



# Determinants of Trust in Banks' Payment Services During COVID: An Exploration Using Daily Data

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## Abstract

Trust in banks is key, especially in turbulent times. Using unique daily data for a representative panel of Dutch consumers, we examine to what extent the COVID-crisis has affected trust in banks' payment services. We have the following main findings. First, COVID-19 measures have affected trust in banks' payment services. The first lockdown increased narrow-scope trust (trust in consumers' own bank payment services) and broad-scope trust (trust in banks' payment services in general). The second lockdown decreased both notions of trust. The crisis measures impacted the trust of the elderly the strongest. Second, personal characteristics are significantly related to trust in banks' payment services. For example, we find that both types of trust are increasing with digital literacy and the ease of getting by with income. Third, narrow-scope trust is higher than broad-scope trust. The gap between trust in the own bank and trust in banks in general is highest for customers of small banks.

**Keywords** Trust in banks · COVID-19 · Crises measures · Payments · Payment diary data

**JEL Classification** D12 · E42 · G21

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## 1 Introduction

Bank payment services are a crucial aspect of the role banks play in society. Trust in these services, and in banks in general, is vital for financial stability, financial inclusion and financial activity. Despite the importance, it is not clear how the COVID-19 pandemic has affected trust in banks' payment services. The main goal of this paper is to answer the following research question: What have been the effects of the COVID-crisis on trust in banks' payment services? By using a unique dataset of daily data for Dutch consumers, we research the effect of the national lockdowns on trust in banks' payment services in general (broad-scope trust) and more narrowly for consumers' main bank (narrow-scope trust), as well as the relationship of the effect with individual background characteristics. A key advantage compared to prior studies on trust in banks is the high frequency of our data. This allows us to research the impact of national lockdowns on trust in banks' payment services. Most prior studies use annual data or data from a single, one-time only survey (see van der Cruijssen et al. (2021b) for an overview of the literature on trust in financial institutions).<sup>1</sup>

Importantly, trust in banks' payment services is relatively understudied although it is likely to be important for the adoption and usage of payment instruments and a well-functioning payment system. Prior studies on trust in banks focus on different notions of trust, such as trust in the financial health of banks, general trust in banks or trust in their personnel (van der Cruijssen et al. 2021b).

The COVID-induced crisis is very different in nature compared to the global financial crisis of 2007. Therefore, the impact of the COVID-crisis on trust in banks may also be very different. The behaviour of banks contributed to the financial crisis. In contrast, banks cannot be blamed for the COVID-19 pandemic as they have no control over it. Prior studies on crisis and trust in banks focus on the impact of the financial crisis. These studies show a decline of trust after the outbreak of the financial crisis. For example, see Guiso (2010, 2012) and Sapienza and Zingales (2012) for research on the US and Knell and Stix (2015) for research on Austria. Using World Value Survey data covering 52 countries during the period 2010–2014, Fungáčová et al. (2019) find a negative effect of the occurrence of a financial crisis on trust in banks.

According to the framework of van der Cruijssen et al. (2021b), which is based on a literature review of research on trust in financial institutions, there are several routes through which a crisis can affect broad-scope and narrow-scope trust in banks. First, the worsening economic conditions and measures taken during a crisis, can impact generalised trust (trust in other people). The change in generalised trust then feeds through in broad-scope and narrow-scope trust in banks, either directly or indirectly via lower trust in the payment system or the supervisory authority. Similarly, personal crisis experiences may affect broad-scope and narrow-scope trust in banks directly, but may also affect these trust measures indirectly via trust in the

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<sup>1</sup> We are aware of one study that uses online reviews of Russian commercial banks to construct a monthly confidence grade (Chernykh et al. 2019).

payment system or trust in the supervisory authority. In addition, a crisis may affect the behaviour and characteristics of banks, and thereby impact narrow-scope trust in banks and via trust in the banking supervisory authority also broad-scope trust in banks. Finally, a crisis may affect trust in the banking supervisory authority and thereby also narrow-scope and broad-scope trust in banks.

The effect of the COVID-19 crisis on trust in banks may depend on the phase of the pandemic. At its start the COVID-19 crisis might have led to an increased sense of community, as is often seen in times of crises or disasters (Bonanno et al. 2010). This may have affected generalised trust, and thereby trust in banks, positively. However, as the pandemic persisted people may have felt less connection with other people, resulting in lower trust in other people in a later pandemic phase. The effect of government measures to combat the pandemic and its economic consequences on generalised trust may also depend on the phase of the pandemic. It may become increasingly difficult to positively affect trust through government measures as the pandemic continues and the end is not in sight yet.

The literature on the impact of the COVID-19 pandemic on trust is still in its infancy. Some first evidence on the effect of the COVID-19 pandemic on trust in banks is reported by van der Crujssen et al. (2021), who show that trust in banks was barely affected by the pandemic. This research is based on two large-scale consumer surveys conducted in March 2021, one in the US and one in the Netherlands. Respondents reported their level of trust in BigTechs, other people, banks and insurers and the impact of the pandemic on these types of trust. In contrast to trust in financial institutions, trust in BigTechs and other people was negatively affected by the pandemic, especially in the US. Using data on Norwegians, Thoresen et al. (2021) find no significant effect of the COVID-19 pandemic on generalised trust in the early phase of the pandemic. Oude Groeniger et al. (2021) show that Dutch COVID-19 lockdown measures increased Dutch consumers' trust in the government. Studies examining the effect of the COVID-crisis on trust in institutions suggest that the effect depends on public sentiment about the performance of the institution. Bol et al. (2020) find a positive effect of national lockdowns to combat the COVID-crisis on political trust, presumably due to agreement with the measures taken. This result is underlined by Kye and Hwang (2020), who study a broader range of institutions in South-Korea. The authors conclude that increased trust in an institution is associated with proactive responses to the COVID-crisis, while a decrease in trust is related to a lack of appropriate action taken. Thus, the impact of a crisis on trust in institutions could depend on how the public viewed the specific institution's performance. Sibley et al. (2020) researched the immediate effects of New Zealand's nationwide lockdown and find a positive effect on New Zealanders' trust in politicians.

We explore heterogeneity in the effect of the pandemic and lockdown measures on trust. The effect on trust may vary between groups of people, as the psychological and health effects are more severe for vulnerable subgroups, and economic inequalities are potentially enhanced. The elderly are more likely to get severely ill from COVID-19 and especially people in poor financial positions are affected by the lockdown measures taken to contain the pandemic (Oude Groeniger et al. 2021). Qiu et al. (2020) find that in China the elderly population, young adults and low-income individuals experienced higher distress than other subgroups. Blundell et al. (2020)

study UK data and conclude that the current COVID-crisis is increasing existing (economic) inequalities, an example is a higher likelihood of losing your job for low-income individuals.

Several studies show that people who are most threatened by a disaster or crisis have lower levels of generalised trust and trust in banks than people who are threatened less. Using Australian household survey data, Jetter and Kristoffersen (2021) find that a severe financial shock such as bankruptcy can lower generalised trust. Knell and Stix (2015) show that the decline of trust in banks depends on Austrians' personal crisis experiences. Furthermore, adverse personal experiences related to the financial crisis reduced generalised trust and trust in banks in the Netherlands (van der Crujisen et al., 2016). Using data on Bangladesh, Rahman et al. (2020) report a negative effect of experiencing floods on interpersonal trust. In addition, Friehe and Marcus (2021) research generalised trust of Germans and find a negative impact of involuntary job loss.

There is also some first evidence related to the COVID-pandemic. For example, Thoresen et al. (2021) find higher generalised trust among Norwegians with negative personal experience with the COVID-19 disease, but lower trust in other people among Norwegians who reported pandemic-related worry and high perceived health threat. The research of van der Crujisen et al. (2021) on the US and the Netherlands shows that generalised trust of poor-health individuals dropped more during the pandemic than trust of healthy individuals.

The framework of van der Crujisen et al. (2021b) also highlights that narrow-scope trust and broad-scope trust in banks depend on individual characteristics. Therefore, we include these as explanatory variables in our analysis. We add to the literature on trust in banks by not only including personal characteristics that are commonly used in prior studies, but by also using other variables that may matter for trust: digital literacy, the ease of getting by with one's income and the type of bank one is customer of (large vs. small).

Various studies examine the relationship between personal characteristics and trust in banks, mostly presenting mixed results (see van der Crujisen et al. (2021b)). Several studies find that income is positively related to trust in banks. For example, Fungáčová et al. (2019) find this using data on 52 countries, whereas Ampudia and Palligkinis (2018) find this for Italy. However, there are also studies that find no significant income effect, such as Fungáčová and Weill (2018) who use data on China. The literature on the relationship between age and trust in banks also presents mixed results. For example, Ennew and Sekhon (2007) find higher trust for the oldest subgroup when studying the UK population. However, based on data on 29 transitional countries Afandi and Habibov (2017) show that trust in banks is higher for young people. The effect of education on trust is also not clear-cut. Fungáčová and Weill (2018) conclude that having a higher education level negatively relates to trust in banks of Chinese individuals, whereas Afandi and Habibov (2017) show that higher educated individuals in their sample of transitional countries have higher trust in banks. The specific region in which an individual lives affects trust differently throughout various studies. For example, in China living in a rural region positively relates to trust (Fungáčová & Weill, 2018), whereas several other studies on other countries find no regional differences. Gender has a mixed effect on trust, as this

seems to depend on the type of trust. The literature shows that self-assessment of an individual's financial well-being is likely to be positively related to trust in banks. Shim et al. (2013) study the trust of young US adults in banks and conclude that self-reported financial well-being positively and significantly affects trust in banks. A higher degree of financial literacy coincides with higher trust in banks, as is for example shown for the Netherlands by van der Crujisen et al. (2021a).

Moreover, the framework of van der Crujisen et al. (2021b) also incorporates the finding of the literature on trust in financial institutions that broad-scope trust may affect narrow-scope trust. We take this into account in our analysis as well. Prior studies find a positive relationship between broad- and narrow-scope trust in banks and that narrow-scope trust is higher than broad-scope trust. We expect this also holds for trust in banks' ability to adequately process payments. Hansen (2012, p. 282) defines broad-scope trust as: "the expectation held by the consumer that companies within a certain business type are generally dependable and can be relied on to deliver on their promises." Narrow-scope trust can be defined as "the expectation held by the consumer that the service provider (for instance a bank) is dependable and can be relied on to deliver on its promises" (Sirdeshmukh et al., 2002, p. 17). For a sample of the Dutch population, van der Crujisen et al. (2021a) find that narrow-scope trust in the financial health of banks is higher than broad-scope trust and that there is a positive relationship between the two (see also van Esterik-Plasmeijer and van Raaij (2017), who also use data on the Netherlands).

Throughout the first quarter of 2020, the Dutch government enacted various regional and national pre-emptive measures. On March 16 a single dominant measure was enforced by the Dutch government: the first nationwide lockdown. Dutch banks implemented measures making contactless payments easier. The cumulative limit above which an identification code is required for contactless payments was raised from 50 to 100 euros and the transaction limit was increased from 25 to 50 euros. This decreased the need for cash payments. On October 14 the second lockdown kicked in to curb resurging COVID-infections. The pandemic caused a large drop in the use of cash at the point of sale, whereas the use of contactless payments increased (Jonker et al., 2021). In addition, online shopping increased (Baarsma & Groenewegen, 2021). The Dutch government introduced generous measures to contain the economic impact of the pandemic (IMF, 2021). In the Netherlands, banks were in good health prior to the pandemic which enabled them to support households and businesses by offering credits and deferral of repayments. Thus, banks helped absorbing part of the potential impact of the pandemic. De Nederlandsche Bank (DNB) and European Central Bank (ECB) also took supportive measures (IMF, 2021).

Our main findings are as follows. First, the trust level is relatively high and lies between predominantly and completely trusting banks' payment services, with broad-scope trust somewhat lower than narrow-scope trust. Second, the effect of the COVID-19 crisis on narrow-scope trust and broad-scope trust depends on the phase of the pandemic. The first lockdown significantly increased Dutch consumers' trust in banks' payment services, especially with respect to broad-scope trust. A possible explanation is that generalised trust increased as a result of the government measures or positive personal crisis experiences, such as an increased sense of

community. Higher generalised trust goes along with higher trust in banks, either directly or via higher trust in the banking supervisory authorities and trust in the payment system. It could also be the case that the measures taken by banks had a positive effect on trust in banks. In addition, the measures taken by the banking supervisory authorities may have increased trust in banking supervisory authorities and thereby trust in banks. However, the second lockdown had a detrimental effect on both narrow-scope and broad-scope trust. A possible explanation is that as the pandemic persisted personal crisis experiences became negative and people felt less connection with other people. This may have resulted in lower generalised trust and thereby lower trust in banks.

Third, trust of the elderly responds most to the crisis measures. The effect of the crisis measures on trust is also related to income and the ease of getting by with household income. Fourth, various personal characteristics significantly affect the trust an individual has in banks' payment services. Broad- and narrow-scope trust are increasing with digital literacy and the ease of getting by with income. Broad-scope trust is positively related to income and education, decreases with age and is higher for women than for men. Narrow-scope trust is highest among young people and lowest among high-educated people, while there is no effect of income. Respondents who refuse to state their income level have lower broad-scope and narrow-scope trust. People who hold an account with a big bank have higher broad-scope trust and lower narrow-scope trust than people who hold an account with small banks.

The outline of this study is as follows. First, the data sources and specifics of the main methods are described in Sect. 2. Second, the results are discussed in Sect. 3. Last, we conclude and discuss our findings in Sect. 4.

## 2 Empirical Method

### 2.1 Data Used

This study's primary dataset is the Survey on Consumers' Payments (SCP), which is data collected for De Nederlandsche Bank (DNB) and the Dutch Payment Association (DPA). Data from the SCP were used before (Jonker & Kosse, 2013; Jonker et al., 2017; van der Cruijnsen et al., 2017; Arango-Arango et al., 2018; Jansen et al., 2018; Jonker et al., 2021; van der Cruijnsen and Knobens 2021), primarily to research consumer payment behaviour. The SCP consists of a payment diary and an additional questionnaire. We use the latter part of the SCP for our analysis. It includes information on trust in banks and background information on respondents. For more information on the data we refer to Jonker et al. (2018). We are the first to use the data on trust in this dataset. The trust questions were included in the 2020 questionnaire.<sup>2</sup>

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<sup>2</sup> The data we use for this project is proprietary payment diary data from DNB and DPA, which is not publicly available.

The 2020 survey was filled in by 24,880 respondents (on average 68 respondents each day). These are randomly sampled by the research bureau from the GfK market research-panel, aged 12 years and over and is representative of the Dutch population. All weeks and week days are adequately covered. Once a respondent has filled in the survey, the individual can participate again after at least 3 months. 24,498 respondents answered the survey online and 382 by telephone. The response rate of the online survey was 36% and the response rate of the telephone survey was 84%.

Our study uses 23,562 observations from the 1st of January 2020 until the 31st of December 2020. Due to item non response we could not use the full sample of 24,880 respondents. Most respondents answered only once, however a substantial fraction (roughly one third) of the diary entries result from respondents who filled in the survey multiple times.

As covariates, we use trust variables, lockdown variables and personal characteristic measures, which we describe in Sects. 2.3 and 2.4.

## 2.2 Methodology

The pooled cross-sectional model is described by Eq. (1). We use an ordered logit model because the dependent variable is ordinal.

$$Y_{it}^* = \alpha + \beta' \text{Lockdown}_t + \gamma' X_{it} + \epsilon_{it} \quad (1)$$

Here, the dependent variable  $Y_{it}^*$  is the unobserved: (1) trust of individual  $i$  ( $i = 1, \dots, N$ ) in payment services by his/her bank (narrow-scope trust) at day  $t$  ( $t = 1, \dots, T$ ) or (2) trust of individual  $i$  in payment services by banks in general (broad-scope trust) at day  $t$ . In the ordered logit framework, instead of  $Y_{it}^*$  we observe the (ordered) categories of response. Together with the assumption of a logistic distribution for the error term, this gives the standard ordered logit model. Note that observations in each cross section (i.e., at different points in time) do not refer to the same individuals. Next,  $\text{Lockdown}_t$ , with coefficients  $\beta' = (\beta_1, \beta_2, \beta_3)$ , consists of three 0–1 indicator variables: *after start first lockdown*, *after end first lockdown* and *after start second lockdown*. The term  $X_{it}$  consists of the  $K$  individual characteristics of person  $i$  at day  $t$  with coefficients  $\gamma' = (\gamma_1, \dots, \gamma_K)$ . These variables measure the relationship between individual characteristics and trust. As some respondents are sampled more than once, standard errors are clustered per individual.

In addition, we run these models with interaction terms between *after start first lockdown*, *after end first lockdown*, *after start second lockdown* and a subset of individual characteristics: age, income and the ease of getting by with household income variables. By including these interaction terms we are able to test whether the effects of the lockdowns on trust vary across specific groups. The effects of the lockdowns on trust may depend on someone's own financial situation. Prior research has shown that the own financial situation is key in explaining trust in banks (Knell & Stix, 2015).

Another motivation to include interactions with age and income variables is that changes in payment behaviour of Dutch consumers during the pandemic are related to these variables (Jonker et al., 2021). The shift from cash to cards was most

pronounced among the elderly and people with a low income. Changes in payment patterns may affect people's trust in banks' payment services.

## 2.3 Dependent Variables

We use two trust variables as dependent variables, which both measure trust in payment services facilitated by banks. The first we refer to as *narrow-scope trust* and it measures trust in payments services offered by a respondent's own bank. The second we refer to as *broad-scope trust*, and it measures trust in payment services offered by the banking sector as a whole. The question concerning narrow-scope trust is: "Do you have trust in [bank name]'s ability to process your payments adequately?". If the respondent is a customer of multiple banks (5563 diary entries report 2 or more banks), the person can select up to three banks for which the respondent can answer the narrow-scope trust question. Using only the first observation would potentially result in a biased selection due to the alphabetical order of answers. Therefore, if a respondent answered the narrow-scope question multiple times, only one randomly chosen answer is used. Otherwise, there is high correlation between these answers, and the individuals with multiple banks would be overrepresented in the sample. Narrow-scope and broad-scope trust range from 1 to 5. The question regarding broad-scope trust is: "Do you have trust that Dutch banks in general are able to process your payments adequately?". Both questions are answered on a 1–5 Likert scale: 1 = "No, not at all", 2 = "No, predominantly not", 3 = "Neutral", 4 = "Yes, predominantly", 5 = "Yes, completely".

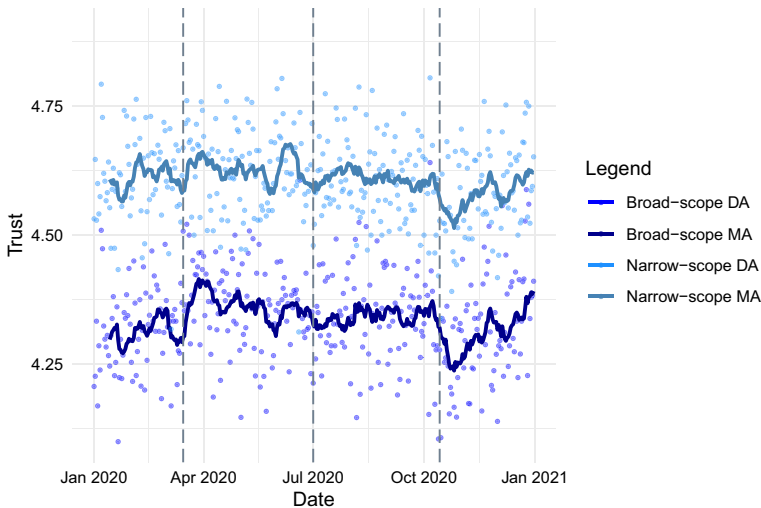
Narrow-scope trust is higher than broad-scope trust. The dependent variable *narrow-scope trust* is on average 4.6 and the dependent variable *broad-scope trust* is on average 4.3. A paired *t*-test shows that this 0.3 gap is significant ( $t$ -value=71.1,  $p$ -value=0.000). Figure 1 presents the daily averages and 14-day moving averages based on the raw data.

## 2.4 Explanatory Variables

### 2.4.1 Lockdown Variables

To estimate the effect of COVID-19 measures we include three 0–1 indicator variables. First, we create an indicator variable *after start first lockdown* that takes the value of 1 once the first lockdown has started, which was on March 16 2020. This variable captures a change in trust levels associated with the lockdown. Second, we include an indicator variable *after end first lockdown* that equals 1 after the lockdown ended on the first of July and 0 before that date. On the first of July the pandemic seemed under control, as infections and hospitalization of patients decreased substantially. Therefore, the government relaxed the lockdown constraints, with pubs opening up for up to 100 people, sport competitions could be organized and individuals were allowed to work from offices again. Third, we create an indicator variable *after start second lockdown* that takes the value of 1 once the second lockdown started — October 14 2020 — and is 0 before that date.





**Fig. 1** Trust over time. *The dots present Daily Averages (DA) and the lines are 14-day Moving Averages (MA). Broad-scope trust and narrow-scope trust range from 1 (no trust at all) to 5 (complete trust)*

#### 2.4.2 Variables Capturing Individual Characteristics

We include a set of variables to capture personal characteristics, financial characteristics, digital literacy, whether the respondent is a customer of a large bank, and region. Table 3 in Appendix A shows summary statistics for the variables adopted in this study.

First, we include 0–1 indicator variables that capture the following personal characteristics: age, gender and education. We create the following four age indicators: *age 31–45*, *age 46–55*, *age 56–65*, and *age >65*. These are 1 for respondents with the particular age and 0 else. The reference group is *age 12–30*, which consists of respondents who are between 12 (the minimum age to participate in this survey) and 30. Each age group includes about one fifth of the respondents. *Male* is equal to 1 if the respondent is male and 0 for females. 52% of the respondents are male and 48% are female. The level of education is captured by *education medium* and *education high*. Education medium is 1 for respondents with intermediate vocational education, Higher Secondary College Education or pre-university education and 0 for other respondents. 29% of the respondents have a medium level of education. Similarly, education high is 1 for respondents with Higher Professional Education or university education, which holds for 38% of the respondents. People with the lowest level of education — one third of the respondents — are in the reference group: *education low*.

In addition, we create 0–1 indicator variables to capture respondents' financial characteristics. Income is captured by: *income medium*, *income high*, *income unknown*. Income medium is 1 for respondents with an annual total gross household income between EUR 23,400 and EUR 65,000 (31% of the respondents), and 0 for other respondents. Similarly, income high is 1 for respondents with an income

of at least EUR 65,000 (28% of the respondents) and 0 else. The variable income unknown is 1 for those respondents who did not report their income. The reference group is *income low*, which consists of people with an income less than EUR 23,400 (16% of the respondents). The payment diary also provides information on how well people can manage on the total income of their household. *Getting by neither hard, nor easy* and *getting by hard/very hard* reflect the ease of getting by with income. People who find this easy or very easy are in the reference group (*getting by easy/very easy*). This holds for the majority of the respondents, namely 55%. 37% of the respondents find it neither hard nor easy to get by with their household income, whereas 9% of the respondents find it hard or very hard.

We also include variables that capture digital literacy and whether the respondent is customer of a large bank. *Digital literacy* is a 0–1 indicator variable that captures digital literacy. The underlying question is “To what extent do the following statements apply to you? (a) When using the Internet I need help of others (partner, friends, family, acquaintances) (b) I can handle a computer, tablet and smartphone well”. Respondents answered on a scale from 1 “Not applicable at all” to 5 “Totally applicable”. The digital literacy indicator variable is equal to 1 for respondents who answered 1 or 2 to the first statement and 4 or 5 to the second statement, otherwise the variable is equal to 0. Based on our measure 71% of the respondents are digitally literate. Last, *large bank* is 1 for customers of one of the three largest banks in the Netherlands (87% of the respondents) and 0 else. These banks are substantially larger than other banks in the Netherlands. For customers of small banks the gap between *narrow-scope trust* and *broad-scope trust* is on average 0.38 and for customers of large banks 0.26.

The region where respondents live is captured by the following 0–1 indicator variables: *region north* (10% of the respondents), *region south* (25%), *region west* (30%) and *region east* (21%). Respondents who live in Amsterdam, Rotterdam and The Hague (the three largest cities, which are located in the west of the Netherlands) or their agglomerates are in the reference category and *region west* is 0 for these respondents.

### 2.4.3 COVID-Related Variables

Lastly, in the robustness analyses we use two COVID-related variables: *daily confirmed deaths* and *stringency index*. The daily confirmed deaths are the daily COVID-related deaths in the Netherlands (Hale et al., 2021). On average there were 31 COVID-related daily deaths in 2020 over all 366 days. The stringency index is an aggregation of 20 daily indicators formulated to assess the stringency of COVID-19 restrictions in a country, which ranges from 1 to 100 (Hale et al., 2021). The stringency index increased substantially due to the governmental restrictions to suppress COVID-19. We use 2020 data for the Netherlands. The stringency index ranged between 0 and 80 and was on average 49.

## 3 Results

### 3.1 Baseline Results

Table 4 in Appendix B shows the outcomes of the ordered logit models. In addition, we report the marginal effects on the probability of complete trust of the regressions without interaction terms in Table 1. The dependent variable is broad-scope trust for regressions (1) and (2) of Table 4 and narrow-scope trust for regressions (3) to (5) of Table 4. First, we include the three lockdown variables (after start first lockdown, after end first lockdown, and after start second lockdown) as well as the variables capturing personal characteristics (Table 4 column 1 and 3 and Table 1 column 1 and 2). These are our baseline models. Second, we include interaction terms to test whether the impact of the crises measures on trust depends on the consumers' age, income or the ease of getting by (Table 4 column 2 and 4). Last, we test the relationship of broad-scope trust with narrow-scope trust (Table 4 column 5 and Table 1 column 3).

We find that the effect of the COVID-19 crisis on narrow-scope trust and broad-scope trust depends on the phase of the pandemic. The lockdown that started on March 16 2020 significantly increased broad-scope and narrow-scope trust in banks' payment services. For example, the likelihood that someone completely trusted banks in general increased by 4 percentage points. Whereas the effect is 2 percentage points for narrow-scope trust. A first possible explanation is that generalised trust increased as a result of the government measures or positive personal crisis experiences, such as an increased sense of community. Higher generalised trust goes along with higher trust in banks, either directly or via higher trust in the banking supervisory authorities and trust in the payment system. Another explanation is that the measures taken by banks had a positive effect on trust in banks. In addition, the measures taken by the banking supervisory authorities may have increased trust in banking supervisory authorities and thereby trust in banks.

We find that as the pandemic persisted it went along with lower trust in banks' payment services. The relaxation of the government measures as of July 1 2020 went along with a decrease of narrow-scope trust. The likelihood that someone completely trusted the own bank decreased by 2 percentage points. The effect on broad-scope trust was negative but insignificant. The start of the second lockdown also went along with lower trust in banks. The likelihood that someone fully trusted the own bank decreased by 1.4 percentage point. We find the same effect for broad-scope trust, despite the insignificant coefficient of *after start second lockdown* (Table 4, column 3). A possible explanation is that as the pandemic persisted personal crisis experiences became negative and people felt less connection with other people. This may have resulted in lower generalised trust and thereby lower narrow-scope trust in banks. Note that the impacts of the lockdown variables are cumulative. The sum of the coefficients of *after start first lockdown*, *after end first lockdown* and *after start second lockdown* is 0.04 in case of broad-scope trust, which does not differ significantly from zero ( $p = 0.27$ ). For narrow-scope trust the sum of the

**Table 1** Marginal effects on the probability of complete trust

	Broad-scope trust		Narrow-scope trust	
	(1)	(2)	(3)	(4)
Income medium	0.038*** (0.010)	-0.001 (0.010)	-0.034*** (0.010)	
Income high	0.056*** (0.011)	-0.004 (0.011)	-0.049*** (0.012)	
Income unknown	-0.070*** (0.010)	-0.083*** (0.011)	-0.050*** (0.011)	
Age 31–45	-0.038*** (0.011)	-0.028*** (0.011)	-0.009 (0.011)	
Age 46–55	-0.055*** (0.010)	-0.045*** (0.010)	-0.016 (0.010)	
Age 56–65	-0.079*** (0.010)	-0.030*** (0.010)	0.018* (0.010)	
Age >65	-0.120*** (0.010)	-0.026*** (0.011)	0.048*** (0.010)	
Education medium	-0.001 (0.008)	-0.005 (0.008)	-0.010 (0.008)	
Education high	0.024*** (0.008)	-0.020*** (0.008)	-0.047*** (0.008)	
Male	-0.062*** (0.006)	0.005 (0.006)	0.045*** (0.006)	
Region west	0.020* (0.010)	0.036*** (0.009)	0.034*** (0.009)	
Region north	0.037** (0.013)	0.059*** (0.011)	0.057*** (0.011)	
Region east	0.009 (0.011)	0.031*** (0.010)	0.036*** (0.010)	
Region south	0.008 (0.010)	0.045*** (0.009)	0.048*** (0.010)	
Digital literacy	0.086*** (0.007)	0.080*** (0.007)	0.033*** (0.007)	
Getting by neither hard, nor easy	-0.141*** (0.007)	-0.126*** (0.007)	-0.051*** (0.007)	
Getting by hard/very hard	-0.170*** (0.011)	-0.152*** (0.013)	-0.037*** (0.013)	
Large bank	0.072*** (0.009)	-0.034*** (0.009)	-0.092*** (0.008)	
After start first lockdown	0.038*** (0.009)	0.016* (0.009)	-0.007 (0.009)	
After end first lockdown	-0.013 (0.008)	-0.018** (0.008)	-0.011 (0.008)	
After start second lockdown	-0.014* (0.009)	-0.014* (0.009)	-0.007 (0.009)	
Broad-scope trust				0.498*** (0.006)

The table reports marginal effects of ordered logit models. All parameter estimates are based on 23,562 observations. Standard errors are shown in parentheses. The reference person is a female with a low income, between 12 and 30 years old, with a low level of education. She lives in Rotterdam, Amsterdam, The Hague or their agglomerates, finds it easy or very easy to get by with household income and is customer of a small bank. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

coefficients of the three lockdown variables is  $-0.07$  and we reject the null hypothesis that the cumulative effect is zero ( $p = 0.09$ ).

Trust in banks' payment services is related to standard personal characteristics: income, age, education and gender. As mentioned in the introduction, many studies examine the relationship between personal characteristics and trust in banks, mostly presenting mixed results (van der Crujssen et al. 2021a). We find that narrow-scope trust is not significantly related to income, whereas broad-scope trust increases with the level of income. For example, people with a high income are 6 percentage points more likely to have full trust in banks than people with low income. Fungáčová et al. (2019) and Ampudia and Palligkinis (2018) are examples of studies that also find a positive income effect. People whose income is unknown have significantly lower broad-scope and narrow-scope trust. Broad-scope trust decreases with age. For example, people aged 65 or above are 12 percentage points less likely to have full

trust than people aged between 12 and 30 (the reference group). Although the age pattern is less clear in case of narrow-scope trust, we do find that all people above 30 have less trust than younger people. Afandi and Habibov (2017) is an example of a study that also finds a relatively high trust level among young people. We also find that the highest educated people have higher broad-scope trust but lower narrow-scope trust than people with a low level of education. Men have significantly lower broad-scope trust than women, which is in line with several prior studies such as Fungáčová et al. (2019). For example, we find that women are 6 percentage points more likely to fully trust banks. There is no gender difference with respect to narrow-scope trust. There are regional differences in trust. Broad-scope trust is higher for people living in the west and north of the Netherlands than for inhabitants of the three largest cities. Narrow-scope trust is lower for people living in the three largest cities than for people who live elsewhere. For example, Fungáčová and Weill (2018) also find regional differences in trust in banks.

Trust in banks' payment services is also related to digital literacy, the ease of getting by and being a customer of a large bank. A significant and positive relationship between digital literacy and trust is found for both types of trust. To illustrate the effect size, people with high digital literacy are 9 percentage points more likely to have full trust in banks in general than people with low digital literacy. The effect is 8 percentage points in case of narrow-scope trust. People who find it easy or very easy to get by with their household income report higher trust in banks in general and in their own bank than people who find it more difficult to get by. For example, people who find it hard or very hard to get by are 17 percentage points less likely to fully trust banks in general and 15 percentage points less likely to trust their own bank, compared to people who find it easy or very easy to get by. Compared to customers of small banks, customers of large banks report higher trust in banks in general but lower trust in their own bank. In other words, the gap between narrow-scope and broad-scope trust is highest for customers of small banks. Customers of small banks are 7 percentage points less likely to have full trust in banks in general and 3 percentage points more likely to have full trust in their own bank, compared to customers of large banks.

The impact of crises measures on trust depends on consumers' age, income and the ease of getting by with household income. The results of the models with interaction terms are in Table 4 column 2 and 4.<sup>3</sup> The crisis measures especially impacted trust of the elderly. The positive effect of the first lockdown on broad-scope trust is highest for people aged between 56 and 65. Regarding narrow-scope trust, the positive effect of the first lockdown is highest for people older than 65. The negative effect of the second lockdown on narrow-scope trust is highest for people older than 55. The effects of the crisis measures also depend on people's income. For example, the negative effect of the second lockdown on broad-scope trust is stronger among people with a low household income than among people with a high income. The

<sup>3</sup> For broad-scope trust the inclusion of interaction terms results in a statistically significant improvement in the fit of the model ( $p$ -value=0.04), whereas this is not the case for narrow-scope trust ( $p$ -value=0.27).

ease of getting by with household income also matters. The positive effect of the first lockdown on narrow-scope trust was lower for people who find it neither hard nor easy to get by with household income than for people who find this easy. The negative effect of the ending of the first lockdown on broad-scope trust is stronger among people who find it hard or very hard to get by with their household income than among people who find this easy or very easy.

In line with prior studies on other types of trust in banks (van Esterik-Plasmeijer & van Raaij, 2017; van der Crujisen et al., 2021), we find that narrow-scope trust positively depends on broad-scope trust (Table 4 column 5 and Table 1 column 3). The marginal effect is 50 percentage points.

### 3.2 Sensitivity Analysis

Table 5 in Appendix B and Table 2 depict the results of various robustness tests. Table 5 reports the parameter estimates of ordered logit models, whereas Table 2 shows the marginal effects on the probability of complete trust. First, we include a variable that captures the daily number of confirmed deaths (column 1 and 4). We find a small positive relationship between the daily number of confirmed deaths and broad-scope trust and no significant relationship for narrow-scope trust. In case of broad-scope trust, prior results do not change much. Again, the first lockdown went along with a higher level of trust, whereas the second lockdown had a negative effect on trust. In contrast, in case of narrow-scope trust only the negative effect of the second lockdown on trust remained significant.

Second, we include the stringency index instead of the lockdown variables (column 2 and 5). The coefficient of the stringency index is positive and significant in the broad-scope trust regression but insignificant in the narrow-scope trust model. Third, we include both the stringency index and the lockdown variables in the models (column 3 and 6). Again, we find a significant positive effect of the stringency index in the broad-scope trust model and no significant effect in the narrow-scope trust regression. In line with our baseline results, we find a negative effect of *after start second lockdown* in the broad-scope trust model. There is no significant effect of the other lockdown variables. Note that as the stringency index captures an (important) aspect of the lockdowns, the variables for the lockdowns represent something different when they are estimated together with the stringency variable compared to the estimation without the stringency index.

As a final robustness test, we re-run the narrow-scope trust regressions using all responses of respondents who selected more than one bank and get similar results. We add a weight of 0.5 for each response of customers of two banks and a weight of 0.33 for each response of customers of three banks. This allows us to use the full data. The results of this sensitivity test are available upon request.

**Table 2** Marginal effects on the probability of complete trust for robustness tests

	Broad-scope trust			Narrow-scope trust		
	(1)	(2)	(3)	(4)	(5)	(6)
Income medium	0.041*** (0.011)	0.038*** (0.010)	0.038*** (0.010)	-0.001 (0.010)	-0.001 (0.010)	-0.001 (0.010)
Income high	0.057*** (0.012)	0.055*** (0.011)	0.056*** (0.011)	-0.006 (0.010)	-0.004 (0.011)	-0.004 (0.011)
Income unknown	-0.067*** (0.011)	-0.070*** (0.010)	-0.070*** (0.010)	-0.080*** (0.011)	-0.083*** (0.011)	-0.083*** (0.011)
Age 31-45	-0.042*** (0.011)	-0.039*** (0.011)	-0.039*** (0.011)	-0.032** (0.011)	-0.028** (0.011)	-0.028** (0.011)
Age 46-55	-0.059*** (0.011)	-0.055*** (0.010)	-0.055*** (0.010)	-0.052*** (0.011)	-0.045*** (0.010)	-0.045*** (0.010)
Age 56-65	-0.081*** (0.010)	-0.079*** (0.010)	-0.079*** (0.010)	-0.036*** (0.011)	-0.030*** (0.010)	-0.030*** (0.010)
Age >65	-0.123*** (0.010)	-0.120*** (0.010)	-0.120*** (0.010)	-0.033*** (0.011)	-0.026** (0.011)	-0.026** (0.011)
Education medium	0.000 (0.009)	-0.001 (0.008)	-0.001 (0.008)	-0.004 (0.008)	-0.005 (0.008)	-0.005 (0.008)
Education high	0.026*** (0.009)	0.024*** (0.008)	0.024*** (0.008)	-0.016* (0.008)	-0.020** (0.008)	-0.020** (0.008)
Male	-0.063*** (0.007)	-0.062*** (0.006)	-0.062*** (0.006)	0.004 (0.006)	0.005 (0.006)	0.005 (0.006)
Region west	0.021** (0.010)	0.020** (0.010)	0.020** (0.010)	0.039*** (0.010)	0.036*** (0.009)	0.036*** (0.009)
Region north	0.035*** (0.013)	0.038*** (0.013)	0.037*** (0.013)	0.062** (0.012)	0.059*** (0.011)	0.059*** (0.011)
Region east	0.006 (0.011)	0.009 (0.011)	0.009 (0.011)	0.031*** (0.010)	0.031*** (0.010)	0.031*** (0.011)
Region south	0.008 (0.011)	0.008 (0.010)	0.008 (0.010)	0.044*** (0.010)	0.045*** (0.009)	0.045*** (0.009)
Digital literacy	0.083*** (0.007)	0.086*** (0.007)	0.086*** (0.007)	0.077*** (0.007)	0.080*** (0.007)	0.080*** (0.007)
Getting by neither hard, nor easy	-0.143*** (0.007)	-0.141*** (0.007)	-0.141*** (0.007)	-0.129*** (0.007)	-0.126*** (0.007)	-0.126*** (0.007)
Getting by hard/very hard	-0.168*** (0.011)	-0.170*** (0.011)	-0.170*** (0.011)	-0.150*** (0.014)	-0.151*** (0.007)	-0.152*** (0.013)
Large bank	0.074*** (0.009)	0.072*** (0.009)	0.072*** (0.009)	-0.035*** (0.009)	-0.034*** (0.009)	-0.034*** (0.009)
After start first lockdown	0.020* (0.011)		-0.015 (0.027)	0.005 (0.011)		0.017 (0.026)
After end first lockdown	-0.005 (0.010)		0.005 (0.012)	-0.015 (0.009)		-0.018 (0.012)
After start second lockdown	-0.023** (0.010)		-0.028** (0.011)	-0.017* (0.010)		-0.013 (0.011)
Daily confirmed deaths	0.0002* (0.0001)			0.0001 (0.0001)		
Stringency Index		0.00047*** (0.00012)	0.00078** (0.00038)		0.00006 (0.00012)	-0.00002 (0.00036)

The table reports marginal effects of ordered logit models. All parameter estimates are based on 23,562 observations. Standard errors are shown in parentheses. The reference person is a female with a low income, between 12 and 30 years old, with a low level of education. She lives in Rotterdam, Amsterdam, The Hague or their agglomerates, finds it easy or very easy to get by with household income and is customer of a small bank. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$

## 4 Conclusion and Discussion

Using unique daily data on trust in banks' payment services, we find that the effect of the COVID-19 crisis on narrow-scope trust and broad-scope trust in banks depends on the phase of the pandemic. After the first lockdown Dutch consumers' trust in banks' payment services significantly increased, especially with respect to broad-scope trust. A possible explanation is that generalised trust increased as a result of the government measures to combat the COVID-19 crisis or positive personal crisis experiences, such as an increased sense of community. Higher generalised trust goes along with higher trust in banks, either directly or via higher trust in the banking supervisory authorities and trust in the payment system. It could also be the case that the measures taken by banks that simplified paying contactless and supported the economy had a positive effect on trust in banks. In addition, the measures taken by the banking supervisory authorities may have increased trust in banking supervisory authorities and thereby trust in banks.

In contrast, after the start of the second lockdown both broad-scope and narrow-scope trust declined. A possible explanation is that as the pandemic persisted people felt less connection with other people, were more likely to have had negative crisis experiences, and realised that it would still take a while before lives would return to normal and the economy would recover. This may have resulted in lower generalised trust and thereby lower trust in banks.

Our second important finding is that the effect of the lockdown measures on trust in banks is heterogeneous. The impact of the crises measures on trust depends on people's age — it is strongest among the elderly — and is more negative among people with a low income or who find it difficult to get by with household income. A possible explanation for the age effect is that after the first lockdown, especially the elderly experienced an increased sense of community. Positive personal crisis experiences can positively affect trust in banks, either via higher trust in other people or directly. However, as the pandemic persisted older people may have had more negative crisis experiences (e.g. becoming ill, losing friends, feeling less connected to other people) than younger people. Another possible explanation for the age effect is that in the first phase of the pandemic the payment behaviour of the elderly changed the strongest. There was a shift from cash to cards. Positive personal experiences with electronic payment methods may have resulted in higher trust in banks' payment services.

Third, in line with prior studies we find that trust in banks depends on personal characteristics. Trust depends on income, age, education and gender. Broad-scope trust is positively related to income and education, decreases with age and is higher for women than men. Narrow-scope trust is highest among young people and lowest among high-educated people. Moreover, trust is also related to non-standard personal characteristics, which are disregarded by prior studies: digital literacy, being customer of a large bank, and the ease of getting by with household income. Indeed, both notions of trust depend positively on digital literacy. The ease of getting by with household income is positively related with trust: people who find it easy to get by with income have higher levels of trust.



Fourth, in line with prior studies on other types of trust in banks, we find that narrow-scope trust is higher than broad-scope trust. We add to the literature by showing that this holds especially for customers of small banks. Moreover, broad-scope trust and narrow-scope trust are positively related, as previous research also shows. Customers of small banks have a relatively high level of trust in their own bank and low level of trust in banks in general. Customers of small banks may be more likely to have made an active choice for their particular bank, for instance if the individual cares about sustainability or prefers digital services.

There are several policy implications of our research. First, when designing crisis measures it is important to be aware of the possible impact of these measures on trust in banks. Also from a trust perspective it is key to prevent a long-lasting health crisis. Second, digital literacy is a key trust building factor. Public trust in banks' payment services is crucial for the smooth functioning of the payment system. This is an extra reason for supervising organisations such as central banks to further underscore the importance of digital literacy and support educational programs that try to increase it. Third, in line with prior studies our findings show that banks and supervising organisations could benefit from tailoring their communication towards groups of people with low trust levels, such as the elderly and people with low income.

## **Appendix A: Description of Variables**

**Table 3** Summary statistics

Variable	Mean	SD	Min	Max	Description
Broad-scope trust	4.34	0.71	1	5	Answer to 'Do you have trust that Dutch banks in general are able to process your payments adequately?' (1 = no, not at all, 2 = no, predominantly not, 3 = neutral, 4 = yes, predominantly, 5 = yes, completely).
Narrow-scope trust	4.61	0.64	1	5	Answer to 'Do you have trust in [bank name]'s ability to process your payments adequately?' (1 = no, not at all, 2 = no, predominantly not, 3 = neutral, 4 = yes, predominantly, 5 = yes, completely).
Income low	0.16	0.36	0	1	1 = household income < EUR 23,400, 0 = else. Reference category.
Income medium	0.31	0.46	0	1	1 = household income between EUR 23,400 and EUR 51,300, 0 = else.
Income high	0.28	0.45	0	1	1 = household income ≥ EUR 51,300, 0 = else.
Income unknown	0.25	0.43	0	1	1 = household income unknown, 0 = else
Age 12–30	0.19	0.39	0	1	1 ≥ 11 and < 31, 0 = else. Reference category.
Age 31–45	0.20	0.40	0	1	1 ≥ 30 and < 46, 0 = else.
Age 46–55	0.21	0.41	0	1	1 ≥ 45 and < 56, 0 = else.
Age 56–65	0.19	0.40	0	1	1 ≥ 55 and < 66, 0 = else.
Age > 65	0.20	0.40	0	1	1 ≥ 65, 0 = else.
Education low	0.33	0.47	0	1	1 = lower general secondary education (MAVO) or lower, 0 = else. Reference category.
Education medium	0.29	0.45	0	1	1 = intermediate vocational education (MBO), Higher Secondary General Education (HAVO) or pre-university education (VWO), 0 = else.
Education high	0.38	0.49	0	1	1 = Higher Professional Education (HBO) or university education (WO), 0 = else.
Male	0.52	0.50	0	1	1 = male, 0 = female.
Region three largest cities	0.14	0.35	0	1	1 = Amsterdam, Rotterdam, The Hague and agglomerates, 0 = else. Reference category.
Region west	0.30	0.46	0	1	1 = west minus 3 largest cities, 0 = else.
Region north	0.10	0.30	0	1	1 = north, 0 = else.
Region east	0.21	0.40	0	1	1 = east, 0 = else.
Region south	0.25	0.43	0	1	1 = south, 0 = else.
Digital literacy	0.71	0.46	0	1	1 = respondents who need no help of others (partner, family, friends, acquaintances) when using the Internet and get along well with computers, tablets and smartphones, 0 = else.

**Table 3** (continued)

Variable	Mean	SD	Min	Max	Description
Getting by easy/very easy	0.55	0.50	0	1	1 = very easy or easy, 0 = else. Reference category.
Getting by neither hard, nor easy	0.37	0.48	0	1	1 = neither hard nor easy, 0 = else.
Getting by hard/very hard	0.09	0.28	0	1	1 = very hard or hard, 0 = else.
Large bank	0.87	0.34	0	1	1 = individual is customer of one of the three largest banks (ABN AMRO, ING and Rabobank), 0 otherwise.
After start first lockdown	0.80	0.40	0	1	1 = date ≥ March 16th, 0 otherwise.
After end first lockdown	0.52	0.50	0	1	1 = date ≥ July 1st, 0 otherwise.
After start second lockdown	0.22	0.42	0	1	1 = date ≥ October 14th, 0 otherwise.
Daily confirmed deaths	31.04	43.10	-18	234	Confirmed COVID-related deaths per day.
Stringency index	49.29	25.97	0	80	Composite measure (stringency index), ranging from 0-100, on how severe the restrictions in the Netherlands are.

This table describes the variables used in the regressions of which the results are reported in Table 1, 2, 4 and 5. The mean, standard deviation (SD), minimum (min), and the maximum (max) are reported for the sample included in these regressions. The number of observations is 23,562

Table 4 Results ordered logit models

	Broad-scope trust		Narrow-scope trust		
	(1)	(2)	(3)	(4)	(5)
Income medium	0.152*** (0.041)	0.092 (0.091)	-0.007 (0.050)	-0.036 (0.102)	-0.174*** (0.060)
Income high	0.223*** (0.046)	0.217** (0.100)	-0.020 (0.056)	-0.021 (0.112)	-0.251*** (0.065)
Income unknown	-0.284*** (0.042)	-0.388*** (0.095)	-0.374*** (0.052)	-0.402*** (0.106)	-0.257*** (0.062)
Age 31-45	-0.155*** (0.043)	-0.199** (0.091)	-0.128** (0.052)	-0.268*** (0.104)	-0.049 (0.059)
Age 46-55	-0.222*** (0.042)	-0.238*** (0.091)	-0.206*** (0.051)	-0.277*** (0.103)	-0.083 (0.057)
Age 56-65	-0.321*** (0.042)	-0.459*** (0.092)	-0.136*** (0.052)	-0.228** (0.104)	0.098* (0.059)
Age > 65	-0.495*** (0.043)	-0.565*** (0.093)	-0.120** (0.053)	-0.232** (0.106)	0.262*** (0.063)
Education medium	-0.004 (0.034)	-0.003 (0.034)	-0.023 (0.042)	-0.022 (0.042)	-0.052 (0.048)
Education high	0.098*** (0.034)	0.099** (0.034)	-0.093** (0.041)	-0.092** (0.041)	-0.244*** (0.047)
Male	-0.251*** (0.026)	-0.252*** (0.026)	0.025 (0.032)	0.025 (0.032)	0.237*** (0.035)
Region west	0.081** (0.041)	0.084* (0.041)	0.170*** (0.050)	0.174*** (0.050)	0.184*** (0.054)
Region north	0.150*** (0.052)	0.154*** (0.052)	0.288*** (0.064)	0.292*** (0.065)	0.325*** (0.073)
Region east	0.035 (0.043)	0.035 (0.044)	0.147*** (0.053)	0.150*** (0.053)	0.195*** (0.058)
Region south	0.033 (0.042)	0.033 (0.042)	0.215*** (0.052)	0.217*** (0.052)	0.264*** (0.056)
Digital literacy	0.349*** (0.030)	0.352*** (0.030)	0.362*** (0.035)	0.365*** (0.035)	0.171*** (0.040)
Getting by neither hard, nor easy	-0.577*** (0.028)	-0.499*** (0.063)	-0.571*** (0.033)	-0.421*** (0.070)	-0.265*** (0.038)
Getting by hard/very hard	-0.726*** (0.050)	-0.714*** (0.105)	-0.652*** (0.059)	-0.617*** (0.114)	-0.187*** (0.071)
Large bank	0.295*** (0.038)	0.295** (0.038)	-0.164*** (0.049)	-0.165*** (0.049)	-0.543*** (0.063)
After start first lockdown	0.153*** (0.037)	-0.029 (0.135)	0.073* (0.040)	-0.018 (0.152)	-0.039 (0.047)
After end first lockdown	-0.053 (0.033)	0.186 (0.125)	-0.083** (0.036)	-0.066 (0.140)	-0.060 (0.042)
After start second lockdown	-0.058 (0.036)	-0.265** (0.134)	-0.064* (0.038)	0.051 (0.149)	-0.039 (0.045)
Age 31-45 * After start first lockdown		0.081 (0.119)		0.161 (0.133)	
Age 46-55 * After start first lockdown		0.067 (0.119)		0.057 (0.130)	
Age 56-65 * After start first lockdown		0.291** (0.120)		0.195 (0.132)	

Table 4 (continued)

	Broad-scope trust		Narrow-scope trust		
	(1)	(2)	(3)	(4)	(5)
Age >65 * After start first lockdown		0.199* (0.120)		0.292** (0.134)	
Income medium * After start first lockdown		0.057 (0.118)		0.036 (0.130)	
Income high * After start first lockdown		0.038 (0.129)		0.029 (0.141)	
Income unknown * After start first lockdown		0.234* (0.124)		0.067 (0.134)	
Getting by neither hard, nor easy * After start first lockdown		-0.128 (0.082)		-0.230** (0.089)	
Getting by hard/very hard * After start first lockdown		0.180 (0.141)		0.078 (0.149)	
Age 31-45 * After end first lockdown		-0.105 (0.110)		0.061 (0.122)	
Age 46-55 * After end first lockdown		-0.036 (0.108)		0.145 (0.119)	
Age 56-65 * After end first lockdown		-0.128 (0.109)		-0.023 (0.120)	
Age >65 * After end first lockdown		-0.151 (0.109)		-0.120 (0.122)	
Income medium * After end first lockdown		-0.035 (0.107)		0.014 (0.118)	
Income high * After end first lockdown		-0.154 (0.117)		-0.076 (0.129)	
Income unknown * After end first lockdown		-0.283** (0.111)		-0.078 (0.121)	
Getting by neither hard, nor easy * After end first lockdown		0.009 (0.074)		0.060 (0.081)	
Getting by hard/very hard * After end first lockdown		-0.374*** (0.133)		-0.207 (0.142)	
Age 31-45 * After start second lockdown		0.146 (0.119)		-0.088 (0.131)	
Age 46-55 * After start second lockdown		-0.079 (0.116)		-0.207 (0.127)	
Age 56-65 * After start second lockdown		-0.128 (0.117)		-0.220* (0.127)	
Age >65 * After start second lockdown		-0.051 (0.117)		-0.252* (0.130)	
Income medium * After start second lockdown		0.144 (0.115)		-0.026 (0.124)	
Income high * After start second lockdown		0.245** (0.125)		0.079 (0.136)	
Income unknown * After start second lockdown		0.282** (0.120)		0.076 (0.129)	
Getting by neither hard, nor easy * After start second lockdown		0.092 (0.079)		0.017 (0.086)	

**Table 4** (continued)

	Broad-scope trust		Narrow-scope trust		
	(1)	(2)	(3)	(4)	(5)
Getting by hard/very hard * After start second lockdown		0.150 (0.145)			
Broad-scope trust				0.044 (0.156)	2.634*** (0.044)
Akaike Information Criterion (AIC)	46004.09	46017.12	37482.74	37505.74	27041.78

The table reports parameter estimates of ordered logit models. All parameter estimates are based on 23,562 observations. Standard errors are clustered by individual and shown in parentheses. The dependent variables range from 1 (no trust at all) to 5 (complete trust). The reference person is a female with a low income, between 12 and 30 years old, with a low level of education and digital literacy. She lives in Rotterdam, Amsterdam, The Hague or their agglomerates, finds it easy or very easy to get by with household income and is customer of a small bank. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

**Appendix B: Additional Regression Tables**

**Table 5** Results robustness tests

	Broad-scope trust			Narrow-scope trust		
	(1)	(2)	(3)	(4)	(5)	(6)
Income medium	0.164*** (0.046)	0.152*** (0.045)	0.153*** (0.045)	-0.004 (0.052)	-0.006 (0.050)	-0.007 (0.050)
Income high	0.227*** (0.051)	0.223*** (0.050)	0.223*** (0.050)	-0.026 (0.058)	-0.020 (0.056)	-0.020 (0.056)
Income unknown	-0.270*** (0.050)	-0.284*** (0.049)	-0.284*** (0.049)	-0.361*** (0.054)	-0.373*** (0.052)	-0.374*** (0.052)
Age 31-45	-0.169*** (0.050)	-0.156*** (0.048)	-0.156*** (0.048)	-0.147*** (0.054)	-0.129*** (0.052)	-0.128** (0.052)
Age 46-55	-0.238*** (0.048)	-0.223*** (0.047)	-0.222*** (0.047)	-0.235*** (0.053)	-0.207*** (0.051)	-0.206*** (0.051)
Age 56-65	-0.331*** (0.049)	-0.322*** (0.047)	-0.321*** (0.047)	-0.163*** (0.054)	-0.137*** (0.052)	-0.136*** (0.052)
Age >65	-0.506*** (0.049)	-0.494*** (0.047)	-0.494*** (0.047)	-0.151*** (0.054)	-0.121** (0.053)	-0.120** (0.053)
Education medium	0.002 (0.038)	-0.003 (0.037)	-0.004 (0.037)	-0.020 (0.043)	-0.022 (0.042)	-0.023 (0.042)
Education high	0.105*** (0.038)	0.098*** (0.037)	0.098*** (0.037)	-0.074* (0.042)	-0.091** (0.041)	-0.093** (0.041)
Male	-0.253*** (0.029)	-0.251*** (0.029)	-0.251*** (0.029)	0.021 (0.033)	0.025 (0.032)	0.025 (0.032)
Region west	0.084* (0.047)	0.081* (0.046)	0.081* (0.046)	0.184*** (0.051)	0.169*** (0.050)	0.170*** (0.050)
Region north	0.139** (0.061)	0.151** (0.060)	0.150** (0.060)	0.302*** (0.067)	0.288*** (0.064)	0.288*** (0.064)
Region east	0.023 (0.050)	0.034 (0.048)	0.035 (0.048)	0.148*** (0.055)	0.146*** (0.053)	0.147*** (0.053)
Region south	0.031 (0.047)	0.033 (0.046)	0.033 (0.046)	0.211*** (0.053)	0.215*** (0.052)	0.215*** (0.052)
Digital literacy	0.335*** (0.033)	0.350*** (0.032)	0.350*** (0.032)	0.351*** (0.036)	0.362*** (0.035)	0.362*** (0.035)
Getting by neither hard, nor easy	-0.582*** (0.031)	-0.577*** (0.030)	-0.577*** (0.030)	-0.585*** (0.034)	-0.571*** (0.033)	-0.571*** (0.033)
Getting by hard/very hard	-0.715*** (0.060)	-0.724*** (0.058)	-0.725*** (0.058)	-0.648*** (0.062)	-0.649*** (0.059)	-0.652*** (0.059)
Large bank	0.301*** (0.044)	0.296*** (0.043)	0.296*** (0.043)	-0.168*** (0.051)	-0.163*** (0.049)	-0.164*** (0.049)
After start first lockdown	0.079* (0.045)	-0.060 (0.106)	-0.060 (0.106)	0.021 (0.051)		0.078 (0.119)
After end first lockdown	-0.020 (0.038)	0.021 (0.047)	0.021 (0.047)	-0.069 (0.042)		-0.085 (0.053)
After start second lockdown	-0.094** (0.041)	-0.112** (0.043)	-0.112** (0.043)	-0.079* (0.046)		-0.062 (0.048)
Daily confirmed deaths	0.001* (0.0004)			0.0003 (0.0004)		
Stringency Index		0.002*** (0.0005)	0.003** (0.001)		0.0003 (0.001)	-0.0001 (0.002)
Akaike Information Criterion (AIC)	43219.57	46005.49	46001.73	35153.13	37492.6	37484.74

**Table 5** (continued)

The table reports parameter estimates of ordered logit models. All parameter estimates are based on 23,562 observations. Standard errors are clustered by individual and shown in parentheses. The dependent variables range from 1 (no trust at all) to 5 (complete trust). The reference person is a female with a low income, between 12 and 30 years old, with a low level of education and digital literacy. She lives in Rotterdam, Amsterdam, The Hague or their agglomerates, finds it easy or very easy to get by with household income and is customer of a small bank. \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$



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