The Determinants of Protective Behaviours during the COVID-19 Pandemic in Benin

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The Determinants of Protective Behaviours during the COVID-19 Pandemic in Benin

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List of abbreviations and acronyms

BCEAO	Banque Centrale des États de l'Afrique de l'Ouest (Central Bank of West African States)
COVID-19	Corona Virus Disease 2019
GDP	Gross Domestic Product
GoB	Government of Benin
IMF	International Monetary Fund
WHO	World Health Organization

Abstract

This paper investigates the determinants of protective behaviours during the COVID-19 pandemic in Benin. We use data from online and phone surveys collected during the period 13 September 2020 – 1 October 2020 among Benin citizens aged 18 years and older. Trust in government, beliefs about others' compliance and employment status are significant determinants of compliance with the precautionary measures such as handwashing and social distancing. We also document significant association between trust in government and media use. These findings, therefore, suggest that the Government of Benin's messages should focus on developing and maintaining trust among the public by providing transparent, coherent, clear, timely, and accurate information that reduces people's uncertainty and enhances compliance. Two-way communication between the government and citizens can act as bridge to ensure public engagement and disseminate information.

Key words: *Compliance behaviours; Trust in government; Media use; Benin.*

1. Introduction

The COVID-19 (Corona Virus Disease 2019) has been tied to the province of Hubei in China, from where it rapidly progressed to the level of a global pandemic, with multiple countries in the world reporting increasing cases (World Health Organization [WHO], 2020). The first case in Benin was reported on 16 March 2020 (Staff, 2020), followed by a series of governmental decisions to advise the population to adopt protective behaviours (such as handwashing, face covering, and physical distancing) to avoid infection and slow down the spread of the virus. However, the success of these risk measures is particularly critical in the case of COVID-19 due to its high transmissibility, even in the absence of symptoms (Wise et al, 2020). The protective measures rely largely on rapid changes in population behaviours, which are dependent on individuals' ability to perceive risks associated with the virus and adapt their behaviour accordingly. In fact, in the case of a pandemic where the primary responsibility of risk management is not centralized within institutional actors but defused across society, trust can become a double-edged sword (Wong and Jensen, 2020). Under these conditions, public trust based on a perception of government competence, fairness, care, and openness, may in fact lead people to underestimate risks, and thus reduce their compliance with government risk management measures (Poortinga and Pidgeon, 2003).

This paper investigates the determinants of protective behaviours in response to the COVID-19 pandemic in Benin. In the case where there will be multiple waves of the pandemic, findings from this paper may guide the Benin Government to identify the groups of the population that need targeted communications to limit the spread of the virus. To reach the research objectives, we use data from online and phone surveys that were run during the period 13 September 2020 – 1 October 2020 in Benin. Each survey used the snowball sampling approach to reach the eligible respondents who were invited to fill a Google form questionnaire. To deal with the self-selection issue, related to the fact that samples from the online survey may mostly include educated respondents, we constrained surveyors running the phone survey to mostly reach people who were less educated. The final sample (for both online and phone surveys) consists of 2,070 respondents (where 239 are from the online survey and 1,831 are from the phone survey). The survey had four parts: the first asked respondents' opinions about the prevailing situation and risks surrounding the COVID-19; the second part addressed the health measures recommended by the government to

limit the spread of the virus; the third part collected socio-demographic information about respondents; and the fourth part assessed the socioeconomic impact of the pandemic. The full questionnaire is presented in Appendix B.

We rely on the baseline strategy that uses the ordered logit model to document the determinants of protective behaviours. We find that individuals with low trust in government are less likely to comply with handwashing and social distancing measures. Knowing someone who has contracted the coronavirus in the past increases respondents' likelihood to follow the face covering recommendation. These effects are heterogeneous with respect to education and place of residence. We also document that part-time workers are more likely to comply with the COVID-19 precautionary measures. However, perceived risk of contracting the virus in the near future does not predict significantly individuals' compliance with the health measures. We also study heterogeneous effects for subgroups, defined by sociodemographic characteristics, in order to enrich the discussion and interpretation of the results. We find that the positive association between trust in government and compliance with the COVID-19 precautionary measures is driven by high-skilled individuals and those living in rural areas.

We contribute to the literature on compliance with COVID-19 precautionary measures by addressing the following research gaps. First, we document that trust in government and health authorities plays a crucial role in compliance with COVID-19 precautionary measures. Current research findings have been mixed. Some studies find that trust in government encourages compliance behaviour (Goldstein and Wiedemann, 2020; Murphy et al, 2020; Raude et al, 2020). In contrast, Guglielmi et al (2020) indicated that trust in governmental institutions might actually reduce an individual's willingness to follow COVID-19 recommendations and accept the corresponding restrictions. Similarly, Clark et al (2020) find that trust in government is relatively unimportant in predicting COVID-19 compliance behaviour. We address these inconsistencies and shed light on the importance of public trust. We argue that, trust in government and health authorities enhances awareness of the COVID-19 pandemic by encouraging people to be more attentive to COVID-19-related information released by the government. Such heightened awareness increases the likelihood of compliance with government-backed COVID-19 precautionary measures.

Second, we explain the mechanism through which trust in government contributes to compliance with COVID-19 precautionary measures by investigating the sources of news used by respondents to follow the spread of the pandemic. We find that individuals who trust the government are more likely to use traditional media (TV, local radio, newspaper, etc.). In other words, trusted sources such as traditional media would increase awareness of the severity of the pandemic, which would in turn motivate people to comply with the COVID-19 precautionary guidelines. For example, Park et al (2021) find that, awareness of the severity of COVID-19 is an essential determinant of individuals' engagement in COVID-19 preventive behaviours. Understanding the severity of the pandemic encourages people to behave in a way that is consistent with the precautionary measures, which helps protect public health as well as avoid penalties.

Third, we document that people's neighbourhood and risk perception are essential drivers of compliance. Indeed, strong attachment or belonging to local neighbourhoods would increase prosocial motivations as well as increasing the likelihood that individuals would be aware of — and pay attention to — injunctive social norms to comply with guidelines (Wright & Fancourt, 2021). On risk perception, findings from previous research conducted during the first global outbreak of severe acute respiratory syndrome in 2002 and those relating to swine flu a few years thereafter indicate that the public's perceptions about the outbreak may be a significant factor in determining the degree to which individuals elect to adhere to the official recommendations. Specifically, individuals appear to be more likely to comply with official government mandated regulations relating to health-protective behaviours if: (i) they perceive that the respective behaviours are likely to be effective in preventing infection (Lau et al, 2003; Tang and Wong, 2004), (ii) they believe themselves to be at increased risk of being negatively affected by the pandemic (Chan-Yeung and Yu, 2003; Tang and Wong, 2004), and (iii) the illness is perceived as being impervious to vaccination and/or treatment and is therefore unlikely to abate in the near future (Lau et al, 2007). Moreover, most studies on compliance behaviour have been conducted in countries characterized by well-developed health systems and high-income economies (e.g., Falcone et al, 2020; Margraf et al, 2020). Our study expands the discussion on the determinants of compliance behaviour by focusing on Benin, a developing country with less-developed health system.

Finally, our study provides rich data set to assess people's attitudes toward health measures in developing countries. Given COVID-19's ongoing rampant nature, having these data may have global value to the medical community, government leaders, and society more broadly. Moreover, several studies suggest that various policies adopted in each country in the world have reduced social interactions and slowed down the spread of COVID-19 infections (Abouk and Heydari, 2020; Courtemanche et al, 2020; Hsiang et al, 2020; Pei et al, 2020; Wright et al, 2020). However, an important outstanding issue is how much of the observed slowdown in the spread is attributable to the effect of policies as opposed to a voluntarily change in people's behaviour out of fear of being infected. This paper explicitly recognizes that policies, not only directly affect the spread of COVID-19 (e.g., social distancing requirement), but also indirectly affect its spread by changing people behaviour. It also recognizes that people react to new information on COVID-19 cases and deaths, and voluntarily adjust their behaviour (e.g., voluntarily handwashing).

The rest of the paper proceeds as follows. Section 2 outlines the COVID-19 situation in Benin, as well as the government's responses. Section 3 presents and describes the data set. We outline the empirical framework in Section 4, and discuss our results in Section 5. We then investigate the robustness of our results in Section 6, and conclude the study in Section 7.

2. COVID-19 situation in Benin

On 16 March 2020, Benin confirmed the first COVID-19 case, and the disease continued to spread in the country, with new infections reported every day (see Figure A1 in Appendix A). As at 13 September 2020, the starting date of our data collection, Benin had reported a total of 2,267 confirmed cases of COVID-19, and 40 deaths (Ritchie et al, 2020). Following the initial outbreak of the virus, the Government of Benin (GoB) swiftly implemented containment and social distancing measures, including the partial lockdown (the so-called "cordon sanitaire") around the cities most exposed to the virus, in order to contain its spread (International Monetary Fund [IMF], 2021). The GoB has also (i) limited overland travel to approved cases of extreme necessity and in coordination with neighbouring countries; the land border with Togo was closed. (ii) (ii) restricted the issuance of entry visas to the country; (iii) introduced a systematic and compulsory quarantine of all people coming to Benin by air; (iv) suspended all public gatherings; and (v) made wearing face mask in public compulsory. Air travellers arriving in Benin were required to take up to three COVID-19 tests at their own expense. At least two of these tests must be taken upon arrival at Cotonou Cadjehoun Airport. Travellers had to also complete a health form available at the Ministry of Health's Surveillance Centre website before departure for Benin.

The GoB announced measures to gradually start reopening the economy, with the cordon sanitaire lifted on 6 May 2020. Middle schools, high schools, and universities resumed their activities on 11 May 2020. Public transportation, places of worship, and bars resumed their activities on 2 June 2020. International flights resumed on 15 July 2020, accompanied by strict protocols for testing and quarantine for new arrivals. The gradual reopening was subject to continued social distancing guidelines and mandatory use of masks, among other measures.

Key policy responses: To cushion its population against the adverse economic effects of the pandemic, the GoB announced various policy guidelines and financial stimulus packages, which include: (i) a health preparedness and response plan for 2020 (representing 0.9% of GDP) and 2021 (0.7% of GDP); and (ii) a socioeconomic response plan to support formal sector companies (0.9% of GDP) and vulnerable households. For the poor households, cash transfers, electricity and water bills, and urgent social projects, were subsidized, representing 0.2% of GDP. In addition, a public guarantee plan (1.0% of GDP) and credit lines and refinancing measures (0.7% of GDP) were established to foster access to finance for micro, small, and medium enterprises.

These measures amounted to about CFAF 323 billion (i.e., 3.7% of GDP). Much of the plan was executed in 2020 (IMF, 2021). Other monetary and macro-financial policies were implemented by the regional central bank, Central Bank of West African States (BCEAO).

Measurement of government actions: To quantify the GoB's response to COVID-19 led crisis, we rely on the Stringency index computed by Hale et al (2020). The Stringency index records information on social distancing policies, and is coded from nine indicators including school closures, workplace closures, cancel public events, restrictions on gathering size, close of public transport, stay at home requirements, and restrictions on international travel. The index is a simple additive score of the underlying indicators, and is rescaled to vary from 0 to 100 (100=strictest). Figure A2 in the Appendix shows different GoB's stringencies to ensure social distancing across the country during the pandemic. March 29 – May 31, 2020 was the period of firm stringencies. However, since June 2020, the country experienced a softer level of stringencies, which probably resulted in an increase of new cases in January 2022 (see Figure A1 of Appendix A).

In the next section, we present our theoretical framework of population compliance with the health recommendations (handwashing, faced covering, and social distancing).

3. Data

Data from phone and online surveys cover the period 13 September 2020 —1 October 2020, with a sample of Beninese adults aged 18 years and older. We ran these surveys in collaboration with a master's student at the African School of Economics in Benin who championed the data collection. We used the snowball sampling approach to reach the eligible respondents for the online survey. We sent a Google form questionnaire link to Benin citizens, who then lived in the country and with access to WhatsApp. We then invited each of them to do the same within their neighbourhoods and with all members of the WhatsApp groups to which they belonged in Benin. Through this process, we sent the questionnaire link to 510 Beninese, but only 239 of them replied. However, given the Internet is more commonly used by literate people in Benin, one could assume that only educated people would participate in the online survey. To deal with this sample selection issue, we recruited 10 surveyors to run a phone survey with the aim of reaching both non-educated and educated respondents. These respondents came from the "2019 Benin Micro Credit Mobile" database. The participants from this database had provided phone numbers and expressed willingness to participate in future surveys. We had approximatively 4,000 phone numbers through this process. In some instances, we could not locate the original respondent through the phone number(s) provided, but we found a new participant willing to take the survey and administrated it to him/her. Once we had tried every phone number and successfully completed the survey, we stopped data collection. We had a response rate of about 46% through this process. This low response rate was mainly due to the difficulties of phone surveys and reliability of phone numbers over time. Finally, 1,831 respondents participated to the phone survey, leading our final sample size (for both online and phone surveys) to 2,070 respondents.

The survey had four parts: the first asked respondents' opinions about the prevailing situation and risks surrounding the COVID-19 pandemic. Two main questions were asked for this purpose:

Question 1: On a scale of 0 to 100, where 0 indicates you are sure you have not contracted the COVID-19 and 100 you have contracted the virus, what is your risk of having contracted the COVID-19 in the past?

Question 2: Given your current situation, on a scale of 0 to 100, what will be your risk to contract the COVID-19 during the next 3 months?

The second part of the survey addresses the health measures recommended by the government and the ministry of health to slow the spread of the virus. Since the

objective of this paper is to investigate whether respondents' risk perception drives their protective behaviour, we asked the following health measure questions:

Question 3: Do you regularly wash your hands with soap and water when you come back home?

Question 4: When you go out, do you wear a face mask?

Question 5: Do you respect the social distancing when you are in public?

For each of these health measure questions, possible answers are: never, a few times, almost always, and always. Each respondent was also asked to express the source of information they found the most helpful when practising the recommended ministry of health measures: television, social media, radio, etc. We also elicited respondents' perception regarding the seriousness of the COVID-19 crisis by asking whether they were unworried about either getting or transmitting the virus, and the generalized trust: trust toward neighbours, and trust towards local government. The third part of the survey collected sociodemographic information about respondents; and the fourth part assessed the socioeconomic impact of the pandemic. We present the full questionnaire in Appendix B.

Table 1 presents the summary statistics of the data. It shows that 42% of the respondents are female, and 51% are between 25 and 35 years old. Approximatively, 21% have no education level and 42% live in urban areas. Only 17% of respondents know at least someone who has contracted the COVID-19.

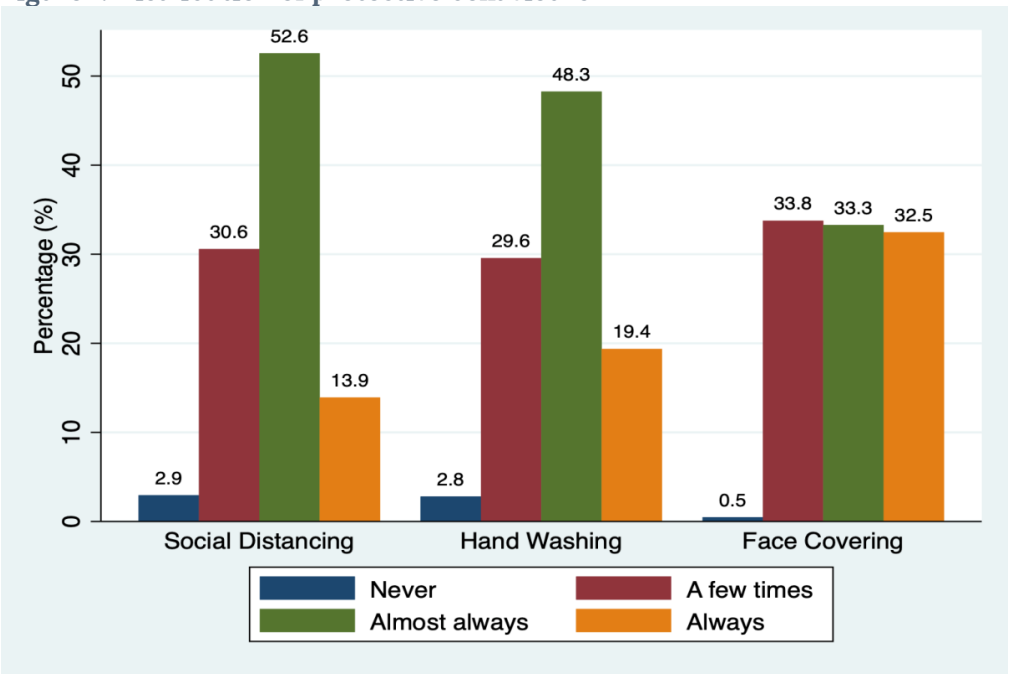
On average, respondents perceived at 23% the risk of contracting the COVID-19 in the past. However, for the future, respondents' risk assessment falls to 13.34% on average, suggesting optimism about the health measures used to limit the spread of the pandemic around the world. Moreover, this perception of low risk of contracting the virus in the future may be due to the fact that respondents assume there will not be multiple waves of the COVID-19 in Benin, or maybe the virus will have largely run its course in 2021, because either a vaccine or an effective treatment will be widely available by then. In fact, Table 1 reveals that 89% of respondents trust the government's orientations, and more than 50% of respondents mainly watch TV or listen to local radios to receive news about the COVID-19 pandemic. Most importantly, Figure 1 shows that at least 60% of respondents always observe the three health measures recommended by the government to fight against the virus: social distancing, hand washing, and face covering.

We turn next to examining protective behaviours across different age groups. During outbreaks, older groups are considered to be at high risk for medical complications and mortality (Pasion et al, 2020). Although all age groups can contract COVID-19, individuals aged 65 and above face more risks of developing severe illness, especially due to cumulative health conditions that are likely to come with aging (Eurostat, 2020). It is, therefore, crucial to investigate the extent to which elderlies feel more susceptible to being affected by COVID-19, and how this perception affects their commitment with protective behaviours. Although it is commonly assumed that older adults are more risk-averse than their young counterparts, Figure 2 reveals that people aged 50

years and above perceive the lowest level of risk of contracting the virus in the past compared with respondents aged between 18 and 49 years. However, they report higher levels of risk of contracting the virus in the future. Figure A3 in the Appendix shows that older adults are more likely to comply with the social distancing, hand washing and face covering recommendations than young adults. This confirms that attitudes toward risk are not a single trait but rather an interaction between individual differences and specific situations (Bonem et al, 2015).

In the next section, we investigate in more details the factors that are relevant for predicting individuals' protective behaviours.

Figure 1: Distribution of protective behaviours



Source: Author's computations based on the data used in this paper.

Figure 2: Protective behaviours by age group

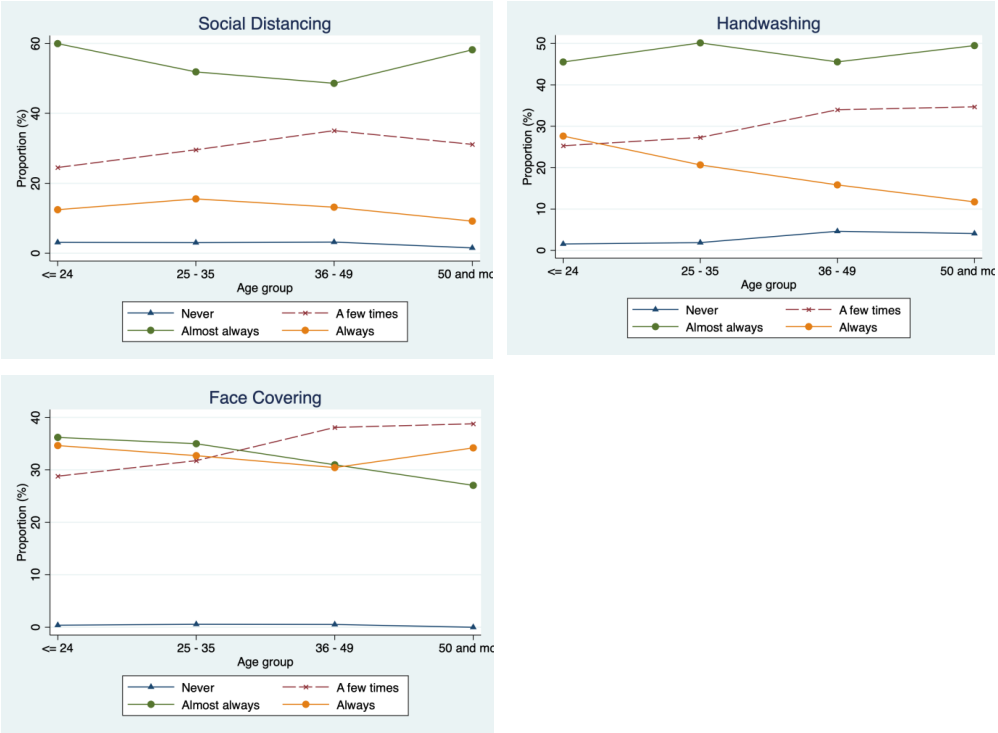


Table 1: Summary statistics

	Mean	Min	Max
Gender			
Female (0/1)	0.42		
Age group			
Less than 24 (0/1)	0.12		
25–35 (0/1)	0.51		
36–49 (0/1)	0.27		
50 and more (0/1)	0.10		
Education level			
No education (0/1)	0.21		
Primary (0/1)	0.13		
Secondary (0/1)	0.26		
University (0/1)	0.40		
Type of residence			
Urban (0/1)	0.42		

Number of children	2.63	0	15
COVID-19 risk perception			
Risk of having contracted COVID-19 in the past	23.08	0	100
Risk of contracting COVID-19 in next 3 months	13.34	0	100
Know people contracting COVID-19 (0/1)	0.17		
Trust in the government			
Very high (0/1)	0.16		
A little high (0/1)	0.44		
Moderate (0/1)	0.29		
A little weak (0/1)	0.08		
Very low (0/1)	0.03		
Source of information about the COVID-19			
Television (0/1)	0.27		
Radio (0/1)	0.28		
Social media: Facebook, WhatsApp, Twitter (0/1)	0.37		
Parents, friends, and neighbourhoods (0/1)	0.04		
Local authorities, NGO, and others (0/1)	0.04		
Number of observations	2,070		

4. Empirical model

Consider a society with a decision maker who must decide whether to alert the population about a pandemic and issue a series of health recommendations. Their decision will affect the population's current action as well as the credibility of future alerts. At the time of the alert, the decision maker has enough information to assess the magnitude of the pandemic. At any point in time, the population is at risk of contracting the virus related to the pandemic. The population forms subjective beliefs about the probability of contracting the virus and must constantly rely on the health recommendations provided by the government in order to be protected against the virus. Each individual $i = 1, \dots, N$ in the population therefore has the possibility of taking a costly action $Y_i \in \mathbb{N}$ to mitigate the spread of the virus (e.g., hand washing, face covering, social distancing, etc.). The instantaneous payoff function $U_i: \mathbb{N} \longrightarrow \mathbb{R}$ of individual $i = 1, \dots, N$ is specified by:

$$U(Y_i, S_i) = \beta Y_i S_i + (\eta_i + \boldsymbol{X}_i'\boldsymbol{\lambda})Y_i - \frac{1}{2}{Y_i}^2 - \theta S_i \qquad (1)$$

Where: $S_i \in \{0,1\}$ equals 1 if individual ii has contracted the virus; $\theta > 0$ is the individual i's damage from contracting the virus; $\frac{1}{2}{Y_i}^2$ is the cost of the action; and β is the intrinsic benefit from taking an action. The vector of variables $\boldsymbol{X}_i$ captures individual i's observable characteristics. The parameters $\boldsymbol{\lambda}$ and η_i stand, respectively, for the effect of the individual's observed and unobserved characteristics and may therefore capture the individual's idiosyncratic risk preferences. Thus, we allow for these preferences to be specific to the individual and to be a function of individual characteristics. This is consistent with the literature which finds differences across individuals (see, for example, Croson and Gneezy, 2009). Similarly, Guiso et al (2016) and Putnam et al (1994) show that social capital is relevant for contributions to public goods. Higher levels of social capital may be crucial for individuals' willingness to voluntarily comply with the decision maker orientations. Moreover, Brzezinski et al (2020) find that counties with higher income and education, and with higher levels of trust in science, are more likely to voluntary comply with physical distancing measures. Therefore, the term $\eta_i + \boldsymbol{X}_i'\boldsymbol{\lambda}$ appears to positively influencing the individual action Y_i.

Each individual takes the action $Y_i \in \mathbb{N}$ that maximizes their utility function. The first order condition is given by:

$$Y_i = \beta S_i + \boldsymbol{X}_i'\boldsymbol{\lambda} + \eta_i \quad (2)$$

Equation 2 states that the optimal action of each individual in the population is a function of their observable characteristics ($\boldsymbol{X}$), and of whether individual i has contracted the virus (S). To avoid the social desirability responses, we do not ask whether respondents have contracted the COVID-19 virus in the past. For that reason, we assume that S_i is unobservable for all individuals. Equation 2, therefore, becomes:

$$Y_i = \boldsymbol{X}_i'\boldsymbol{\lambda} + \mu_i \quad (3)$$

Where: μ_i is an error term and is specific to each individual. It allows for shocks, such as stress or other emotions which might affect choices under risk. The error term also acknowledges that we do not directly observe protective behaviours, but rather an imperfect measure of it.

We assume that the population's beliefs toward the authority orientations are resumed by $p \in [0,1]$, the probability that the population takes an action if recommendations are in place. In other words, one can think p as the proportion of the population that chooses to comply. Thus, the objective of the decision maker is to have p as high as possible. Since the main purpose of this paper is to investigate the determinants of protective behaviours, we do not model explicitly the utility function of the decision maker. However, we include in the vector $\boldsymbol{X}$ respondents' trust towards the government.

Estimation strategy: Given that Y_i is measured on an ordinal scale[1], we estimate Equation 3 using the following ordered logit regression:

$$Y_i = j \quad if\ \gamma_{j-1} \leq Y_i^* < \gamma_j \quad (4)$$

Where: $Y_i^* = \boldsymbol{X}_i'\boldsymbol{\beta} + \epsilon_i$ is the latent variable; and ϵ follows a logit distribution. We normalize $\gamma_1 = 0$; thus $\boldsymbol{\gamma} = [\gamma_2, \ldots, \gamma_{J-1}]$ must be estimated. We estimate Equation 4 separately for each of the three health measures described in questions 3, 4, and 5. The vector of respondent's observable characteristics $\boldsymbol{X}_i$ include respondents' future risk perception of contracting the coronavirus, age, employment status, beliefs about others' compliance, knowledge of someone who has contracted the virus in the past, education level, region of residence, number of children, gender, and trust towards the government.

5. Empirical findings

This section presents the baseline results for the ordered logit estimates of the determinants of protective behaviours as defined in Section 3. In a further step, we look at heterogeneous effects for subgroups defined by sociodemographic characteristics, as well as protective behaviours and confidence in risk perception of contracting the coronavirus. Finally, we discuss the sensitivity of our results with respect to the type of interview and the measurement of our main outcomes.

Baseline results

Table 2 presents the estimation results of the specification (4). We add in each column a new outcome (handwashing, face covering, and social distancing behaviours) to see how the coefficient on each individual characteristics varies with the protective behaviour. The number of observations is constant for all outcomes. The results show that individuals who have a low trust in the government are less likely to comply with the handwashing and social distancing recommendations. This result is in line with several empirical studies conducted after the outbreak of the COVID-19 pandemic which indicated the important role of public trust in government in compliance with COVID-19 precautionary measures. Indeed, trust in government encourages people to listen to the government and health authorities and understand the severity of neglecting precautionary measures, thereby increasing the likelihood of compliance with these measures (Goldstein and Wiedemann, 2020; Min et al, 2020; Murphy et al, 2020; Raude et al, 2020). However, Clark et al (2020) obtained mixed results, indicating that trust in government is relatively unimportant in predicting COVID-19 compliance. Similarly, Travaglino and Moon (2020) find that the effect of trust in government on compliance, while significant in Italy and South Korea, was not significant in the US. Our study, therefore, extends research on the relative importance of trust in government to compliance behaviour by investigating its effect on compliance with COVID-19 precautionary measures, namely handwashing and social distancing. We argue that, people tend to value COVID-19-related information if it is received from trusted sources (Fridman et al, 2020). They value the health recommendations and consider them to be fair when the information comes from trusted institutions (Han et al, 2020). Indeed, results from Table A1 in the Appendix show that individuals who trust the government are more likely to use traditional media (TV, local radio,

newspapers, etc.) to be informed about the spread of the COVID-19 pandemic. In other words, trusted sources such as traditional media would increase awareness of the severity of the pandemic, which would in turn motivate people to comply with the COVID-19 precautionary guidelines. For example, Park et al (2021) find that awareness of the severity of COVID-19 is an essential determinant of individuals' engagement in COVID-19 preventive behaviours. Understanding the severity of the pandemic encourages people to behave in a way that is consistent with the precautionary measures, which helps protect public health as well as avoid penalties (Shanka and Menebo, 2022).

Results from Table 2 also reveal that knowing someone who has already contracted the COVID-19 virus increases significantly the likelihood of complying with the face covering recommendation. Indeed, strong attachment or belonging to local neighbourhoods would increase prosocial motivations as well as increasing the likelihood that individuals would be aware of—and pay attention to—injunctive social norms to comply with guidelines (Wright and Fancourt, 2021). However, regarding face covering and social distancing measures, our results reveal that neighbourhood's compliance significantly decreases respondents' adherence. Finally, we document that part-time workers are more likely to comply with all the three health recommendations. Indeed, employed individuals in Benin, and more likely part-time workers, are generally the breadwinners of their family. They would have been expected to go out (during the period with high COVID-19 cases) for activities such as grocery shopping or to work in essential services. In addition, part-time workers might be self-employed or are informal sector employees such as market sellers or maintenance service providers who may have been informally seeking work during the pandemic. This might increase their likelihood of contact with large numbers of people, and therefore more compliance with the precautionary measures. Perceived future risk of contracting the coronavirus does not significantly predict individuals' protective behaviours.

Table 2: Determinants of protective behaviours – Ordered logit estimates

	Handwashing		**Face covering**		**Social distancing**	
	(1)		(2)		(3)	
Variables	Estimates	Std. Err.	Estimates	Std. Err.	Estimates	Std. Err.
Future risk of contracting the virus	-0.002	(0.003)	-0.005	(0.003)	-0.001	(0.003)
Trust in the government						
A little high	-0.020	(0.166)	0.222	(0.169)	0.028	(0.179)
Moderate	0.127	(0.182)	0.194	(0.180)	-0.247	(0.187)
A little weak	**-0.652****	(0.261)	-0.011	(0.265)	**-0.904*****	(0.280)
Very low	-0.055	(0.312)	0.094	(0.388)	0.031	(0.440)
Know people with COVID-19	0.112	(0.167)	**0.413****	(0.180)	-0.078	(0.176)

Belief about others' compliance						
Disagree	0.158	(0.191)	-0.160	(0.187)	-0.318	(0.229)
Neither agree nor disagree	0.006	(0.217)	-0.133	(0.226)	**-0.500***	(0.258)
Agree	-0.220	(0.212)	**-0.432****	(0.201)	**-0.530****	(0.249)
Strongly agree	0.144	(0.222)	-0.279	(0.227)	-0.419	(0.269)
Employment status						
Part-time	**0.525*****	(0.181)	**0.563*****	(0.171)	**0.289***	(0.163)
Full-time	-0.118	(0.165)	0.027	(0.156)	0.108	(0.166)
Other controls	yes		yes		yes	
Observations	2070		2070		2070	

Notes: In Column 1, we use respondents' answers with regard to their compliance with handwashing recommendation as dependent variable. Recall that possible answers are: never, a few times, almost always, and always. In Columns 2 and 3 we use, respectively, respondents' compliance with face covering and social distancing recommendations as dependent variable. Other controls are education, place of residence, age, gender, and household size. *** p<0.1, ** p<0.05, * p<0.1

Heterogeneity

Individuals may react differently to precautionary measures, for example, due to heterogeneity in risk perception about the severity of the pandemic, or due to differences in hygiene practices. Indeed, hygiene practices may depend on situational, household, or occupational characteristics that may influence the risk of infection. For example, individuals with low education levels may be more likely to work in service sector positions that are considered "essential", increasing exposure to environmental risks. Low education groups also face higher barriers to compliance with social distancing rules, such as staying home or avoiding public transport, due to economic hardship and the fear of losing income (Webster et al, 2020). Social distancing among these groups may be even higher in contexts that lack a strong social safety net or compensation for lost wages (Bodas and Peleg, 2020; Coetzee and Kagee, 2020; Templeton et al, 2020). In addition, differences in the strength of implementing the precautionary measures may exist between rural and urban regions. In fact, even if the number of new daily infections has remained relatively low in rural areas throughout the COVID-19 pandemic, many individuals in remote areas need to go to larger cities on a regular basis for essential reasons such as to work, buy supplies, or receive medical treatment. Following the reasoning of Douglas et al (2020) and Ranscombe (2020), individuals living in rural and remote areas where healthcare capacity is often limited may be at higher risk of developing severe complications from COVID-19, as they are more likely to be older and to have existing chronic conditions. Based on these considerations, we estimate results separately for individuals with primary, secondary, and university education levels. We also estimate results separately for respondents

living in rural and urban areas. For each of these groups, we repeat the ordered logit estimation. We find evidence for substantial heterogeneity effect by education and place of residence (see Tables 3-5). We find that the positive association observed in the foregoing subsection between trust in government and compliance with handwashing and social distancing measures is driven by individuals with secondary and university degrees. This is particularly true for individuals living in rural areas who distrust the government. Among respondents with a primary education level, their belief about others' compliance is a positive and significant predictor of their adherence toward the handwashing recommendation. Individuals living in urban areas who trust the government or who know someone who has already contracted the virus are more likely to comply with the face covering measure.

Table 3: Heterogeneous effects by sociodemographic – Handwashing

	Education			Residence	
	Primary	**Secondary**	**University**	**Rural**	**Urban**
Variables	(1)	(2)	(3)	(4)	(5)
Future risk of contracting the virus	0.000	-0.003	-0.004	-0.008	0.001
Trust in the government					
A little high	0.087	-0.068	-0.014	-0.338	0.143
Moderate	-0.063	0.069	0.282	0.047	0.000
A little weak	-0.819	-0.266	**-0.761****	**-0.963****	-0.536
Very low	-0.146	**-1.419****	0.541	-0.131	0.052
Know people with COVID-19	0.402	0.029	0.016	0.025	0.163
Belief about others' compliance					
Disagree	**0.865*****	-0.464	-0.059	0.171	0.121
Neither agree nor disagree	**0.841****	-0.520	-0.273	-0.262	0.252
Agree	0.486	**-0.759****	-0.469	-0.311	-0.121
Strongly agree	**1.127*****	**-0.634***	0.146	0.220	0.067
Employment status					
Part-time	0.364	**1.051*****	**0.462***	**0.873*****	0.152
Full-time	-0.020	0.128	-0.178	-0.012	-0.192
Other controls	yes			yes	
Observations	705	535	830	1193	877

Notes: Other controls are gender, place of residence, number of children, and age. Each column reports coefficient estimates from ordered logistic regression with their significatively level. Estimated coefficient without "*" indicates that its associated p-value is greater than 10%. The dependent variable is hand washing, which has four modalities: never, a few times, almost always, and always. The modality "never" serves as the baseline alternative. *** p<0.1, ** p<0.05, * p<0.1

Table 4: Heterogeneous effect by sociodemographic – Face covering

	Education			Residence	
	Primary	**Secondary**	**University**	**Rural**	**Urban**
Variables	(1)	(2)	(3)	(4)	(5)
Future risk of contracting the virus	-0.003	**-0.012***	-0.005	-0.005	-0.005
Trust in the government					
A little high	0.344	0.499	-0.096	-0.160	**0.487****
Moderate	0.141	0.452	-0.097	0.165	-0.065
A little weak	-0.171	-0.099	-0.196	-0.418	0.184
Very low	-0.568	-0.288	0.439	-0.329	0.407
Know people with COVID-19	-0.245	0.377	**0.576****	0.182	**0.672*****
Belief about others' compliance					
Disagree	0.184	-0.413	-0.237	-0.367	-0.049
Neither agree nor disagree	0.327	**-0.851***	-0.031	-0.389	0.015
Agree	0.295	**-0.723****	**-0.666****	**-0.626****	-0.321
Strongly agree	0.422	**-0.933****	-0.237	-0.461	-0.166
Employment status					
Part-time	**0.941*****	0.539	**0.531****	**1.030*****	0.007
Full-time	0.435	0.028	0.039	0.225	-0.170
Other controls	yes			yes	
Observations	705	535	830	1193	877

Notes: Other controls are gender, place of residence, number of children, and age. Each column reports coefficient estimates from conditional logistic regression with their significatively level. Estimated coefficient without "*" indicates that its associated p-value is greater than 10%. The dependent variable is face covering, which has four modalities: never, a few times, almost always, and always. The modality "never" serves as the baseline alternative. *** p<0.1, ** p<0.05, * p<0.1

Table 5: Heterogeneous effects by sociodemographic – Social distancing

	Education			Residence	
	Primary	**Secondary**	**University**	**Rural**	**Urban**
Variables	(1)	(2)	(3)	(4)	(5)
Future risk of contracting the virus	-0.001	0.002	-0.001	-0.000	0.001
Trust in the government					
A little high	0.279	-0.070	-0.138	-0.046	0.016
Moderate	-0.218	-0.075	-0.383	-0.253	-0.308
A little weak	-0.126	**-1.659*** **	**-1.146*** **	-0.782**	-0.913**
Very low	-0.432	**-1.374***	0.418	0.233	-0.144
Know people with COVID-19	0.288	-0.113	-0.187	0.170	-0.281
Belief about others' compliance					
Disagree	-0.053	-0.280	-0.513	-0.420	-0.317
Neither agree nor disagree	-0.063	-0.543	**-0.773***	-0.601	-0.499
Agree	-0.145	-0.665	**-0.747****	**-0.925****	-0.181
Strongly agree	0.389	**-1.054****	-0.321	-0.631	-0.303
Employment status					
Part-time	**0.601***	0.288	0.281	**0.389***	0.153
Full-time	0.507	-0.207	0.194	-0.004	0.256
Other controls	yes			yes	
Observations	705	535	830	1193	877

Notes: Other controls are gender, place of residence, number of children, and age. Each column reports coefficient estimates from conditional logistic regression with their significatively level. Estimated coefficient without "*" indicates that its associated p-value is greater than 10%. The dependent variable is social distancing, which has four modalities: never, a few times, almost always, and always. The modality "never" serves as the baseline alternative. *** p<0.1, ** p<0.05, * p<0.1

6. Sensitivity analysis

In this section, we conduct some sensitivity checks to examine the robustness of our findings (see Tables A2-A7 in the Appendix). In a first step, we check in Table A2 the robustness of our results with respect to differences in outcomes and control variables based on how respondents were surveyed (online vs phone). We find that online and phone surveys are imbalanced along individuals' protective behaviours, their trust in government, and their beliefs about others' compliance. This reinforces the importance of controlling for trust in government and neighbourhood's compliance when investigating the determinants of protective behaviours. In a second step, we investigate in Table A3 (in Appendix A) whether our baseline results presented in the foregoing section vary based on the interview type. Among individuals from both online and phone interviews, trust in government, beliefs about others' compliance, and employment status remain significant predictors of compliance with the social distancing measure. However, determinants of handwashing and face covering behaviours vary depending on the interview type. Our third and final step consists of considering our outcome variables (handwashing, face covering, and social distancing) as binary. In addition, we enter trust in government and beliefs about others' compliance as continuous variables in our regressions. We then estimate a logit regression version of the Equation 4. Results presented in Tables A4-A6 in the Appendix reveal that compliance with the social distancing measure decreases significantly with trust in government. The more respondents observe their neighbourhood comply with the social distancing measure, the more they are willing to do so. These effects are driven by high-skilled individuals. However, no variables predict significant compliance with handwashing behaviour, contrasting our baseline findings. For the face covering behaviour, risk perception of contracting the virus in the future and neighbourhood compliance had significant predictors. Overall, our estimates are not sensitive to the choice of interview and to the measurement of our outcomes.

Since the main finding in this study is that individuals who trust the government are more likely to use traditional media, we rely on a contingency table analysis and conduct a chi-squared test of null hypothesis, that trust in government is independent of the media use. Table A7 shows the results for this cross-classification analysis. The p-value associated with the Chi-square test turns out to be 0.00. We therefore have sufficient evidence to conclude that there is a statistically significant association between trust in government and the media use.

7. Conclusion

This paper provides insights into the determinants of protective behaviours during the COVID-19 pandemic in Benin. In this context, our findings confirm the importance of trust in government authorities, beliefs about others' compliance, and the sources of news as the factors that are relevant for shaping population compliance with the health recommendations. We also show that these findings vary depending on individual's level of education and place of residence. These results endorse the widely held view tha tproviding the public with clear and consistent information is a prudent approach to follow during public health crises. To increase adherence, the Government of Benin's messages should focus on developing and maintaining trust among the public by providing transparent, coherent, clear, timely, and accurate information that reduces people's uncertainty and enhances compliance. Involving the country's political leaders from both ruling and opposition parties may also serve to maximize adherence. Furthermore, more effective implementation of policies to combat the disease may in turn build trust in government, extending beyond this pandemic and then strengthen public institutions going forward. Finally, risk communication needs to be specifically tailored for various target groups, such as educated, non-educated, rural, and urban populations, with the adoption of traditional media platforms. In fact, adaptive communication strategies which engage the public will therefore be essential in dealing with the pandemic. Two-way communication between the government and citizens can act as a bridge to ensure public engagement and disseminate information. This may be, indeed, one of the best ways to fight infodemics and conspiracy theories that reduce compliance with government precautionary measures (Freeman et al, 2022).

This research has important limitations. One major limitation is that our dependent variables are self-reported protective behaviours. What people say about their behaviour may be different from what they really do because of social desirability, acquiescence, or inaccurate memory. However, Cowling et al (2010), Dryhurst et al (2020), and Hagger et al (2020) argue that self-report is a standard source of information in studies measuring health-protective behaviours in airborne infectious disease and the COVID-19 outbreak. Future research might measure social desirability biases to check for under- or over-reporting. Another limitation is that our data (particularly, respondents with primary and university levels of education) is not representative of Benin population. Thus, the results should be interpreted with caution. This motivates

us to explore heterogeneity with respect to education levels, such that our results can provide insights into respondents' characteristics. Thus, we can make targeted conclusions for participants from no-education and secondary education groups. Finally, we rely on correlational and not experimental data. All findings presented are, therefore, associations and we cannot claim causality (or directionality). We do not know, for example, whether trust in government drives behaviour or vice versa (or both), especially because we did not repeatedly survey the same individuals. In addition, we do not model the transmission mechanism of the effect of sources of information on compliance. Indeed, source of information creates awareness, which in turn influences people by motivating them. When people are motivated, they would comply. There is, therefore, transmission mechanism of the effect of sources of information on compliance. Further research could collect information on awareness, and consider a model that includes an interaction variable by interacting sources of information and level of awareness. Moreover, future researchers are encouraged to adopt longitudinal and experimental designs to address the causal relationship between trust in government and compliance with precautionary measures.

Notes

1 Responses for each of the health measures are: never, a few times, almost always, and always.

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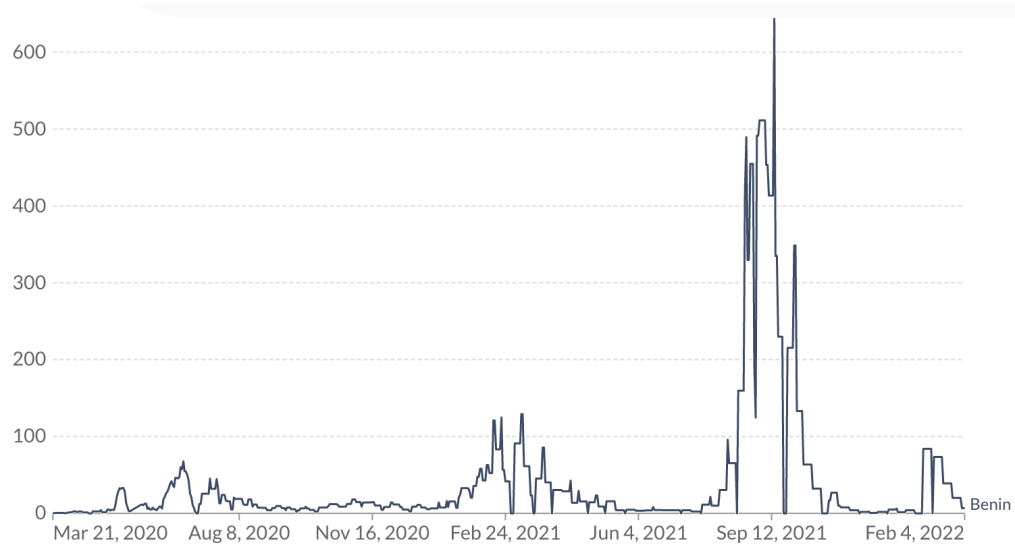
Appendixes

Appendix A: Additional figures and tables

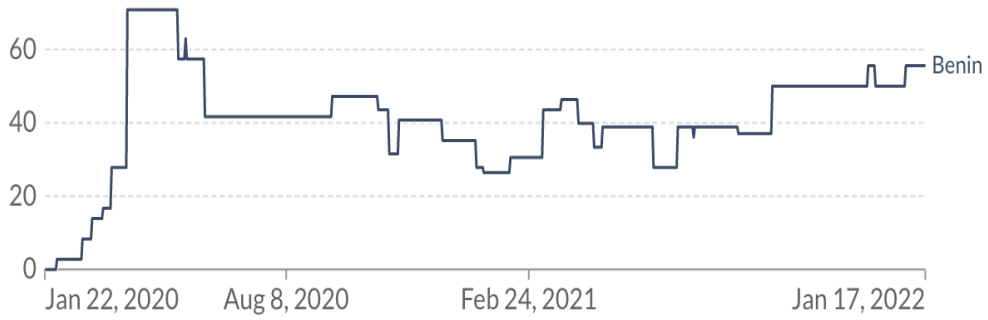
Figure A1: New confirmed cases of COVID-19 in Benin



Note: This figure shows the rolling 7-day average.

Source: Johns Hopkins University CSSE COVID-19 DATA.

Figure A2: Benin COVID-19 Stringency Index



Source: Hale et al. (2021).

Figure A3: Risk of contracting COVID-19 in the past and in the future, by age group

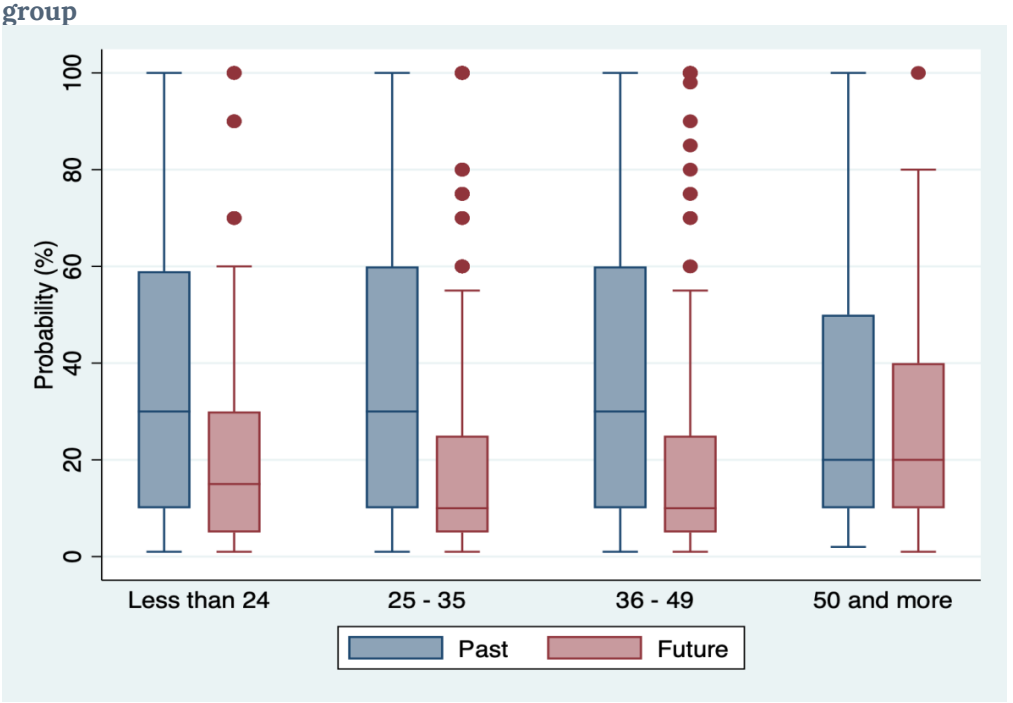


Table A1: Source of news and trust in government

	Traditional media		**Social media**	
	(1)		(2)	
Variables	Estimates	Std. Err.	Estimates	Std. Err.
Trust in the government				
A little high	**0.298*** **	(0.039)	0.250	(0.330)
Moderate	**0.529** **	(0.235)	0.136	(0.306)
A little weak	-0.273	(0.220)	0.331	(0.339)
Very low	-0.609	(0.626)	-0.093	(0.761)
Other controls	yes		yes	
Observations	2070		2070	

Notes: The dependent variable is source of news used to be informed about the COVID-19 pandemic. Other controls are neighbourhood compliance, employment status, knowledge of someone who has already contracted the virus, risk perception, education, place of residence, age, gender, and household size. *** p<0.1, ** p<0.05, * p<0.1

Table A2: Differences in outcomes, by interview type

	Online	**Phone**	**Diff in mean test**
Variables	(1)	(2)	(3)
Handwashing			
Never	0.008	0.03	**
A few times	0.334	0.29	
Almost always	0.205	0.518	***
Always	0.451	0.16	***
Face covering			
Never	0.008	0.004	
A few times	0.238	0.35	***
Almost always	0.041	0.37	***
Always	0.711	0.274	***
Social distancing			
Never	0.016	0.031	
A few times	0.347	0.3	
Almost always	0.401	0.541	***
Always	0.234	0.126	***
Trust in the government			
Very high	0.117	0.163	*
A little high	0.213	0.464	***
Moderate	0.464	0.269	***
A little weak	0.129	0.072	**

Very low	0.075	0.028	***
Belief about others' compliance			
Strongly disagree	0.167	0.071	***
Disagree	0.338	0.382	
Neither agree nor disagree	0.209	0.162	*
Agree	0.192	0.261	**
Strongly agree	0.092	0.122	

Table A3: Heterogeneous effects, by interview type

	Handwashing		Face covering		Social distancing	
	Online	Phone	Online	Phone	Online	Phone
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Future risk of contracting the virus	0.004	-0.004	-0.014**	0	-0.000	0.002
	(0.006)	(0.003)	(0.006)	(0.003)	(0.005)	(0.004)
Trust in the government						
A little high	-0.211	0.012	0.227	0.214	-0.556	0.197
	(0.642)	(0.170)	(0.794)	(0.185)	(0.644)	(0.178)
Moderate	-0.271	0.156	-0.879	0.174	-1.003*	-0.095
	(0.530)	(0.189)	(0.747)	(0.195)	(0.602)	(0.187)
A little weak	-0.663	-0.623**	-1.055	-0.175	-1.279*	-0.856***
	(0.726)	(0.288)	(0.892)	(0.296)	(0.683)	(0.301)
Very low	0.520	-0.459	-0.807	-0.368	-0.400	-0.276
	(0.717)	(0.363)	(1.022)	(0.443)	(0.774)	(0.497)
Know people with COVID-19	0.069	-0.007	0.033	0.259	-0.204	-0.077
	(0.326)	(0.176)	(0.384)	(0.204)	(0.334)	(0.204)
Belief about others' compliance						
Disagree	-0.427	0.320	-0.374	0.059	-0.649	-0.175
	(0.441)	(0.210)	(0.501)	(0.179)	(0.496)	(0.281)
Neither agree nor disagree	0.276	0.051	0.471	-0.139	-0.911*	-0.255
	(0.487)	(0.235)	(0.495)	(0.226)	(0.517)	(0.301)
Agree	0.245	-0.208	-0.947	-0.199	-0.235	-0.460
	(0.516)	(0.230)	(0.655)	(0.196)	(0.513)	(0.296)
Strongly agree	1.788**	0.049	3.249*	-0.302	0.630	-0.384
	(0.807)	(0.239)	(1.725)	(0.232)	(0.976)	(0.301)
Employment status						

Part-time	-0.341	0.849***	-0.62	0.782***	-0.788*	0.698***
	(0.355)	(0.206)	(0.486)	(0.187)	(0.445)	(0.180)
Full-time	-0.716	0.104	-0.324	0.24	-0.737*	0.412**
	(0.460)	(0.188)	(0.515)	(0.173)	(0.414)	(0.187)
Other controls	yes		yes			
Observations	239	1831	239	1831	239	1831

Table A4: Sensitivity analysis for handwashing – Logit estimates

		Education			Residence	
	Full sample	Primary	Secondary	University	Rural	Urban
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Future risk of contracting the virus	-0.005	-0.003	-0.003	-0.006	-0.007	-0.003
	(0.003)	(0.006)	(0.006)	(0.004)	(0.004)	(0.005)
Trust in the government	-0.046	-0.100	-0.124	0.033	-0.014	-0.072
	(0.070)	(0.124)	(0.144)	(0.103)	(0.087)	(0.103)
Know people with COVID-19	0.059	0.195	0.156	-0.019	0.003	0.078
	(0.180)	(0.369)	(0.302)	(0.237)	(0.258)	(0.253)
Belief about others' compliance	-0.077	0.004	-0.131	-0.062	-0.050	-0.091
	(0.054)	(0.100)	(0.104)	(0.081)	(0.072)	(0.079)
Other controls	yes	yes	yes	yes	yes	yes
Observations	2070	705	535	830	1193	877

Note: We consider handwashing as a binary variable. Trust in the government and belief about others' compliance is considered as continuous variables. Other controls are gender, education level, number of children, and age. Each column reports coefficient estimates from conditional logistic regression with standard errors in parentheses. *** p<0.1, ** p<0.05, * p<0.1

Table A5: Sensitivity analysis for face covering – Logit estimates

		Education			Residence	
	Full sample	Primary	Secondary	University	Rural	Urban
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Future risk of contracting the virus	0.009***	0.010*	0.015**	0.007*	0.009**	0.008*
	(0.003)	(0.006)	(0.007)	(0.004)	(0.004)	(0.004)
Trust in the government	-0.012	0.031	-0.060	-0.029	0.077	-0.101
	(0.070)	(0.124)	(0.139)	(0.099)	(0.090)	(0.098)

Know people with COVID-19	0.032	-0.520	0.356	0.193	-0.143	0.140
	(0.176)	(0.321)	(0.329)	(0.244)	(0.252)	(0.242)
Belief about others' compliance	**-0.135*** **	0.002	**-0.252** **	**-0.150** *	**-0.142** **	-0.109
	(0.051)	(0.091)	(0.099)	(0.078)	(0.068)	(0.077)
Other controls	yes	yes	yes	yes	yes	yes
Observations	2070	705	535	830	1193	877

Note: We consider face covering as a binary variable. Trust in the government and belief about others' compliance is considered as continuous variables. Other controls are gender, education level, number of children, and age. Each column reports coefficient estimates from conditional logistic regression with standard errors in parentheses. *** p<0.1, ** p<0.05, * p<0.1

Table A6: Sensitivity analysis for social distancing – Logit estimates

		Education			Residence	
	Full sample	Primary	Secondary	University	Rural	Urban
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Future risk of contracting the virus	-0.004	-0.007	-0.003	-0.004	-0.005	-0.002
	(0.003)	(0.006)	(0.007)	(0.004)	(0.004)	(0.004)
Trust in the government	-0.196***	**-0.221***	**-0.332** **	-0.125	**-0.159***	**-0.211** **
	(0.070)	(0.131)	(0.146)	(0.100)	(0.095)	(0.101)
Know people with COVID-19	-0.254	0.112	-0.436	-0.345	-0.115	-0.377
	(0.172)	(0.361)	(0.362)	(0.226)	(0.262)	(0.237)
Belief about others' compliance	**0.218*** **	-0.094	**0.312*** **	**0.233*** **	**0.293*** **	**0.134** *
	(0.053)	(0.099)	(0.108)	(0.080)	(0.073)	(0.077)
Other controls	yes	yes	yes	yes	yes	yes
Observations	2070	705	535	830	1193	877

Note: We consider social distancing as a binary variable. Trust in the government and belief about others' compliance is considered as continuous variables. Other controls are gender, education level, number of children, and age. Each column reports coefficient estimates from conditional logistic regression with standard errors in parentheses. *** p<0.1, ** p<0.05, * p<0.1

Table A7: Chi-squared cross-classification of trust and media use

	Television	Radio	Social media	Parents/relatives	ONG/local authorities
Very high	119	96	88	12	13
A little high	256	254	322	31	39
Moderate	125	171	256	24	29
A little weak	47	39	65	9	4
Very low	17	19	28	5	2

Note: Pearson chi2(16) = 41.78 and P-value = 0.000

Appendix B:

Questionnaire translated from French to English

Consent

Hello,

We appreciate your availability to participate in this Project!

This questionnaire aims to collect information about your current situation surrounding COVID-19. We would like to know how things are going for you, economically and socially. The results of this research will contribute, among other things, to the identification of public policies aimed at improving the living conditions of vulnerable people affected by the pandemic in Benin, as well as to the reflection on a strategy for communicating the risks of infection and consequences of COVID-19.

Your participation is on a voluntary and anonymous basis. All the information you provide will be kept strictly confidential and will be used for statistical purposes. No personal data will be disclosed to the study researchers or to the public. The administration of the questionnaire will take approximately 20 minutes.

SECTION A: KNOWLEDGE, CURRENT SITUATION AND RISKS SURROUNDING COVID-19		
N°	Questions	
	What symptoms of COVID-19 are you familiar with? 1 = Yes 2 = No 1. Fever 2. Dry cough 3. Fatigue 4. Body aches 5. Sore throat 6. Diarrhoea 7. Conjunctivitis 8. Headache 9. Loss of smell or taste 10. Rash, or discolouration of the fingers or toes 11. Difficulty breathing or shortness of breath 12. Feeling of tightness or pain in the chest 13. Loss of speech or motor skills 14. Others_____	 /__/ /__/ /__/ /__/ /__/ /__/ /__/ /__/ /__/ /__/ /__/ /__/
e	Please, on a scale of 0 to 100, what do you think is the risk of having contracted COVID-19 in the past? 0 indicates that you are sure you have not contracted COVID-19, and 100 indicates that you are sure you have contracted it	/_____/
S	How confident are you with your risk assessment? 1 = Not confident at all 2 = Not very confident 3 = Indifferent 4 = Moderately confident 5 = Very confident	 |__|

	Given your current situation, on a scale of 0 to 100, what do you think is the risk that you will contract COVID-19 during the next two months? 0 indicates that you are certain that you will not contract COVID-19, and 100 indicates that you are certain of contracting it.	/_____/
	How confident are you with your risk assessment? 1 = Not confident at all 2 = Not very confident 3 = Indifferent 4 = Moderately confident 5 = Very confident	|__|
	Out of 100 people, how many people exactly like you do you think will not have symptoms after contracting COVID-19?	/_____/
	How confident are you with your risk assessment? 1 = Not confident at all 2 = Not very confident 3 = Indifferent 4 = Moderately confident 5 = Very confident	|__|
	Out of 100 people, how many people exactly like you do you think would have mild symptoms, such as blowing their nose and sneezing or even less, after contracting COVID-19?	/_____/
	How confident are you with your risk assessment? 1 = Not confident at all 2 = Not very confident 3 = Indifferent 4 = Moderately confident 5 = Very confident	|__|
	Out of 100 people, how many people exactly like you do you think would have severe symptoms after contracting COVID-19?	/_____/

	How confident are you with your risk assessment? 1 = Not confident at all 2 = Not very confident 3 = Indifferent 4 = Moderately confident 5 = Very confident	|__|
	Out of 100 people, how many people exactly like you do you think die after contracting COVID-19?	/_____/
	How confident are you with your risk assessment? 1 = Not confident at all 2 = Not very confident 3 = Indifferent 4 = Moderately confident 5 = Very confident	|__|
	Do you know at least one person who has been affected by COVID-19? 1 = Yes 2 = No	|__|
	How many people?	|____|
	What primary source do you get information about COVID-19 and the associated risks from, at this time? 1 = Television 2 = Radio 3 = Newspapers/Billboards 4 = Social networks (Facebook, WhatsApp, Twitter, etc.) 5 = Awareness campaign/NGO 6 = SMS/Phone calls 7 = Health workers 8 = Local authority (head of district, etc.) 9 = Traditional healer/Religious authorities 10 = Parents/Neighbours/Friends 11 = Town Crier/Word of Mouth	|__|

	Who do you think this coronavirus information is coming from? 1 = Government of Benin/Ministry of Health 2 = World Health Organization 3 = NGO 4 = Local elected officials	|__| |__| |__| |__| |__|
	SECTION B : PREVENTIVE MEASURES AGAINST COVID-19	
	Do you regularly wash your hands with soap and water when you come home? 1 = Never 2 = A few times 3 = Almost always 4 = Always	|__|
	When you go out, do you wear a face mask? 1 = Never 2 = A few times 3 = Almost always 4 = Always	|__|
	Do you respect the social distancing when you are in a public place? 1 = Never 2 = A few times 3 = Almost always 4 = Always	|__|
Q	What do you think of the following statement: "**The vast majority of people around me respect the sanitary measures to fight against the coronavirus**"? 1 = Strongly agree 2 = Agree 3 = Neither agree nor disagree 4 = Disagree 5 = Strongly disagree	|__|

Q	Do you think that the behaviours of your neighbours towards the coronavirus have had an impact on you/your attitude towards the virus? 1 =Yes 2 = No	|__|
Q	For you and your family, how would you rate the magnitude of the risks associated with COVID-19? 1 = Very low 2 = A little weak 3 = Moderate 4 = A little high 5 = Very high	|__|
Q	How do you rate your level of confidence in the country's health authorities? 1 = Very low 2 = A little weak 3 = Moderate 4 = A little high 5 = Very high	/__/
Q	Flagship measures taken by the government: a. Closure of places of worship; closure of schools; b. Establishment of a sanitary cordon and restriction of the movements of people within the sanitary cordon; c. Imposition of the wearing of masks; d. Restriction of administrative services to minimum service; and e. Limiting the extreme necessity of entry and exit at the land borders of our country. How would you rate your level of confidence in relation to the measures taken by the health authorities to fight against COVID-19 in the country? 1 = Very low 2 = Bottom 3 = Indifferent (neither high nor low) 4 = Low 5 = Very high	/__/

	SECTION C : DEMOGRAPHIC BACKGROUND	
Q	Department 1 = Alibori 2 = Atacora 3 = Atlantique 4= Borgou 5 = Collines 6 = Couffo 7 = Donga 8 = Littoral 9 = Mono 10 = Ouémé 11 = Plateau 12 = Zou	/__/
Q	Commune	_____
Q	Region of residence 1 = Rural 2 = Urban	/__/
Q	Sex 1 = Female 2 = Male	/__/
Q	Age group 1 = under 17 2 = 18 to 24 years old 3 = 25 to 35 years old 4 = 36 to 49 years old 5 = 50 to 60 years 6 = 61 to 70 years old 7 = 70 years and over	/__/
Q	What is your highest level of education? 1 = No education 2 = Primary 3 = Secondary 4 = University	/__/

Q	Ethnicity 1 = Adja 2 = Bariba 3 = Dendi 4 = Fon 5 = Yoa et Lokpa 6 = Betamaribe 7 = Peulh 8 = Yoruba 9 = Foreign	/__/
	Marital status 1 = Married 2 = Single, Common-law 3 = Widower, Widow or Divorced	/__/
Q	Religion 1 = Catholic Christian 2 = Non-Catholic Christian (Protestant, Evangelical, etc.) 3 = Muslim 4 = Animist 5 = Atheist 6 = Other religion	/__/
Q	Number of dependent children	/____/
	SECTION D : ECONOMIC SITUATION	
Q	Before the advent of COVID-19, were you engaged in an income-generating activity, as a worker or self-employed? 1 = yes 2 = no	/__/
Q	What was your employment situation **before the onset** of the coronavirus? 1 = Unemployed 2 = Part-time or occasional work 3 = Full-time job	/__/

Q	Which of the following best matches your **main activity**? 1 = Farmer 2 = Worker (including worker in the agricultural sector) 3 = Company manager/Self-employed 4 = Unemployed and looking for a job 5 = Unemployed and not looking for a job 6 = Public sector employee/NGO 7 = Full-time student	/__/
Q	Do you think the pandemic caused by the coronavirus has had an impact on your main activity? 1 = Yes 2 = No	/__/
Q	What is your **current** employment situation? 1 = Unemployed 2 = Part-time or occasional work 3 = Full-time job	/__/
Q	To what extent do you agree or disagree with the following statement: "**Due to the coronavirus, I lost my main source of income**"? 1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree	/__/
Q	Compared to the period before the onset of COVID-19, would you say your income today has: 1 = increased 2 = Remained the same 3 = Decreased 4 = Drastically decreased 5 = Don't know	/__/

Mission

To strengthen local capacity for conducting independent,
rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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