

The Government Confidence and Challenges in Managing Covid-19: The Case of Burundi

Jean de D. Nkurunzira, Thérance Niyonsaba, and Evariste Ntaryamira

ABSTRACT

The handling of covid-19 in the world, and in Burundi in particular, requires early and appropriate proactive measures in response to the rate of spread. In this paper, we analyze two key factors: the confidence of the government in the management of covid-19 and the degree of compliance with the measures undertaken by the government to handle it. A statistical classification of the variables considered with principal component analysis is also analyzed in order to identify similarities and differences in the behavior of the Burundian population with respect to the covid-19 pandemic.

Keywords: Classification, Degree of Compliance, Sensitivity, Specificity

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J. D. Nkurunzira*

Higher Training School, Burundi

(e-mail: jnens2020@gmail.com)

T. Niyonsaba*

University of Burundi, Burundi

(e-mail: therence.niyonsaba@ub.edu.bi)

E. Ntaryamira

University of Burundi, Burundi & INRIA

Paris, France,

(e-mail: evariste.ntaryamira@ub.edu.bi)

*Corresponding Author

I. INTRODUCTION

With Covid-19, governments are operating in a context of total uncertainty at all levels. This may be seen in terms of the strategies adopted by the government to deal with this covid-19 pandemic. The impact of this crisis is very heterogeneous at the local and regional level, which has important consequences for crisis management and the action of public authorities (OCDE, 2020). This pandemic has now spread to almost all countries and affected over 50 million people, resulting in 1.25 million deaths worldwide by November 2020 OCDE (2020). The public administration has had to deal with unforeseen challenges on the health, economic and social fronts. By the spring of 2020, more than half of the population was under lockdown. It is now widely accepted that the pandemic has caused the most severe economic crisis since the Second World War OCDE (2020).

The way in which leaders manage this pandemic is very important, as the rate of spread is not due to population density, but to appropriate proactive early measures undertaken (e.g. contact tracing, mask wearing, social distancing...), accommodation conditions and access to health care OCDE and Basset (2020). Deprived areas tend to have the highest rates of infection and mortality (Lacobucci & Brandily, 2020).

Adherence to the above-mentioned barrier measures relies on the degree of trust that the population has in their leaders. In some of the European countries, trust in government has been increasing in the context of the crisis, while in others, it is gradually declining (Edelman, 2020). Europeans express varying degrees of trust in their public authorities at different

geographical and administrative levels: trust in local and regional authorities is estimated to be 52%, trust in EU authorities is around 47%, while trust in national authorities is estimated to be around 43% (CER, 2020).

What about Burundi? Trust in the administration by citizens can mitigate the feeling of "virus lassitude" leading to lax compliance with virus control measures (lockdown, physical distancing and masking) and jeopardising the success of emergency and lockdown measures. Although it may take many years to gain confidence, losing it can be quick (Edelman, 2015). According to data from the Johns Hopkins University Resource Centre and the Trust in Government database, like other countries in the world, Burundi has taken specific measures to prevent and deal with the pandemic. The measures and the policy responses have had an impact on the economic, social and other situation (Reliefweb, 2020). In Côte d'Ivoire, the government's warnings to the Ivorian population about the dangers of covid-19 did not seem to be effective at first. Precisely, despite extensive awareness-raising measures, many people were not only sceptical of the existence of the virus in the country, but also of the need for the restrictive measures imposed by the government (KONRAD, 2020). Research results in the United States show that the use of masks by employees at the beginning of the pandemic could have reduced the weekly growth rate of infections and deaths by 10 (Chernozhukov *et al.*, 2021).

In this article, we show to which extent Burundians trust the government in the handling of Covid-19 and whether the implementation of the barrier measures is actually respected by the Burundian population.

II. MATERIALS AND METHODS

The survey was carried out throughout the country in both urban and rural areas. It focuses on households. It is a sample survey collected by telephone from the list of households and informal production units whose telephone numbers were collected during the enumeration of the Integrated Survey on Living Conditions of Households in Burundi (EICVMB, 2020) carried out in 2019. During the counting of the Integrated Survey on Living Conditions in Burundi currently underway, a list of households was drawn up with their telephone numbers. These households are divided by province and by area of residence (urban, rural). The covid-19 survey sample was drawn from households with a telephone number, identified during the enumeration of the (EICVMB, 2020). For comparability of results across countries, the sample size was the same. To this end, the expected sample of households at the national level is 2040, including 1000 households in rural areas, 540 households in Bujumbura City Hall and 500 households in other urban areas. The total number of households in the sample per province of COVID-19 varies according to the principle of balanced sampling. As for the selection of the 2040 households in the COVID-19 sample, they will be drawn randomly and with unequal probabilities. As the interviews were conducted by telephone at home to avoid physical contact and in view of the availability of households, the collection was done by groups of interviewers to interview the households (32 interviewers for the households).

It should be noted that the household questionnaire was done in CSPRo and coordinated online by the World Bank Consultant using a standard program developed for Burundi, and the analyses were carried out using STATA software tool. A complete description of the main variables used in this analysis is presented in the Table I.

TABLE I: LIST OF VARIABLES

Description	Coding or units	Variables
Confidence in the Government	1: Conf_Gov 0: Non_Conf_Gov	Conf_Gov
Health Care	1: Health Care 0: No Health Care	Health Care
Sufficient Aids and Assistance	1: Help 0: No Help	Help
Social Distancing	1: Distanciation 0: No Distanciation	Distanciation
Shaked Hand	1: Shaked Hand 0: No Shaked Hand	Shaked hand
Good Stocks	1: Stocks_Goods 0: No Stocks_Goods	Goods_Stocks
Reduce the frequency of going to the market	1: Reduction 0: No Reduction	Reduce the frequency of going to the market
Regular hand washing	1=Clean_H 0=No_Clean_H	Clean_H
Regular Hand Washing	1: Clean_H 0: No_Clean_H	Clean_H
Attending Ceremonies or Parties	1: Parties 0: No Parties	Parties
Trip	1: Trip 0 : No Trip	Trip

III. DATA ANALYSIS

A. Government Trust in the Covid-19 Management

In this section, we show some observable indicators that are emerging as a reality of daily life in Burundi. Indeed

Indeed:

- 89.17% of the respondents agree with the government regarding the management of Covid-19;
- 89.63% agree with the provision of the health care by the government in relation to Covid-19;
- 83.12% agree that the government is providing sufficient assistance and aid in the face of the Covid-19 crisis;
- 87.78% have an intention to follow government guidelines for mitigating the spread of Covid-19;
- 81.75% confirmed that the main reason that prevented households from acquiring medicines was price;
- 83.50% did not have difficulties in purchasing alcohol or alcohol gel • 67.15% did not have any problems in obtaining rice on a daily basis
- 77.40% agreed that they did not have any difficulties in buying mouthwash
- The main reason that prevented households from acquiring rice was price (90.56% of the surveyed population). 89.20%) had problems acquiring fruits and vegetables
- According to this analysis, the main reason that prevented households from acquiring lemons, garlic, onions, ginger, or ravintsara was price (82.60% of the population surveyed).

B. Degree of Compliance with Government Policies in the Management of Covid-19

The results on the Fig. 1. show that the government is willing to provide health care in response to the COVID 19 crisis.

There is 46.32 times more confirmation ($32.22 < OR < 66.58$) by the Burundian population which is statistically significant.

TABLE II: LOGISTIC MODEL RESULTS FOR FACTORS REFLECTING THE DEGREE OF COMPLIANCE WITH THE GOVERNMENT MEASURES

Confid_Govern	Odds Ratio	Std. Err.	Z	P> z	[95% Conf. Interval]
Health_care	46.324	8.574	20.72	0.000	32.2 66.5
Help	7.458	1.296	11.56	0.00	5.30 10.48
Distanciation	1.577	0.5531	1.30	0.194	0.793 3.13
Shake hand	1.239	0.27775	0.96	0.339	0.79 0.922
Stocks_Goods	0.8402	0.21740	-0.67	0.501	0.506 1.395
Reduction_Market	0.724	0.18271	-1.28	0.202	0.44 0.187
Clean_H	0.924	0.6580	1.92	0.055	0.985 3.76
Parties	1.019	0.2107	0.10	0.924	0.68 1.52
Trip	2.505	0.4458	-6.57	0.00	1.76 3.55
-cons	0.0636	0.02667	-6.57	0.000	0.028 0.144

Similarly, 5.30 ($5.30 < OR < 10.48$) times more confirmation is observed in saying that the government is able to provide sufficient assistance and aid, whether in cash or in kind, in the face of the COVID 19 crisis. It should also be noted that since the first declaration of the State of Health Emergency, there is a 60% lower chance of gaining the trust of the government when traveling as one wishes. However, non-compliance with health measures by the civilian population has persisted. Here we will mention social distancing and self-isolation as measures against coronavirus, washing hands more often than usual, shaking hands or other

greeting gestures based on physical contact, gatherings of more than 50 people such as family reunions, parties, religious ceremonies or funerals, stocking up on food more than usual and reducing the number of times people went to the market or a food store.

A. Test of Model Adequacy

From the Table III, we can see that the proportion of good predictions is 95.13%. We notice that the sensitivity is 98.15% and the specificity is 72.33%. The negative predictive value (NPV) is 83.84% and the positive predictive value is 96.40% (PPV).

This means that 98.15% is the probability of getting people agreed with the barriers and practical measures proposed by the government in which they have confidence. 72.33% is the probability of people who disagreed with the barriers and practices undertaken by the government did not change their minds.

TABLE III: GOODNESS OF FIT TEST

Classified	D	~D	Total
+	3402	127	3529
-	64	332	396
Total	3466	459	3925

Classified + if predicted $Pr(D) \geq 0.5$
 True D defined as $Confid_Govern! = 0$
 Sensitivity: $Pr(+|D)$ 98.15%
 Specificity: $Pr(-|\sim D)$ 72.33%
 Positive predictive value: $Pr(D|+)$ 96.40%
 Negative predictive value: $Pr(\sim D| -)$ 83.84%
 False + rate for true ~D: $Pr(+|\sim D)$ 27.67%
 False - rate for true D: $Pr(-|D)$ 1.85%
 False+ rate for classified+: $Pr(\sim D|+)$ 3.60%
 False- rate for classified -: $Pr(D| -)$ 16.16%
 Correct classified: 95.13%

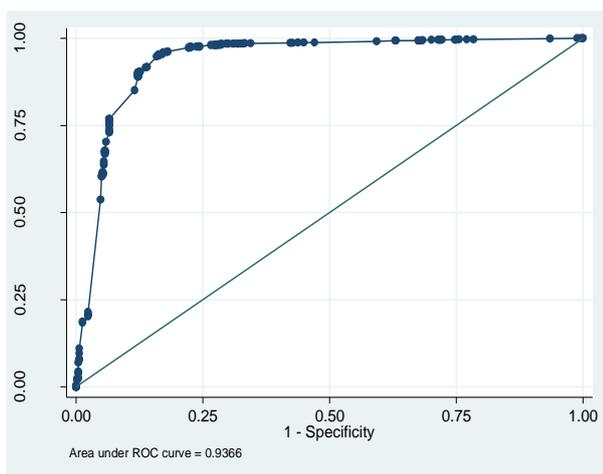


Fig. 1. Discriminatory quality of the test under different thresholds.

IV. CLASSIFICATION BASED ON PRINCIPAL COMPONENT ANALYSIS

To confirm the results obtained above, principal component analysis can be used. All variables are well projected onto the two components.

The first component deals with what the Burundian population is taking responsibility for implementing to stop

Covid-19 from spreading, while the second component focuses on what the government is willing to do. Note that maximum information is obtained if all components are considered. Here, we will limit ourselves to only two components in order to analyze the results in the design

TABLE IV: CLASSIFICATION BASED ON PRINCIPAL COMPONENT ANALYSIS

	Coef.	Std. Err.	Z	P> z	[95% Conf. Interval]	
Eigenvalues						
Comp1	1.91	.042	44.6	0.00	1.830	1.998
Comp2	1.69	.037	44.81	0.00	1.625	1.774
Comp.1						
Health_care	-.076	.089	-0.85	0.39	-.252	.100
Help	-.108	.088	-1.24	0.21	-.281	.063
Parties	-.409	.017	-23.0	0.00	-.444	-.374
Distanciation	.131	.024	5.30	0.00	.082	.179
Shaked_Hand	.355	.025	14.00	0.00	.305	.4054
Clean_H	-.146	.040	-3.62	0.00	-.225	-.067
Stocks	.429	.026	16.23	0.00	.377	.481
Reduction_Market	.520	.018	28.13	0.00	.484	.557
Trip	-.439	.025	-17.1	0.00	-.490	-.389
Comp.2						
Health_care	.666	.014	45.19	0.00	.637	.695
Help	.652	.018	34.38	0.00	.614	.689
Parties	-.042	.058	-0.73	0.46	-.157	.07
Distanciation	.009	.035	0.27	0.78	-.060	.080
Shaked_Hand	-.113	.054	-2.09	0.03	-.219	-.006
Clean_H	.246	.035	6.92	0.00	.176	.316
Stocks	.150	.061	2.45	0.01	.029	.270
Reduction_Market	.088	.072	1.22	0.22	-.053	.229
Trip	-.156	.06	-2.55	0.01	-.276	-.036

LR test for independence: $\chi^2(36) = 4191.8$ Prob > $\chi^2 = 0.000$; LR test for sphericity: $\chi^2(44) = 4192.55$ Prob > $\chi^2 = 0.0000$

Explained variance by components

TABLE V: VARIANCE BY COMPONENTS

Components	Eigenvalue	Proportion	SE_Proportion	Cumulative	SE_Cumulative	Bias
Comp1	1.91	0.21	0.0041	0.21	0.004	0.006
Comp2	1.69	0.18	0.0037	0.40	0.004	-0.0008
Comp3	1.19	0.13	0.0028	0.53	0.004	0.001
Comp4	.946	0.10	0.0023	0.63	0.003	0.002
Comp5	0.83	0.09	0.0021	0.73	0.003	0.001
Comp6	0.778	0.08	0.0019	0.81	0.002	-0.002
Comp7	0.706	0.07	0.0018	0.89	0.0017	-0.004
Comp8	0.55	0.06	0.0014	0.95	0.0009	-0.002
Comp9	0.36	0.04	0.0009	1.0	0.0000	-0.001

This classification shows us:

•On the one hand, part of the Burundian population has made stocks, reduced the number of times they go to the market, do not go to ceremonies and do not travel, but unfortunately they shake hands without any problem, which risks significantly erasing the actions that were well carried out, as confirmed by the results of the logistic model.

•On the other hand, another group tries to wash their hands, but they continue to go to parties, make trips, do not make the social distancing and do not reduce the number of times they go to the market. This makes the act of washing hands meaningless.

•Despite this behavior of the population, the government is

still willing to provide health care to deal with the COVID 19 crisis and to provide sufficient assistance and aid whether in cash or in kind to deal with the COVID 19 crisis.

V. DISCUSSION OF THE RESULTS

The results of this study show that the government is trustworthy in providing health care and sufficient assistance and support, whether in cash or in kind, to the COVID-19 crisis. This reflects the government's "I'm cured, I'm not infected and I don't infect" policy of systematic screening for the covid-19 pandemic at the national level. The government has increased the number of covid-19 screening centers and equipped them with the necessary equipment. To enable everyone to wash their hands regularly, the price of soap and water has been reduced (See Fig. 2).

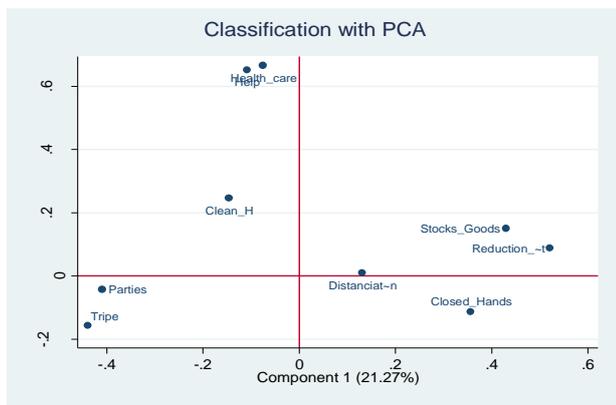


Fig. 2. Classification of variables with principal component analysis.

However, our study shows that part of the population stays at home, stocks food and does not travel, and reduces the number of times they go to ceremonies, which is justified by the high standard of living for some citizens in the provincial centers. On the other hand, another group of the population tries or does not even practice these barrier measures including washing hands than usual, avoidance of close greetings and to the market or to a store. This is due to the difficult life where everyone is forced to run for a living, which complicates the management of the crisis.

Mubarak and WHO (2020) also pointed out that the non-compliance with barrier measures does not help the government to manage the Covid-19 pandemic well. This non-compliance could be due to cultural attachment (greetings, holidays, etc.) and religious belief. In the second case, it was observed that the main reason that prevents the acquisition of survival factors, namely: medicine, rice, mouthwash, alcoholic gel, fruits and vegetables, lemons, garlics, onions, ginger by households in difficulty was the problem related to the price of these factors. This is valid because a large part of the Burundian population is very poor and the most noticeable impact of the COVID-19 crisis is the increase in food prices (Koffi, 2020).

VI. CONCLUSIONS

The purpose of this study was to determine the main factors influencing the confidence of the government in the management of the crisis caused by the COVID-19, as well as to highlight the main reasons that prevent households from acquiring survival factors such as: medicine, rice, mouthwash, alcoholic gel, fruits and vegetables, lemons, garlic, onions, and ginger.

After analysis, it was found that the provision of health care and sufficient assistance and aid, whether in cash or in kind, in the face of the crisis caused by COVID 19, guaranteed the government's confidence. However, the failure to comply with the following measures: hand washing than usual, avoidance of close greetings and physical contact, cancellation of travel plans is due to socio-economic factors and complicates the government in managing the crisis.

CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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