Phone survey on the Covid crisis in Senegal

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1 Executive summary

The objective of this study is to have an overview of the current situation in Senegal at the beginning of the Covid-19 crisis. The rapid spread of the disease put enormous pressure on governments and many countries decided to put in place strict sanitary measures, or even to confine their population. So far, African countries have detected fewer Covid-19 cases and recorded fewer deaths than European, Asian or North American countries. But the number of cases is increasing rapidly in African countries, leading to the adoption of new measures.

Managing the Covid-19 crisis will be particularly difficult in Africa because most countries may not be able to withstand the economic damage of containment, while the lack of hospital beds is a reality. Senegal was one of the first African countries to register a case of Covid-19 on 4 March 2020; it now has 442 confirmed cases and six deaths. To date, the current impact of the crisis on the population is unknown. Moreover, health measures and the global economic slowdown are already likely to have an impact on people's livelihoods. It is not yet known to what extent people are following mitigation gestures, such as hand-washing or social distancing measures, and their perception of the epidemic and the government's action to combat it.

In order to shed light on these issues, the Center for Global Development (CGD) partnered with the Centre de Recherche pour le Développement Economique et Social (CRDES) to conduct a mobile phone survey of 1,023 people in Senegal. [1] [2] The survey took place from 7 to 13 April 2020 and the sample is nationally representative.

The methodology used is as follows: In Senegal, 97.1% of the population lives in a household with at least one cellular telephone, with very high rates in all regions of the country (the minimum is in Matam with 93.7%). This suggests that a mobile phone survey can potentially reach almost the entire population of Senegal.

Data exploitation made it possible to get outcomes related to income, employment, food security, internal displacement of Senegalese, information on Covid-19 and Senegalese perception of the pandemic. The results also allowed us to analyze the population's compliance with mitigation measures and their perception of government action. We were able to assess the number of contacts of Senegalese people at work or during the day as well as the development of Covid-19 symptoms. The report also provides information on children's education at home, childcare and the use of children's time. Follow-up surveys of the same panel of respondents are planned to assess the development of the crisis in the country.

Here are the key messages from the study:

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[1] https://www.cgdev.org
[2] http://crdes.sn

- The population seems to be already suffering economically from the crisis with 86.8 percent of respondents who reported a loss of income, and almost half reporting an increase in the price of rice (46.6 percent).
- In terms of food security, the number of respondents who reported a reduction in meal size has sharply increased in Dakar and the rest of Senegal (4 to 7 times a week).
- Almost the entire sample has heard about Coronavirus (98.6 percent). Mitigation measures have also been widely adopted.
- There is a high level of concern related to Coronavirus: 77.5 percent are worried or very worried about being infected. Health consequences are the main concern (56.1 percent), followed by economic impacts (39 percent).
- Senegalese trust the action of their Government to take care of its citizen. Only 5 percent of respondents report being suspicious. They also have confidence in government communication with 87 percent of them perceiving communication as sincere.
- Most of Senegalese are in favour of a 2-week confinement (72.5 percent). Support for this measure is higher among those who do not are the most worried about their health and those who do not report any loss of income.
- 29,6 percent of children under 16 do not participate in any learning activities. The study highlights significant differences in parental support and access to distance learning (TV or online) acrosss level of education and household wealth.
- Related to population migration, some respondents changed residence in the last month (5.4 percent). Many people left Dakar and migrated to rural areas (9.3 percent). Migration is likely to increase risk of epidemic spread and rural health systems saturation.

2 Introduction

As of April 23, more than 2.6 million people have been infected with Covid-19 and more than 183,000 have died worldwide. The rapid spread of the disease has put enormous pressure on governments and many countries have decided to implement strict health measures or even confine their populations. So far, African countries have detected fewer Covid-19 cases and recorded fewer deaths than European, Asian or North American countries. But the number of cases is increasing rapidly in African countries, leading to the adoption of social distancing measures. Managing the Covid-19 crisis will be particularly difficult in Africa because most countries may not be able to withstand the economic damage of containment, while the lack of hospital beds, lack of access to clean water for hand washing, overcrowded housing and high levels of co-morbidities could cause a very high number of deaths despite a relatively young population.

Senegal was one of the first African countries to register a case of Covid-19 on 4 March and now has 442 confirmed cases and six deaths.[3] The President, after consulting medical experts, decided on 14 March to ban public gatherings, close ports, schools, kindergartens and universities (effective 16 March). Shortly afterwards, on 17 March, flights to and from Europe and North Africa were suspended. On 19 March, borders were closed and limits were put in place for inter-regional travel. On 20 March, religious sites were closed, leading to disturbances and even the arrest of a priest in Dakar. [4] Religious leaders ended up supporting government's actions and called the population to pray at home.[5] Since 23 March, a state of national health emergency has been in place and a curfew is in effect from 8 p.m. to 6 a.m. These measures are likely to affect the economy and the Government has put in place an emergency plan for 1,000 billion CFA francs (US$1.7 billion, or 7 percent of GDP), inlcuding 69 billion CFA francs for emergency food aid.

Little is known about the current impact of the crisis on the population. Health measures and the global economic slowdown are already likely to have an impact on people's livelihoods. It is not known whether people are following mitigation gestures, such as hand-washing, and social distancing measures. Perception of the Government's action to combat the epidemic is also unclear.

To shed light on these issues, the Center for Global Development (CGD) partnered with the Centre de Recherche pour le Développement Economique et Social (CRDES) to conduct a mobile phone survey of 1,023 people in Senegal. The survey took place from 7 to 13 April 2020 and the sample is nationally representative (see Methodology section). The objective of the survey is to follow a sample of Senegalese respondents to take the pulse of the population during the Covid-19 crisis and this report summarizes the results of the first wave of the survey.

3 Results

3.1 Income, employment, food security

86.8 percent of households report their income was below average in the last seven days. This percentage does not vary significantly between Dakar and the rest of Senegal, which is denoted as RDS in the following tables (83.8 percent versus 87.8 percent). Rural areas seem to be more affected, with 91.5 percent of village inhabitants reporting a loss of income, compared to 88.9 percent in medium size towns and 82.7 percent in regional capitals. People living below the poverty line are more likely to report a loss of income (93.7 percent). [6]

[3] John Hopkins tracker https://systems.jhu.edu/research/public-health/ncov/

[4] https://lanouvelletribune.info/2020/03/interdiction-de-la-priere-du-vendredi-des-emeutes-eclatent-a-dakar/

[5] http://aps.sn/actualites/societe/sante/article/covid-19-serigne-mountakha-recommande-aux-fideles-de-prier-chez-eux)

[6] Household income information is only available for 69.2 percent of the sample and must be taken with caution due to possible non-response bias

28.9 percent of respondents reported they had worked the day before, with a much higher proportion in Dakar (36.9 percent) than in the rest of the country (26.5 percent). We plan to monitor this indicator over time to measure the impact of the crisis on employment.

The survey also asked respondents whether they or their households limited or reduced the size of their meals. These food security indicators have already been collected by a former phone survey study, "A l'Ecoute du Sénégal" in 2015-2016.[7] The reduction in the size of meals seems to be more frequent outside Dakar, in villages and among the poor, whereas the reduction in the number of meals is actually greater in Dakar. When these food security indicators are compared to the data collected in 2015-16, it can be seen that the proportion of the population reporting a reduction in meal size has slightly increased but remains significantly lower than the rate observed in July-August 2015 (see Figure 1).[8] However, the number of people reporting a reduction in meal size 4 to 7 times per week has increased sharply in Dakar and the rest of Senegal. It is possible that some of the poorest households are beginning to feel the effects of the crisis and have intensified some food reduction practices. On the reduction of the number of meals, it seems to be at the same level as observed in November-December 2016 and much lower than the July-August 2015 rate. Although the food situation cannot be described as worrying at the present time, chnage in the number of days or meals size is likely to indicate the start of a food crisis for the poorest populations. We plan to monitor this indicator over time to be able to detect a possible deterioration in food security.

Finally, 46.6 percent of respondents said that the price of rice has increased since last month, 52.6 percent said it has remained stable and only 0.7 percent said it has decreased, which could indicate commodity inflation. More households are complaining of price increases outside Dakar (52.2 percent) and in villages (57.8 percent), suggesting that inflation may not be uniform across the country. Data on rice prices paid by households have been collected, and follow-up surveys will make it possible to monitor price trends and measure inflation more accurately.

[7] http://www.ansd.sn/index.php?option=com_content&view=article&id=344

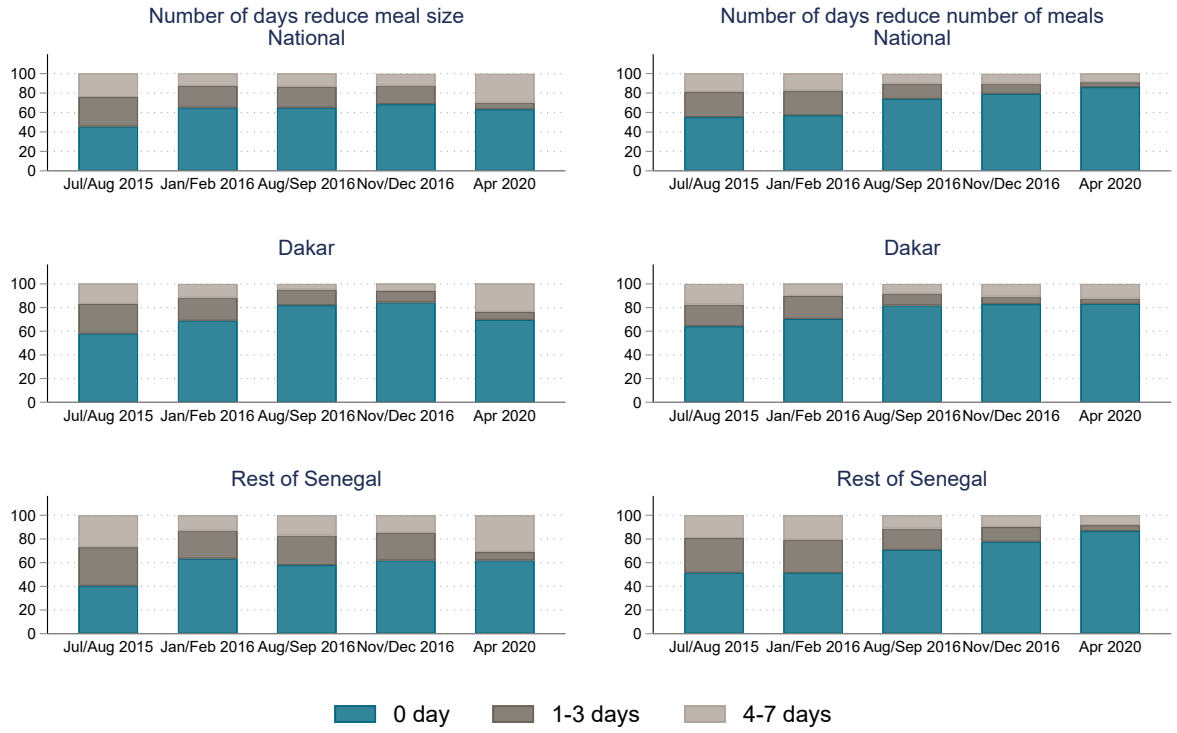
[8] July is the peak of the off-season in Senegal with the highest rate of food difficulties

Table 1: Income, employment and food security

	National	Dakar	ROS	Reg. capital	Other town	Village	No education	Primary	Secondary+	Poor	Not poor
In the past 7 days, my total household income was lower than normal for my household?	86.6	83.3	87.5	83.2	88.8	93.1	89.8	86.4	80.0	93.2	87.5
	(1.30)	(2.24)	(1.55)	(2.28)	(1.71)	(2.35)	(1.76)	(2.84)	(2.31)	(1.64)	(1.67)
Did you spend at least one hour working yesterday?	31.7	40.7	29.0	32.0	29.9	37.9	36.0	32.3	24.4	33.7	32.0
	(1.86)	(3.03)	(2.24)	(2.78)	(2.51)	(6.68)	(3.01)	(3.73)	(2.38)	(3.55)	(2.67)
How many hours did you spend working yesterday?	6.67	7.03	6.56	6.57	6.78	6.80	6.75	6.30	6.92	5.59	6.65
	(.170)	(.253)	(.209)	(.235)	(.266)	(.310)	(.196)	(.453)	(.253)	(.262)	(.220)
In the past 7 days, how many days have you or someone in your household had to limit portion size at meal-times?	2.09	1.75	2.20	1.85	1.96	2.52	2.11	2.37	1.93	2.51	2.05
	(.131)	(.204)	(.160)	(.195)	(.188)	(.406)	(.181)	(.268)	(.179)	(.243)	(.173)
In the past 7 days, how many days have you or someone in your household had to reduce number of meals eaten in a day?	.698	.887	.641	.796	.531	.641	.772	.929	.751	.673	.578
	(.076)	(.166)	(.085)	(.123)	(.087)	(.179)	(.130)	(.199)	(.080)	(.123)	(.101)
Compared to last month, did the price of the rice											
Increase	44.6	28.8	49.3	44.3	45.7	53.1	46.2	50.3	33.2	49.1	48.5
	(3.35)	(5.39)	(4.05)	(4.95)	(4.17)	(10.0)	(4.13)	(4.60)	(4.03)	(4.89)	(3.64)
Decrease	.934	0	1.21	0	.543	1.64	0	0	4.26	0	1.98
	(.660)	(0)	(.860)	(0)	(.537)	(1.28)	(0)	(0)	(2.30)	(0)	(1.27)
Stay the same	54.4	71.1	49.3	55.6	53.6	45.2	53.7	49.6	62.5	50.8	49.4
	(3.34)	(5.39)	(4.04)	(4.95)	(4.18)	(10.1)	(4.13)	(4.60)	(4.09)	(4.89)	(3.80)
Share of population (%)	100	23.1	76.8	36.7	44.8	18.4	47.2	19.4	33.3	41.1	58.8

Standard errors in parentheses.

Figure 1: Feeding strategies



Source: Listen to Senegal for years 2015-2016

3.2 Internal migration

Regional travel restrictions were put in place in Senegal on 19 March to slow the spread of the virus. Before that, population were able to travel because of job loss or fear of being confined away from their families. As part of the survey, we asked people where they are now and where they were on March 1. The results show that a relatively high number of people have changed their location between March 1st and the time of the survey (5.4 percent). The rate of internal migration is much higher among men (8.4 percent) than among women (2.6 percent) and is much more common among people with secondary or higher education (11.2 percent). We also analysed movements between regions and urban/rural areas by estimating the rate of emigration and immigration in the past month. Dakar is the region with the highest emigration rate (9.3 percent) but a relatively low immigration rate (3.8 percent), suggesting a decrease of about 5.8 percent in the population of Dakar. Other regions have a positive net migration rate, and some of them, such as the South, have high immigration and emigration rates, suggesting strong population movements.

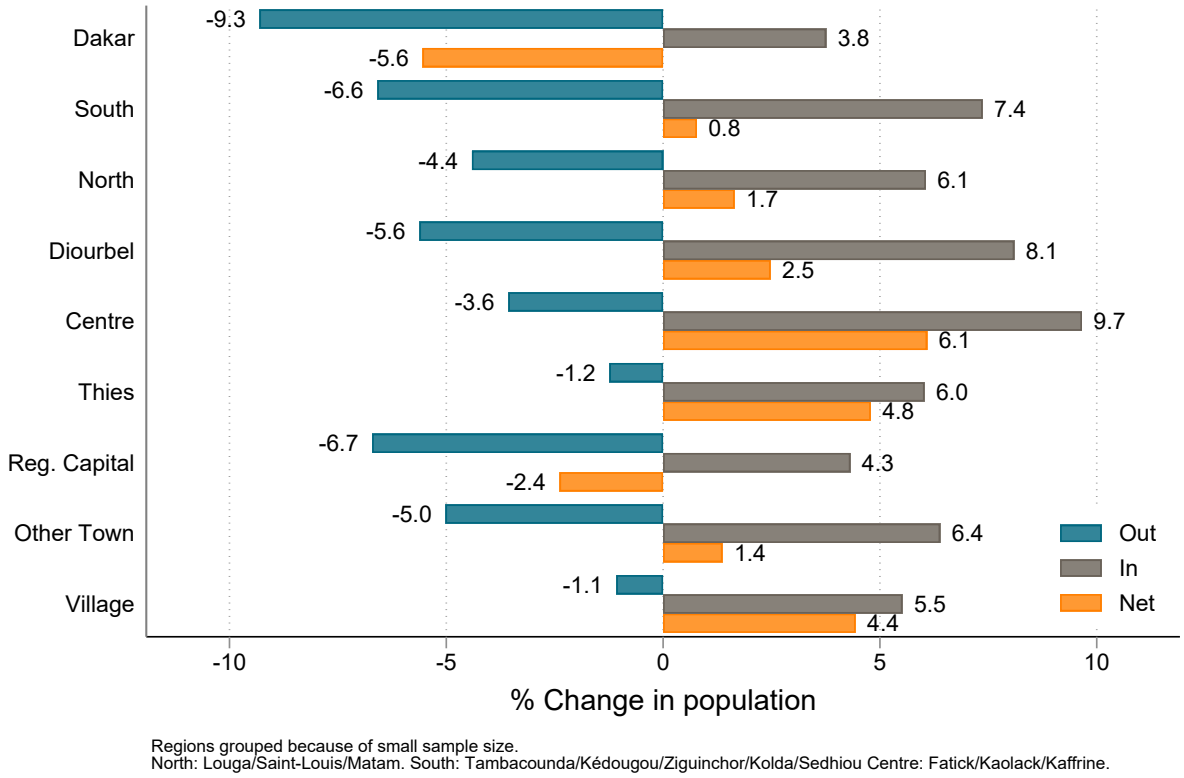
Finally, it seems clear that people have left the large urban centres for smaller towns or villages. 6.7 percent of people have left the regional capitals while only 1.1 percent have left a village. Villages have taken in a large proportion of migrants relative to their population size (5.5 percent).

Table 2: Migration

	National	Female	Male	No education	Primary	Secondary+	Poor	Not poor
Were you staying in the same place at the 1st of March?	6.10	3.03	8.41	6.30	6.80	20.2	7.64	5.91
	(.794)	(.703)	(1.26)	(1.35)	(1.26)	(3.75)	(1.69)	(1.13)
Share of population (%)	100	40.6	59.3	47.4	19.3	33.2	42.9	57.0

Standard errors in parentheses.

Figure 2: Migration rate by region or locality



Regions grouped because of small sample size.
North: Louga/Saint-Louis/Matam. South: Tambacounda/Kédougou/Ziguinchor/Kolda/Sedhiou Centre: Fatick/Kaolack/Kaffrine.

3.3 Awareness and perception

98.6 percent of respondents reported they had heard about the Coronavirus before they took this survey. Television, radio, and newspapers are by far the main source of information on coronavirus (96.6 percent). Official government communications come in second place (53.7 percent), just ahead of social media (51.2 percent), especially among the most educated 67.5 percent) and family or neighbours (26.5 percent). Only 3.4 percent said they keep themselves informed through religious leaders. The coronavirus is a source of concern for the population, with more than half of the respondents saying they are extremely worried about being infected (50.9 percent) and 26.9 percent saying they are worried. Only 8.1 percent said they were not worried. Women reported being extremely worried more often than men (56.1 percent versus 46.2 percent) and the poor less often than the non-poor (41.9 versus 54.1 percent).

As of now, health concerns seem to be more frequent than concerns about money or food. Indeed, for most respondents (56.1 percent), the first source of concern is their health or that of their family. For 39 percent of them, the main source of concern is the lack of money or food (only 4.8 percent do not feel concerned by this crisis).

Table 3: Awarness and perceptions

	National	Female	Male	Dakar	ROS	Reg. capital	Other town	Village	No education	Primary	Secondary+	Poor	Not poor
Before this call,													
had you heard about covid-19?	98.6	99.3	98.5	100	98.2	97.2	99.9	99.2	98.9	98.5	99.0	100	99.4
	(.683)	(.455)	(.897)	(0)	(.889)	(1.37)	(0)	(.674)	(.755)	(1.11)	(.766)	(0)	(.476)
Where do you get information													
on Coronavirus from?													
Government communication	53.7	54.4	52.7	50.4	54.6	55.6	61.6	37.7	46.9	58.5	55.8	63.3	55.0
	(2.10)	(3.11)	(2.51)	(3.03)	(2.58)	(3.08)	(2.60)	(8.24)	(2.92)	(4.07)	(3.23)	(3.15)	(2.82)
Newspaper, TV or radio	96.6	96.5	96.7	97.5	96.4	96.7	96.5	97.5	96.8	99.1	95.0	96.9	96.9
	(.714)	(1.21)	(.897)	(.774)	(.900)	(1.15)	(1.05)	(1.18)	(.931)	(.682)	(1.59)	(1.23)	(1.08)
Social media	51.2	53.5	48.9	63.2	47.5	62.2	53.5	28.5	37.7	49.9	67.5	50.8	46.4
	(2.11)	(3.50)	(2.35)	(2.95)	(2.60)	(3.00)	(3.06)	(7.73)	(2.89)	(4.00)	(2.94)	(3.75)	(2.78)
Family or neighbour	26.5	27.9	25.6	27.6	26.1	23.0	30.1	25.5	26.6	31.1	21.0	27.7	28.7
	(1.92)	(2.97)	(2.26)	(2.77)	(2.36)	(2.60)	(2.78)	(8.05)	(2.71)	(4.32)	(2.66)	(3.23)	(2.75)
Religious leader	3.40	2.13	4.20	.884	4.16	1.47	5.08	1.07	4.06	2.49	1.73	1.83	5.35
	(.793)	(.959)	(1.07)	(.536)	(1.01)	(.639)	(1.45)	(.580)	(1.36)	(1.15)	(.622)	(.907)	(1.33)
How worried are you about													
being infected with Coronavirus?													
Not worried at all	8.11	5.91	9.32	8.91	7.87	6.98	8.70	4.96	6.80	7.05	7.68	7.37	6.60
	(1.15)	(1.60)	(1.43)	(1.62)	(1.41)	(1.41)	(1.71)	(2.24)	(1.50)	(2.10)	(1.47)	(1.87)	(1.30)
A little bit worried	14.0	13.6	14.0	16.6	13.2	16.0	14.4	28.1	15.4	11.6	13.4	14.0	15.1
	(1.36)	(2.18)	(1.51)	(2.34)	(1.62)	(2.51)	(2.23)	(3.45)	(2.21)	(2.39)	(1.90)	(2.32)	(2.07)
Worried	26.9	25.3	29.0	27.2	26.8	27.8	27.1	14.5	29.2	24.0	29.7	34.3	26.0
	(1.76)	(2.78)	(2.25)	(2.65)	(2.15)	(2.92)	(2.40)	(2.83)	(2.66)	(2.96)	(2.67)	(3.40)	(2.32)
Extremely worried	50.9	55.0	47.6	47.2	52.0	49.0	49.6	52.3	48.4	57.2	49.1	44.2	52.2
	(2.11)	(3.41)	(2.46)	(3.02)	(2.59)	(3.38)	(3.13)	(4.65)	(2.97)	(3.81)	(3.15)	(3.52)	(2.87)
What is your main source of													
concern related to the Coronavirus crisis?													
My health and that of my loved ones	56.8	54.6	57.7	57.9	56.4	56.2	61.6	60.8	52.4	57.0	63.9	64.7	65.2
	(2.15)	(3.26)	(2.56)	(3.05)	(2.64)	(3.30)	(2.85)	(3.93)	(3.12)	(4.08)	(3.04)	(3.66)	(2.71)
Lack of money or food	38.4	39.1	38.4	38.1	38.5	40.2	33.7	34.0	42.5	38.0	33.0	32.4	31.3
	(2.09)	(3.41)	(2.54)	(3.05)	(2.56)	(3.25)	(2.74)	(4.22)	(3.06)	(3.99)	(2.92)	(3.58)	(2.68)
I'm not worried	4.69	6.14	3.85	3.89	4.93	3.51	4.57	5.08	4.97	4.84	3.03	2.80	3.39
	(.884)	(1.48)	(.907)	(.964)	(1.11)	(1.12)	(1.19)	(1.93)	(1.18)	(1.84)	(.995)	(1.23)	(.962)
Share of population (%)	100	40.5	59.4	23.1	76.8	37.9	44.2	17.8	46.9	19.1	33.8	42.7	57.2

Standard errors in parentheses.

3.4 Mitigation measures

Mitigations measures seem to have been widely adopted in Senegal. 99.4 percent of respondents reported they wash their hands more often and 95.4 percent avoid shaking hands or hugging. Even the wearing of masks was relatively high despite the absence of official guidelines at the time of the survey (37.9 percent), especially among men (42.5 percent), in Dakar (58.5 percent) and for the non-poor (41.6 percent). [9] Many people are also making efforts to reduce the number of contacts. 94.4 percent of respondents report having reduced the number of visits to family or friends, 68.2 percent work less outside the home, 84.5 percent go to the market or grocery store less often, 89.9 percent have stopped going to the mosque or church, and 93.4 percent say they avoid groups of 10 or more people. 59.4 percent even report that they or their family have isolated themselves in the past week. A high number of people who report practicing mitigation gestures could be the result of a desirability bias and not reflect actual behavior. Nevertheless, these high numbers indicate that people are aware of what is expected of them and are aware of the existence of mitigation measures.

[9] Data was collected before the decision of 20/04 to make the wearing of masks compulsory

Table 4: Mitigation measures

	National	Female	Male	Dakar	ROS	Reg. capital	Other town	Village	No education	Primary	Secondary+	Poor	Not poor
Last week, did you wash your hands with soap more often than used to?	99.6 (.212)	99.5 (.347)	99.6 (.291)	100. (0)	99.5 (.276)	99.7 (.204)	99.3 (.445)	100 (0)	99.2 (.538)	99.9 (0)	100. (0)	100 (0)	99.1 (.616)
Last week, did you avoid handshakes physical greetings?	95.1 (.865)	96.6 (1.23)	94.2 (1.08)	96.7 (.958)	94.7 (1.08)	96.6 (1.13)	93.7 (1.36)	96.9 (1.34)	93.1 (1.51)	98.3 (.792)	92.5 (1.02)	97.2 (.965)	95.7 (1.05)
Last week, did you wear face masks?	39.0 (1.98)	32.8 (2.64)	43.1 (2.57)	58.8 (2.97)	33.1 (2.42)	45.0 (3.38)	40.3 (2.86)	34.0 (8.27)	36.4 (2.69)	41.0 (4.19)	46.0 (3.05)	34.7 (2.92)	45.2 (2.85)
Last week, did you reduce the number of visits to friends or relatives?	94.4 (.908)	95.0 (1.36)	94.1 (1.12)	95.3 (1.20)	94.2 (1.12)	95.3 (1.21)	94.8 (1.26)	94.6 (1.63)	94.1 (1.35)	97.2 (1.07)	94.8 (1.30)	94.1 (1.51)	95.0 (1.25)
Last week, did you work less outside of home?	68.2 (2.05)	68.2 (2.96)	68.6 (2.21)	68.9 (3.08)	68.0 (2.50)	69.3 (2.97)	70.5 (2.82)	76.8 (3.66)	68.2 (3.17)	71.2 (3.81)	68.5 (3.20)	69.4 (3.15)	72.1 (2.60)
Last week, did you or your family isolate yourself from others?	59.7 (2.05)	64.9 (3.03)	55.0 (2.65)	58.2 (2.99)	60.1 (2.51)	61.5 (3.00)	59.3 (2.90)	67.6 (4.23)	55.3 (3.04)	57.0 (4.55)	63.9 (2.61)	66.1 (3.12)	57.5 (2.84)
Last week, did you reduce the number of times you go to the market/grocery store?	84.5 (1.61)	86.8 (2.34)	82.8 (2.04)	86.0 (2.37)	84.1 (1.97)	83.7 (2.64)	86.3 (2.02)	88.3 (2.99)	82.5 (2.49)	88.3 (2.63)	86.8 (2.16)	87.7 (2.23)	85.9 (2.32)
Last week, did you stop going to church/mosque?	89.3 (1.48)	90.1 (1.86)	88.9 (1.94)	92.7 (1.59)	88.3 (1.86)	87.5 (2.15)	91.4 (1.50)	92.0 (2.40)	87.8 (2.09)	91.6 (2.38)	90.9 (2.22)	83.5 (2.57)	91.8 (1.34)
Last week, did you avoid groups of more than 10 people such as parties, funerals, etc?	93.3 (.943)	94.7 (1.28)	92.7 (1.16)	93.2 (1.34)	93.4 (1.15)	92.2 (1.70)	94.5 (1.28)	85.1 (7.52)	91.9 (1.56)	95.4 (1.39)	93.8 (1.71)	92.4 (1.73)	95.2 (.993)
Share of population (%)	100	40.5	59.4	23.1	76.8	37.9	44.2	17.8	46.9	19.1	33.8	42.7	57.2

Figure 3: Compliance with sanitary measures

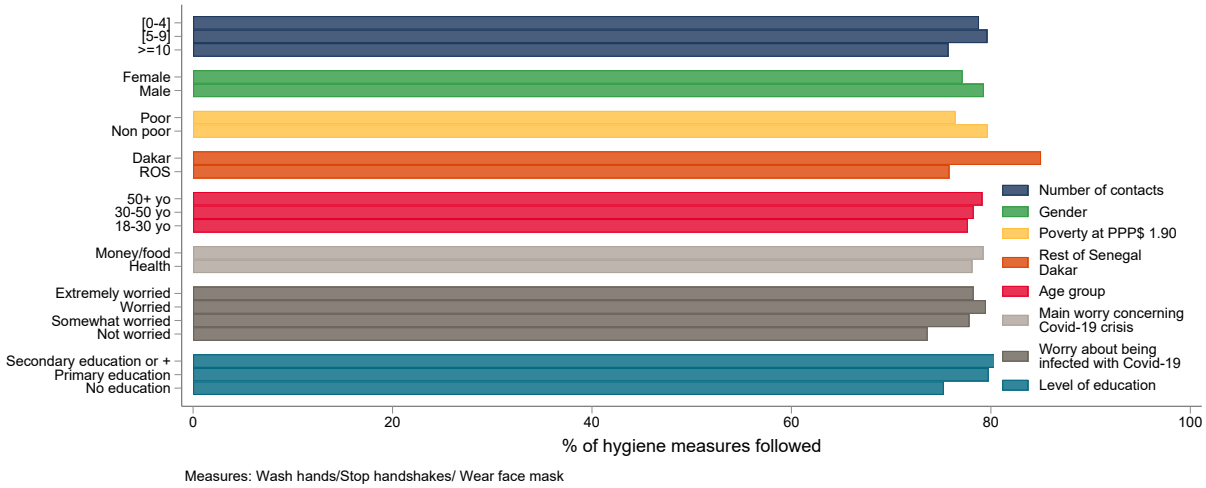
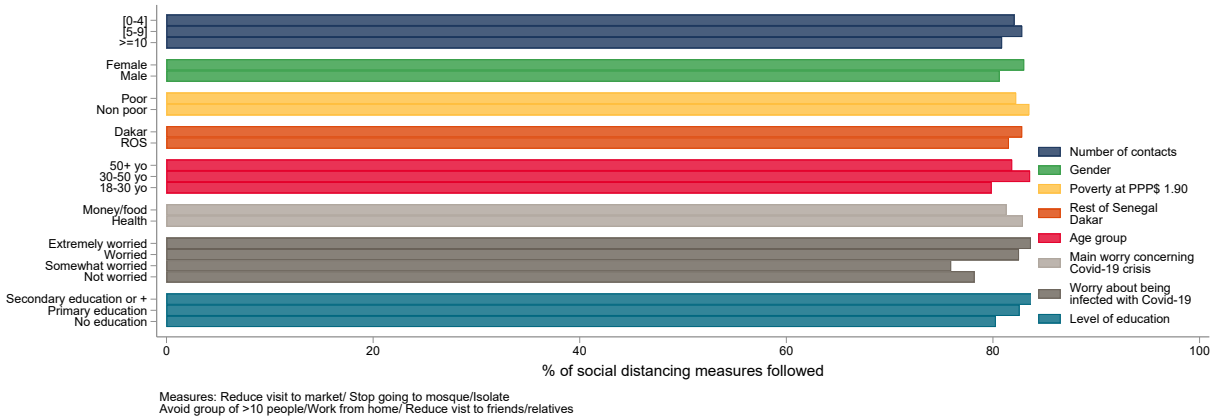


Figure 4: Compliance with social distancing measures



3.5 Governmental support

Senegalese also seem to have confidence in the government's ability to take care of its citizens, with only 5.2 percent of respondents saying they are distrustful or very distrustful, a figure well below the figures reported in an online survey of 58 countries, mainly high-income countries (in these countries the rate of people saying they distrust the government was 43 percent). [10]. Senegalese also tend to trust the government's communication: 87 percent think that the government is sincere or very sincere in describing the facts related to the Coronavirus (compared to 57 percent in the online survey).

72,5 percent de la population est favorable à un confinement de deux semaines pour arrêter la propagation de la maladie, avec un soutien plus important pour la mesure en dehors de Dakar (73,9%) qu'à Dakar (68,2 percent) et pour les femmes (77,1 percent) que les hommes (67,7 percent)). Le soutien pour un confinement

[10] Fetzer & al. ,2020 https://psyarxiv.com/3kfmh

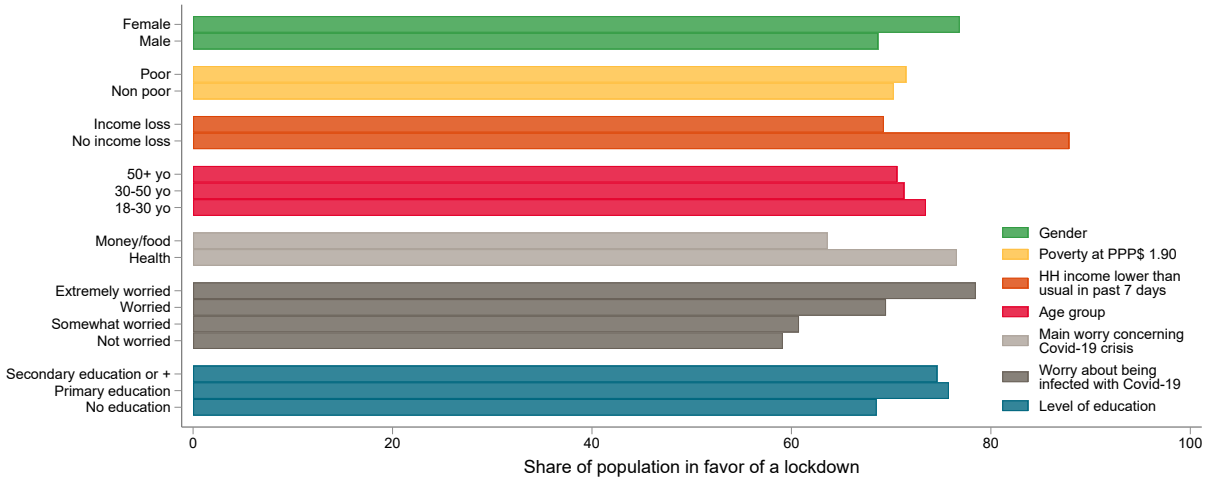
est plus élevé chez ceux qui ne déclarent pas de pertes de revenu, ceux qui sont plutôt inquiets pour leur santé que pour le manque d'argent et pour ceux qui sont très inquiet de la crise. Clairement, la crainte ou l'expérience des difficultés financières liées à la crise rend moins favorable à un confinement.

Table 5: Government policies

	National	Female	Male	Dakar	ROS	Reg. capital	Other town	Village	No education	Primary	Secondary+	Poor	Not poor
How much do you trust your country's government to take care of its citizens?													
Strongly distrust	1.10	1.16	1.02	2.17	.776	1.64	.676	.324	.156	.150	2.39	2.30	.689
	(.373)	(.536)	(.520)	(.841)	(.415)	(.825)	(.353)	(.321)	(.155)	(.150)	(.868)	(1.15)	(.344)
Somewhat distrust	4.14	4.36	3.90	6.25	3.50	3.74	3.48	8.95	4.70	3.49	4.14	2.11	5.19
	(.871)	(1.50)	(.826)	(2.23)	(.913)	(1.05)	(.945)	(4.49)	(1.89)	(1.50)	(.976)	(1.22)	(1.09)
Neither trust nor distrust	9.02	8.99	9.06	6.84	9.68	7.02	12.0	6.43	7.06	11.4	9.95	14.3	9.32
	(1.34)	(2.11)	(1.62)	(1.39)	(1.69)	(1.80)	(2.38)	(2.25)	(1.53)	(3.34)	(2.13)	(2.96)	(1.83)
Somewhat trust	37.7	33.2	42.5	41.3	36.7	39.6	38.0	33.4	38.2	38.8	35.7	45.7	37.7
	(2.04)	(3.17)	(2.55)	(2.97)	(2.50)	(3.23)	(3.00)	(4.77)	(3.31)	(3.83)	(2.84)	(4.03)	(2.96)
Strongly trust	47.9	52.1	43.4	43.3	49.3	47.9	45.8	50.7	49.8	46.0	47.7	35.4	47.0
	(2.20)	(3.49)	(2.63)	(3.24)	(2.69)	(3.42)	(3.42)	(6.43)	(3.52)	(4.69)	(2.85)	(3.35)	(3.09)
How factually truthful do you think your country's government has been about the coronavirus outbreak?													
Very untruthful	2.41	2.70	2.11	2.92	2.26	1.93	1.65	3.08	3.26	.605	2.27	2.37	.859
	(.741)	(1.34)	(.563)	(.832)	(.932)	(.594)	(.778)	(2.00)	(1.50)	(.376)	(.662)	(.914)	(.307)
Somewhat untruthful	4.14	4.00	4.28	5.48	3.73	2.21	5.92	9.47	1.71	6.48	5.22	5.25	3.78
	(1.01)	(1.75)	(.977)	(1.53)	(1.24)	(.691)	(2.09)	(4.45)	(.716)	(2.92)	(1.27)	(2.26)	(1.07)
Neither truthful nor untruthful	6.72	6.40	7.07	5.11	7.21	6.75	7.85	4.60	5.84	8.45	6.70	7.03	10.0
	(.912)	(1.36)	(1.20)	(1.18)	(1.13)	(1.61)	(1.50)	(1.77)	(1.39)	(2.21)	(1.47)	(1.63)	(1.88)
Somewhat truthful	38.0	35.2	40.9	43.1	36.4	41.1	37.4	35.5	39.6	34.4	39.1	45.5	40.4
	(2.06)	(3.21)	(2.55)	(3.31)	(2.49)	(3.35)	(2.92)	(5.76)	(3.37)	(3.95)	(2.88)	(3.74)	(3.12)
Very truthful	48.6	51.6	45.5	43.3	50.3	47.9	47.1	47.3	49.5	49.9	46.6	39.7	44.8
	(2.26)	(3.62)	(2.65)	(3.31)	(2.77)	(3.51)	(3.60)	(4.63)	(3.48)	(4.67)	(3.04)	(3.78)	(3.27)
Are you in favor of a lock-down, for 2 weeks to fight against the spread of the Coronavirus?	72.5	77.1	67.7	68.2	73.9	70.4	73.8	69.1	68.9	76.0	75.8	68.6	74.2
	(1.84)	(2.72)	(2.46)	(2.85)	(2.23)	(2.92)	(2.51)	(5.76)	(3.03)	(3.65)	(2.48)	(3.33)	(2.20)
Share of population (%)	100	51.3	48.6	23.1	76.8	38.0	44.4	17.5	45.6	19.7	34.5	43.1	56.8

Standard errors in parentheses.

Figure 5: Support of 2-weeks lockdown measure



3.6 Number of contacts

A better understanding of the number of contacts people have at work or during the day could help to better model the spread of the disease. We plan to track the average number of contacts people have to estimate the potential impact of confinement if it were to occur. Respondents were asked how many contacts they have during a typical work day and how many contacts they have had in the last 24 hours. Results show a large proportion of people (36.5 percent) have 10 or more contacts during a typical working day, with a higher percentage for men (43.8 percent) or in Dakar (41.2 percent).

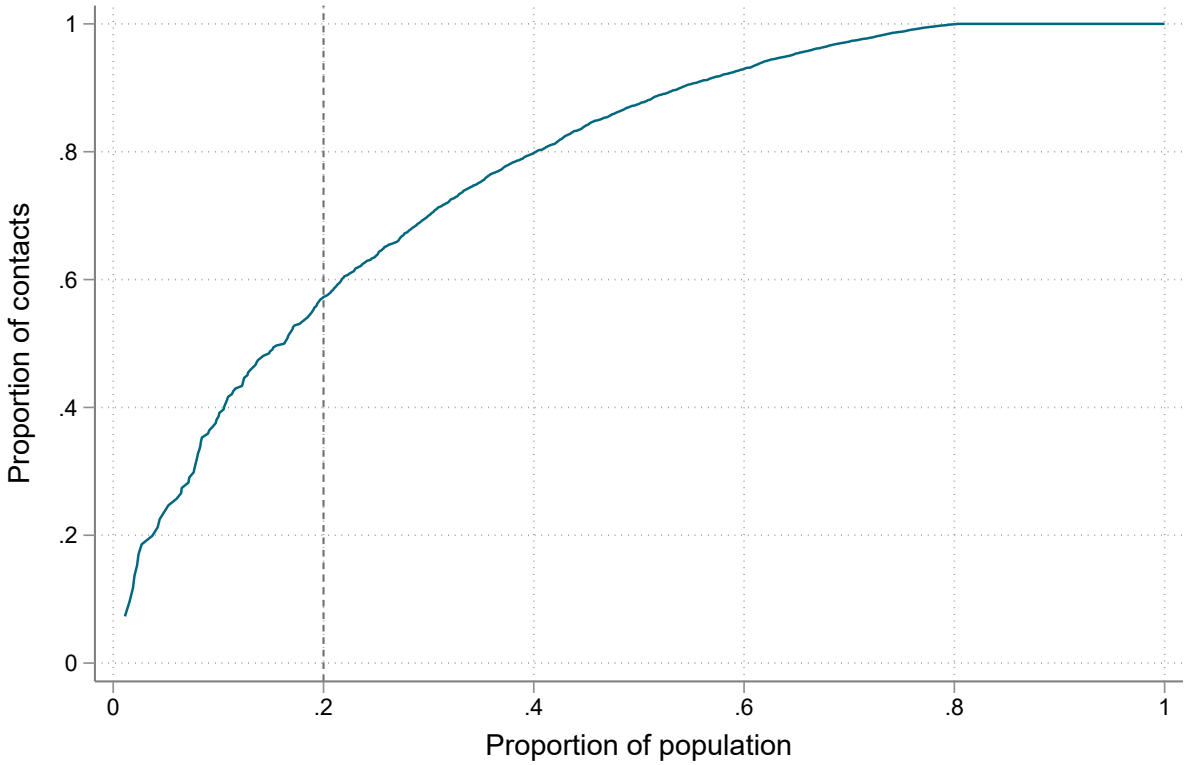
In the last 24 hours of the phone survey, men did not report more contacts than women. The number of contacts in Dakar is similar to the rest of Senegal. A key result is that a relatively small number of people account for the largest number of contacts: 20 percent reported about 60 percent of the contacts and 40 percent reported 80 percent of the contacts. (see figure 6).

Table 6: Nombre de contacts

	National	Femme	Homme	Dakar	RDS	Cap. regionale	Autre ville	Village	Pas d'educ.	Primaire	Secondaire	Pauvre	Non pauvre
Avec combien de pers. etes-vous en contact à l'extérieur de la maison?													
0 a 4	39.8	46.6	32.6	39.9	39.8	41.8	34.9	37.8	39.8	42.4	35.8	28.9	34.0
	(2.16)	(3.41)	(2.60)	(3.41)	(2.62)	(3.32)	(3.01)	(5.03)	(3.47)	(3.94)	(3.08)	(3.75)	(3.10)
5 a 9	23.5	23.5	23.5	18.7	24.9	25.4	24.4	26.4	25.2	22.2	23.2	23.6	25.6
	(1.92)	(2.96)	(2.40)	(2.77)	(2.35)	(3.04)	(3.04)	(5.48)	(2.95)	(3.75)	(3.50)	(3.39)	(3.17)
10 a 50	29.7	23.9	35.8	31.6	29.1	25.2	33.3	25.1	30.5	29.4	28.8	40.0	32.0
	(1.89)	(2.80)	(2.55)	(3.04)	(2.29)	(2.69)	(2.98)	(4.39)	(3.10)	(3.94)	(2.82)	(3.85)	(2.99)
Plus de 50	6.85	5.81	7.95	9.64	6.01	7.40	7.20	10.6	4.33	5.77	12.0	7.35	8.17
	(1.08)	(1.64)	(1.39)	(1.92)	(1.28)	(2.06)	(1.44)	(4.87)	(1.18)	(1.79)	(3.12)	(2.19)	(1.57)
Combien de contacts directs avez-vous eus hier?	7.52	8.06	6.95	7.63	7.49	6.45	9.03	5.23	6.47	7.52	8.38	7.00	7.44
	(.723)	(1.32)	(.506)	(.850)	(.906)	(.592)	(1.23)	(.556)	(.694)	(.913)	(1.29)	(.966)	(.593)
Proportion de la population (%)	100	51.3	48.6	23.1	76.8	38.0	44.4	17.5	45.6	19.7	34.5	43.1	56.8

Erreurs types entre parenthèses

Figure 6: Cumulative share of direct contacts in Senegal



3.7 Covid-19 symptoms

Covid-19 symptoms were collected to track changes over time. The number of people reporting cough, fever or shortness of breath is relatively small and the standard errors are small enough to detect significant changes.

Table 7: Symptoms

	National	Female	Male	Dakar	ROS	Reg. capital	Other town	Village	No education	Primary	Secondary+	Poor	Not poor
In the last two weeks, have you experienced fever?	1.77	2.16	1.56	2.61	1.51	2.07	2.26	0	1.59	1.43	1.80	.115	3.26
	(.381)	(.714)	(.442)	(.785)	(.436)	(.693)	(.674)	(0)	(.523)	(.715)	(.671)	(.117)	(.771)
In the last two weeks, have you experienced a dry cough?	2.19	2.48	2.55	2.32	2.15	.667	3.16	1.56	2.17	4.09	1.64	3.07	2.50
	(.622)	(1.25)	(.795)	(1.01)	(.750)	(.375)	(1.03)	(1.20)	(.884)	(1.49)	(.795)	(1.25)	(.818)
In the last two weeks, have you experienced difficulty breathing / shortness of breath?	1.25	.756	1.58	1.48	1.18	1.90	.953	0	.282	.988	1.74	.537	.852
	(.526)	(.480)	(.759)	(.594)	(.661)	(.857)	(.429)	(0)	(.203)	(.657)	(.777)	(.377)	(.346)
Share of population (%)	(100)	(40.5)	(59.4)	(23.1)	(76.8)	(37.9)	(44.2)	(17.8)	(46.9)	(19.1)	(33.8)	(42.7)	(57.2)

Standard errors in parentheses.

3.8 Education

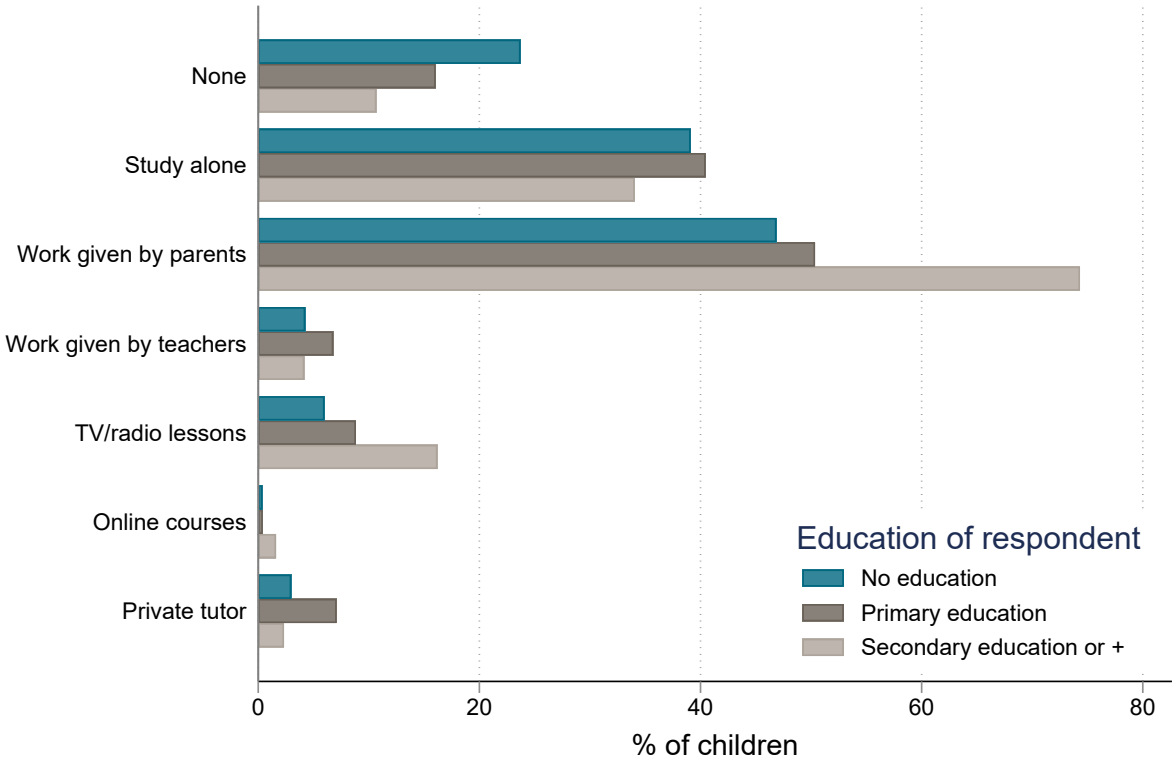
Schools have been closed since 14 March 2020, forcing parents and children to find solutions to continue their children's education. However, 16.6 percent of children do not pursue any educational activity, with a much higher rate among the uneducated respondents (24 percent) compared to those with primary (18.5 percent) or secondary or tertiary (7.1 percent) education. Children living in poor households are also more likely not to pursue learning activities (19.7 percent compared to 14.8 percent in non-poor households). 38 percent of respondents said that children study alone and this is the only learning activity mentioned by 13 percent of respondents, which is probably less educational benefit than when they are supported by a parent or teacher. In fact, 29.6 percent of children do not participate in learning activities or study alone and this figure is much higher when the respondents have no education (37 percent) than when they have secondary school or higher (15.7 percent). The participation of teachers in educational continuity seems to be marginal (4.5 percent) and few children take classes on television/radio (10.1 percent) or online (0.9 percent).

Table 8: Education

	National	Dakar	ROS	Reg. capital	Other town	Village	No education	Primary	Secondary+	Poor	Not poor
What educational activities have children been pursuing since the schools were closed?											
None	17.5	9.34	20.0	20.2	16.3	23.0	23.8	16.8	8.81	22.9	16.5
	(1.87)	(2.19)	(2.34)	(3.61)	(2.50)	(3.50)	(2.86)	(3.46)	(1.92)	(2.65)	(2.84)
Study alone	37.7	36.9	38.0	31.8	41.7	45.5	36.3	37.2	33.4	49.0	43.2
	(2.21)	(4.01)	(2.62)	(3.02)	(3.34)	(4.62)	(3.25)	(4.50)	(3.15)	(3.86)	(3.35)
Exercise given by parents	57.3	68.6	53.9	58.2	54.5	57.9	49.1	52.1	75.4	46.7	55.5
	(2.39)	(4.30)	(2.83)	(3.72)	(3.51)	(7.60)	(3.58)	(5.14)	(2.99)	(3.96)	(3.50)
Exercise given by teachers	4.72	6.56	4.17	6.47	3.96	14.5	3.94	5.11	3.70	1.78	3.54
	(.870)	(1.62)	(1.02)	(1.86)	(.965)	(7.12)	(1.41)	(1.60)	(.833)	(.761)	(1.02)
Education shows on tv and radio	10.1	9.13	10.3	9.67	12.4	2.64	5.83	11.7	15.8	8.01	13.3
	(1.37)	(2.13)	(1.67)	(1.85)	(2.36)	(1.25)	(1.51)	(2.22)	(2.61)	(2.33)	(2.38)
Online courses	.822	2.30	.374	1.51	.390	0	.239	.311	1.45	.386	.637
	(.248)	(.734)	(.235)	(.603)	(.224)	(0)	(.208)	(.313)	(.432)	(.387)	(.222)
Private teacher	3.58	5.50	3.00	3.11	4.77	.725	2.51	5.14	3.23	.818	5.27
	(1.06)	(3.56)	(.877)	(1.41)	(1.75)	(.519)	(.894)	(2.80)	(1.22)	(.473)	(1.97)
No learning or study alone	30.6	20.4	33.7	31.8	31.3	34.8	37.4	32.4	17.1	42.8	32.3
	(2.08)	(3.25)	(2.53)	(3.80)	(3.09)	(7.34)	(3.26)	(4.12)	(2.61)	(3.72)	(3.17)
Share of population	100	23.1	76.8	34.2	46.2	19.5	46.8	19.9	33.1	38.5	61.4

Standard errors in parentheses.

Figure 7: Children learning activities



3.9 Child care and time use

Another problem with school closures is that children may be cared for by grandparents who are more likely to be affected by the disease. However, only a small number (2.6 percent) of the respondents indicated that grandparents are taking care of the children, which is reassuring given the danger that Covid-19 poses to the elderly. Finally, we asked parents about the use of their children's time. The overwhelming majority (93.3 percent) reported they stay at home, which suggests that measures of social distancing are well understood.

Table 9: Children care and children's time use

	National	Dakar	ROS	Reg. capital	Other town	Village	No education	Primary	Secondary+	Poor	Not poor
While schools are closed, who looks after the children?											
Me	16.6	18.1	16.2	17.0	16.8	9.76	13.2	23.6	13.9	10.3	24.6
	(1.67)	(3.04)	(1.98)	(2.57)	(2.58)	(2.36)	(2.24)	(3.39)	(2.25)	(2.26)	(2.92)
Other parent	1.91	2.18	1.82	2.19	.967	2.89	2.23	.995	2.05	1.57	1.20
	(.541)	(.861)	(.654)	(1.21)	(.413)	(1.24)	(.894)	(.785)	(.745)	(.802)	(.473)
Grandparents	2.11	1.64	2.26	2.00	1.71	1.95	2.57	2.01	2.04	2.91	1.55
	(.554)	(.796)	(.681)	(.894)	(.694)	(1.10)	(.908)	(1.27)	(1.06)	(1.07)	(.701)
Extended family	31.8	22.3	34.6	30.2	31.6	32.5	37.1	29.4	30.7	28.0	26.0
	(2.23)	(3.04)	(2.76)	(3.58)	(2.98)	(7.37)	(3.24)	(3.37)	(3.00)	(3.45)	(2.77)
Children look after themselves	1.36	2.65	.971	.395	1.48	2.71	1.35	1.28	1.25	1.52	.884
	(.468)	(1.30)	(.466)	(.258)	(.638)	(1.94)	(.774)	(.684)	(.817)	(.735)	(.559)
Mother or father	27.1	33.0	25.3	34.1	22.2	39.6	26.7	21.4	32.3	29.8	27.8
	(1.94)	(3.95)	(2.23)	(3.20)	(2.51)	(7.29)	(3.07)	(3.26)	(3.32)	(3.72)	(2.84)
Both parents	18.9	19.9	18.7	13.8	25.0	10.5	16.7	21.1	17.6	25.7	17.8
	(1.90)	(3.77)	(2.19)	(2.10)	(3.21)	(2.42)	(2.43)	(3.88)	(2.53)	(3.29)	(2.86)
Can you rank the 2 main activities of children during the day? (1st)											
Stay at home to study	36.9	42.9	35.1	37.1	38.4	23.3	31.4	32.2	47.8	29.3	34.6
	(2.17)	(4.15)	(2.53)	(3.24)	(3.28)	(3.57)	(2.95)	(4.64)	(3.29)	(3.90)	(3.20)
Stay at home to help	19.6	17.8	20.2	16.4	19.9	39.6	21.1	23.5	13.8	26.5	20.4
	(1.71)	(2.73)	(2.07)	(2.55)	(2.39)	(4.21)	(2.45)	(3.81)	(2.24)	(3.40)	(2.52)
Stay at home to play	29.3	30.5	28.9	34.8	27.4	24.0	26.8	34.1	30.5	30.6	30.6
	(2.04)	(3.63)	(2.42)	(3.30)	(2.84)	(4.39)	(3.09)	(4.51)	(3.09)	(3.49)	(2.99)
Play outside	1.59	1.07	1.74	1.21	2.64	1.13	2.49	.288	.388	3.21	.140
	(.569)	(.631)	(.715)	(.733)	(1.22)	(1.02)	(1.01)	(.289)	(.272)	(1.51)	(.140)
Work outside	1.55	.267	1.94	1.75	1.06	2.06	2.47	2.63	.819	1.30	.595
	(.651)	(.268)	(.844)	(.966)	(.925)	(1.35)	(1.22)	(2.25)	(.635)	(.783)	(.539)
Stay at home to study Bible or Coran	6.98	5.72	7.36	7.56	6.79	3.62	10.3	4.06	4.21	5.89	8.40
	(1.30)	(2.28)	(1.55)	(1.89)	(2.04)	(1.30)	(2.48)	(1.85)	(1.57)	(1.75)	(1.97)
Other	3.92	1.63	4.61	.962	3.66	6.09	5.17	3.10	2.38	2.95	5.12
	(1.03)	(.698)	(1.33)	(.550)	(1.22)	(1.86)	(1.53)	(1.33)	(1.26)	(1.41)	(1.48)
Share of population (%)	100	23.1	76.8	34.2	46.2	19.5	46.8	19.9	33.1	38.5	61.4

Standard errors in parentheses.

4 Methodology

4.1 Sampling strategy

The study goal is to get an overview of the current situation in Senegal at the start of the Covid-19 crisis. Given the need for rapid data collection and the travel restrictions to slow the spread of the disease, we decided to conduct a mobile phone survey.

Our objective is to obtain a representative sample of the Senegalese population. In the absence of a sampling frame listing mobile phone numbers, we had to contact respondents through random digit dialing. To do this, we created a list of 12,000 random telephone numbers: 4,000 starting with 76 (Free provider), 4,000 starting with 77 (Orange provider) and 4,000 starting with 78 (Orange provider), but we excluded mobile telephone numbers starting with 70 (Expresso). Our pilot survey shows a very low contact rate for Expresso numbers, and household database analysis including mobile phone numbers of more than 3,000 households in 13 of Senegal's 14 regions showed that most households have more than one phone number and use more than one provider. We found that only 2 percent of households used Expresso exclusively, with little variation across regions.

600 telephone numbers were given to each of the 20 investigators. They were asked to call numbers in the list order. When a number was valid but the call was not answered, interviewers were asked to call back up to four times at four different times of the day (before 11:00 a.m., 11:00 a.m. to 2:00 p.m., 2:00 p.m. to 5:00 p.m., after 5:00 p.m.) before the telephone number was abandoned. The objective was to ensure that the final sample would not be biased in favour of respondents who are more likely to answer the telephone on the first attempt.

Once contacted, investigators introduce themselves and verify the age of the person. Only respondents over the age of 18 were interviewed if they consented to the survey. A financial incentive of 1,000 FCFA (1.67 $) was sent to participants at the end of the survey.

4.2 Survey

The survey took place from 7 to 13 April 2020. A total of 5,100 different telephone numbers were contacted, resulting in 1,704 contacts (contact rate: 33.4 percent), of which 66 were ineligible because the respondent was under 18 years of age (3.9 percent). Of the 1,638 eligible participants in the survey, 1,055 agreed to participate (consent rate: 64.4 percent), but 32 did not complete it. 450 refused to participate (26.4 percent) and 109 told us to call them back but could not be reached before the end of data collection (6.4 percent). As a result, a total of 1,023 completed interviews were conducted and 1,000 agreed to be called back for a follow-up survey (97.8 percent of completed surveys). 3,396 calls were unsuccessful, 1,158 because the number did not exist (34 percent) and 2,238 because no one answered the call (65.9 percent). 23.6 percent of respondents were reached via the Free network and the remainder (76.4 percent) were reached on the Orange network.

Table 10: Call diary

Phone numbers called	5100
Phone numbers reached	1704
Ineligible (<18 yo)	66
Consent given	1055
Refuse to participate	450
Fail to call back	109
Phone numbers unreachable	3396
Number does not exist	1158
Ring but fail to answer	2238

4.3 Sample representativeness

In Senegal, 97.1 percent of the population lives in a household with at least one mobile phone (source: DHS 2017), with very high rates in all regions of the country (the minimum is in Matam with 93.7 percent). This suggests that a mobile phone survey can potentially reach almost the entire population of Senegal. Random digit dialling is likely to be biased in favour of the richer regions and households, as network coverage is better in large urban centres and richer households probably have more mobile phones per person. It is also possible that some people may be less likely to answer a call because they are busier or because they do not want to answer calls from unknown numbers.

The following table presents the results of some key demographic variables for the unweighted sample, the weighted and post-stratified sample and the national statistics. The figures for the unweighted sample show that men, young people, better educated people, people living in Dakar and non-poor people are over-represented in the sample.

In order to correct for the lack of sample representativeness, we applied two corrections. First, the sample was post-stratified by group of regions (6 regions were used for post-stratification: Dakar, Diourbel, Thiès, Centre (Fatick, Kaffrine and Kaolack), North (Louga, Matam, Saint-louis) and South (Ziguinchor, Kolda, Sédhiou, Tambacounda and Kédougou) and the percentage of women by group of regions, taking the official regional figures. Second, respondents were asked to indicate the number of functional mobile phones available in their household in order to estimate the probability of a household being included in the sample. The sampling weights were calculated as the inverse of the number of mobile phones in the household multiplied by the size of the household in order to estimate representative population-level figures (multiplied by the number of adults for adult-level figures and multiplied by the number of children for child-level figures). The population statistics for the stratified and weighted sample are shown in column 2. By construction, the proportion of women is equal to the national average. Living in a regional capital city is slightly closer to the national average, but could be higher because of respondents telling us they are in the capital city while living in the suburbs of the city. Men's education is very close to the national statistics, while women's education is closer to the national statistics but remains higher than the education level of the average Senegalese woman. Finally, poverty rates are relatively close to the most recent estimates. [11]

A caveat is to be noted: information on the number of mobile phones is missing for 128 observations because it was not collected on the first day of the survey. The variable was imputed using the education level of the respondent, the number of adults and children in the household and the region of residence. The exclusion of observations for which the number of mobile phones was imputed does not change the results significantly.

[11] World Bank, 2011

Table 11: Sample representativeness

Variables	Unweighted	Weighted + Stratified	National statistics
Female share	38.5	40.5	51.4
Male age	36.4	37.1	36.6
Female age	34.1	34.1	37.1
Male no education	39.4	46.2	49.6
Male primary education	20.5	19.6	19.2
Male secondary education	27.0	24.7	23.8
Male tertiary education	12.9	9.33	7.4
Female no education	37.4	48.1	60
Female primary education	20.8	19.7	18.2
Female secondary education	32.0	24.8	18
Female tertiary education	9.67	7.28	3.8
Dakar	36.7	23.1	23.1
Ziguinchor	4.12	4.10	4.1
Diourbel	11.0	11.1	11.1
Saint-Louis	4.97	6.60	6.6
Tambacounda	2.81	5.20	5.2
Kaolack	7.41	7.10	7.1
Thies	14.3	13.0	13
Louga	4.40	6.40	6.4
Fatick	4.31	5.30	5.3
Kolda	1.59	4.90	4.9
Matam	2.72	4.30	4.3
Kaffrine	2.15	4.30	4.3
Kedougou	1.12	1.10	1.1
Sedhiou	.750	3.40	3.4
Live in regional capital city	43.9	38.1	19.6
Poverty 1.9(2011)	34.6	41.1	38
Poverty 3.2(2011)	52.3	60.0	68
Poverty 5.5(2011)	72.1	79.6	88
Mean SE	1.59	1.92	

Source of data for national statistics:

- ANSD, 2018: female share, female/male age and regions
- DHS, 2017: Male/female education
- RGPHAE, 2013: Live in a regional capital
- World Bank, 2011: Poverty rates

4.4 Poverty indicator construction

The poverty level of the respondents was determined by asking the total household income in the last month (March 2020). Respondents were asked to classify their household income into nine different brackets (less than 100,000 FCFA; 100,001 to 200,000 FCFA, etc.).). 30.8 percent of the observations are missing because respondents said they did not know their household income. Analyses comparing poor and non-poor are therefore limited to 69.2 percent of the sample and must be taken into account with caution due to the risk of non-response bias.

The median point of each band was divided by an adult equivalent [12] with a household economy of scale parameter of 0.9 and a coefficient of 0.3 for children.

[12] Deaton & Zaidi, 2002