

Dräger, Lena; Bui, Dzung; Nghiem, Giang; Hayo, Bernd

Conference Paper

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Beiträge zur Jahrestagung des Vereins für Socialpolitik 2021: Climate Economics

Provided in Cooperation with:

Verein für Socialpolitik / German Economic Association

Suggested Citation: Dräger, Lena; Bui, Dzung; Nghiem, Giang; Hayo, Bernd (2021) : Consumer Sentiment During the COVID-19 Pandemic, Beiträge zur Jahrestagung des Vereins für Socialpolitik 2021: Climate Economics, ZBW - Leibniz Information Centre for Economics, Kiel, Hamburg

This Version is available at:

<https://hdl.handle.net/10419/242375>

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Consumer Sentiment During the COVID-19 Pandemic

Dzung Bui*, Lena Dräger†,
Bernd Hayo‡, Giang Nghiem§

February 24, 2021

Abstract

This paper uses the COVID-19 pandemic as a case study to investigate the direct and indirect effect of beliefs of others on respondent's own beliefs and on their individual consumer sentiment. In a new online consumer survey with randomized control trials (RCTs) in Thailand and Vietnam, we present randomized subgroups of respondents in both countries with information treatments showing cross-country measures of average beliefs from other surveys. The two countries are interesting cases since Thailand ranks lowest in the cross-country survey on approval rates for the government's reaction to the pandemic, while Vietnam has the highest approval rates. This is our first information treatment, which is on average viewed as good news in Vietnam and as bad news in Thailand. In the second treatment, we show evidence of cross-country average appropriateness ratings of the general public's reaction to the pandemic. This treatment is more symmetric across countries, since both approval rates are relatively similar and lie in the middle of the distribution, rather than in the tails. On average, respondents in our survey view this treatment as neutral. Our results suggest that the information treatments only weakly affect consumer sentiment. We only find significant treatment effects in Vietnam, which suggest that both treatments are viewed as positive news in comparison to the control group. However, consumer sentiment in Vietnam is strongly affected by both treatments when they go against respondents' previously held beliefs.

Keywords: Consumer sentiment; COVID-19; randomized control trial (RCT); survey experiment; second-order beliefs; government trust; macroeconomic expectations; Thailand; Vietnam

JEL classification: E71; H12; I12; I18; Z18

*University of Marburg, Email: buid@wiwi.uni-marburg.de

†Leibniz University of Hannover, Email: draeger@gif.uni-hannover.de

‡University of Marburg, Email: hayo@wiwi.uni-marburg.de

§Leibniz University of Hannover, Email: nghiem@gif.uni-hannover.de

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 and the 8th International Conference on Applied Research in Economics for comments and suggestions. We also thank Carola Binder, Michael Ehrmann, Tobin Hanspal, Baptiste Massenet and Michael Weber for very valuable comments.

1 Introduction

Since early spring 2020, the COVID-19 virus has been spreading around the world, causing deep crises in many countries. Although originally a health issue, the virus has had a severe impact on politics, social life, and the economy. Experts find that the complexity of this situation and the tradeoffs involved do not lend themselves to easy solutions. Laypersons may find it even more difficult to understand the implications of the crisis, both for themselves as well as for the society in which they live.

From an economic perspective, the pandemic can be described as a triple shock, as it combines elements of a supply, a demand and an uncertainty shock. These various economic shocks likely affect consumer sentiment and, thereby, could dampen current and future spending. At the same time, expansive fiscal and monetary policy measures may ease the negative effects of the pandemic on sentiment.

In uncertain times as these, it becomes very difficult for consumers to form beliefs about future economic conditions, such as those measured in an index of consumer sentiment (Bachmann et al., 2013; Binder, 2020). An important guideline for the belief of an individual may then be the beliefs of others.

In this paper, we thus use the COVID-19 pandemic as a case study to investigate the direct and indirect effect of beliefs of others on respondent's own beliefs and on their individual consumer sentiment.¹ We study this question in a new online consumer survey in Thailand and Vietnam with randomized control trials (RCTs) presenting randomized subgroups of respondents with information treatments.² The information treatments show cross-country measures of average beliefs from other surveys. We thus study how information about others' beliefs affects the beliefs and sentiment formed by the respondents relative to the control group. Note that this may be related to, but not necessarily the same, as studying second-order beliefs: While the notion of second-order beliefs relates to the beliefs formed about others' beliefs, we study the effect of given information about others' beliefs on respondents' own belief formation.

The first treatment presents average response shares from another survey measuring views about government response appropriateness to the COVID-19 crisis (*government reaction* treatment). Here, we exploit a novel setting: The cross-country survey by Dölitzsch (2020), which we use for this treatment, finds the lowest average agreement with

¹Individual 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).

²The survey took place in May 2020, shortly after the easing of the lockdown in both countries. A follow-up survey was conducted in December 2020, immediately before both countries experienced a second wave of infections.

the government’s reaction to the pandemic in Thailand, while the highest average agreement is found in Vietnam. We utilize this variation to evaluate whether it matters for our respondents’ own beliefs at which tail end of the distribution the beliefs shown in the treatment lie.

The second treatment presents evidence on average beliefs about the response appropriateness of the general public during the COVID-19 crisis in a cross-country survey by [Fetzer et al. \(2020b\)](#) (*public reaction* treatment). This treatment differs from the first because the average appropriateness ratings in Thailand and Vietnam here are relatively similar and lie in the middle of the cross-country distribution, rather than in the tails.

The opposing average beliefs about government response appropriateness during the COVID-19 pandemic from our *government reaction* treatment can be explained by differences in the economic and political situation among the countries, as well as 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, but although the political situation is at present stable in Vietnam, Thailand has experienced repeated episodes of political unrest since the military coup in 2014 and, more recently, since 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 higher in Thailand than in Vietnam ([Fetzer et al., 2020b](#)). In order to control for some these factors, we control for respondents’ macroeconomic expectations, beliefs about the government’s economic policies before the pandemic, trust in the government during the pandemic as well as individual health and financial concerns due to COVID-19.

In the control group not subject to any treatment, we find that consumer sentiment in both countries is correlated with macroeconomic expectations not included in the index, assessment of the government’s policies, and personal concerns about COVID-19. Consumer sentiment in Thailand and Vietnam is higher when respondents expect higher GDP growth, think the government did a good job in terms of economic policies before the pandemic, and trust the government in dealing with the economic aspects of the COVID-19 crisis. By contrast, consumers are less optimistic about the economic outlook when they are concerned about the effect of the COVID-19 crisis on their household’s financial situation. Hence, even after the easing of the lockdown, consumer sentiment is affected by variables related to the COVID-19 crisis.

When evaluating the impact of the information treatments on consumer sentiment and on the variables correlated with sentiment, we find only few significant effects. The effects we find are asymmetric across countries, as only respondents in our Vietnamese sample reacted significantly to the treatments. As the *government response* treatment in the case

of Vietnam signaled high approval rates, while the opposite was the case in Thailand, the fact that only Vietnamese respondents reacted significantly to the treatment suggests that the “good news” effect is stronger than the “bad news” effect. Indeed, respondents in Vietnam on average stated that they regarded the information provided in the first treatment as positive, while Thai respondents were more likely to view it as negative.

Somewhat surprisingly, we find no direct effect of the information on others’ beliefs about the government’s or the public’s response appropriateness on respondents own beliefs in Vietnam. However, significant treatment effects emerge on other expectations or beliefs by the respondents, suggesting that the effect of information about other’s beliefs is indirect, rather than direct. After Vietnamese respondents are treated with information that about half the respondents in another survey viewed the general public’s response to the virus in Vietnam as insufficient (with lower shares in China, and higher shares in India), they report somewhat more positive consumer sentiment, lower unemployment expectations, and lower concerns regarding their health, job security, and household financial situation due to COVID-19. At the same time, interviewees receiving information on how well other survey respondents rate the Vietnamese government’s response to the pandemic compared to other countries report lower unemployment expectations, higher GDP growth expectations as well as less concerns about their job security and financial situation due to COVID-19. One interpretation of these findings is that both treatments are regarded as good news by Vietnamese consumers.

Conditioning on respondents’ assessment of their government’s macroeconomic policy before the pandemic (which was elicited before the treatments), we show that significant treatment effects on consumer sentiment emerge when respondents are surprised by the information: For those Vietnamese consumers who think the government did a poor job before the crisis, both the government reaction and the public reaction treatment cause a significant increase in consumer sentiment. The size of this effect is economically meaningful, whereas the magnitude of the other effects is moderate. In the Thai sample, consumers who previously thought the government did a good job are found to be more pessimistic after receiving the government reaction or the public reaction treatment, although these effects are not statistically significant. This suggests that information about other people’s beliefs affects consumer sentiment more strongly if the information contradicts the individual’s prior belief.

Our paper contributes to the growing literature that combines consumer surveys with RCTs to study economic aspects of the COVID-19 pandemic. So far, most studies focus on the United States. The paper most directly related to ours is [Fetzer et al. \(2020\)](#), in which the authors conducted two survey experiments at the start of the pandemic in the United States, that is, in early-mid March 2020. They show that respondents generally overestimate the contagiousness of and mortality related to the virus. Providing information about true contagiousness or mortality significantly lowers concerns about the individual or the aggregate economic situation. While [Fetzer et al. \(2020\)](#) 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. In addition, our treatments have a different focus, as we analyze the effect of information about others' beliefs on policy appropriateness.

[Binder \(2020\)](#) surveyed U.S. consumers on March 5 and 6, 2020, just before the pandemic really hit the United States. 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 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 United States. In line with [Fetzer et al. \(2020\)](#), these authors also report that true contagiousness and mortality were significantly overestimated. Nevertheless, they find no notable effects of information about policy responses on macroeconomic expectations or planned spending. [Hanspal et al. \(2020\)](#) 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 on a more severe stock market crash in the past are more pessimistic about current stock market development. Most recently, [Coibion et al. \(2020c\)](#) conducted a survey from October 19-21, 2020 in the United States to study the effect of the expected presidential election's outcome on economic expectations. The authors find that providing public polling information significantly changes the opinions of only those respondents who are political independents and/or have no strong initial beliefs about the outcome.

We utilize the results from two global surveys as our two information treatments. From March 23 to March 27, 2020, [Dölitzsch \(2020\)](#) at the Dalia Research Company ran a global survey to assess citizens' rankings of their governments' response to the COVID-19 crisis. The survey covered 45 countries across all continents and had more than 32,000 respondents. [Dölitzsch \(2020\)](#) 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. We take this result as our first information treatment (*government reaction*). 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 an insufficient public and government response is associated with lower mental well-being, leading to pessimism or even psychological illnesses. We use [Fetzer et al. \(2020b\)](#) survey results on the global assessment of the public's reaction to COVID-19 as our second information treatment (*public reaction*).

Our paper is also related to the growing literature using non-randomized control trials to study the impact of the COVID-19 pandemic on consumption, including, among others, [Andersen et al. \(2020\)](#), [Baker et al. \(2020\)](#), [Carvalho et al. \(2020\)](#), [Christelis et al. \(2020\)](#), and [Chronopoulos et al. \(2020\)](#). To our knowledge, the only other study to date on the impact of COVID-19 on consumers in Vietnam is by [Dang and Giang \(2020\)](#). The authors conducted an online survey from April 26 to May 9, 2020 to study the correlation of employment status with households' financial situation and economic expectations. 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.

Our study extends the previous literature by employing a survey-based RCT framework to study consumer sentiment during COVID-19 in Thailand and Vietnam. As our main contribution, we use information on others' average beliefs about government response appropriateness during the pandemic from both tails of the distribution in the two countries to test whether this information affects respondents own beliefs, expectations or concerns and, ultimately, individual consumer sentiment. Our RCT framework thus allows to test for an effect of average beliefs of others and to distinguish between positive and negative news.

The rest of the paper is organized as follows. In the next section, we describe our survey and the treatments. Section 3 contains the results of our analysis. Section 4 concludes.

2 Data Description

In early May 2020, right after the start of the first easing period after the lockdown in both countries, we ran two online surveys on consumers in Vietnam and Thailand. This is a novel dataset because it collects consumers' opinions on trust in the government, macroeconomic expectations, and personal concerns, as well as consumer sentiment during the COVID-19 pandemic, in two emerging/frontier economies. As a unique feature of our dataset, we randomly selected respondents into two treatment groups and a control group, where the treatments focus on testing how information about others' average beliefs on the response appropriateness of the government or the general public affects respondents' own beliefs, macroeconomic expectations and consumer sentiment. A follow-up survey on a sub-sample of respondents from the first wave was conducted in December 2020.

Our sample countries Thailand and Vietnam are similar along some dimensions, but also differ in other dimensions. On the one hand, both are emerging countries 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 \$8,000, respectively (U.S. dollar

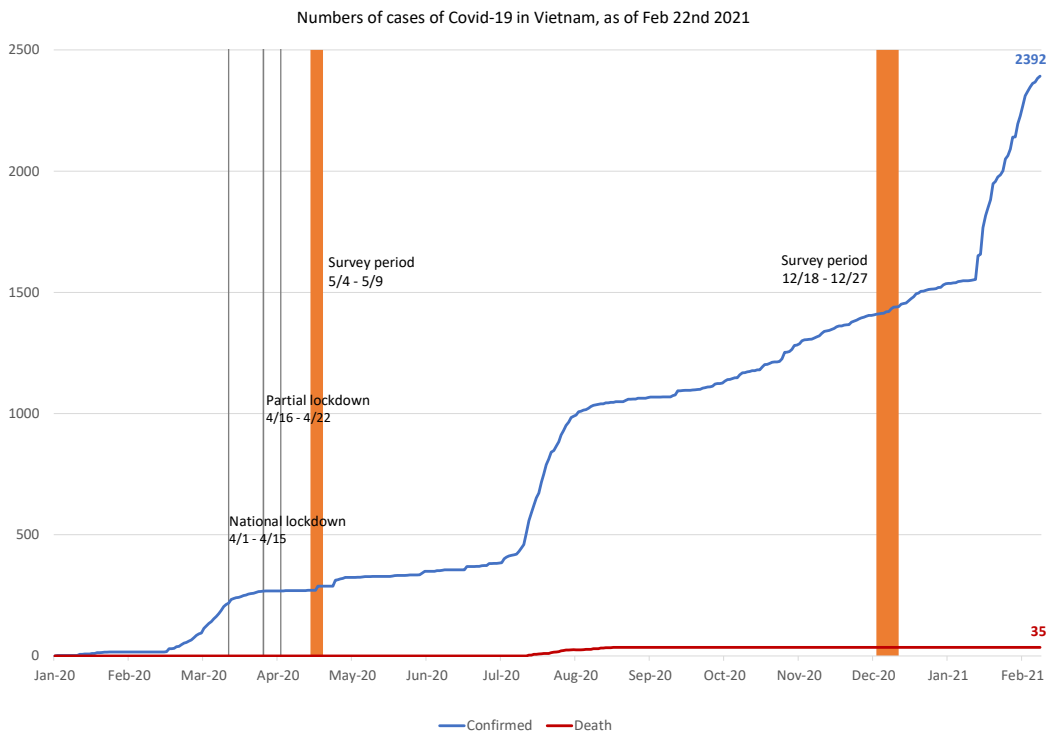
in PPP in 2019)) and ranks higher on the Human Development Index (ranks 77 and 118, respectively). The recent real GDP growth and inflation development in both countries are shown in Figure A1 in the Appendix.

As Figure 1 shows, substantially more COVID-19 cases are reported from Thailand than from Vietnam (both in terms of absolute and per capita numbers). Both countries experienced a second wave of infections shortly after our second survey wave in December 2020. Following the lockdown in Spring 2020, widespread anti-government protests erupted in Thailand, whereas in Vietnam the situation remained calm. Moreover, the perceived government reaction to the crisis differs 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.

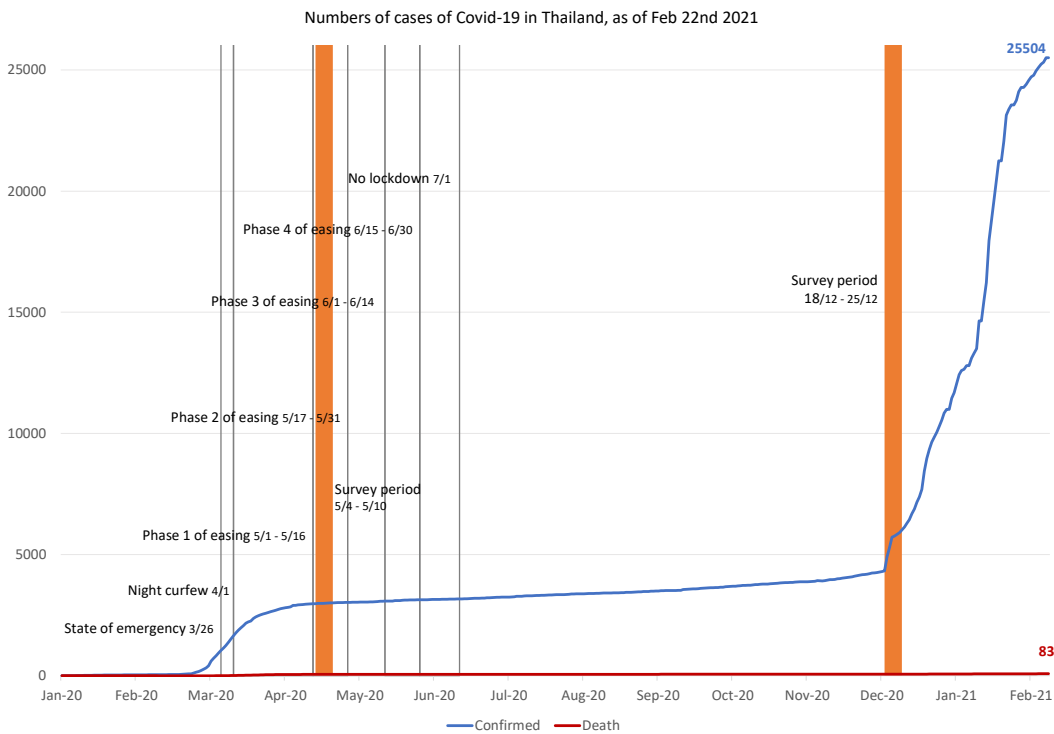
The survey in Vietnam was conducted in Vietnam May 4-9, 2020 and had 3,300 respondents; the survey in Thailand took place May 4-10, 2020 and had 2,200 respondents. The samples from May 2020 include two further treatment groups, which we exclude in this study. The relevant samples for this paper then include 1,980 respondents from Vietnam and 1,320 respondents from Thailand. In addition, we conducted a follow-up survey in December 18-27, 2020 and re-interviewed 1,016 Vietnamese and 1,189 Thai respondents from the first wave. Here, we randomly subjected respondents, who received one of the other treatments in the first wave, into treatments groups for the *government reaction* and the *public reaction* treatments. This was done to evaluate whether the information treatments also yield significant effects seven months later.

The data was 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. In addition, participants can gain “reward points” by finishing the survey, which are redeemable into gifts. Reflecting a sampling bias, our datasets overweight the young, highly educated, and urban respondents in both countries. To improve the representativeness of our data, we construct and apply population weights based on the official age distribution, the main factor distorting our sample. We also make sure that our results are generally robust with respect to using weights additionally including education and the share of the urban population. All estimations control for these factors and several additional demographic characteristics, including income, employment status, gender, and marital status.

Figure 1: COVID-19 Pandemic Development in Thailand and Vietnam



(a) Vietnam



(b) Thailand

Source: John Hopkins University, Worldometers.

2.1 Information Treatments

The questionnaire of the first wave in May 2020 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_ass_normal_times*).³ 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. However, this paper only studies the following information treatments focusing on the effect of presenting information on beliefs of others.

Treatment 1: *Government reaction*

- 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.

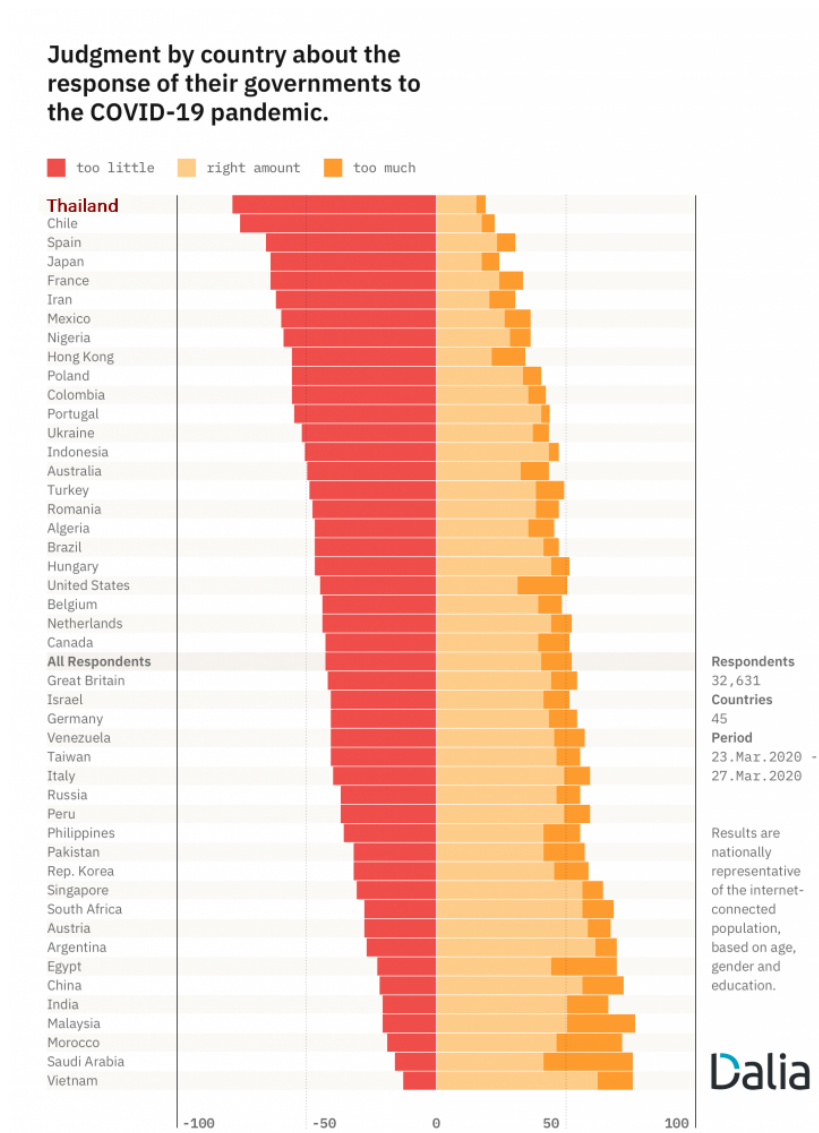
- Vietnam survey:

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.

³The question on *govt_ass_normal_times* is taken from the Michigan Survey of Consumers.

Figure 2: Assessment of Government Reaction to Covid-19 Pandemic



Source: Dalia Research Company, Dölitzsch (2020).

Treatment 2: *Public reaction*

- Thailand survey:

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

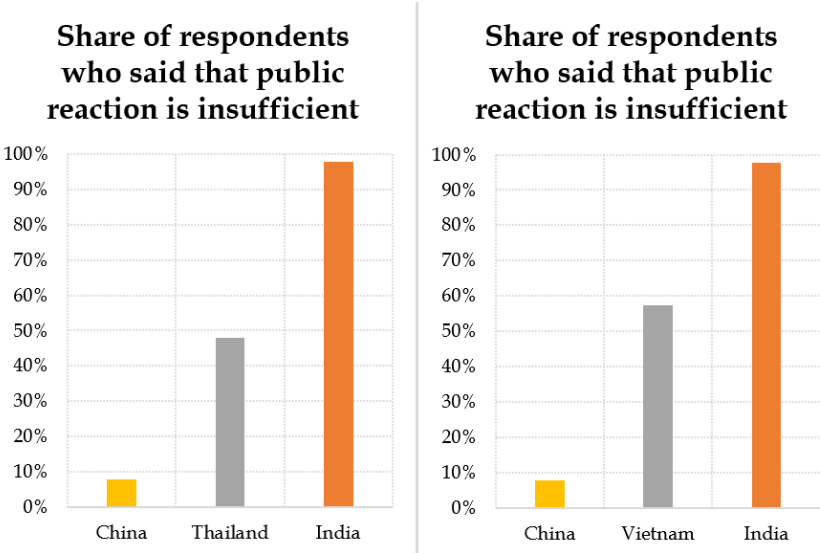
A recent global population survey asked how people assess the public’s reaction in their country to the COVID-19 crisis. About 5 out of 10 Thai said that the reaction of their fellow citizens is insufficient. Worldwide, only about 1 out of 10 Chinese, but about 10 out of 10 Indians, gave the same answer.

- 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.

Figure 3: Assessment of Public Reaction to Covid-19 Pandemic



Source: Fetzer et al. (2020b).

Treatments 1 and 2 summarize the results of the global surveys by Dölitzs (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 appropriateness of the general public's reaction (Treatment 2 - *public reaction*). Thus, both treatments test for an effect of information on other consumers' beliefs on our respondents' beliefs and sentiment. Although the treatments as such are symmetric across countries, Treatment 1 places the countries at opposite extremes, as Thailand is the country with the highest disagreement with government policies during the pandemic, whereas Vietnam is the country with the highest approval rate. In contrast, Treatment 2 places the similar appropriateness ratings in Thailand and Vietnam between the two largest Asian economies, China and India. Hence, this treatment is not asymmetric between the two countries.

In our follow-up survey in December 2020, we randomly assigned treatments 1 and 2 to the other two treatment groups in May who did not received these treatments before, and asked them whether the treatment was new information and whether it was regarded as good/neutral/bad news. Figure A3a,b in the Appendix shows that both treatments show new information for about 80% of respondents, except for the the *government reaction* (treatment 1), which only about 64% of Vietnamese respondents regard as new information.

We further use the follow-up survey to evaluate whether respondents regard the information in treatments 1 and 2 as good, neutral or bad, where values of 1, 2 and 3 are assigned to these answers, respectively. As shown in Figure A3c, Vietnamese respondents on average view the *government reaction* treatment as good news (average response value of about 1.5), while Thai respondents regard it as negative news on average (average response value of about 2.3). By contrast, the *public reaction* treatment is evaluated more similarly in both countries. Vietnamese respondents regard this treatment as neutral on average, while respondents in the Thai sample perceived it as slightly negative (Figure A3d).

Finally, as we use academic and scientific research results for our information treatments, we ask all respondents in the follow-up survey about how much they trust scientific research/scientists in general on a scale from 1 (strongly distrust) to 5 (strongly trust). Figure A2 in the Appendix shows that the respondents from both countries trust in science relatively strongly with average answers of 4.1 and 3.8 in Vietnam and Thailand, respectively. This implies that our information treatments are likely regarded as reliable information by the respondents.

2.2 Key Variables of Interest

After providing information treatments, we collect a set of questions about people's trust in and assessment of the government's responses to COVID-19, their macroeconomic ex-

peptations, personal concerns related to COVID-19, and consumer sentiment. The exact wording of these questions can be found in Appendix A.3. We first ask about the perceived appropriateness of the government’s reaction to COVID-19 and create a dummy variable, *govt_covid_appropriate*, which takes the value of unity if the respondent thinks the reaction is “*appropriate*” and zero otherwise. We then ask about a qualitative level of trust in the government in overcoming the COVID-19 pandemic, *govt_trust_covid_health*, and in mitigating the negative effects on the economy, *govt_trust_covid_econ*. The questions on trust are taken from Fetzer et al. (2020b). Next, we collect qualitative macroeconomic expectations for the next 12 months, including expected inflation (π^e), unemployment (u^e), and GDP growth (y^e). Personal concerns due to COVID-19 include respondents’ health (*concern_health*), their job security (*concern_job*), their financial situation (*concern_finance*), and the economy in general (*concern_econ*). The questions on personal concerns are taken from Binder (2020) and Fetzer et al. (2020). We 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 condition in the next 12 months, (4) national economic situation in the next five years, (5) current readiness to spend on durable goods.⁴

For the baseline analysis, we exclude respondents who do not know the answer or who do not have opinions on the survey questions used in our main analysis. Our sample of the first survey wave in May 2020 then consists of 1,478 Vietnamese and 720 Thai respondents. In Appendix A.3, we re-estimate all regressions with an extended sample, assuming respondents can be categorized as having a neutral position (i.e. expecting “no change” or viewing policies as “neither appropriate or inappropriate” or being “not concerned at all”) when they do not know the answer or report that they do not form opinions. We thus recode missing answers as neutral for the variables of the index of consumer sentiment as well as the regressors in Table 2, that is, further macroeconomic expectations, trust in the government, and personal concerns related to COVID-19.⁵ For these robustness checks, we have 1,980 observations in Vietnam and 1,320 observations in Thailand.

Table 1 presents the summary statistics of all our variables of interest for the control group who does not receive any information treatments. As a neutral consumer sentiment has a value of 3 (by construction, the minimum of the index is 1, the maximum 5), we can see that Vietnamese consumers in the control group of our sample are on average somewhat optimistic, while the opposite is true for the Thai sample. Regarding their

⁴The 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.

⁵A 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: Summary Statistics: Control group, May 2020

Variable	Vietnam			Thailand				
	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Min.	Max.
Consumer sentiment index	3.2	0.58	491	2.63	0.9	256	1	5
π^e	3.42	1.04	491	3.51	1.17	256	1	5
u^e	3.25	1.25	491	3.55	1.38	256	1	5
y^e	3.06	1.16	491	2.63	1.28	256	1	5
<i>govt_ass_normal_times</i>	2.75	0.49	491	1.86	0.69	256	1	3
<i>govt_covid_appropriate</i>	0.85	0.36	491	0.33	0.47	256	0	1
<i>govt_trust_covid_health</i>	4.27	0.89	491	2.9	1.24	256	1	5
<i>govt_trust_covid_econ</i>	3.99	0.84	491	2.54	1.24	256	1	5
<i>concern_health</i>	2.38	0.64	491	2.32	0.56	256	1	3
<i>concern_job</i>	2.33	0.68	491	2.35	0.57	256	1	3
<i>concern_finance</i>	2.37	0.69	491	2.53	0.55	256	1	3
<i>concern_econ</i>	2.47	0.6	491	2.6	0.55	256	1	3

macroeconomic expectations, consumers in both countries share similar opinions about inflation expectations, but the Thai consumers are more pessimistic about future unemployment and economic growth. Vietnamese consumers have strong agreement with and remarkable trust in government policies during normal times, and also in dealing with the health and economic aspects of the COVID-19 pandemic, whereas Thai interviewees express the opposite opinion. These results are consistent with [Dölitzsch \(2020\)](#) and [Fetzer et al. \(2020b\)](#). The final part of Table 1 shows the statistics of personal concerns due to COVID-19. Interestingly, despite having different assessments of and trust in the government in dealing with the pandemic, health concerns due to the pandemic are quite similar in both countries. However, the Thai consumers report somewhat higher average concerns about their financial situation and the economy in general.

3 Results

3.1 Consumer Sentiment, Macro Expectations, Trust in the Government, and Concerns due to COVID-19

We commence our analysis by studying whether macroeconomic expectations, assessment of and trust in government policies, and concerns related to the pandemic are associated with consumer sentiment among the respondents of the control group. We thus first evaluate unconditional correlations before proceeding to evaluate causal effects from our information treatments. In their survey of U.S. consumers during the early stages of the COVID-19 pandemic, [Fetzer et al. \(2020\)](#) show that overestimation of the contagiousness and mortality of the virus is negatively related to concerns regarding the negative effects of the pandemic on aggregate and personal economic outcomes, overall leading to higher economic anxiety. In contrast, we study consumer sentiment in Vietnam and Thailand shortly *after* the end of the lockdown. Thereby, we test whether adverse effects on sentiment persist beyond the immediate lockdown phase.

Note that consumers' macroeconomic expectations, which are not part of the consumer sentiment index, may be linked to sentiment via several channels. On the one hand, following an Euler equation logic, there could be a positive correlation of inflation expectations with consumer sentiment, at least when interpreting sentiment as a proxy for actual consumption spending ([Crump et al., 2015](#); [D'Acunto et al., 2016](#); [Vellekoop and Wiederholt, 2019](#); [Dräger and Nghiem, 2020](#); [Duca-Radu et al., 2020](#)). On the other hand, if consumers view higher expected inflation as a signal for bad future economic outcomes, a negative correlation would also be possible ([Bachmann et al., 2015](#); [Coibion et al., 2019](#)). Since expected unemployment and expected GDP growth are proxies for the future macroeconomic situation, we would expect a negative correlation of consumer sentiment with expected unemployment and a positive correlation with expected GDP growth.

Table 2 shows the results for Vietnam and Thailand, controlling for demographic effects. Columns (1) and (2) show the results using the first survey wave in May, 2020, while columns (3) and (4) control for individual fixed effects of respondents in the control group, who were re-interviewed in the second survey wave in December, 2020 (again, in the control group). In both countries, higher expected GDP growth is related to more optimistic sentiment. The correlation is notable, but the estimated effect is not large, as a 1 standard deviation (s.d.) increase in expected GDP growth (y^e) in both countries is associated with an increase in consumer sentiment of about 0.3 s.d.⁶ In addition, we find in the Vietnamese sample that higher expected inflation is significantly associated with more optimistic consumer sentiment, while higher expected unemployment is associated with lower sentiment. The link between inflation expectations and sentiment is thus in line with an Euler equation logic. Both effects are not statistically significant in the Thai sample. The positive correlation between individual consumer sentiment and respondents' GDP growth expectations in Thailand and Vietnam, as well as the positive correlation with inflation expectations in the Vietnamese sample stays significant once we control for individual fixed effects.

Regarding the assessment of and trust in government policies, the results show that consumer sentiment significantly co-moves with a more positive assessment of the government's general economic policy during normal times in both countries in the May 2020 cross-section: A 1 s.d. higher assessment of the government is associated with a 0.2 s.d. higher consumer sentiment. However, in both countries, the overall assessment of the government's policies during the pandemic or the level of trust in dealing with the health aspects of the pandemic do not significantly affect consumer sentiment in the control group. We only find that consumers' trust in the ability of the government to fight the negative economic externalities of the pandemic is positively correlated with consumer sentiment in Vietnam, but not in Thailand. Controlling for individual fixed effects, the positive correlation of sentiment with assessment of the government during normal times disappears, but a significantly positive correlation with trusting the government to fight the negative economic effects of the pandemic emerges in Thailand.

Finally, we find that in both Thailand and Vietnam greater concerns regarding the household's financial situation due to COVID-19 are negatively correlated with consumer sentiment. In that sense, our results corroborate the findings by Fetzer et al. (2020) for the consumer sentiment index. However, the magnitude of this effect is small: an increase of 1 s.d. results in a 0.2 s.d. less positive consumer sentiment. Note that, if we estimate the regressions with *concern_job* and *concern_finance* separately, we discover that concerns about job security are significantly associated with less positive sentiment in both countries. In addition, personal concerns do not correlate with individual sentiment once we capture individual-specific effects in the the panel fixed-effects estimation.

⁶To measure this relation, we use the respective cross-sectional standard deviations for each country given in Table 1.

Table 2: Consumer Sentiment: Control Group

	OLS May 2020 Sample		Panel Fixed Effects	
	(1)	(2)	(3)	(4)
	VN	TL	VN	TL
π^e	0.07*** (0.02)	0.05 (0.05)	0.1*** (0.03)	0.07 (0.07)
u^e	-0.05** (0.02)	-0.05 (0.04)	0.010 (0.05)	-0.1 (0.07)
y^e	0.2*** (0.03)	0.3*** (0.05)	0.2*** (0.04)	0.3*** (0.07)
<i>gouv_assess_normal_times</i>	0.1** (0.06)	0.3*** (0.10)	0.03 (0.11)	0.3 (0.19)
<i>gouv_covid_appropriate</i>	-0.06 (0.08)	0.02 (0.13)	0.05 (0.10)	-0.05 (0.22)
<i>gouv_trust_covid_health</i>	0.02 (0.03)	-0.006 (0.07)	-0.01 (0.05)	0.02 (0.08)
<i>gouv_trust_covid_econ</i>	0.07** (0.03)	-0.008 (0.06)	-0.005 (0.05)	0.2** (0.10)
<i>concern_health</i>	-0.02 (0.05)	-0.0004 (0.10)	-0.05 (0.08)	0.02 (0.19)
<i>concern_job</i>	-0.04 (0.05)	-0.03 (0.11)	0.05 (0.07)	-0.4 (0.24)
<i>concern_finance</i> <i>concern_finance</i>	-0.1*** (0.05)	-0.3*** (0.11)	-0.05 (0.08)	-0.02 (0.22)
<i>concern_econ</i>	0.04 (0.06)	-0.1 (0.12)	0.08 (0.08)	-0.2 (0.21)
Demographic controls	Yes	Yes	Yes	Yes
R ²	0.462	0.432	0.391	0.573
N observations	491	256	351	218

Note: Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender and marital status. We report coefficients from OLS estimations with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Overall, macroeconomic expectations and, to some extent, concerns raised by the pandemic and trust in the government’s ability to deal with it, are significantly related to consumer sentiment even after moving out of the immediate lockdown phase.⁷ We discover these effects in both Vietnam and Thailand, two emerging markets with marked differences in terms of agreement with and trust in the government. Our estimates suggest that

⁷As shown in Table A1 in the Appendix, our results mostly remain unchanged when we use the full sample, assuming respondents are neutral when they answer “don’t know” or “do not form opinions” to the survey questions.

the pandemic has relatively long-lasting negative effects on consumption spending, particularly when the resulting recession is anticipated to be bad and trust in the government’s ability to deal with the pandemic and the recession is low.

3.2 Causal Effects of Information Treatments

Up to this point, we have considered multivariate correlations in the control group. In this section, we evaluate the causal effects of the information treatments discussed in Section 2. 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 appropriateness of the general public’s reaction (Treatment 2 - *public reaction*). As discussed in Section 2.1, 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.

We start by evaluating in Table 3 whether the information about the cross-country distribution of other’s beliefs affects consumers own beliefs. Table 3 thus estimates treatment effects of the *government reaction* and the *public reaction* treatments on respondents’ own assessment of the appropriateness of the government’s reaction (the same question as that asked in treatment 1) as well as on trust in the government in dealing with the health and the economic aspects of the pandemic. The results show that there are no significant treatment effects on either of these variables. This implies that the information treatments have no direct effects on respondents own beliefs about the appropriateness of the government’s reaction or their trust in the government.

After ruling out any direct effects of second-order beliefs on respondents’ own belief formation, we next test if the presented information in the treatment changes consumer sentiment or the drivers of sentiment evaluated in the previous section. The rationale is the following: Even if showing respondents information on the cross-country distribution of average response appropriateness ratings does not affect their own views about the government response, it could still serve as a general signal. A high approval rating compared to other countries could be regarded as a positive signal about the country’s ability to fight the pandemic, while a low approval rate could mean a negative signal. In fact, as we discussed in the data section 2, the *government reaction* treatment was indeed, on average, perceived as good news for Vietnamese respondents and bad news for Thai respondents, while the *public reaction* treatment was considered as more neutral information for both countries.

Table 4 shows that most information treatment effects are insignificant for the consumer sentiment index. The only exception is a significantly positive effect at the 10% level of the public reaction treatment on consumer sentiment in Vietnam. Compared to the control group, this implies that respondents receiving the public reaction treatment

Table 3: Marginal Effects of Information Treatments on Government Assessment and Trust in Dealing with COVID-19

	<i>govt_covid_appropriate</i> (1) VN	(2) TL	<i>govt_trust_appropriate</i> (3) VN	(4) TL	<i>govt_trust_health</i> (5) VN	<i>govt_trust_covid_econ</i> (6) TL
Government reaction	0.01 (0.03)	0.04 (0.05)	0.04 (0.04)	0.01 (0.02)	0.01 (0.03)	0.008 (0.02)
Public reaction	-0.02 (0.03)	0.03 (0.05)	-0.006 (0.04)	0.005 (0.02)	-0.004 (0.03)	0.005 (0.02)
Demo. controls	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.038	0.029	0.019	0.028	0.013	0.007
N observations	1478	720	1478	720	1478	720

Note: Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects from probit estimations in models 1 and 2 and from ordered probit estimations in models 3-6 for choosing the highest answer category with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

increase their consumer sentiment by about 0.15 standard deviations, a rather small upswing. However, this suggests that the information is perceived as a positive signal for consumption spending attitudes, even though the news itself was regarded as neutral in our follow-up survey. Overall, our finding of few information treatment effects is consistent with Coibion et al. (2020a), who find very small effects of information about various policy measures on respondents’ beliefs or spending plans in the United States during the start of the COVID-19 lockdown.

Table 4: Marginal Effects of Information Treatments on Consumer Sentiment

	(1) VN	(2) TL
Government reaction	0.06 (0.05)	-0.10 (0.10)
Public reaction	0.09* (0.05)	-0.1 (0.09)
Demographic controls	Yes	Yes
R ²	0.032	0.064
N observations	1478	720

Note: Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report OLS estimates based on population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In addition to direct treatment effects on consumer sentiment, there could be indirect effects via the variables affecting sentiment discussed in the previous section. This is what we test next, starting with the treatment effects on macroeconomic expectations (see Table 5). In neither country do we find significant treatment effects on inflation expectations. However, as Model (3) in Table 5 shows, Vietnamese consumers treated with either the government reaction or the public reaction treatment are 3% or 5%, respectively, less likely to expect unemployment to increase a lot compared to the non-treated control group. This suggests 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% more likely to expect GDP growth to increase a lot than consumers in the control group (see Model (5) in Table 5), which is also in line with a “good news” effect. By contrast, the same treatments have no significant effects on macroeconomic expectations in the Thai sample. Overall, the treatment effects suggest that information provision on other consumers’ beliefs, in this case about the appropriateness ratings of the government’s/general public’s reaction to COVID-19, can have important implications for consumers’ macroeconomic expectations. Since we show in the previous section that both unemployment and GDP expectations are important drivers of consumer sentiment, the treatment effects could also have indirect

effects on consumer sentiment. Interestingly, however, this result holds only for Vietnam, where the presented information showed that Vietnamese respondents in the other survey agreed most with government policies in a cross-country comparison. These “good news” seem to have been interpreted as a positive signal for the 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 is not strong enough to generate significant effects.

Table 5: Marginal Effects of Information Treatments on Macroeconomic Expectations

	π^e		u^e		y^e	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Government reaction	0.02 (0.02)	0.03 (0.03)	-0.03* (0.02)	0.06 (0.04)	0.03** (0.01)	-0.002 (0.01)
Public reaction	0.009 (0.02)	0.009 (0.03)	-0.05*** (0.02)	0.02 (0.04)	0.02 (0.01)	-0.008 (0.01)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.008	0.008	0.007	0.014	0.009	0.020
N observations	1478	720	1478	720	1478	720

Note: Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations based on population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Finally, Table 6 presents the treatment effects on concerns related to COVID-19. In the Vietnamese sample, the government reaction treatment reduces the likelihood of respondents answering that they are very concerned regarding the impact of the pandemic on the job security of household members by 9% (see Model (3) of Table 6). This reinforces our earlier interpretation that respondents tend to view this treatment as good news. The *public reaction* treatment has a similar effect and reduces by 9% and 10%, respectively, the likelihood of respondents stating that they are very concerned about their job security or the financial situation of their household (see Models (3) and (5) of Table 6). Also, those who receive the *public reaction* treatment are 7% less likely to report that they are very concerned about their health, though the effect is only marginally significant at the 10% level (see Model (1) of Table 6). In the Thai sample, we find that the *public reaction* treatment increases the likelihood of respondents stating that they are very concerned about the financial situation of the household by 9%, but the effect is only marginally significant at 10%. Nevertheless, this suggests that the *public reaction* treatment is interpreted very differently in the two sample countries even though the information was quite similar.

In the Appendix, we re-estimate all treatment effects 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. Tables A2-A5 demonstrate that our results generally remain unchanged. A notable exception can be found in the Thai sample, where, surprisingly, the *government reaction* information treatment reduces Thai consumers’ concerns about their financial situation and the economy in general (see Table A5).

In summary, even though there is only little direct evidence of information treatment effects on consumer sentiment, we do find significant and economically meaningful treatment effects on some macroeconomic expectations and on personal concerns related to the pandemic in the Vietnamese sample.⁸ In particular, the *government reaction* and *public reaction* treatments make respondents in Vietnam more optimistic compared to the control group, and thus seem to be viewed as good news. Note, however, that there are no treatment effects at all in the Thai baseline sample, except for the *public reaction* treatment effect on respondents’ concerns about the financial situation of their household. We can exclude the possibility that this is simply a matter of different sample sizes. Rather, it seems that the information treatments provided are interpreted as bad news in Thailand and that these negative effects on sentiment are less strong than the positive effects induced in the Vietnamese sample.

Table 6: Marginal Effects of Information Treatments on Concerns Due to COVID-19

	<i>concern_health</i>		<i>concern_job</i>		<i>concern_finance</i>		<i>concern_econ</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VN	TL	VN	TL	VN	TL	VN	TL
Government reaction	-0.05 (0.04)	-0.02 (0.05)	-0.09** (0.04)	-0.05 (0.05)	-0.07 (0.04)	-0.07 (0.05)	-0.02 (0.04)	-0.02 (0.05)
Public reaction	-0.07* (0.04)	0.06 (0.05)	-0.09** (0.04)	0.06 (0.05)	-0.1** (0.04)	0.09* (0.05)	-0.05 (0.04)	0.03 (0.05)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.019	0.024	0.033	0.034	0.027	0.056	0.012	0.055
N observations	1478	720	1478	720	1478	720	1478	720

Note: Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

⁸We repeated the *government reaction* and the *public reaction* treatments in our second survey wave in December 2020 for those respondent groups, who received other treatments in the first wave. The results are shown in Tables A9-A12 in the appendix. Generally, the treatments had no significant effects in the second survey wave.

3.3 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 prior to the treatments. We hypothesize that conditioning on prior beliefs, “surprising” information in the sense that the information is in contrast to the respondent’s prior belief will have a relatively stronger effect on consumer sentiment. For instance, information that, on average, consumers in the country approve of the government’s policies related to COVID-19 could have a stronger impact on those who had a poor prior assessment of government policies in normal times.

To study these heterogeneous effects, we regress consumer sentiment on an interaction term between the dummy capturing the information treatment and respondents’ prior assessment of government policies or the dummy about respondents’ job loss due to the pandemic, while controlling for the same set of demographic factors. Figure 4 presents the marginal effects of information treatment on consumer sentiment across different categories together with a 95% confidence interval.

In the Vietnamese sample, the *government reaction* and the *public reaction* treatments, which are perceived as good news, significantly increase positive consumer sentiment among those who previously gave a poor assessment of government macroeconomic policies in normal times. By contrast, Vietnamese consumers who think the government did a fair or a good job in normal times do not react to either the *government reaction* or the *public reaction* information (see Figures 4a and 4c). The minority of Thai respondents stating that the government did a good job in normal times become more pessimistic after receiving the *government reaction* treatment, which shows that Thailand ranks lowest in terms of citizens’ agreement with their government’s policies during the crisis (see Figure 4b). However, the effect is statistically insignificant.⁹

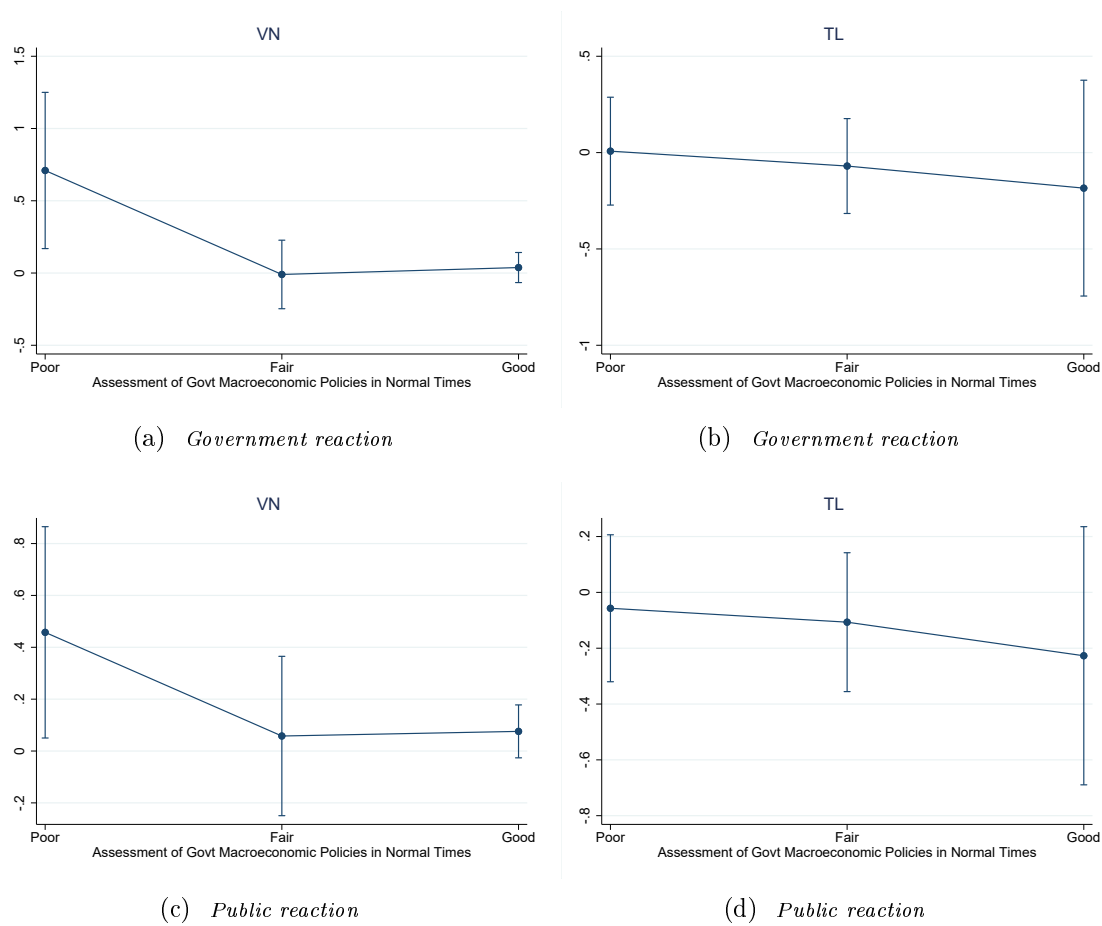
Tables A6, A7, and A8 in the Appendix contain additional results on the heterogeneity of treatment effects on macroeconomic expectations, the assessment of and trust in government policies in dealing with COVID-19, and personal concerns due to COVID-19, respectively. Though we do not find many significant effects, we do find some results consistent with our hypothesis that “surprising” information will significantly affect respondents’ beliefs. For instance, Table A8 shows that the *government reaction* and *public reaction* treatments reduce the likelihood of answering that unemployment will increase significantly in the next 12 months by 40% for Vietnamese consumers who thought the government did a poor job in normal times, but by only 4-6% for those who thought the government did a good job. In the case of Thailand, consumers with a positive prior assessment of the government’s job in normal times are 20% more likely to answer that

⁹As shown in Figures A4 and A5 in the Appendix, our results remain roughly unchanged when using the full sample, treating “don’t know” and “no opinion” answers as neutral for our main questions or when we additionally control for respondent’s current mood.

unemployment will increase significantly if they receive the government reaction treatment.

Overall, our results suggest that prior beliefs may matter for the treatment effects on consumer sentiment and that only those consumers “surprised” by the information change their sentiment in a significant way, consistent with the results in [Coibion et al. \(2020b\)](#). Moreover, the point estimates suggest sizable treatment effects on consumer sentiment in these cases of about 1.2 s.d. in the *government reaction* treatment and 0.8 s.d. in the *public reaction* treatment. Again, note the reaction asymmetry between our sample countries.

Figure 4: The Effect of Information Treatments on Consumer Sentiment across Assessment of Government Macroeconomic Policies in Normal Time with 95% Confidence Intervals



4 Discussion and Concluding Remarks

In this paper, we use the COVID-19 crisis as a case study to evaluate the effect of information about others’ beliefs on the appropriateness of the government’s and the general public’s reaction on consumer sentiment in Thailand and Vietnam. Using a randomized control trial (RCT) information experiment in a new online survey conducted after the

first easing of lockdown measures in May 2020, we make use of cross-country variation in average appropriateness ratings among the countries: Thailand is the country with the lowest approval rate for the government reaction in our information treatment, while Vietnam has the highest approval rate. By contrast, approval rates for the general public's reaction in the second treatment are similar between the two countries. The two information treatments about cross-country ratings of the *government reaction* and the *public reaction* thus allow testing for an effect of showing others' beliefs on the respondents' own beliefs. Secondly, we test whether showing treatments with respondents' country in either tail of the cross-country distribution yields different effects from showing treatments where both countries rank in the middle of the distribution.

Interestingly, we find that information on average beliefs of others about the appropriateness of the government's reaction does not affect respondents' own appropriateness rating or trust in the government. However, we do find some significant treatment effects on consumer sentiment and on the variables driving it. All significant treatment effects are found for the Vietnamese sample and suggest that both are perceived as good news by Vietnamese consumers. Receiving these treatments causes consumers to expect lower unemployment and higher GDP growth and reduces COVID-19-related concerns about job security or their household's financial situation. In the case of the *public reaction* treatment, we also find a direct positive effect on consumer sentiment. Overall, even though treatment effects are not very large, these results indicate that the framing of information may affect the formation of consumer sentiment. Interestingly, also the *public reaction* treatment, which placed the citizens' degree of agreement with the public's reaction between that in China and India in both countries, seems to be regarded as good news in Vietnam, whereas there is no effect in Thailand.

In addition, our results suggest that information treatments about other consumers' beliefs can significantly and strongly affect consumer sentiment if it "contradicts" the prior of respondents. As proxy for this prior, we use the assessment of the government's economic policies during normal times, which was elicited before the information treatments. Whereas we found moderate treatment effects ranging from 0.15 to 0.3 s.d. for the significant effects in the first part of our analysis, now we find notable treatment effects ranging from 0.8 to 1 s.d. Thus, these effects are not only statistically significant; they also have potentially important economic consequences. In the Thai sample, those that previously gave a good assessment of their government's policies during normal times, show somewhat more pessimistic sentiment after receiving either treatments, even though the effect is not statistically significant.

Overall, our results show that consumer sentiment remains affected by the COVID-19 crisis even after the strict lockdown phase, which ended before May 2020 in both countries. Here, it should be noted that our two sample countries were affected relatively mildly by the pandemic and it seems plausible to assume that the effects are likely much larger in countries hit more strongly. In addition, it seems that consumer sentiment is

more significantly affected by information about others' beliefs that is perceived as "good" news. This effect is particularly strong if the information goes against respondents' prior views.

Finally, we discover striking differences between Thailand and Vietnam, with respondents from the former country reacting very little to any of the treatments. This serves as a forceful reminder that generalizing results from one country, even when they are obtained through RCTs, may be problematic, as external reliability is not guaranteed.

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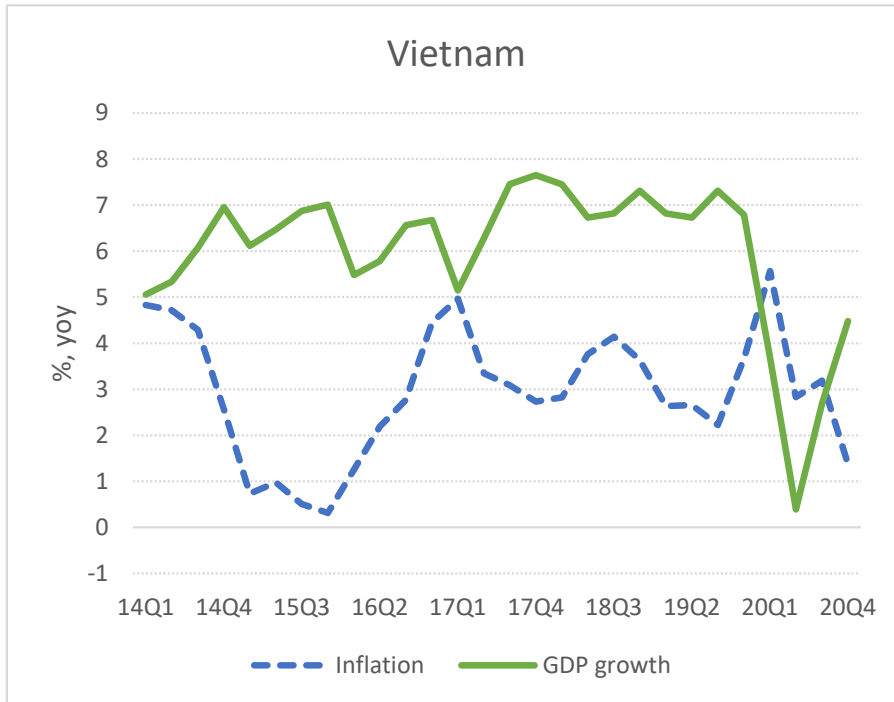
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A Appendix

A.1 Macroeconomic Development in Thailand and Vietnam

Figure A1: Recent GDP growth and Inflation Development in Thailand and Vietnam

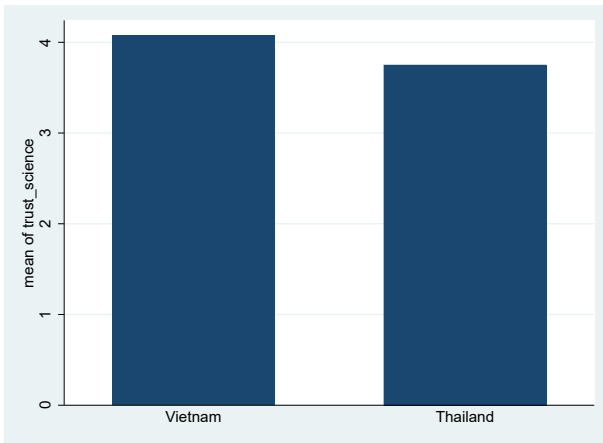


(a) Vietnam (Source: General Statistical Office of Vietnam.)



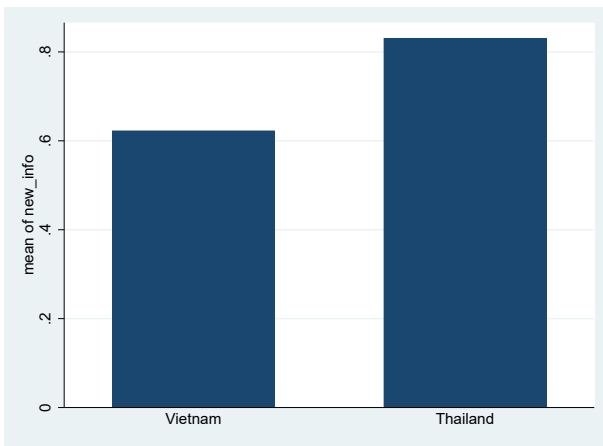
(b) Thailand (Source: Bank of Thailand)

Figure A2: Trust in Scientific Research/Scientists

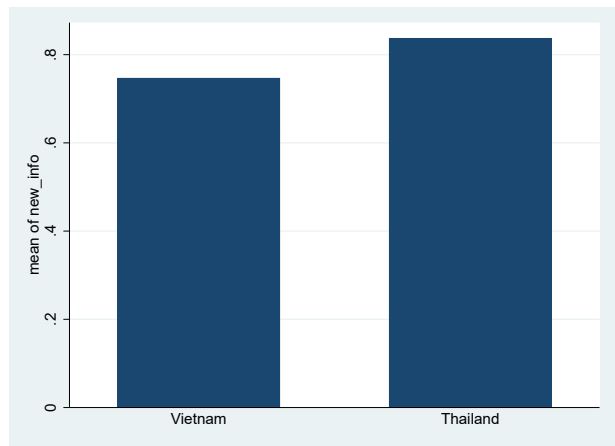


(a) *Vietnam-Thailand*

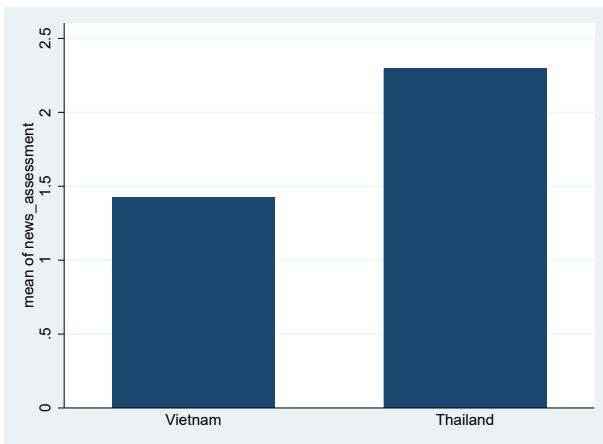
Figure A3: Information Treatment Assessment



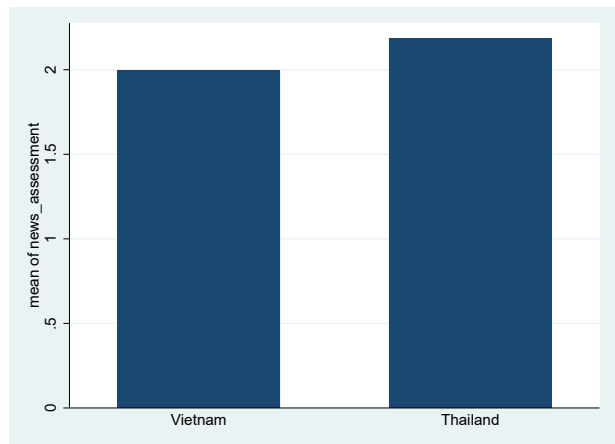
(a) *Government reaction (New vs. Old)*



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



(c) *Government reaction (Good, Neutral, Bad)*



(d) *Public reaction (Good, Neutral, Bad)*

A.2 Robustness Checks

In this section, we re-estimate the baseline results using the full sample 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 the individual index of consumer sentiment and the regressors in Table 2. We thus have a full sample of 1,980 observations in Vietnam and 1,320 observations in Thailand. Overall, most of our baseline results remain unchanged, except Table A5 shows that in the Thai sample, the *government reaction* information treatment, which is framed as bad news, reduces Thai consumers' concerns about their financial situation and the economy in general.

Table A1: Consumer Sentiment: Control Group, Full sample

	OLS May Sample		Panel Fixed Effects	
	(1)	(2)	(3)	(4)
	VN	TL	VN	TL
π^e	0.06*** (0.02)	0.05 (0.04)	0.08*** (0.03)	0.04 (0.04)
u^e	-0.03 (0.02)	-0.06* (0.03)	0.006 (0.04)	-0.06* (0.04)
y^e	0.2*** (0.02)	0.2*** (0.04)	0.2*** (0.04)	0.2*** (0.05)
<i>gouv_assess_normal_times</i>	0.09* (0.05)	0.2*** (0.07)	0.04 (0.06)	0.4*** (0.08)
<i>gouv_covid_appropriate</i>	-0.04 (0.07)	-0.10 (0.09)	0.1 (0.09)	0.03 (0.12)
<i>gouv_trust_covid_health</i>	0.01 (0.03)	0.04 (0.04)	-0.02 (0.06)	-0.1** (0.05)
<i>gouv_trust_covid_econ</i>	0.08*** (0.03)	0.07* (0.04)	-0.006 (0.04)	0.2** (0.07)
<i>concern_health</i>	-0.005 (0.04)	-0.03 (0.07)	-0.04 (0.08)	-0.1 (0.08)
<i>concern_job</i>	-0.07* (0.04)	-0.2** (0.08)	-0.01 (0.06)	-0.3** (0.11)
<i>concern_finance concern_finance</i>	-0.1*** (0.04)	-0.1 (0.07)	0.0008 (0.06)	-0.06 (0.09)
<i>concern_econ</i>	0.002 (0.04)	-0.1 (0.07)	0.06 (0.06)	0.1 (0.08)
Demographic controls	Yes	Yes	Yes	Yes
R ²	0.394	0.337	0.319	0.472
N observations	660	440	416	380

Note: Full sample, May 2020. Demographic controls include the log of household income per capita, employment status, urban/rural area, age, age squared, gender and marital status. We report coefficients from OLS estimations with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2: Marginal Effects of Information Treatments on Consumer Sentiment, Full sample

	(1) VN	(2) TL
Government reaction	0.05 (0.04)	-0.04 (0.07)
Public reaction	0.06 (0.04)	-0.09 (0.07)
Demographic controls	Yes	Yes
R ²	0.035	0.043
N observations	1980	1320

Note: Full sample, May 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report OLS estimates based on population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Marginal Effects of Information Treatments on Macroeconomic Expectations, Full Sample

	π^e		u^e		y^e	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Government reaction	0.02 (0.01)	0.004 (0.02)	-0.03** (0.02)	0.03 (0.03)	0.03** (0.01)	-0.003 (0.01)
Public reaction	0.007 (0.01)	-0.02 (0.03)	-0.04*** (0.02)	0.02 (0.03)	0.006 (0.01)	0.001 (0.01)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.007	0.012	0.005	0.009	0.007	0.010
N observations	1980	1320	1980	1320	1980	1320

Note: Full sample May 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations based on population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Marginal Effects of Information Treatments on Government Assessment and Trust in Dealing with COVID-19, Full sample

	<i>govt_covid_appropriate</i>	<i>govt_trust_covid_health</i>	<i>govt_trust_covid_econ</i>
	(1)	(2)	(3)
	VN	TL	VN
	(4)	(5)	(6)
	TL	VN	TL
Government reaction	-0.007 (0.03)	0.010 (0.04)	0.03 (0.04)
Public reaction	-0.02 (0.03)	-0.03 (0.04)	-0.009 (0.04)
Demo. controls	Yes	Yes	Yes
Pseudo R ²	0.031	0.015	0.012
N observations	1980	1320	1980

Note: Full sample, May 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects from probit estimations in model 1 and 2 and from ordered probit estimations in models 3-6 for choosing the highest answer category with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Marginal Effects of Information Treatments on Concerns Due to COVID-19, Full sample

	<i>concern_health</i>		<i>concern_job</i>		<i>concern_finance</i>		<i>concern_econ</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VN	TL	VN	TL	VN	TL	VN	TL
Government reaction	-0.05 (0.03)	-0.04 (0.03)	-0.10*** (0.04)	-0.01 (0.04)	-0.09** (0.04)	-0.09** (0.04)	-0.03 (0.04)	-0.1*** (0.04)
Public reaction	-0.06* (0.03)	0.003 (0.04)	-0.08** (0.04)	0.03 (0.04)	-0.08** (0.04)	-0.02 (0.04)	-0.04 (0.03)	-0.04 (0.04)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.017	0.041	0.031	0.020	0.023	0.031	0.006	0.045
N observations	1980	1320	1980	1320	1980	1320	1980	1320

Note: Full sample, May 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations based on population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A4: The Effect of Information Treatments on Consumer Sentiment with 95% Confidence Intervals
 Full Sample

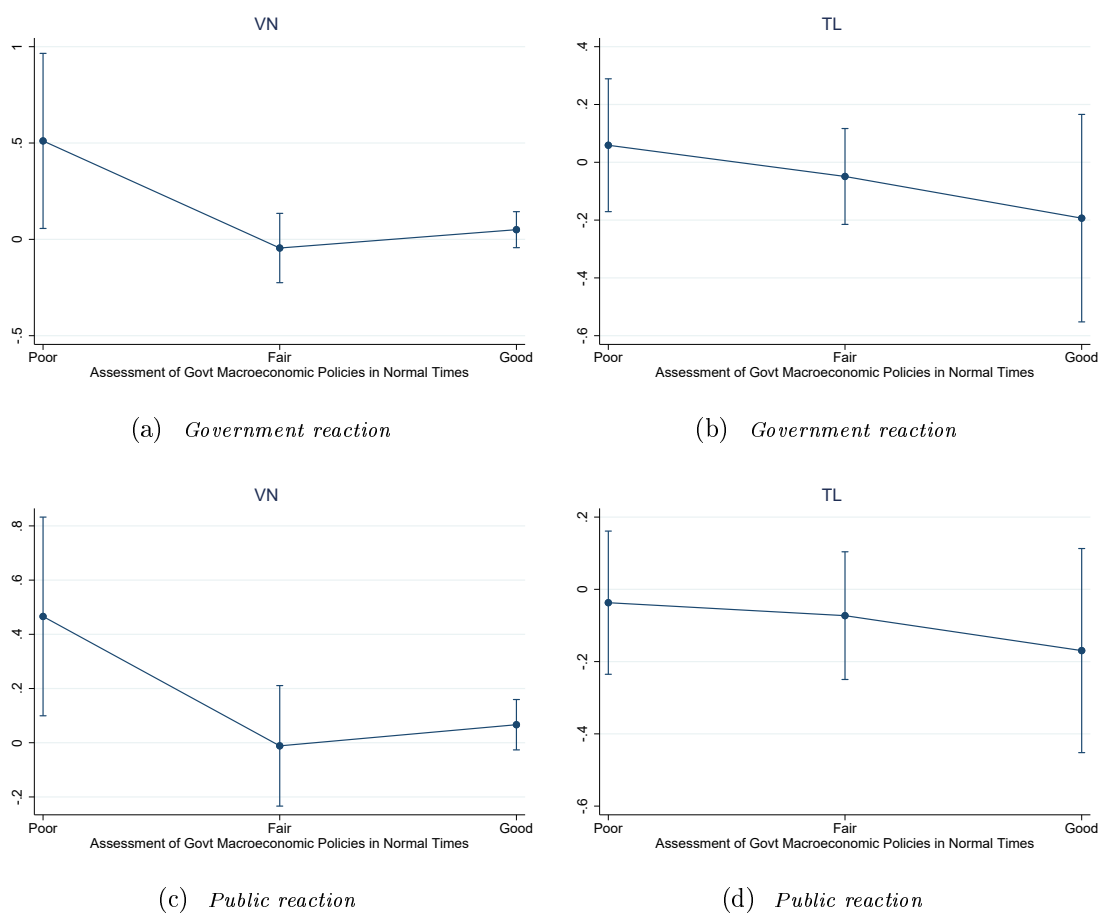
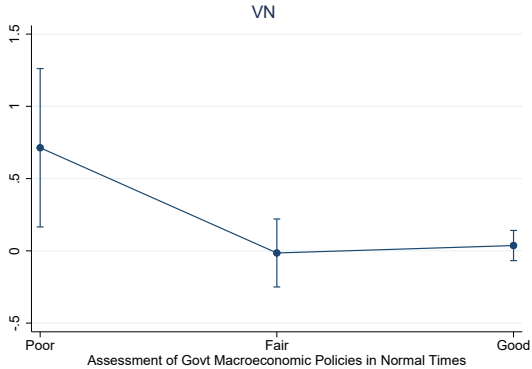
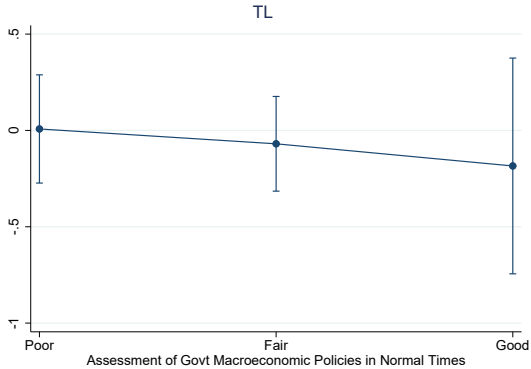


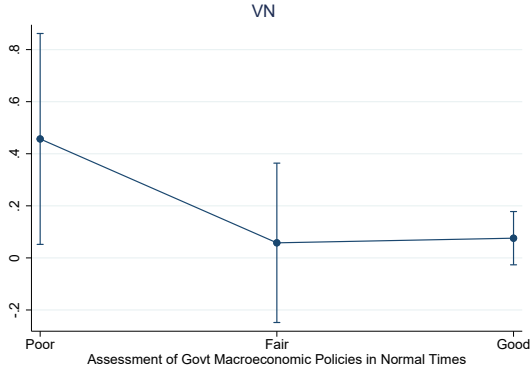
Figure A5: The Effect of Information Treatments on Consumer Sentiment with 95% CI Baseline Sample, Additionally Control for Current Mood



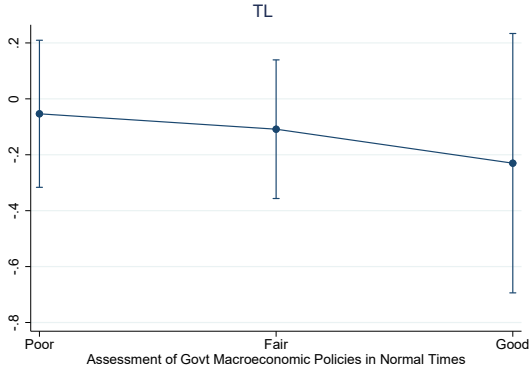
(a) *Government reaction*



(b) *Government reaction*



(c) *Public reaction*



(d) *Public reaction*

Table A6: Heterogeneous Marginal Effects of Information Treatments on Macroeconomic Expectations

	π^e		u^e		y^e	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
<i>govt reaction</i>						
Govt_Poor_Job	0.1 (0.08)	0.02 (0.07)	-0.4*** (0.13)	-0.06 (0.09)	0.04 (0.04)	-0.010 (0.01)
Govt_Fair_Job	0.007 (0.03)	0.01 (0.04)	0.01 (0.04)	0.07 (0.05)	-0.0002 (0.02)	0.006 (0.02)
Govt_Good_Job	0.02 (0.02)	0.1 (0.09)	-0.04* (0.02)	0.2** (0.09)	0.03* (0.02)	0.06 (0.07)
Pseudo R ²	0.010	0.014	0.017	0.034	0.026	0.048
N observations	994	484	994	484	994	484
<i>public reaction</i>						
Govt_Poor_Job	0.05 (0.08)	-0.008 (0.06)	-0.4*** (0.14)	-0.1* (0.08)	0.03 (0.02)	-0.009 (0.01)
Govt_Fair_Job	0.05 (0.03)	0.001 (0.04)	0.01 (0.04)	0.07 (0.06)	-0.03 (0.02)	-0.003 (0.02)
Govt_Good_Job	0.0008 (0.02)	0.01 (0.08)	-0.06*** (0.02)	0.1 (0.09)	0.03 (0.02)	0.02 (0.05)
Pseudo R ²	0.013	0.011	0.020	0.025	0.027	0.042
N observations	975	492	975	492	975	492

Note: Baseline sample May 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations based on population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Heterogeneous Marginal Effects of Information Treatments on Assessment of and Trust in Government

	<i>govt_covid_appropriate</i>		<i>govt_trust_covid_health</i>		<i>govt_trust_covid_econ</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
	VN	TL	VN	TL	VN	TL
<i>govt reaction</i>						
Govt_Poor_Job	0.06 (0.25)	0.05 (0.06)	0.09 (0.09)	0.02** (0.01)	0.01 (0.03)	0.008 (0.01)
Govt_Fair_Job	-0.05 (0.08)	0.03 (0.08)	0.04 (0.06)	-0.0008 (0.03)	-0.004 (0.05)	-0.0003 (0.02)
Govt_Good_Job	0.02 (0.03)	0.2 (0.14)	0.03 (0.05)	-0.09 (0.10)	0.02 (0.04)	-0.07 (0.09)
Pseudo R ²	0.045	0.133	0.069	0.125	0.055	0.127
N observations	994	484	994	484	994	484
<i>public reaction</i>						
Govt_Poor_Job	-0.1 (0.22)	-0.02 (0.06)	0.09 (0.10)	0.007 (0.01)	0.1 (0.07)	0.005 (0.00)
Govt_Fair_Job	-0.06 (0.08)	0.1 (0.08)	-0.07 (0.05)	0.02 (0.03)	-0.05 (0.04)	0.010 (0.02)
Govt_Good_Job	-0.01 (0.04)	0.1 (0.13)	-0.02 (0.05)	-0.05 (0.12)	-0.01 (0.04)	-0.1 (0.10)
Pseudo R ²	0.067	0.152	0.068	0.131	0.049	0.128
N observations	975	492	975	492	975	492

Note: Baseline sample May 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects from probit estimations in models 1 and 2 and from ordered probit estimations in models 3-6 for choosing the highest answer category with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Heterogeneous Marginal Effects of Information Treatments on Concerns Due to COVID-19

	<i>concern_health</i>		<i>concern_job</i>		<i>concern_finance</i>		<i>concern_econ</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VN	TL	VN	TL	VN	TL	VN	TL
<i>govt reaction</i>								
Govt_Poor_Job	0.04 (0.23)	-0.1 (0.09)	-0.4 (0.26)	-0.10 (0.09)	-0.2 (0.21)	-0.2* (0.08)	0.09 (0.19)	-0.02 (0.07)
Govt_Fair_Job	-0.2*** (0.08)	0.01 (0.06)	-0.04 (0.09)	-0.03 (0.07)	-0.03 (0.10)	-0.008 (0.07)	-0.10 (0.09)	-0.01 (0.07)
Govt_Good_Job	-0.01 (0.04)	0.03 (0.13)	-0.08* (0.04)	-0.09 (0.12)	-0.06 (0.04)	-0.2 (0.12)	-0.003 (0.05)	-0.1 (0.11)
Pseudo R ²	0.028	0.040	0.034	0.053	0.039	0.094	0.023	0.113
N observations	994	484	994	484	994	484	994	484
<i>public reaction</i>								
Govt_Poor_Job	-0.3 (0.21)	-0.06 (0.09)	-0.2 (0.22)	-0.05 (0.09)	-0.04 (0.22)	-0.05 (0.08)	-0.2 (0.21)	-0.03 (0.07)
Govt_Fair_Job	-0.04 (0.11)	0.08 (0.06)	-0.02 (0.11)	0.08 (0.07)	-0.05 (0.12)	0.2** (0.07)	-0.1 (0.11)	-0.04 (0.07)
Govt_Good_Job	-0.06 (0.04)	0.10 (0.13)	-0.09** (0.04)	0.2 (0.13)	-0.1** (0.04)	0.1 (0.13)	-0.04 (0.05)	0.3*** (0.12)
Pseudo R ²	0.030	0.042	0.039	0.048	0.031	0.078	0.014	0.090
N observations	975	492	975	492	975	492	975	492

Note: Baseline sample May 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A9: Marginal Effects of Information Treatments on Consumer Sentiment, December 2020

	(1) VN	(2) TL
Govt reaction May	-0.010 (0.07)	-0.04 (0.14)
Public reaction May	0.1 (0.08)	-0.1 (0.14)
Govt reaction Dec	0.03 (0.08)	-0.07 (0.13)
Public reaction Dec	-0.09 (0.07)	-0.04 (0.13)
Demographic controls	Yes	Yes
R ²	0.062	0.023
N observations	935	908

Note: Second wave in December 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report OLS estimates based on population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Marginal Effects of Information Treatments on Macroeconomic Expectations, December 2020

	π^e		u^e		y^e	
	(1) VN	(2) TL	(3) VN	(4) TL	(5) VN	(6) TL
Govt reaction May	0.003 (0.02)	-0.02 (0.04)	0.007 (0.02)	0.05 (0.06)	-0.007 (0.03)	0.01 (0.02)
Public reaction May	0.001 (0.03)	-0.006 (0.04)	-0.01 (0.02)	0.1** (0.06)	-0.0002 (0.03)	-0.010 (0.02)
Govt reaction Dec	-0.02 (0.02)	-0.007 (0.04)	-0.002 (0.02)	0.01 (0.05)	-0.03 (0.03)	0.001 (0.02)
Public reaction Dec	-0.02 (0.02)	0.01 (0.05)	-0.01 (0.02)	0.05 (0.06)	-0.04 (0.03)	0.01 (0.02)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.010	0.007	0.012	0.007	0.024	0.009
N observations	981	977	986	1000	970	922

Note: Second wave in December 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations based on population weights. Standard errors are in parentheses.
 * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A11: Marginal Effects of Information Treatments on Government Assessment and Trust in Dealing with COVID-19, December 2020

	<i>govt_covid_appropriate</i>	<i>govt_trust_covid_health</i>	<i>govt_trust_covid_econ</i>
(1)	(2)	(4)	(6)
VN	TL	TL	TL
	(3)	(5)	(6)
	VN	VN	TL
Govt reaction May	0.09 (0.06)	-0.01 (0.06)	-0.01 (0.02)
Public reaction May	0.02 (0.06)	0.03 (0.06)	-0.01 (0.02)
Govt reaction Dec	0.10* (0.05)	-0.03 (0.06)	0.003 (0.05)
Public reaction Dec	0.05 (0.06)	-0.02 (0.06)	-0.007 (0.02)
Pseudo R ²	0.035	0.015	0.009
N observations	1011	1015	1006

Note: Second wave in December 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects from probit estimations in models 1 and 2 and from ordered probit estimations in models 3-6 for choosing the highest answer category with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A12: Marginal Effects of Information Treatments on Concerns Due to COVID-19, December 2020

	<i>concern_health</i>		<i>concern_job</i>		<i>concern_finance</i>		<i>concern_econ</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	VN	TL	VN	TL	VN	TL	VN	TL
Govt reaction May	-0.06 (0.06)	-0.1** (0.06)	-0.1* (0.05)	-0.08 (0.06)	-0.1** (0.06)	-0.01 (0.06)	-0.09 (0.06)	-0.1** (0.06)
Public reaction May	-0.05 (0.07)	-0.06 (0.06)	-0.03 (0.06)	-0.08 (0.06)	0.002 (0.06)	0.03 (0.06)	-0.03 (0.07)	-0.1** (0.06)
Govt reaction Dec	-0.05 (0.07)	-0.1*** (0.05)	-0.06 (0.06)	-0.1* (0.05)	-0.08 (0.07)	-0.03 (0.06)	-0.09 (0.06)	-0.1*** (0.05)
Public reaction Dec	-0.05 (0.06)	-0.2*** (0.06)	-0.01 (0.07)	-0.08 (0.06)	-0.06 (0.06)	-0.005 (0.06)	-0.07 (0.07)	-0.1** (0.06)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.017	0.015	0.023	0.006	0.028	0.015	0.011	0.018
N observations	1006	1146	1004	1132	1004	1141	979	1136

Note: Second wave in December 2020. Demographic controls include log of household income per capita, employment status, urban/rural area, age, age squared, gender, and marital status. We report marginal effects for choosing the highest answer category from ordered probit estimations with population weights. Standard errors are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

A.3 Survey Questions

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

- *govt_ass_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 about their assessment of and trust in the government’s policies in dealing with COVID-19, as follows:

- *govt_covid_appropriate*: Do you think the reaction of the government to the current COVID-19 outbreak is appropriate or not? [The reaction is not at all sufficient, The reaction is somewhat insufficient, The reaction is appropriate, The reaction is somewhat extreme, The reaction is much too extreme, I don’t know]. *govt_covid_appropriate* is a dummy variable that takes value of unity if the answer is “appropriate” and zero otherwise.
- *govt_trust_covid_health*: 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_covid_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

- π^e : How do you think prices in general (which are used to measure the inflation rate) will develop over the next 12 months compared to the previous 12 months? They will [Decrease a lot, Decrease a little, Stay about the same, Increase a little, Increase a lot, I do not form opinions about future general price level, Don’t know.]
- u^e : 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]
- y^e : 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]

Personal concerns

- *concern_health*: How concerned are you about the effects that COVID-19 might have on your health or the health of other members of your household [Not at all concerned, Somewhat concerned, Very concerned, Don't know]
- *concern_job*: How concerned are you about the effects that COVID-19 might have on your job security or the job security of other members of your household [Not at all concerned, Somewhat concerned, Very concerned, Don't know]
- *concern_finance*: How concerned are you about the effects that COVID-19 might have on the financial situation of your household [Not at all concerned, Somewhat concerned, Very concerned, Don't know]
- *concern_econ*: How concerned are you about the effects that COVID-19 might have on the economy [Not at all concerned, Somewhat concerned, Very concerned, Don't know]

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:

- 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]
- 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]
- 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]
- 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]
- 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]