measuring views about the appropriateness of the government's response to the COVID-19 crisis (*government reaction* treatment). Here, we exploit a notable asymmetry among our two sample countries. The cross-country survey by Dölitzsch (2020), which we use for this treatment, finds that Thailand is ranked lowest in terms of agreement with the government's response, while Vietnam receives the highest ranking. We utilize this cross-country variation to evaluate whether it matters for our respondents' own beliefs at which end of the distribution tail the beliefs shown in the treatment lie.

The second treatment presents evidence on average beliefs about the inappropriateness of the general public's response during the COVID-19 crisis in a cross-country survey by Fetzer et al. (2020b) (*public reaction* treatment). This treatment is more symmetric across our sample countries because the average inappropriateness ratings in Thailand and Vietnam are relatively similar and lie in the middle of the cross-country distribution, rather than in the tails.

The opposite beliefs in the two countries in the *government reaction* treatment can be explained by differences in the economic and political situation in these countries, as well as by different experiences during the pandemic. Economically, GDP per capita in Thailand is roughly twice that in Vietnam and the country ranks higher on the Human Development Index. However, Vietnam experienced high real GDP growth in the years preceding the pandemic. Politically, both nations are governed by unitary entities. The political situation in Vietnam is currently stable, but Thailand has experienced repeated episodes of political unrest since the military coup in 2014. More recently, political instability occurred in Thailand when the election of a new government in 2019 was effectively circumvented by the military. Regarding the COVID-19 pandemic, substantially more cases are reported from Thailand than from Vietnam (both in terms of absolute and per capita numbers) and public disagreement with government policies for handling the crisis is much stronger in Thailand than in Vietnam (Fetzer et al., 2020b; Dölitzsch, 2020).

Our results show that both the *government reaction* and the *public reaction* treatment have positive effects on unemployment and economic growth expectations of Vietnamese consumers in the first survey in May 2020. Interestingly, both treatments thus seem to be perceived as "good news" by Vietnamese consumers. Conditioning on respondents' prior beliefs about the governments' economic policies in normal times (elicited before the treatment) shows that this effect is primarily driven by those who previously thought the government did a bad job. Presenting these more negatively opinionated consumers with a cross-country ranking showing their home country to do well leads to more optimistic macroeconomic expectations and significantly more positive sentiment. Similarly, Thai respondents who previously held a positive opinion about their government (a minority) become significantly more pessimistic after receiving information about their country's negative cross-country ratings.

However, the treatment effects are rather short-lived, as most turn out to be insignificant when re-interviewing participants in the second survey in December 2020. We also treated a part of our sample with the information treatments for the first time in December 2020. In the first wave, all the significant effects were found for the Vietnamese sample, whereas in the second wave, most of the significant treatment effects were found for the Thai sample. Most of these estimates point to negative effects of either treatment on macroeconomic expectations and sentiment. This suggests that people's assessment of such information depends on its timing during the pandemic, which is characterized by evolving case numbers as well as changes in the government and the public's reaction to it: The positive "good news" effect in the Vietnamese sample was dominant when conditions improved after the first wave, whereas the negative "bad news" effect in the Thai sample was more pronounced at the start of the second wave of infections.

Our paper contributes to the growing literature that combines consumer surveys with RCTs to study economic aspects of the COVID-19 pandemic. To date, however, most studies focus on the United States (U.S.) and were conducted at the beginning of the pandemic. Fetzer et al. (2021) conducted two survey experiments at the start of the pandemic in the U.S. that is, in early-mid March 2020. They show that providing information about true contagiousness or mortality significantly lessens concerns over the individual or the aggregate economic situation. While Fetzer et al. (2021) measure economic sentiment using questions on personal economic concerns related to COVID-19, we calculate an individual index of consumer sentiment based on financial and macroeconomic expectations as well as the readiness to spend on durable goods. Binder (2020) surveyed U.S. consumers on March 5 and 6, 2020, just before the pandemic really hit the U.S. She finds that consumers concerned about COVID-19 expect higher unemployment and higher inflation and, thus, are more pessimistic about the economic outlook. When treated with information about the Fed's interest

<sup>1</sup> Individual consumer sentiment is based on the responses to the same questions, which are used to calculate the *aggregate* consumer sentiment index in the University of Michigan survey. The index accounts for consumers' current and expected financial situation, several macroeconomic expectations, and their readiness to spend on durable goods. The aggregate consumer sentiment index is often employed as a leading indicator for macroeconomic forecasts. A large body of literature highlights the crucial link between consumer sentiment and (future) economic activity such as consumer spending (Carroll et al., 1994; Ludvigson, 2004; Souleles, 2004; Dees and Soares Brinca, 2013; Ahmed and Cassou, 2016), future productivity (Barsky and Sims, 2012; Bachmann and Sims, 2012), and the stock market (Jansen and Nahuis, 2003; Chen, 2011).

<sup>2</sup> The first diagnosed case was on 13th January 2020 in Thailand and on 23rd January 2020 in Vietnam.

rate cut on March 3, 2020, consumers become more optimistic about future unemployment and inflation. Similarly, Coibion et al. (2020a) conducted a survey of Nielsen Homescan panelists in April 2020 and randomly provided several information treatments about the severity of the pandemic and monetary, fiscal, and health policies in the U.S. They find no notable effects of information about policy responses on macroeconomic expectations or planned spending. Hanspal et al. (2021) surveyed U.S. consumers in April 2020 and included RCT information treatments referring to several historical stock market crashes. The authors find that those who received information about a more severe stock market crash in the past are more pessimistic about current stock market development. Finally, Coibion et al. (2020b) conducted a survey from October 19–21, 2020 in the U.S. to study the effect of the expected presidential election outcome on economic expectations. The authors find that providing public polling information significantly changes the opinions of only those respondents who are political independent and/or have no strong initial beliefs about the outcome.

Our paper also adds to the literature on the link between consumer sentiment and perception of the government or political preferences.<sup>3</sup> Easaw and Ghoshray (2007) model theoretically the two-way relationship between subjective consumer sentiment and government competence. The authors assume that households either form their beliefs about government competence first and then use it as an anchor for their personal economic sentiment, or, alternatively, they form their economic sentiment first and, based on that, assess the government's performance. Using data on the U.S., Easaw and Ghoshray (2007) find more evidence supporting the latter sequence. However, De Boef and Kellstedt (2004)'s finding supports the former channel. Media affects how citizens view the U.S. president's ability to govern the economy. Their views in turn have both long-run and short-run effects on consumer sentiment.

More generally, our paper is also related to the literature studying the impact of the COVID-19 pandemic on consumption, a body of work that includes, among others, Andersen et al. (2020), Baker et al. (2020), Carvalho et al. (2020), Christelis et al. (2020), and Chronopoulos et al. (2020). In a companion paper using the same survey and sample countries employed in the present study, Bui et al. (2022) analyze the effects of fiscal policy in the form of financial assistance to households. We find that financial support to households during the COVID-19 pandemic is related to more positive consumer sentiment and increases in actual and planned durable spending, while also being correlated with a more optimistic macroeconomic outlook, higher trust in the government, and higher personal well-being. Finally, Dang and Giang (2020) study the correlation of employment status with household financial situation and economic expectations in Vietnam using an online survey from April 26 to May 9, 2020. They find that having a job is positively correlated with a better financial situation, fewer job concerns, and more optimism with respect to future economic development.

The rest of the paper is organized as follows. In the next section, we discuss a behavioral mechanism based on Prospect Theory, which can explain why a person's reaction to good news might not simply be the reverse of his/her reaction to bad news. In Section 3, we describe our survey and the treatments. Section 4 contains the results of our analysis. Section 5 concludes.

## 2. Theory

Can news about cross-country beliefs in government performances or the public's response to the pandemic affect individual consumer sentiment? And if so, how? A potential channel can be derived from Prospect Theory by Kahneman and Tversky (1979). Fig. 1 shows the hypothetical value function under loss aversion, which is concave in the gain region and convex in the loss region. That is, relative to some reference point, a loss of equal size will hurt perceived value more than a gain will improve it. Moreover, the gain-loss comparison depends on the specific location of the reference point in terms of the origin.

In a two-period model with income uncertainty, Bowman et al. (1999) show that loss-averse consumers will never consume below their reference level of consumption when expected income falls, at least as long as there is a sufficiently high probability that the negative income shock will not be realized and they do not risk default. In this framework, consumers postpone reducing first-period consumption when they receive negative news on expected income, but increase consumption in response to positive news.

We believe that this model can be usefully applied to studying consumer sentiment during a pandemic. Consumer sentiment correlates positively with expected income, since current and expected income are two out of five variables forming the sentiment index.<sup>4</sup> A worldwide pandemic is a rare and typically unforeseen situation, which is characterized, among other things, by high income uncertainty. Moreover, the future economic situation of individuals critically depends on how well their government is able to handle the pandemic: a bad handling of the health crisis will likely lead to a deeper recession and additional individual income losses. Now assume the current pandemic situation serves as reference point for expected income. Conditional on this reference point, good news about how well domestic consumers view their government in comparison to how consumers from other countries assess their respective governments could be interpreted as good news on expected income and, therefore, may move consumer sentiment upwards.

Negative news that consumers' own government fares worse in comparison to other countries' governments might correlate negatively with consumer sentiment. Consistent with Bowman et al. (1999), we would expect negative news to affect consumer sentiment less, as consumers try to avoid the realization of losses in sentiment and expected income. However, this asymmetry

<sup>3</sup> Recently, Monastiriotis and Zilic (2020) report an asymmetric effect of a political disintegration on GDP per capita partly associated with the divergences in economic sentiment. The newly independent country after a secession is able to realize a short-run boost in GDP per capita, while there is no such effect in the remaining country (or union).

<sup>4</sup> Our data also show strong correlations between the individual index of consumer sentiment and the expected household financial situation in the next 12 months of 0.74 and 0.78 for Vietnam and Thailand, respectively.

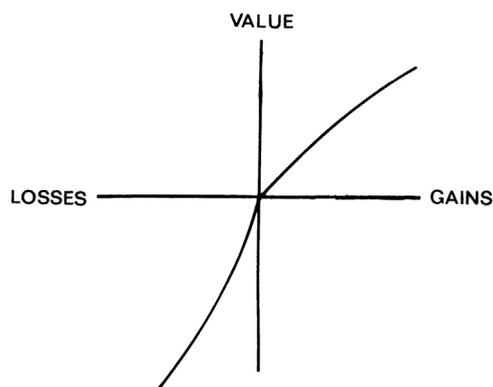


Fig. 1. A hypothetical value function under loss aversion.  
Source: Kahneman and Tversky (1979), p. 279.

could change if losses in expected income seem no longer avoidable, for instance, because the pandemic situation has worsened. In such a situation, we would expect a stronger effect of negative news when compared to positive news, because future income losses are expected to be realized and, due to the steeper slope of the value function in the loss region, these have a larger effect on consumers' utility. A similar argument can be made with regard to the pandemic-related social behavior of fellow citizens.

In light of these considerations, how consumers react to positive vs. negative news becomes an empirical question. Using controlled laboratory experiments, Eil and Rao (2011) and Kuhnen (2014) report empirical evidence that people put more weight on good news compared to bad news, whereas Coutts (2019) and Barron (2021) find no such asymmetric effects. Outside of the laboratory, Dybowski and Adämmer (2018) report evidence that U.S. consumer sentiment improves after good news about U.S. federal tax cuts.

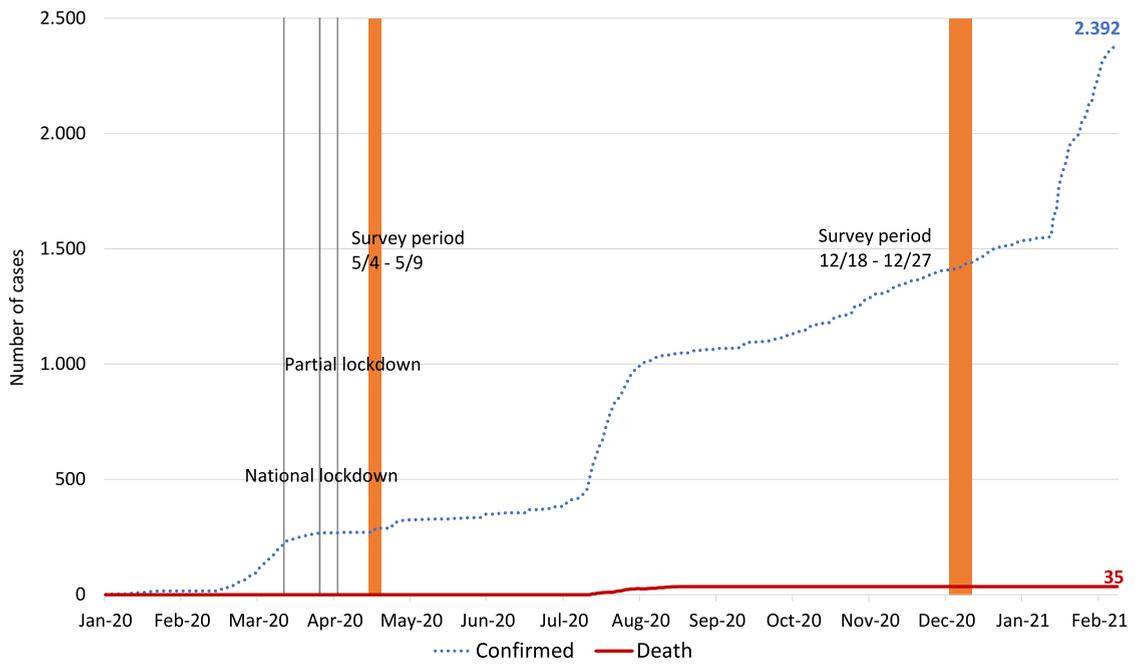
### 3. Data description

In early May 2020, when there was an easing of the lockdown in both countries, we conducted two online surveys of consumers in Vietnam and Thailand. This is a novel dataset because it collects consumer opinions on trust in the government, macroeconomic expectations, and personal concerns, as well as consumer sentiment during the COVID-19 pandemic in two emerging economies. As a unique feature of our dataset, we randomly selected respondents into two treatment groups and a control group. The treatments test how information about the home country's position in cross-country rankings on the government's or the general public's response to the crisis affects respondents' own beliefs, macroeconomic expectations, and consumer sentiment. A follow-up survey of a subsample of respondents from the first wave was conducted in December 2020.

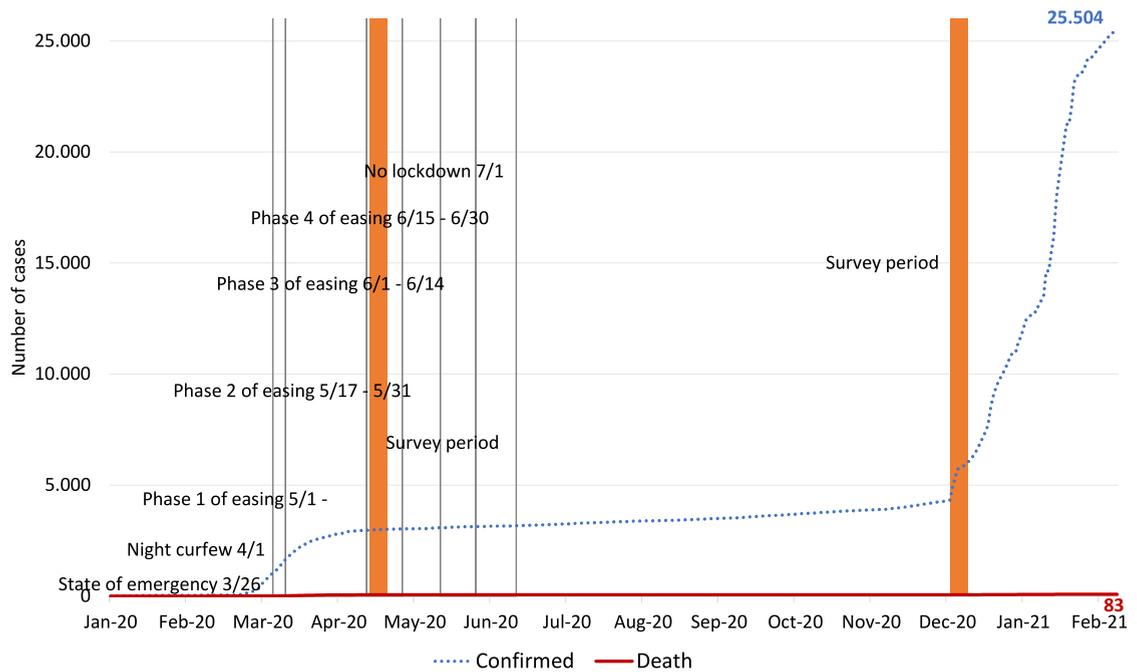
Thailand and Vietnam are similar along some dimensions, but differ in others. On the one hand, both are emerging market economies from the same geographic region. Politically, they are both ruled by unitary entities: The Kingdom of Thailand is currently governed by the military and the Socialist Republic of Vietnam by the Communist Party. They also have fairly comparable population sizes (Thailand: 67 million, Vietnam: 95 million). On the other hand, Thailand has roughly twice the GDP per capita as Vietnam (about \$20,000 and \$8000, respectively (U.S. dollar in PPP in 2019)) and ranks higher on the Human Development Index (ranks of 77 and 118, respectively). The recent real GDP growth and inflation development in both countries are shown in Fig. A.1 in the Appendix.

As Fig. 2 shows, substantially more COVID-19 cases were reported from Thailand than from Vietnam during the time of our survey (both in terms of absolute and per capita numbers). Both countries experienced a second wave of infections shortly after our second survey in December 2020. Following the lockdown in the spring of 2020, widespread anti-government protests erupted in Thailand, whereas Vietnam remained calm. Moreover, perceptions of the government's reaction to the crisis differ between the two countries. As shown by Fetzer et al. (2020b), in Vietnam, public agreement with policy measures is much higher than in Thailand and trust in the government is also substantially higher.

The survey in Vietnam covers 3300 respondents and was conducted May 4–9, 2020; the survey in Thailand took place May 4–10, 2020 and includes 2200 respondents. The May 2020 survey contained two additional treatments that we do not analyze in this study. The relevant samples for this paper are 1971 respondents from Vietnam and 1307 respondents from Thailand, aged 18–60. In addition, we conducted a follow-up survey December 18–27, 2020 and re-interviewed 1016 Vietnamese and 1189 Thai respondents from the first wave. The resulting samples contain 1002 respondents from Vietnam and 1178 respondents from Thailand. In this follow-up survey, we randomly sorted respondents who received one of the two other treatments (i.e., one of the two treatments not analyzed in the present paper) in the first wave into treatment groups for the *government reaction* and the *public reaction* treatments. This was done to evaluate whether the timing of the treatment during the specific phase of the pandemic matters and, more generally, whether the information treatments are externally reliable and generate similar effects more than half a year later. Members of the initial control group who did not receive a treatment in May 2020 were also re-interviewed in the second survey wave.



(a) Vietnam



(b) Thailand

Fig. 2. COVID-19 pandemic development in Thailand and Vietnam.  
 Source: John Hopkins University, Worldometers. Data as of Feb 22nd, 2021.

The data were collected by GMO-Z.com RUNSYSTEM, which is one of the largest private market research and public opinion survey companies in South-East Asia. The company has a large number of registered participants who are familiar with online surveys. Participants can gain “reward points”, which are redeemable as gifts, by finishing the survey. Note that our surveys in Thailand and Vietnam were conducted in Thai and Vietnamese, respectively. As our datasets overweight the young, highly educated, and urban respondents in both countries, we construct and apply population weights based on the respective national distribution of age, education, and the share of people living in an urban area. All estimations control for these factors and several additional demographic characteristics, including income, employment status, gender, and marital status.

### 3.1. Information treatments

The May 2020 questionnaire starts with a set of standardized questions designed to elicit consumers’ sociodemographic characteristics and their assessment of the government’s macroeconomic policies before COVID-19 (*govt\_assessment\_normal\_times*).<sup>5</sup> We then randomly divide our samples for each country and apply four different information treatments; there is also a control group that does not receive any information. In this paper, we study the following information treatments, which are focused on the effect of presenting information about the cross-country ranking in terms of average agreement with the government’s or the public’s reaction to the pandemic.

*Treatment 1: Government reaction:* For each survey, we provide Fig. 3 and the following text.

- Thailand survey:

**COVID-19: Many Thai believe that their government responds too little.**

A global survey pointed out that about 8 out of 10 Thai surveyed said that the government has not implemented sufficient measures to control the spread of the COVID-19 pandemic. Among 45 countries, Thailand has the highest share of respondents who believe that their government responds too little.

- Vietnam survey:

**COVID-19: Many Vietnamese people believe that their government responds appropriately.**

A global survey pointed out that about 6 out of 10 Vietnamese surveyed said that the government has implemented appropriate measures to control the spread of the COVID-19 pandemic. Among 45 countries, Vietnam has the highest share of respondents who believe that their government responds appropriately.

*Treatment 2: Public reaction:* For each survey, we provide Fig. 4 and the following text.

- Thailand survey:

**About half of Thai said that the public’s reaction in their country is insufficient.**

A recent global population survey asked how people assess the public’s reaction in their country to the COVID-19 crisis. About 5 out of 10 Thai said that the reaction of their fellow citizens is insufficient. Worldwide, only about 1 out of 10 Chinese, but about 10 out of 10 Indians, gave the same answer.

- Vietnam survey:

**COVID-19 survey: About 6 out of 10 Vietnamese said that the public’s reaction in their country is insufficient.**

A recent global population survey asked how people assess the public’s reaction in their country to the COVID-19 crisis. About 6 out of 10 Vietnamese said that the reaction of their fellow citizens is insufficient. Worldwide, only about 1 out of 10 Chinese, but about 10 out of 10 Indians, gave the same answer.

Treatments 1 and 2 summarize the results of the global surveys by Döhlitzsch (2020) and Fetzer et al. (2020b) about respondents’ assessment of the appropriateness of their government’s reaction to the COVID-19 pandemic (Treatment 1 - *government reaction*) and of the inappropriateness of the general public’s reaction (Treatment 2 - *public reaction*).<sup>6</sup> Thus, both treatments test for an effect of information about the country’s position in cross-country rankings on our respondents’ beliefs and sentiment. Although the treatments as such are symmetric across countries, Treatment 1 places the countries at opposite tail ends of the ranking. In contrast, Treatment 2 places the two countries’ similar inappropriateness or appropriateness ratings between those of the two largest Asian economies, China and India.

In our follow-up survey in December 2020, we randomly assigned Treatments 1 and 2 to members of two treatment groups in May who had not previously received these treatments. After the treatment information was shown, we asked them whether it was new information. Fig. A.3 in the Appendix shows that both treatments were viewed as new information by about 80% of

<sup>5</sup> The question on *govt\_assessment\_normal\_times* is taken from the Michigan Survey of Consumers.

<sup>6</sup> From March 23 to March 27, 2020, Döhlitzsch (2020) at the Dalia Research Company conducted a global survey to assess citizen rankings of their government’s response to the COVID-19 crisis. The survey covered 45 countries across all continents and had more than 32,000 respondents. Döhlitzsch (2020) reports that among the 45 surveyed countries, Thailand has the highest share of respondents who believe their government responds too little to the pandemic, while Vietnam has the highest share of respondents who believe their government responds appropriately. The study by Fetzer et al. (2020a) evaluates the effect of the government’s reaction to COVID-19 on mental well-being in a large-scale survey covering 58 countries and over 100,000 respondents between March 20 and April 7, 2020. The authors find that the perception of insufficient public and government response is associated with lower mental well-being, leading to pessimism or even psychological illnesses.

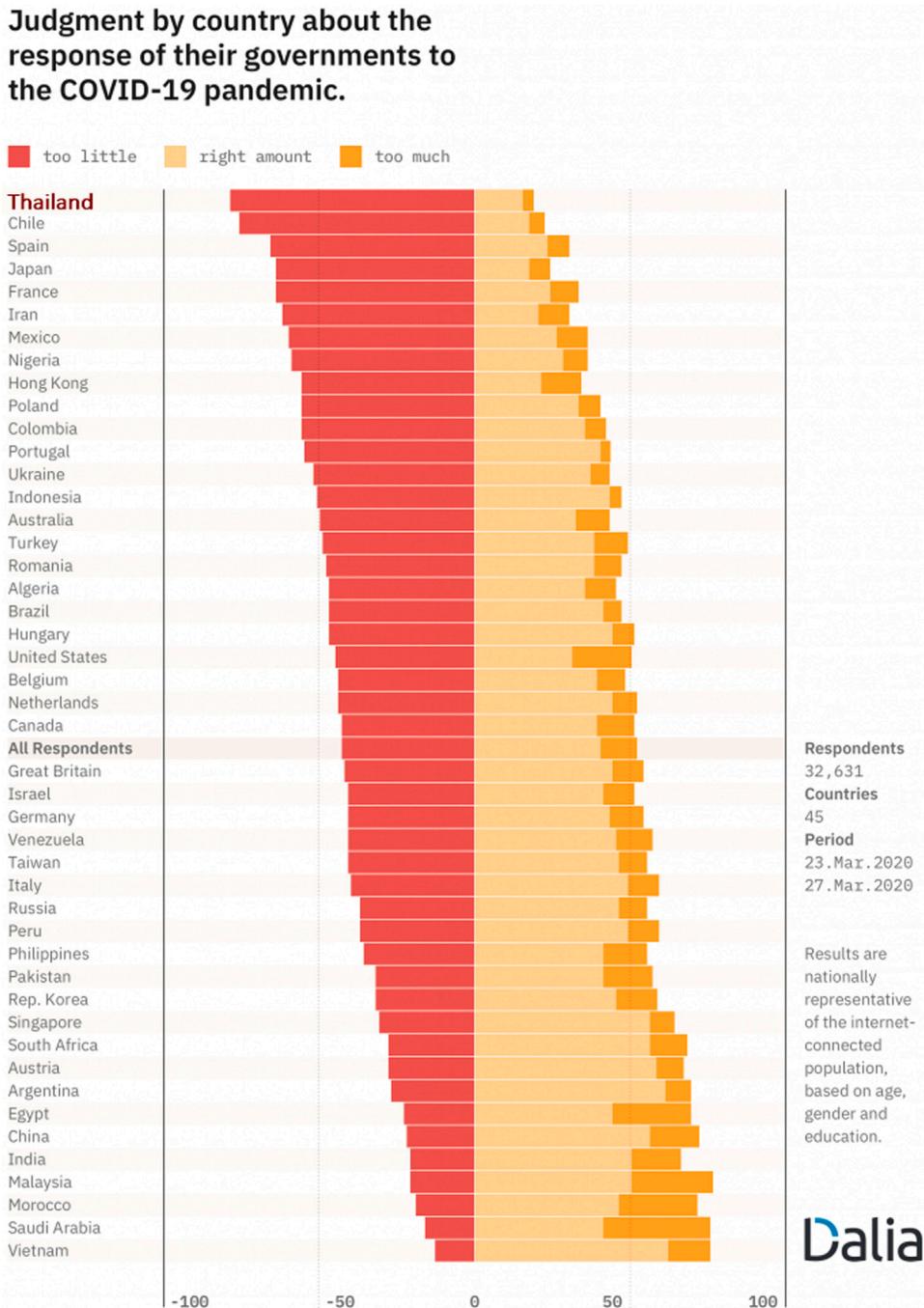


Fig. 3. Assessment of the government’s reaction to the Covid-19 pandemic. Source: Dalia research company, Dölitzsch (2020).

respondents, except for the *government reaction* (Treatment 1), which only about 64% of Vietnamese respondents regarded as new information in December 2020.

Finally, as we use academic and scientific research results for our information treatments, in the follow-up survey, we ask all respondents how much they trust scientific research/scientists in general (scale from 1 – strongly distrust to 5 – strongly trust). Fig. A.2 in the Appendix shows that respondents in both countries have a relatively strong trust in science, with average ratings of 4.1 and 3.8 in Vietnam and Thailand, respectively. It is thus likely that our respondents regard the treatments as reliable information.

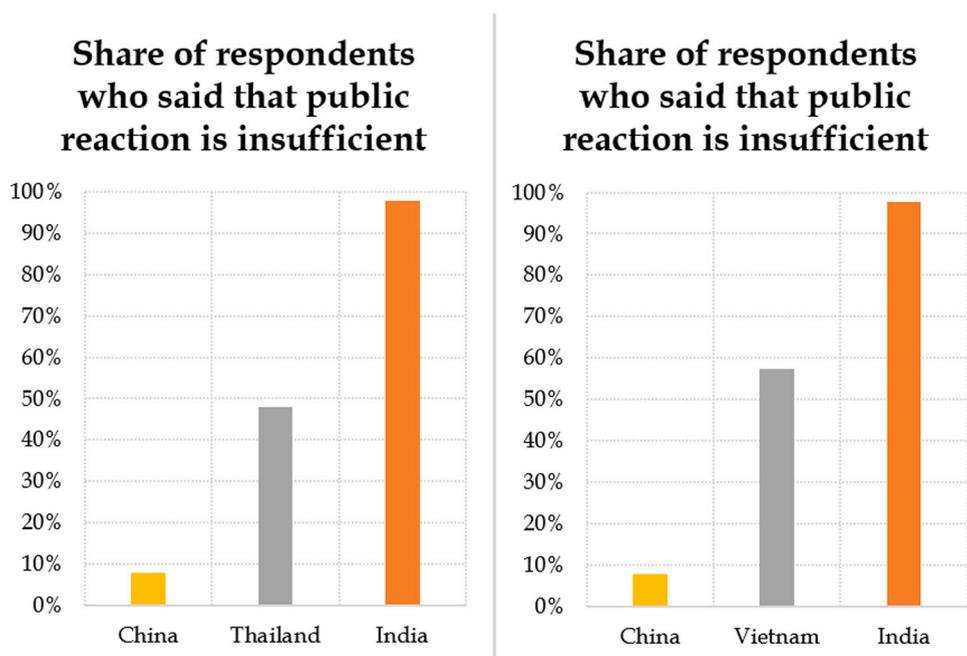


Fig. 4. Assessment of the public's reaction to the Covid-19 pandemic.  
Source: Fetzer et al. (2020b).

### 3.2. Key variables of interest

After providing information treatments, we collect qualitative macroeconomic expectations for the next 12 months, including expected unemployment and GDP growth. We also calculate the consumer sentiment index for each respondent as a simple average of the five questions: (1) financial situation in the past 12 months, (2) expected financial situation in the next 12 months, (3) expected national business conditions in the next 12 months, (4) national economic situation in the next five years, (5) current readiness to spend on durable goods.<sup>7</sup>

For the baseline analysis, we exclude respondents who do not know the answer or who do not have opinions about the questions used in our main analysis. This results in the first survey wave in May 2020 having 1585 Vietnamese and 827 Thai respondents and in the second survey in December 2020 with 886 Vietnamese and 754 Thai respondents. In the [Appendix](#), we re-estimate all regressions with an extended sample, assuming that respondents can be categorized as having a neutral position (i.e., expecting “no change”) when they do not know the answer or report that they have no opinion. We thus recode missing answers as neutral for the variables of macroeconomic expectations as well as the index of consumer sentiment.<sup>8</sup> For these robustness checks, we have 1971 observations in Vietnam and 1307 observations in Thailand in the first survey, and 1002 Vietnamese and 1178 Thai respondents in the second survey.

## 4. Results

### 4.1. Causal effects of information treatments

In this section, we evaluate the causal effects of the information treatments discussed in Section 3. Treatments 1 and 2 summarize the results of the global surveys by [Dölitzsch \(2020\)](#) and [Fetzer et al. \(2020b\)](#) about respondents' assessment of the appropriateness of the government's reaction to the COVID-19 pandemic (Treatment 1 - *government reaction*) and of the inappropriateness of the general public's reaction (Treatment 2 - *public reaction*). As discussed in Section 3.1, in Treatments 1 and 2, we test for an effect of other consumers' beliefs. In addition, Treatments 1 and 2 test whether it makes a difference how average views in the respondents' own country compare to those in other countries. In all estimated models, we control for demographic variables, including the log

<sup>7</sup> The consumer sentiment index of the University of Michigan is calculated only at the aggregate level by first computing the relative scores (the share of respondents giving favorable replies minus the share giving unfavorable replies) for each of the five questions, then taking the simple average of these five scores.

<sup>8</sup> A similar approach is taken by the University of Michigan Surveys of Consumers and Statistics Netherlands in their respective calculations of aggregate indices of consumer sentiment or consumer confidence. Since these indices are calculated by evaluating the difference in shares of positive and negative answers, all other answers (including missing values) are implicitly treated as neutral.

**Table 1**  
Marginal effects of information treatments on macroeconomic expectations and consumer sentiment: Wave 1 – May 2020.

	Expected unemployment		Expected GDP		Consumer sentiment	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Government reaction	-0.03* (0.02)	0.02 (0.04)	0.03* (0.01)	-0.004 (0.02)	0.03 (0.04)	-0.07 (0.10)
Public reaction	-0.04** (0.02)	-0.003 (0.04)	0.0003 (0.01)	-0.007 (0.02)	0.04 (0.05)	-0.08 (0.10)
Pseudo R <sup>2</sup>	0.006	0.052	0.022	0.049		
R <sup>2</sup>					0.141	0.253
N observations	1585	827	1585	827	1585	827

Note: The reference group is the control group who do not receive any information. Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender, marital status, health, income loss due to the pandemic, government macroeconomic policy assessment, and personal mood (feeling nervous). We report marginal effects from ordered probit estimations in models 1–4 for choosing the highest answer category and OLS estimations in models 5–6. All estimations are done with the restricted sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

of household income per capita, employment status, urban/rural area, age, age squared, gender, marital status, subjective health assessment, income loss due to the pandemic, assessment of the government's macroeconomic policy in normal times, and personal mood (feeling nervous). Our results, however, generally remain unchanged if we exclude the set of these control variables.

A high approval rating compared to that in other countries could be regarded as a positive signal about the home country's ability to fight the pandemic and vice versa. As we discuss in Section 3, on average, the *government reaction* treatment was perceived as good news for Vietnamese respondents and as bad news for Thai respondents, whereas the *public reaction* treatment was considered to be roughly neutral information for both countries. In the following, we only show the estimated treatment effects, the full regression results are presented in the Appendix (see Tables A.3 and A.4).

Table 1 shows the effects of our treatments on macroeconomic expectations and consumer sentiment from our first wave in May 2020. Model (1) shows that Vietnamese consumers treated with either the *government reaction* or the *public reaction* treatment are 3 or 4 percentage points, respectively, less likely to expect unemployment to increase a lot compared to the non-treated control group. Interestingly, even though the *public* treatment shows a different ranking position for Vietnam than the *government reaction* treatment, the results suggest that both treatments are regarded as good news, thus causing consumers to become more optimistic about the labor market outlook. Moreover, Vietnamese consumers receiving the *government reaction* treatment are 3 percentage points more likely to expect GDP growth to increase a lot than are consumers in the control group (see Model (3) in Table 1), which is also in line with a "good news" effect. However, we do not find any significant effect of these treatments on consumer sentiment for the Vietnamese sample. For the Thai sample, the same treatments have no significant effects neither on macroeconomic expectations nor on consumer sentiment.

The treatment effects suggest that providing information about cross-country rankings from other consumers' beliefs can have important implications for consumers' macroeconomic expectations. Interestingly, this result holds only for Vietnam, where the presented information highlighted that Vietnamese respondents in the other survey agreed most with their government's policies in a cross-country comparison. This "good news" seems to have been interpreted as a positive signal for future macroeconomic development. While the point estimates for the Thai sample suggest opposite effects, the "bad news" that Thai respondents disagree most with their government's policies compared to people in other countries is not strong enough to generate significantly negative effects.

Table 2 shows the results from the second survey conducted seven months after the first survey. For the Vietnamese sample, we find no significant medium-term treatment effects on unemployment and GDP expectations. Hence, the treatment effects from the first wave suggesting a "good news" effect from the cross-country ranking on expectations appear to be rather short-lived. By contrast, respondents from the first wave who were subject to the *government reaction* treatment show significantly lower sentiment than the control group in the second wave. In the Thai sample, we find, however, that those who were treated in the first wave expect significantly higher unemployment and express lower sentiment in the second wave. Thus, in this instance, it seems that the "bad news" effect influences expectations and sentiment with some delay.

In addition, Table 2 presents the treatment effects for respondents receiving treatments only in the second wave. These differ substantially from our results based on the first wave. We find only a few treatment effects in the second Vietnamese sample: Those who received the *public reaction* treatment are 5 percentage points less likely to state that GDP will increase a lot next year and they lower their consumer sentiment by 0.1 points (equivalent to 0.2 standard deviations (s.d.) of consumer sentiment). These results suggest that the *public reaction* treatment, which was considered as good news in the first wave, becomes bad news in the second wave. In the second wave for Thailand, both the *government reaction* and the *public reaction* treatments increase the likelihood of answering that unemployment will increase a lot next year by 9 and 10 percentage points, respectively. They also lower individuals' consumer sentiment by 0.2 and 0.3 points (equivalent to 0.2 and 0.3 s.d. of consumer sentiment), respectively. Again, this points to an interpretation of the information treatments as "bad news" in the Thai sample.

The different effects of the same information treatments across the two survey waves suggest that people's assessment of information can change over time. This is particularly relevant during a pandemic, as the situation regarding infection rates and

**Table 2**  
Marginal effects of information treatments on macroeconomic expectations and consumer sentiment: Wave 2 – December 2020.

	Expected unemployment		Expected GDP		Consumer sentiment	
	(1)	(2)	(3)	(4)	(5)	(6)
	VN	TL	VN	TL	VN	TL
Received government reaction treatment in wave 1	0.005 (0.02)	0.1* (0.06)	-0.01 (0.03)	-0.003 (0.02)	-0.2*** (0.07)	-0.2* (0.14)
Received public reaction treatment in wave 1	0.006 (0.02)	0.2*** (0.06)	-0.006 (0.03)	-0.01 (0.02)	-0.04 (0.06)	-0.4*** (0.13)
Received government reaction treatment in wave 2	-0.0002 (0.02)	0.09* (0.06)	-0.02 (0.02)	-0.02 (0.02)	-0.0010 (0.07)	-0.2* (0.13)
Received public reaction treatment in wave 2	-0.009 (0.02)	0.1** (0.05)	-0.05** (0.02)	-0.006 (0.02)	-0.1* (0.06)	-0.3** (0.14)
Pseudo R <sup>2</sup>	0.022	0.036	0.059	0.073		
R <sup>2</sup>					0.215	0.279
N observations	886	754	886	754	886	754

Note: The reference group is the control group who do not receive any information. Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender, marital status, health, income loss due to the pandemic, government macroeconomic policy assessment, and personal mood (feeling nervous). We report marginal effects from ordered probit estimations in models 1–4 for choosing the highest answer category and OLS estimations in models 5–6. All estimations are done with the restricted sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

the impact of lockdown measures can change rapidly. The first survey wave was conducted in early May 2020 when there was an easing of the lockdown in both countries, while the second survey was conducted in December 2020 when both countries were facing the second wave of COVID-19 infections, which was characterized by a much higher number of confirmed cases (see Section 3). Regarding the economic effects of the pandemic, the second wave of our survey shows that approximately 80% of respondents from both countries report pandemic-related income losses and about 50% state that their savings have decreased during the period May to December 2020 compared with the same period in 2019 as described in Bui et al. (2022).

Relating these findings to the model of loss aversion with income uncertainty by Bowman et al. (1999) discussed in Section 2, after the easing of the first lockdown (our first wave), respondents seem to have regarded future income losses as less likely, and so they interpreted our treatments as mainly good news. By the time of the second survey wave, many respondents had already experienced pandemic-related income losses and the start of another wave of infections made future income losses seem more likely, which led the respondents to interpret our treatments as mainly negative news.

We conjecture that those respondents who received the news about government and public reaction in May pay more attention to related news about these topics and might expect that both the government as well as the public should do better jobs in dealing with the pandemic. However, the deterioration of the COVID-19 development in December may have made these people more pessimistic about the government and the public reaction, leading to lower consumer sentiment as well as more pessimistic macroeconomic expectations. Tables A.5 and A.6 of the Appendix show the effects of our information treatments on trust in the government's ability in dealing with health- and the economy-related aspects of the pandemic. In the first wave, the information treatments do not significantly affect trust in the government in either country. In the second Vietnamese wave, we find that those who received the *government reaction* treatment in the first wave trust the government significantly less. In the Thai sample, we also find that those who received the *public reaction* treatment, either in the first wave or the second wave, put less trust in the government in coping with the economic aspects of the pandemic. These results are consistent with the finding in the second wave that the information treatments make people more pessimistic about macroeconomic expectations as well as consumer sentiment.

Our results generally remain unchanged when we re-estimate using the full sample based on the assumption that respondents can be categorized as neutral when they answer “don't know” or “do not form opinions” to our main survey questions (see Tables A.7 and A.8 in the Appendix). It is noteworthy that the Pseudo-R<sup>2</sup> values in our regressions are small, suggesting that macroeconomic expectations are heavily influenced by idiosyncratic factors, a finding which is frequently reported in the literature, see for instance Das et al. (2020).

#### 4.2. Heterogeneity conditioning on respondents' prior assessment of government policies

In this section, we evaluate whether there are heterogeneous treatment effects across respondents' assessment of government policies during normal times, that is, before the COVID-19 crisis. We hypothesize that conditioning on prior beliefs, “surprising” information, in the sense that the information contradicts the respondent's prior belief, will have a relatively stronger influence on macroeconomic expectations and consumer sentiment.

To study these heterogeneous effects, we regress our left-hand side variables of interest on an interaction term between the dummy capturing the information treatments and respondents' prior assessment of government policies, while controlling for the same set of demographic factors. Due to the small sample size of the second survey, we only study these heterogeneous effects using

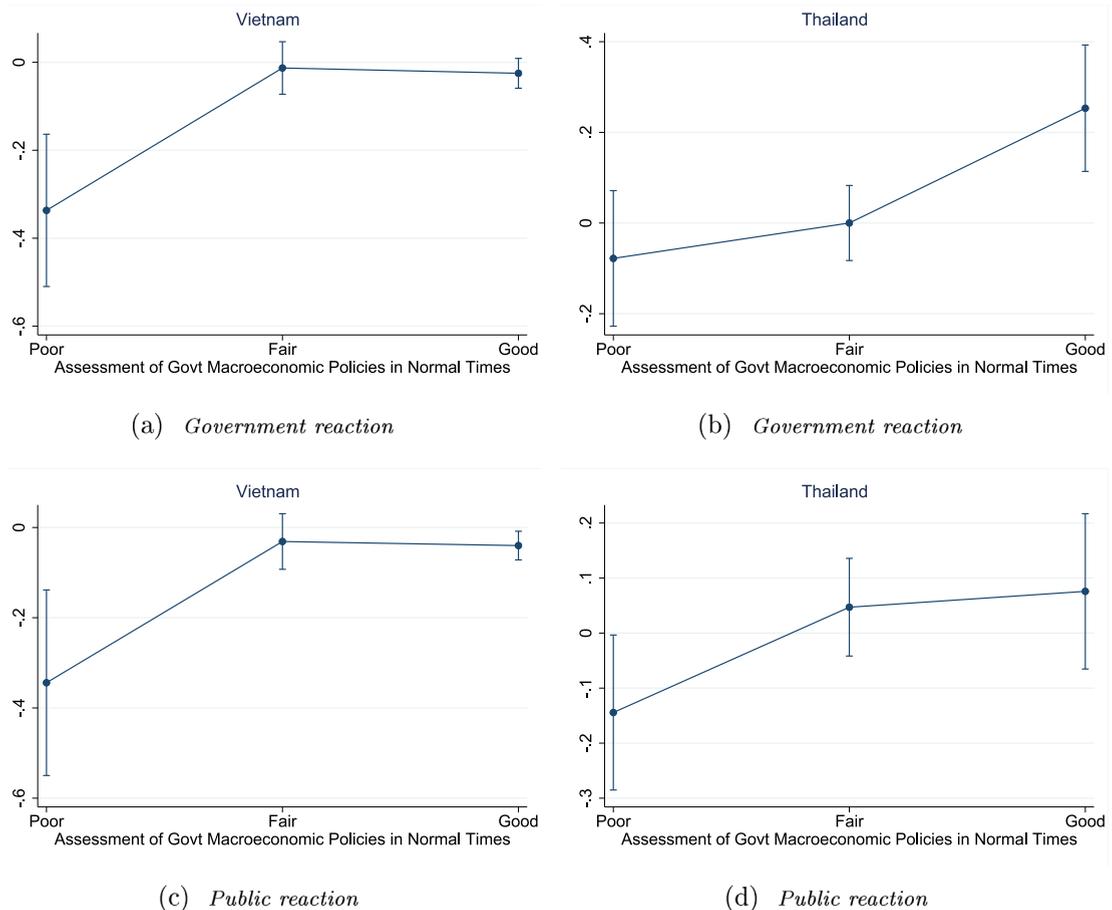


Fig. 5. The effect of information treatments on unemployment expectations conditional on prior assessment of government macroeconomic policies in normal times with 90% confidence intervals.

the first wave.<sup>9</sup> Figs. 5, 6, and 7 present the marginal effects of information treatments on unemployment expectations, GDP growth expectations, and consumer sentiment, respectively, across different categories together with a 90% confidence interval.

For unemployment expectations in the Vietnamese sample, Fig. 5a and c show that the *government reaction* and *public reaction* treatments, which seem to be perceived as good news in the first wave, reduce by about 35 percentage points the likelihood of answering that unemployment will increase significantly in the next 12 months for those who thought the government did a poor job in normal times, but by only about 5 percentage points for those who thought the government did a good job. In contrast, in the case of Thailand Fig. 5b shows that consumers with a positive prior assessment of the government's job in normal times are 30 percentage points more likely to answer that unemployment will increase significantly when they receive the *government reaction* treatments. Thus, the “bad news” effect of the low cross-country ranking on Thai respondents' labor market outlook materializes only if consumers previously had a positive view of the government. The opposite is true for the “good news” effect in the case of Vietnamese respondents.

In contrast, Fig. 6 shows that differentiating across prior assessments of the governments' economic policy in normal times does not bring about significant treatment effects on GDP growth expectations. However, the positive effect of the *government reaction* treatment on GDP growth expectations in Vietnam is again most pronounced for those who previously thought the government did a poor job in normal times.

For both treatments and conditional on the negative prior assessment of the government, Fig. 6a shows a strong and significant increase in consumer sentiment for Vietnamese consumers. In line with our results in Fig. 5, this suggests that the treatments based on cross-country rankings have the strongest effects on respondents if they are in contrast to individuals' prior views. Finally, the treatment effects on consumer sentiment across the categories of government assessment are significantly different from each other in the *government reaction* treatment, but not in the *public reaction* treatment.

<sup>9</sup> Each treated or non-treated group of the Vietnamese and Thai sample respectively consists of about 180 and 160 respondents in the second survey compared to about 530 and 280 respondents in the first survey.

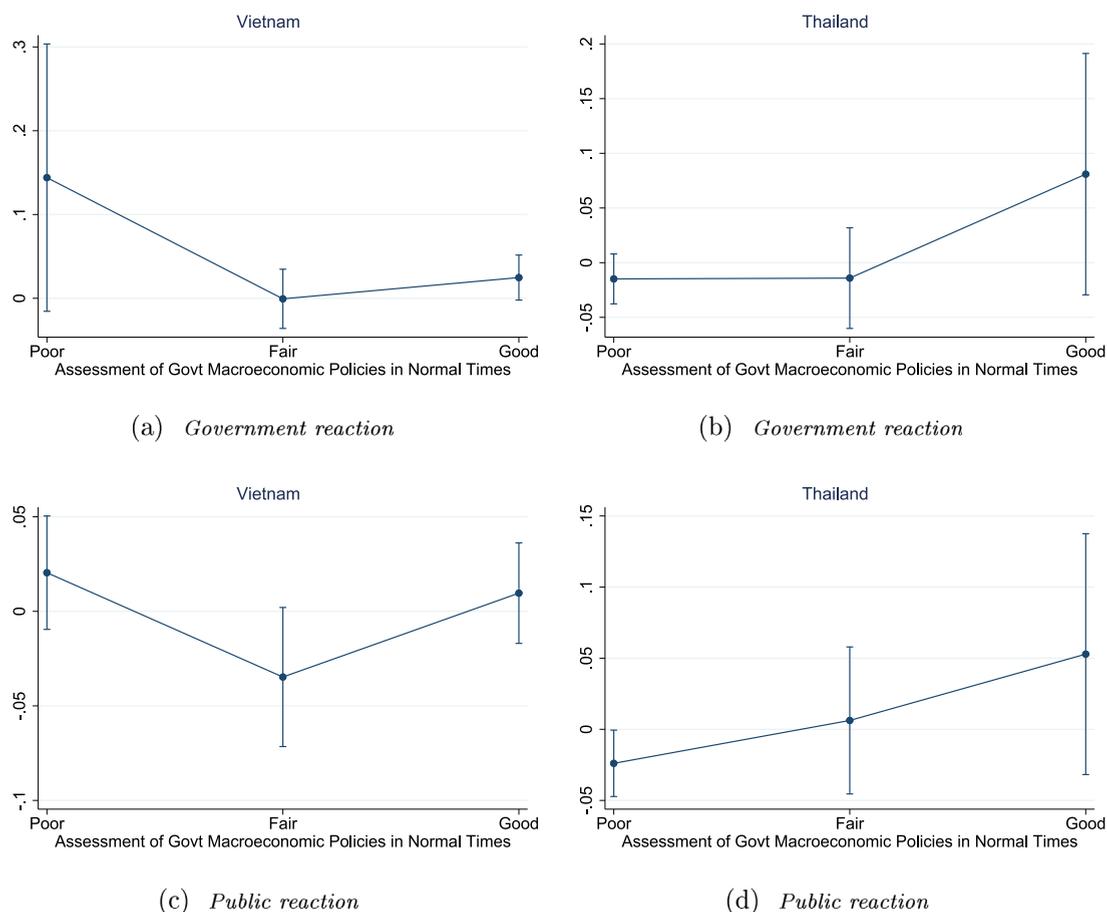


Fig. 6. The effect of information treatments on GDP growth expectations conditional on prior assessment of government macroeconomic policies in normal times with 90% confidence intervals.

In the [Appendix](#), we study the effect of income loss due to the pandemic on the treatment effects, but we do not find any significant differences (see [Figs. A.4, A.5, and A.6](#)). We also find quite homogeneous treatment effects across demographic factors, such as age, income, education, or region. These results are available upon request.

Overall, our results suggest that prior beliefs may matter for the treatment effects on macroeconomic expectations and consumer sentiment and that only those consumers “surprised” by the information change their sentiment in a significant way. Our results are consistent with [Coibion et al. \(2020b\)](#), who find that providing public polling information only significantly changes the opinions of respondents with political independence and/or weak initial beliefs about the outcome. Moreover, our point estimates suggest sizable treatment effects on consumer sentiment in these cases of about 1 s.d. in the *government reaction* treatment for the Vietnamese sample. Note, however, that the treatment effects differ significantly across groups only in the *government reaction* treatment and that we encounter an asymmetric reaction between our sample countries.

## 5. Discussion and concluding remarks

In this paper, we use the COVID-19 crisis in Thailand and Vietnam as a case study to evaluate the effect of others’ beliefs on macroeconomic expectations and consumer sentiment. We operationalize others’ beliefs through information about cross-country rankings on the appropriateness of the government’s and the general public’s reaction to the pandemic.

As a theoretical framework, we utilize a variation of Prospect Theory ([Kahneman and Tversky, 1979](#)) with income uncertainty proposed by [Bowman et al. \(1999\)](#). Assuming that the pandemic situation at a specific point in time operates as reference point for consumers, good news about how well domestic consumers view their government in comparison to other countries could be interpreted as good news on expected income and, therefore, may move consumer sentiment upwards. Negative news that consumers’ own government fares worse in comparison to other countries’ governments might correlate negatively with consumer sentiment. However, consistent with [Bowman et al. \(1999\)](#), we would expect it to affect consumer sentiment less, as consumers try to avoid the realization of losses in sentiment and expected income. A worsening of the pandemic situation may change peoples’ expectations, so that losses in expected income become very likely. Under these conditions, we would expect a stronger effect of negative news

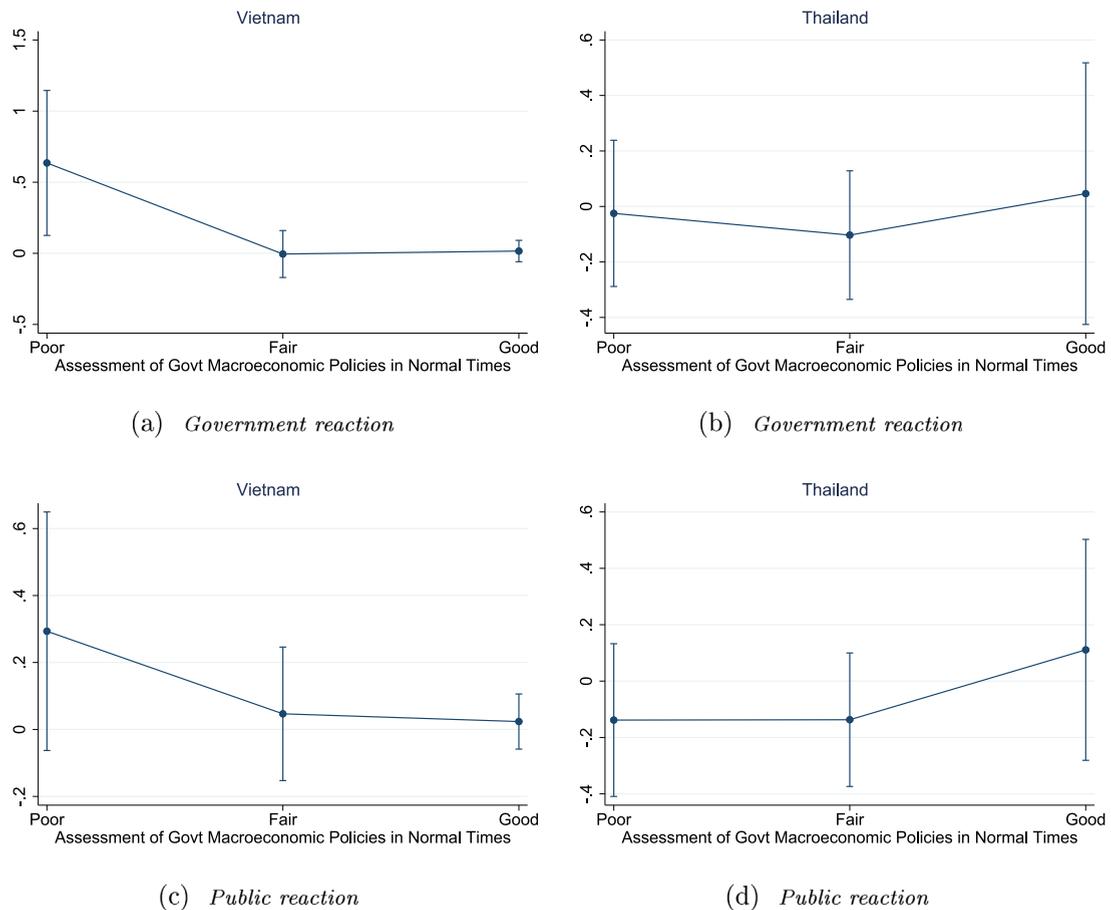


Fig. 7. The effect of information treatments on consumer sentiment conditional on prior assessment of government macroeconomic policies in normal times with 90% confidence intervals.

relative to positive news, because future income losses are expected to be realized and, due to the steeper slope of the value function in the loss region, these have a relatively larger effect on consumers' perceptions. A similar argument can be made with regard to the pandemic-related social behavior of fellow citizens.

Hence, how consumers react to positive vs. negative news over the course of a pandemic becomes an empirical question. We conduct an RCT information experiment in online surveys after the first easing of lockdown measures in May 2020 and at the start of the second infection wave in December 2020. In our *government reaction* treatment, Thailand has the lowest approval rating of the government's reaction to the pandemic, whereas Vietnam has the highest ranking. By contrast, disapproval rates for the general public's reaction in the *public reaction* treatment are similar for the two countries and lie in the middle of the cross-country ranking.

We find that information on cross-country ratings of the government, and the public's reaction to the pandemic can influence respondents' expectations about changes in unemployment and GDP growth as well as their sentiment. In the first survey wave, both treatments seem to be seen as good news for the future economic development in Vietnam. Conditioning on prior views on the government's economic policy before the pandemic, we show that this effect is particularly pronounced for those respondents who previously thought the government did a bad job. "Surprising" information about the country's good cross-country ratings significantly improves the economic outlook of these consumers relative to the control group. Interestingly, this is also the case for the *public reaction* treatment, which does not present Vietnam as the leader in the cross-country ratings. Although we discover no significant treatment effects in the first wave for the Thai sample, we also find that effects are more pronounced when conditioning on prior beliefs about the government's economic policies. Here, the effects point towards a "bad news" effect of the treatments, which again is more pronounced if the information was "surprising", i.e. if respondents previously believed that the government did a good job.

Comparing the results from the first wave with those from the second wave, two main conclusions emerge: First, the effects from the first wave are not long-lived, i.e., seven months later, treatment effects are mostly no longer significant. Second, individuals treated only in the second wave react very differently to the treatments than those only treated in the first wave. In the Vietnamese sample, the "good news" effect is no longer significant in the later survey. In the Thai sample, the "bad news" effect of the treatments is relatively stronger in the second December 2020 wave compared to the May 2020 wave. This suggests that our information

treatments, which contain various aspects of the governmental and social reaction to the COVID-19 crisis, had statistically significant economic effects at different stages of the pandemic.

Similar to [Dybowski and Adämmer \(2018\)](#), who report evidence that U.S. consumer sentiment improves after good news about U.S. federal tax cuts, our results add a real world perspective to the academic debate about how individuals react to good vs. bad news. Using laboratory experiments, [Eil and Rao \(2011\)](#) and [Kuhnen \(2014\)](#) report that people place relatively more weight on good news, whereas [Coutts \(2019\)](#) and [Barron \(2021\)](#) do not find any asymmetries. In the specific context of the COVID-19 pandemic, we discover evidence of asymmetric effects supporting the view that good news matter relatively more than bad news. However, our results also suggest that this asymmetry depends on the specific position within the development of the pandemic. Thus, the respective reference point appears to be important: in a situation of changing circumstances, bad news may become very important for sentiment if the implied losses seem no longer avoidable. It is also noteworthy that the treatment effects appear to be quite homogeneous across demographic factors, such as age, income, education, or region, which suggests that the general course of the pandemic is more important than the situation of specific subgroups.

Generalizing our results, government policies stabilizing current and expected income may become particularly important during times of high uncertainty, as they appear to make consumer sentiment more robust against negative news. This conclusion is corroborated by [Bui et al. \(2022\)](#), who show that households, which received government financial assistance between the two survey waves report higher current and expected spending, as well as improvements in consumer sentiment, macroeconomic expectations and trust in the government.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

Data will be made available on request.

### Acknowledgments

We thank the editor as well as three anonymous referees for valuable comments that helped improve the paper. We also thank Carola Binder, Michael Ehrmann, Tobin Hanspal, Baptiste Massenet, Michael Weber, Stephan Thomsen and Lisa Spantig for helpful comments. We thank Long Giang for providing Vietnamese data used to calculate demographic statistics as benchmarks for the population weights. In addition, we thank seminar participants at the Macroeconomic Policy Institute (IMK) and the Leibniz University Hannover, as well as participants of the 26th IIF Workshop: Economic Forecasting in Times of Covid-19, the 8th International Conference on Applied Research in Economics, the 11th ifo Conference on Macroeconomics and Survey Data, German Economic Association Annual Congress 2021, European Economic Association Annual Congress 2021, and the International TVSEP Conference on “Shocks and Resilience in Rural Southeast Asia” 2022 for comments and suggestions.

### Appendix

#### A.1. Macroeconomic development in Thailand and Vietnam

See [Figs. A.1–A.3](#).

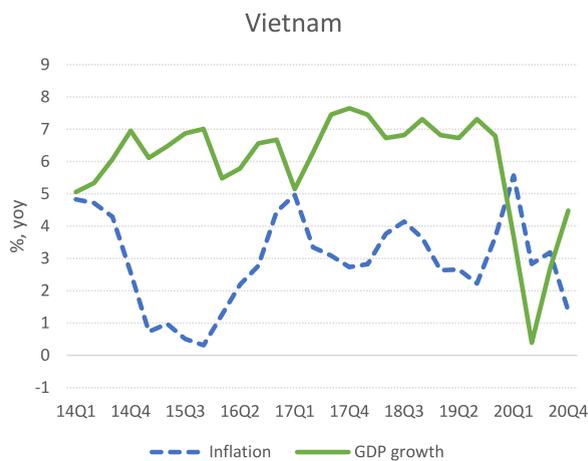
**Table A.1**

Vietnam: Summary of demographic statistics.

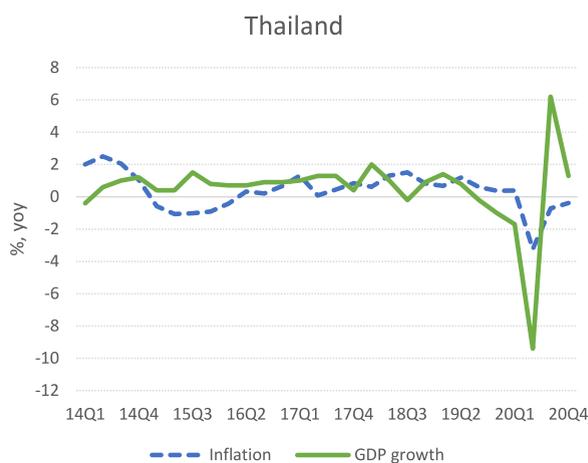
Variable/Mean	Unweighted sample			Weighted sample			Official statistics
	Control group	Govt. reaction	Public reaction	Control group	Govt. reaction	Public reaction	
Age <sup>a</sup>	28.58	28.27	28.62	33.40	31.94	33.66	38.60
Household size <sup>a</sup>	4.10	4.06	4.22	4.03	4.00	4.15	3.60
Urban (urban = 1, rural = 0) <sup>a</sup>	0.60	0.61	0.61	0.42	0.42	0.43	0.34
Male (male = 1, female = 0) <sup>a</sup>	0.52	0.50	0.52	0.57	0.53	0.56	0.50
College (college = 1) <sup>a</sup>	0.51	0.52	0.52	0.35	0.40	0.29	0.19
Married (married = 1) <sup>a</sup>	0.47	0.50	0.52	0.61	0.61	0.64	0.69
HH income per capita (million VND) <sup>a</sup>	3.95	4.06	3.93	3.76	3.62	3.71	4.29
Sample size	526	538	532	526	538	532	

Source:

<sup>a</sup>Vietnam General Statistics Offices (2020).



(a) Vietnam (Source: General Statistical Office of Vietnam.)



(b) Thailand (Source: Bank of Thailand.)

Fig. A.1. Recent GDP growth and inflation development in Thailand and Vietnam.

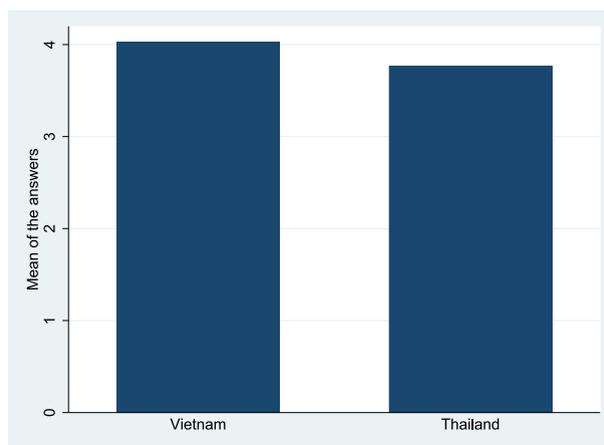
Table A.2

Thailand: Summary of demographic statistics.

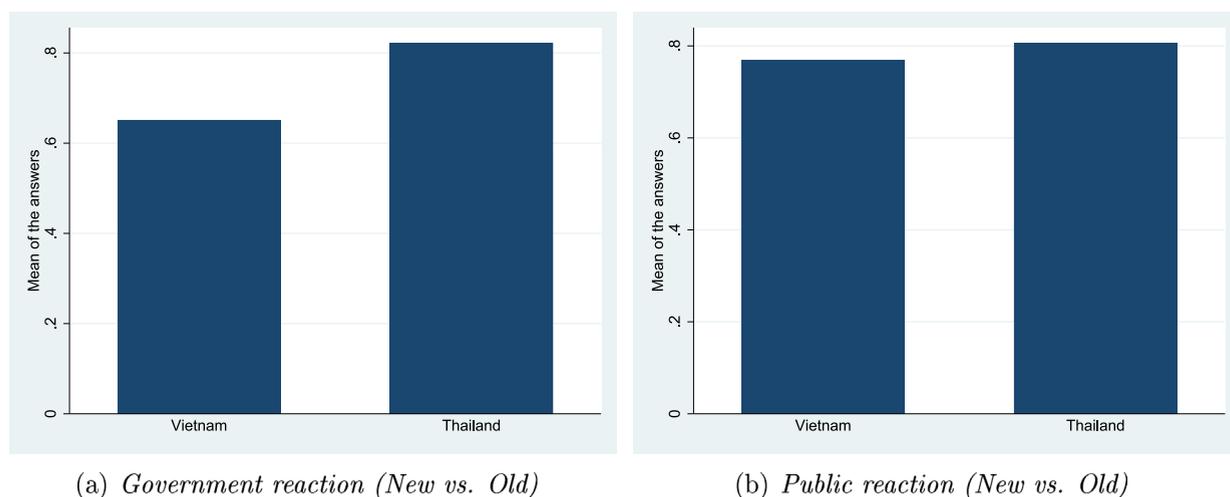
Variable/Mean	Unweighted sample			Weighted sample			Official statistics
	Control group	Govt. reaction	Public reaction	Control group	Govt. reaction	Public reaction	
Age <sup>a</sup>	30.12	29.53	29.69	36.87	36.65	35.67	38.20
Household size <sup>b</sup>	3.99	4.14	4.14	4.00	3.99	4.15	3.20
Urban (urban = 1, rural = 0) <sup>a</sup>	0.48	0.52	0.48	0.41	0.46	0.48	0.51
Male (male = 1, female = 0) <sup>a</sup>	0.67	0.64	0.56	0.72	0.68	0.61	0.49
College (college = 1) <sup>a</sup>	0.41	0.40	0.42	0.23	0.23	0.27	0.20
Married (married = 1) <sup>a</sup>	0.24	0.29	0.33	0.34	0.36	0.44	N/A
HH income per capita (thousand THB) <sup>c</sup>	10.82	10.62	10.15	10.90	10.97	10.62	10.63
Sample size	286	275	284	286	275	284	

Source:

<sup>a</sup>Thailand National Statistics Offices (2020).<sup>b</sup>Thailand National Statistics Offices (2016).<sup>c</sup>CEIC data (2020), and own calculations.



**Fig. A.2.** Trust in scientific research/scientists. Respondents in the second wave survey were asked “In general, how much do you trust scientific research/scientists? Strongly distrust; Somewhat distrust; Neither trust nor distrust; Somewhat trust; Strongly trust; I don’t know”. We put a numerical value for each answer option in succession, going from 1 to 6. The bar graph shows the weighted average answer of all the participants who did not opt the answer “I don’t know”.



(a) *Government reaction (New vs. Old)*

(b) *Public reaction (New vs. Old)*

**Fig. A.3.** Assessment of information treatments. After receiving the information treatment, respondents in the second wave survey were asked “Was this information new to you? No; Yes”. We give “1” if a respondent said “Yes” and “0” otherwise. The bar graph shows the weighted average answer for the two treatment groups.

## A.2. Summary of demographic statistics

See [Tables A.1](#) and [A.2](#).

## A.3. Full baseline regression results

See [Tables A.3](#) and [A.4](#).

## A.4. Treatment effects on trust in the government

See [Tables A.5](#) and [A.6](#).

## A.5. Regressions using the full samples

In this section, we re-estimate the baseline results using the full samples and assuming that respondents expect no change, neither trust/distrust, or are not concerned at all when they do not know the answer or do have opinions about the survey questions used for

**Table A.3**  
Marginal effects of information treatments on macroeconomic expectations and consumer sentiment: Wave 1 – May 2020.

	Expected unemployment		Expected GDP		Consumer sentiment	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Government reaction	-0.03* (0.02)	0.02 (0.04)	0.03* (0.01)	-0.004 (0.02)	0.03 (0.04)	-0.07 (0.10)
Public reaction	-0.04** (0.02)	-0.003 (0.04)	0.0003 (0.01)	-0.007 (0.02)	0.04 (0.05)	-0.08 (0.10)
<b>Controls</b>						
Household income	-0.002 (0.01)	-0.005 (0.02)	-0.003 (0.01)	-0.01 (0.01)	-0.04 (0.03)	-0.09 (0.06)
Employed	0.01 (0.04)	0.1** (0.05)	-0.05 (0.05)	-0.006 (0.02)	0.08 (0.08)	0.04 (0.10)
Urban	0.010 (0.01)	-0.05 (0.04)	-0.02 (0.01)	-0.02 (0.01)	-0.09*** (0.04)	0.01 (0.08)
College	0.009 (0.01)	-0.1** (0.04)	-0.004 (0.01)	-0.03* (0.02)	0.03 (0.04)	-0.06 (0.08)
Age	0.0003 (0.01)	-0.03*** (0.01)	0.004 (0.01)	0.003 (0.00)	-0.006 (0.02)	-0.02 (0.02)
Age squared	0.00001 (0.00)	0.005*** (0.00)	-0.0006 (0.00)	-0.0004 (0.00)	0.0005 (0.00)	0.003 (0.00)
Male	0.007 (0.01)	-0.02 (0.04)	0.01 (0.01)	-0.009 (0.01)	0.03 (0.04)	-0.1 (0.08)
Married	-0.02 (0.02)	-0.02 (0.04)	-0.009 (0.02)	-0.02 (0.02)	0.02 (0.04)	-0.09 (0.09)
Feeling nervous	-0.003 (0.01)	0.05*** (0.02)	-0.003 (0.00)	-0.003 (0.01)	-0.04*** (0.02)	-0.2*** (0.04)
Health	-0.002 (0.01)	0.02 (0.02)	0.03*** (0.01)	0.02** (0.01)	0.2*** (0.03)	0.2*** (0.05)
Income loss	-0.003 (0.02)	0.1*** (0.05)	-0.02 (0.02)	0.002 (0.02)	-0.3*** (0.05)	-0.2* (0.10)
Government assessment: Fair job	-0.05 (0.05)	-0.1** (0.04)	0.02 (0.02)	0.08*** (0.01)	0.07 (0.15)	0.5*** (0.08)
Government assessment: Good job	-0.06 (0.05)	-0.07 (0.06)	0.06*** (0.02)	0.08*** (0.03)	0.2 (0.14)	0.7*** (0.14)
Pseudo R <sup>2</sup>	0.006	0.052	0.022	0.049		
R <sup>2</sup>					0.141	0.253
N observations	1585	827	1585	827	1585	827

Note: The reference group is the control group who do not receive any information. We report marginal effects from ordered probit estimations in models 1–4 for choosing the highest answer category and OLS estimations in models 5–6. All estimations are done with the restricted sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

the individual index of consumer sentiment, unemployment and economic growth expectations. We thus have an extended sample of 1971 (1002) observations in Vietnam and 1307 (1178) observations in Thailand in May 2020 (December 2020). Overall, most of our baseline results generally remain unchanged.

#### A.6. Survey questions

Before providing information treatments, we ask all respondents about their assessment of the government's macroeconomic policies before COVID-19, as follows:

- *govt\_assessment\_normal\_times*: As to the macroeconomic policy of the government before the COVID-19 outbreak – we mean steps taken to fight inflation or unemployment – would you say the government was doing a good job, fair job, or a poor job? [Poor job, Fair job, Good job, Don't know]

After providing information treatments, we ask all respondents the following questions:

#### Moods

- *nervous*: To which extent do the following statement apply to you right now? I am nervous when I think about the current situation [Strongly disagree, Moderately disagree, Neither agree nor disagree, Moderately agree, Strongly agree]

**Table A.4**  
Marginal effects of information treatments on macroeconomic expectations and consumer sentiment: Wave 2 – December 2020.

	Expected unemployment		Expected GDP		Consumer sentiment	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Received government reaction treatment in wave 1	0.005 (0.02)	0.1* (0.06)	-0.01 (0.03)	-0.003 (0.02)	-0.2*** (0.07)	-0.2* (0.14)
Received public reaction treatment in wave 1	0.006 (0.02)	0.2*** (0.06)	-0.006 (0.03)	-0.01 (0.02)	-0.04 (0.06)	-0.4*** (0.13)
Received government reaction treatment in wave 2	-0.0002 (0.02)	0.09* (0.06)	-0.02 (0.02)	-0.02 (0.02)	-0.0010 (0.07)	-0.2* (0.13)
Received public reaction treatment in wave 2	-0.009 (0.02)	0.1** (0.05)	-0.05** (0.02)	-0.006 (0.02)	-0.1* (0.06)	-0.3** (0.14)
<b>Controls</b>						
Household income	-0.009 (0.01)	-0.007 (0.02)	0.03** (0.01)	0.01 (0.01)	0.03 (0.03)	0.09 (0.05)
Employed	0.0010 (0.04)	0.04 (0.05)	-0.2* (0.11)	-0.03 (0.02)	-0.1 (0.13)	-0.06 (0.10)
Urban	-0.002 (0.01)	0.01 (0.04)	-0.02 (0.01)	0.002 (0.01)	-0.02 (0.04)	-0.02 (0.09)
College	-0.002 (0.01)	-0.07* (0.04)	0.009 (0.02)	-0.0003 (0.01)	-0.02 (0.05)	0.07 (0.09)
Age	0.00010 (0.00)	-0.02** (0.01)	0.0007 (0.01)	0.003 (0.00)	0.004 (0.02)	0.01 (0.02)
Age squared	-0.000007 (0.00)	0.004*** (0.00)	-0.0003 (0.00)	-0.0005 (0.00)	-0.001 (0.00)	-0.002 (0.00)
Male	-0.01 (0.01)	0.05 (0.04)	-0.003 (0.02)	-0.009 (0.01)	0.03 (0.04)	0.04 (0.08)
Married	-0.02 (0.01)	-0.06 (0.04)	0.02 (0.02)	-0.003 (0.01)	0.09 (0.06)	0.05 (0.10)
Feeling nervous	-0.004 (0.00)	0.03* (0.02)	0.004 (0.01)	-0.007 (0.01)	-0.02 (0.02)	-0.1*** (0.04)
Health	-0.002 (0.01)	-0.009 (0.02)	0.04*** (0.01)	0.009 (0.01)	0.2*** (0.03)	0.1** (0.05)
Income loss	-0.01 (0.01)	0.04 (0.05)	0.03 (0.02)	-0.01 (0.01)	-0.02 (0.06)	-0.2** (0.09)
Government assessment: Fair job	-0.10* (0.05)	-0.1*** (0.04)	0.01 (0.01)	0.09*** (0.02)	0.4*** (0.13)	0.6*** (0.08)
Government assessment: Good job	-0.1** (0.05)	-0.04 (0.07)	0.09*** (0.02)	0.1*** (0.03)	0.6*** (0.13)	0.8*** (0.14)
Pseudo R <sup>2</sup>	0.022	0.036	0.059	0.073		
R <sup>2</sup>					0.215	0.279
N observations	886	754	886	754	886	754

Note: The reference group is the control group who do not receive any information. We report marginal effects from ordered probit estimations in models 1–4 for choosing the highest answer category and OLS estimations in models 5–6. All estimations are done with the restricted sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

### Trust in the government

- *govt\_trust\_covid*: How much do you trust the government to overcome the COVID-19 pandemic? [Strongly distrust, Somewhat distrust, Neither trust nor distrust, Somewhat trust, Strongly trust, I don't know]
- *govt\_trust\_econ*: How much do you trust the government to mitigate the negative side-effects of social distancing on the economy, such as an increase in unemployment and a fall in production? [Strongly distrust, Somewhat distrust, Neither trust nor distrust, Somewhat trust, Strongly trust, I don't know]

### Macroeconomic expectations

- *qual\_eunemp*: How do you think unemployment will develop over the next 12 months compared to the previous 12 months? It will [Decrease a lot, Decrease a little, Stay about the same, Increase a little, Increase a lot, I do not form opinions about future unemployment, Don't know]

- *qual\_egdp*: How do you think national economic growth (GDP growth) will develop over the next 12 months compared to the previous 12 months? It will [Decrease a lot, Decrease a little, Stay about the same, Increase a little, Increase a lot, I do not form opinions about future economic growth, Don't know]

**Table A.5**

Marginal effects of information treatments on trust in the government: Wave 1 - May 2020.

	govt_trust_covid_health		govt_trust_covid_econ	
	(1) VN	(2) TL	(3) VN	(4) TL
Government reaction	0.02 (0.04)	0.02 (0.02)	0.02 (0.03)	0.01 (0.01)
Public reaction	-0.05 (0.04)	0.005 (0.02)	-0.01 (0.03)	0.0003 (0.01)
Pseudo R <sup>2</sup>	0.076	0.108	0.066	0.094
N observations	1582	807	1579	808

Note: The reference group is the control group who do not receive any information. Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender, marital status, health, income loss due to the pandemic, government macroeconomic policy assessment, and personal mood (feeling nervous). We report marginal effects from ordered probit estimations for choosing the highest answer category. All estimations are done with the restricted sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table A.6**

Marginal effects of information treatments on trust in the government: Wave 2 – December 2020.

	govt_trust_covid_health		govt_trust_covid_econ	
	(1) VN	(2) TL	(3) VN	(4) TL
Received government reaction treatment in wave 1	-0.1** (0.06)	-0.02 (0.02)	-0.1*** (0.04)	-0.01 (0.01)
Received public reaction treatment in wave 1	-0.02 (0.07)	-0.01 (0.02)	-0.02 (0.05)	-0.03* (0.01)
Received government reaction treatment in wave 2	-0.02 (0.06)	-0.03 (0.02)	-0.02 (0.05)	0.004 (0.02)
Received public reaction treatment in wave 2	-0.09 (0.07)	-0.02 (0.02)	-0.07 (0.05)	-0.03* (0.01)
Pseudo R <sup>2</sup>	0.137	0.088	0.112	0.091
N observations	886	749	883	748

Note: The reference group is the control group who do not receive any information. Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender, marital status, health, income loss due to the pandemic, government macroeconomic policy assessment, and personal mood (feeling nervous). We report marginal effects from ordered probit estimations for choosing the highest answer category. All estimations are done with the restricted sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table A.7**

Marginal effects of information treatments on macroeconomic expectations and consumer sentiment: Full Sample (Wave 1 – May 2020).

	Expected unemployment		Expected GDP		Consumer sentiment	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Government reaction	-0.03* (0.01)	0.02 (0.03)	0.03** (0.01)	-0.006 (0.01)	0.03 (0.04)	-0.10 (0.07)
Public reaction	-0.03** (0.01)	0.01 (0.03)	-0.005 (0.01)	0.002 (0.01)	0.02 (0.04)	-0.07 (0.07)
Pseudo R <sup>2</sup>	0.004	0.032	0.017	0.031	0.135	0.210
N observations	1971	1307	1971	1307	1971	1307

Note: The reference group is the control group who do not receive any information. Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender, marital status, health, income loss due to the pandemic, government macroeconomic policy assessment, and personal mood (feeling nervous). We report marginal effects from ordered probit estimations in models 1–4 for choosing the highest answer category and OLS estimations in models 5–6. All estimations are done with the full sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

**Table A.8**

Marginal effects of information treatments on macroeconomic expectations and consumer sentiment: Full Sample (Wave 2 – December 2020).

	Expected unemployment		Expected GDP		Consumer sentiment	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Received government reaction treatment in wave 1	0.003 (0.02)	0.03 (0.05)	0.004 (0.02)	-0.002 (0.01)	-0.1** (0.07)	-0.2* (0.11)
Received public reaction treatment in wave 1	0.008 (0.02)	0.1*** (0.05)	0.02 (0.02)	-0.008 (0.01)	0.0005 (0.06)	-0.3*** (0.10)
Received government reaction treatment in wave 2	0.0009 (0.02)	-0.003 (0.04)	-0.009 (0.02)	-0.007 (0.01)	-0.01 (0.07)	-0.2* (0.10)
Received public reaction treatment in wave 2	-0.008 (0.02)	0.07 (0.05)	-0.04* (0.02)	-0.007 (0.01)	-0.07 (0.06)	-0.3*** (0.11)
Pseudo R <sup>2</sup>	0.021	0.036	0.053	0.053	0.190	0.225
R <sup>2</sup>						
N observations	1002	1178	1002	1178	1002	1178

Note: The reference group is the control group who do not receive any information. Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender, marital status, health, income loss due to the pandemic, government macroeconomic policy assessment, and personal mood (feeling nervous). We report marginal effects from ordered probit estimations in models 1–4 for choosing the highest answer category and OLS estimations in models 5–6. All estimations are done with the full sample and include population weights. Standard errors are in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

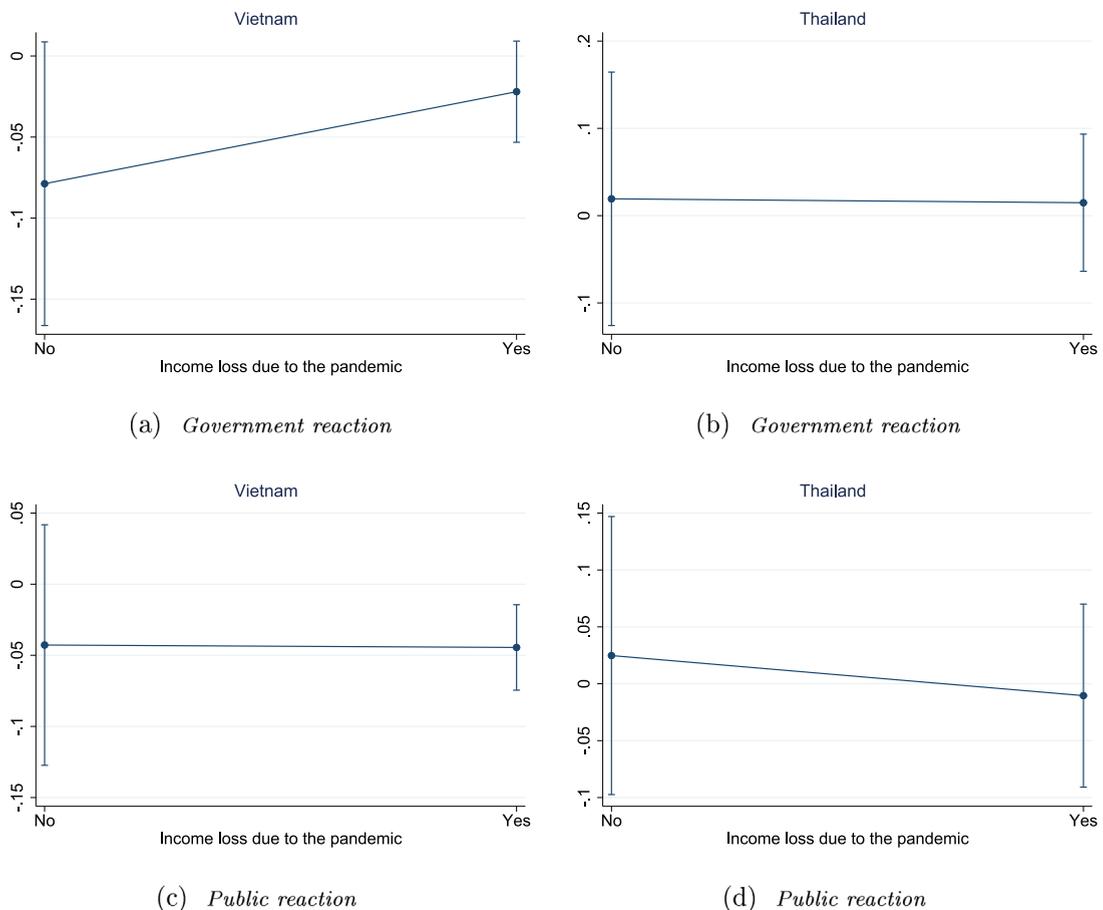


Fig. A.4. The effect of information treatments on unemployment expectations conditional income loss due to the pandemic with 90% confidence intervals.

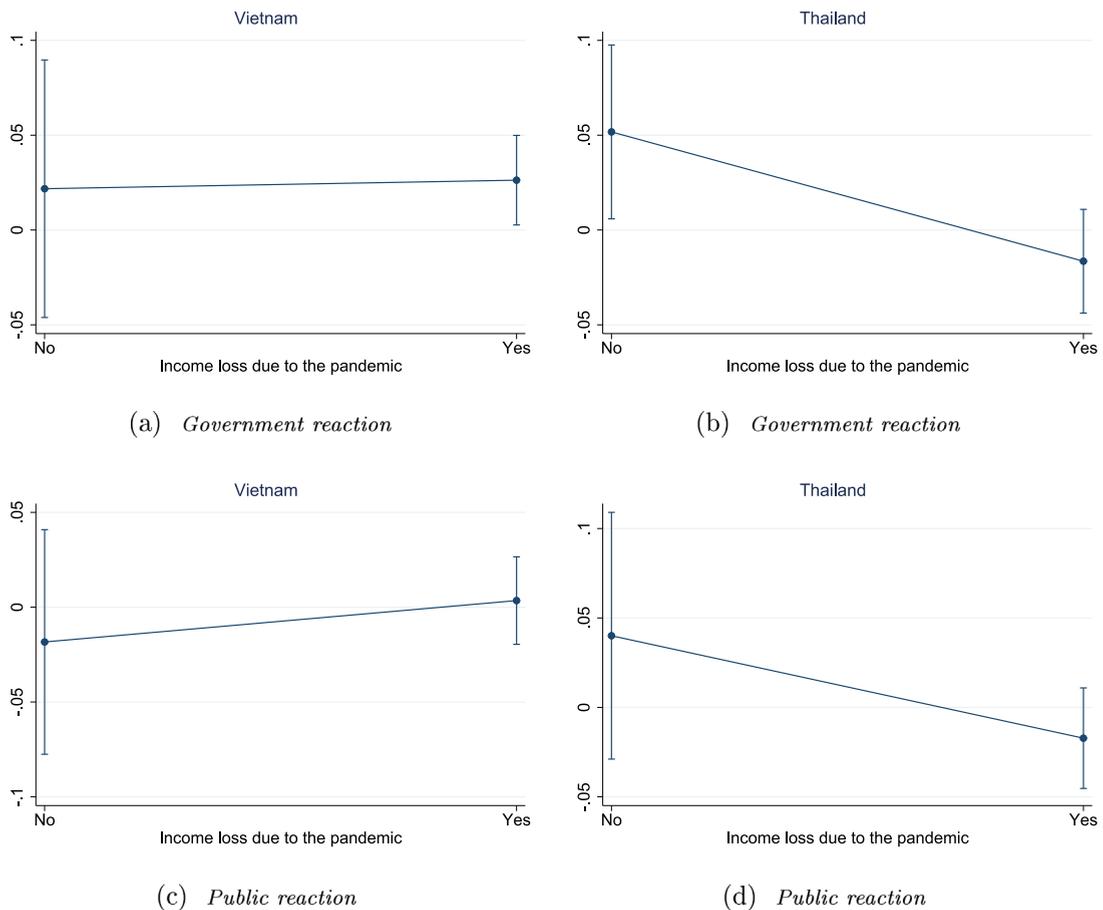
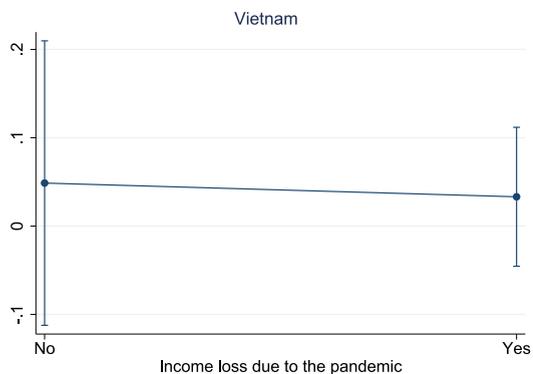


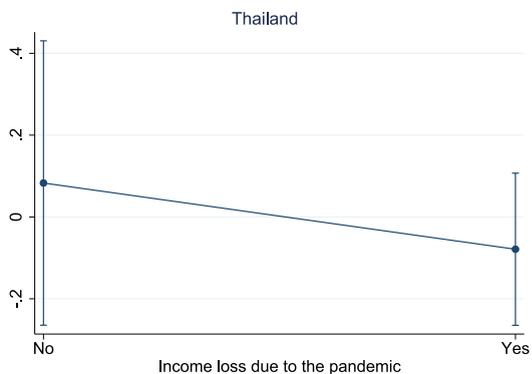
Fig. A.5. The effect of information treatments on GDP growth expectations conditional on income loss due to the pandemic with 90% confidence intervals.

**Consumer sentiment index** Following the construction of the index of consumer sentiment by the University of Michigan (Surveys of Consumers), we calculate this index for each respondent as a simple average of the following five questions:

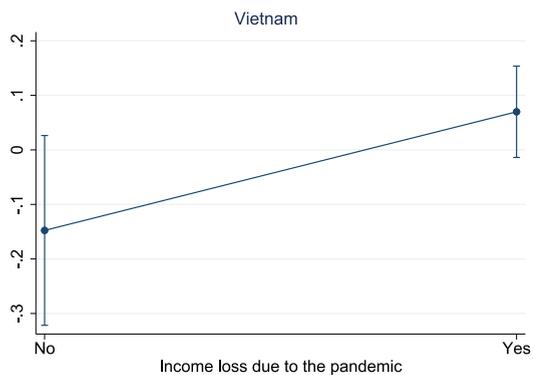
- *michigan\_fsperception*: Did the current financial situation of your household get better or worse over the past 12 months? [Got much worse, Got a bit worse, Stayed the same, Got a bit better, Got much better, Don't know]
- *michigan\_fse*: How do you think the financial situation of your household will develop over the next 12 months? [Get much worse, Get a bit worse, Stayed the same, Get a bit better, Get much better, Don't know]
- *michigan\_macro1*: How do you think the national business conditions will develop over the next 12 months? [Get much worse, Get a bit worse, Stayed the same, Get a bit better, Get much better, Don't know]
- *michigan\_macro5*: How do you think the national economic situation will develop over the next 5 years? [Get much worse, Get a bit worse, Stayed the same, Get a bit better, Get much better, Don't know]
- *michigan\_durable*: Generally speaking, do you think now is a good or bad time for people to buy major household items, such as furniture, a refrigerator, stove, television, and things like that? [Very bad, Bad, Neither good or bad, Good, Very good, Don't know]



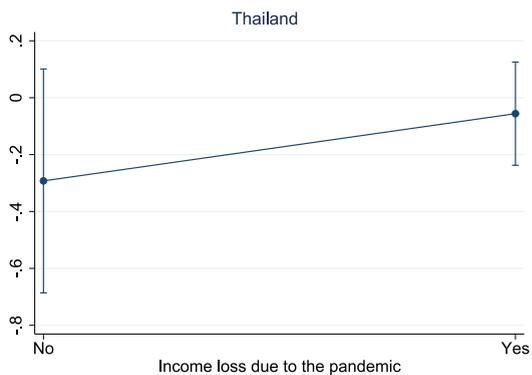
(a) *Government reaction*



(b) *Government reaction*



(c) *Public reaction*



(d) *Public reaction*

Fig. A.6. The effect of information treatments on consumer sentiment conditional on income loss due to the pandemic with 90% confidence intervals.

## References

- Ahmed, M.I., Cassou, S.P., 2016. Does consumer confidence affect durable goods spending during bad and good economic times equally? *J. Macroecon.* 50, 86–97.
- Andersen, A., Hansen, E., Johannesen, N., Sheridan, A., 2020. Consumer Responses to the COVID-19 Crisis: Evidence from Bank Account Transaction Data. CEPR Discussion Paper 14809.
- Bachmann, R., Elstner, S., Sims, E.R., 2013. Uncertainty and economic activity: Evidence from business survey data. *Am. Econ. J.: Macroecon.* 5 (2), 217–249.
- Bachmann, R., Sims, E.R., 2012. Confidence and the transmission of government spending shocks. *J. Monetary Econ.* 59 (3), 235–249.
- Baker, S.R., Farrokhnia, R., Meyer, S., Pagel, M., Yannellis, C., 2020. How does household spending respond to an epidemic? Consumption during the 2020 COVID-19 pandemic. *Rev. Asset Pricing Stud.* 10 (4), 834–862.
- Barron, K., 2021. Belief updating: Does the ‘good-news, bad-news’ asymmetry extend to purely financial domains? *Exp. Econ.* (24), 31–58.
- Barsky, R.B., Sims, E.R., 2012. Information, animal spirits, and the meaning of innovations in consumer confidence. *Amer. Econ. Rev.* 102 (4), 1343–1377.
- Binder, C., 2020. Coronavirus fears and macroeconomic expectations. *Rev. Econ. Stat.* 102 (4), 721–730.
- Bowman, D., Minehart, D., Rabin, M., 1999. Loss aversion in a consumption–savings model. *J. Econ. Behav. Organ.* 38 (2), 155–178.
- Bui, D., Dräger, L., Hayo, B., Nghiem, G., 2022. The effects of fiscal policy on households during the COVID-19 pandemic: Evidence from Thailand and Vietnam. *World Dev.* 153, 105828.
- Carroll, C.D., Fuhrer, J.C., Wilcox, D.W., 1994. Does consumer sentiment forecast household spending? If so, why? *Amer. Econ. Rev.* 84 (5), 1397–1408.
- Carvalho, B.P., Peralta, S., Pereira, J., 2020. What and how did people buy during the great lockdown? Evidence from electronic payments. *Covid Econ.* (28).
- Chen, S.-S., 2011. Lack of consumer confidence and stock returns. *J. Empir. Financ.* 18 (2), 225–236.
- Christelis, D., Georgarakos, D., Jappelli, T., Kenny, G., 2020. The COVID-19 Crisis and Consumption: Survey Evidence From Six EU Countries. ECB Working Paper 2507.
- Chronopoulos, D.K., Lukas, M., Wilson, J.O., 2020. Consumer spending responses to the COVID-19 pandemic: An assessment of Great Britain. *Covid Econ.* (34).
- Coibion, O., Gorodnichenko, Y., Weber, M., 2020a. Does Policy Communication During COVID Work? CESifo Working Paper 8369.
- Coibion, O., Gorodnichenko, Y., Weber, M., 2020b. Political Polarization and Expected Economic Outcomes. NBER Working Paper 28044.
- Coutts, A., 2019. Good news and bad news are still news: Experimental evidence on belief updating. *Exp. Econ.* (22), 369–395.
- Dang, H.-A.H., Giang, L.T., 2020. Turning Vietnam’s COVID-19 Success into Economic Recovery: A Job-Focused Analysis of Individual Assessments on Their Finance and the Economy. Global Labor Organization Discussion Paper 566.
- Das, S., Kuhnen, C.M., Nagel, S., 2020. Socioeconomic status and macroeconomic expectations. *Rev. Financ. Stud.* 33 (1), 395–432.
- De Boef, S., Kellstedt, P.M., 2004. The political (and economic) origins of consumer confidence. *Am. J. Political Sci.* 48 (4), 633–649.
- Dees, S., Soares Brinca, P., 2013. Consumer confidence as a predictor of consumption spending: Evidence for the United States and the Euro Area. *Int. Econ.* 134, 1–14.
- Döhlitzsch, C., 2020. Global Study about COVID-19: Dalia Assesses How the World Ranks Their Governments’ Response to the Pandemic. Dalia Report.
- Dybowski, T., Adämmer, P., 2018. The economic effects of U.S. presidential tax communication: Evidence from a correlated topic model. *Eur. J. Political Econ.* 55, 511–525.
- Easaw, J.Z., Ghoshray, A., 2007. Confidence or competence: Do presidencies matter for households’ subjective preferences? *Eur. J. Political Econ.* 23 (4), 1025–1037.
- Eil, D., Rao, J., 2011. The good news-bad news effect: Asymmetric processing of objective information about yourself. *Am. Econ. J. Microecon.* (3), 114–138.
- Fetzer, T., Hensel, L., Hermle, J., Roth, C., 2021. Coronavirus perceptions and economic anxiety. *Rev. Econ. Stat.* 103 (5), 968–978.
- Fetzer, T., Witte, M., Hensel, L., Jachimowicz, J.M., Haushofer, J., Ivchenko, A., Caria, S., Reutskaja, E., Roth, C., Fiorin, S., Gomez, M., Kraft-Todd, G., Goetz, F.M., Yoeli, E., 2020a. Perceptions of an Insufficient Government Response at the Onset of the COVID-19 Pandemic are Associated with Lower Mental Well-Being. NBER Working Paper 27082.
- Fetzer, T., Witte, M., Hensel, L., Jachimowicz, J.M., Haushofer, J., Ivchenko, A., Caria, S., Reutskaja, E., Roth, C.R., Fiorin, S., Gomez, M., Kraft-Todd, G., Goetz, F.M., Yoeli, E., 2020b. Global behaviors and perceptions in the COVID-19 pandemic. <http://dx.doi.org/10.31234/osf.io/3kfmh>.
- Hanspal, T., Weber, A., Wohlfart, J., 2021. Exposure to the COVID-19 stock market crash and its effect on household expectations. *Rev. Econ. Stat.* 103 (5), 994–1010.
- Jansen, W., Nahuis, N.J., 2003. The stock market and consumer confidence: European evidence. *Econom. Lett.* 79 (1), 89–98.
- Kahneman, D., Tversky, A., 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47 (2), 263–291.
- Kuhnen, C.M., 2014. Asymmetric learning from financial information. *J. Finance LXX* (5), 2029–2062.
- Ludvigson, S.C., 2004. Consumer confidence and consumer spending. *J. Econ. Perspect.* 18 (2), 29–50.
- Monastiriotes, V., Zilic, I., 2020. The economic effects of political disintegration: Lessons from Serbia and Montenegro. *Eur. J. Political Econ.* 65, 101938.
- Souleles, N.S., 2004. Expectations, heterogeneous forecast errors, and consumption: Micro evidence from the Michigan consumer sentiment surveys. *J. Econ. Perspect.* 18 (2), 29–50.