Africa's dual lockdown dilemma: high poverty and low trust

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Introduction

In high-income countries, the primary policy response to suppress the spread of Covid-19 has been to lockdown large sections of the population for an extended period of time (at least one month). As the disease is spreading in lower income countries, similar sets of policies have been applied or are actively being considered. However, there is growing unease that replicating policies from high income countries not just poses additional challenges outside these contexts, but it also might inflict irreparable damage on households and even foment social unrest. In sub-Saharan Africa (SSA), in particular, many people need to leave their homes on a daily basis to access clean water or sanitation facilities, including in urban areas. These challenges are particularly stringent in poor and high-density urban neighborhoods (Raju and Ayeb-Karlsson 2020). Also, reflecting high levels of economic informality and urban un(der)employment (Sanny and Selormey 2020; Ebrahim 2020; Sen 2020; Were 2020; Ray et al., 2020), many families live on a hand-to-mouth basis, with limited savings and lacking in opportunities to either work from home (Dingel and Neiman 2020) or educate their children online (Isbell 2020).

In this context, and in the absence of data-driven approaches to estimate the feasibility of lockdown policies, in this note we quantify the extent to which socio-economic conditions are suitable to enact a strict lockdown across SSA. Using harmonized Afrobarometer data from 2019, covering 34 countries, we construct a simple multidimensional lockdown readiness index. This reveals that just 6 per cent of households overall, or 11 per cent in urban areas, meet all the conditions for a lockdown. As might be expected, our readiness index correlates strongly with other aggregate indicators of development, including GDP per capita. However, this correlation is imperfect and there are notable outliers.

In addition, we explore the extent to which trust in political institutions and in the local community might offset some of the costs of imposing a lockdown or at least help facilitate other public health interventions. Economic literature on trust suggests that collective action problems, such as the CoVid-19 pandemic, can be addressed more effectively where populations trust political decision-making processes, public officials, police and health workers, as well as their fellow citizens (Algan and Cahuc 2013; Fukuyama 1995; Knack and Keefer 1997; Knack, 2002; Helliwell and Putnam, 1995; La Porta et al., 1997; Godlee 2020; Buseh et al. 2015). This argument is made in the present crisis by Bargain and Aminjonov (2020) for European countries; and there is ample evidence of the key role of local actors in transmitting messages on health and safety and rallying their communities behind political decisions in public health emergencies (Nuriddin et al. 2018; Santos and Novelli 2017). During the Ebola Virus Disease epidemic in West Africa, for instance, individuals and communities that mistrusted the government were much less likely to take precautions against the virus, including government mandated social distancing measures (Blair et al., 2017; Vinck et al. 2019), and were also hostile to public health officials, impeding effective interventions (Elston et al. 2017).

Our analysis for urban areas of sub-Saharan Africa indicates that trust and readiness tend to go hand in hand. Lower levels of readiness are not compensated by relatively higher levels of trust, either in institutions or within the local community. This provides a stark warning against relying on top-down lockdown measures that are often hard to understand for the poorest populations and who are also

likely to suffer from them economically before more wealthy population groups. This does not imply low income governments should do nothing. Instead, close engagement with local communities and innovative thinking around how to contain the virus are critical (e.g. Raju and Ayeb-Karlsson, 2020). And here there may be a silver-lining – if governments prove effective in handling the crisis, public trust in government could increase as a consequence (Flückiger, Ludwig, and Sina Önder 2019).

A measure of lockdown readiness

We begin with our measure of lockdown readiness. For analytical tractability, we consider the following five minimum components of being ready for lockdown – namely that, w*ithin* the household, the family has access to: (1) safe drinking water; (2) basic sanitation; (3) a source of reliable energy; (4) a means of information or communications technology (e.g., a mobile phone); and (5) regular employment, which provides sufficient income not to go without cash on a frequent basis.[1] If the first three criteria are not met, then almost all household members will need to make multiple daily trips outside the home to places where other people congregate (e.g., communal taps or ablutions).

But even if basic household conditions are in place, this does ensure there is food on the table. Families living hand-to-mouth would still struggle to stay locked-down. And as noted in other contexts, disobedience or social unrest can quickly follow if a lockdown drives people into despair. Thus, we define a household as "fully ready" if all five conditions are met and as "partially ready" if at least the first 3 of the 5 conditions are met – meaning they have at least basic facilities to spend long periods of time within the home.

Taking this measure to data, we use the latest round of the Afrobarometer data, which are nationally representative surveys conducted every few years across the continent to assess public opinion towards democracy, governance, and society (for further description see Afrobarometer, 2019). We use the harmonized data from the latest round, collected in 2019, which covers 37,696 people in 33 countries. Panel (a) of Table 1 presents some basic summary statistics from the cleaned data and Panel (b) shows the pooled means for the five individual variables that enter our lockdown readiness index, differentiating between urban and rural areas. In terms of access to water, sanitation and electricity, we observe that almost 70 per cent of the sample have basic sanitation in the home, almost half have electricity, but only 42 per cent have access to safe drinking water. However, as shown in Panel (c), a much smaller proportion have access to all three of these basic public services at the same time – i.e., the share of households that are partially ready is just 30 per cent overall or a little over half of the urban population.

INSERT TABLE 1 ABOUT HERE

Turning to the economic dimensions, mobile phone or telephone ownership is relatively common, at 88 per cent. Yet only 12 percent of the households report having a stable source of income. Indeed, this is such a critical constraint that, on average, only 6 percent of Sub-Saharan African households can be considered fully prepared for a lockdown scenario. Put differently, the average household is ready in less than 3 of the five dimensions defined as required for lockdown readiness.

Material differences between rural and urban areas are apparent from Table 1. In the former case, the share of fully ready households is just 2 per cent, due to low basic service penetration and few stable sources of (cash) income. Realistically, therefore, strict lockdowns (*quasi* self-isolation) only

[1] The survey asks whether the respondent has gone without cash income. We consider those who reply "Always" or "Many times" as being in a casual/irregular job and thus not prepared for lockdown, even if they say that they currently work.

represents a potentially-meaningful option in urbanized settings, which are also areas where the need for social distancing is greater due to higher population densities.

Focusing hereafter on the urban sample, while less than 2 in 10 households appear to be fully ready for a lockdown, more than half can be considered partially ready. At the country level, it is unsurprising that the richest countries show the highest levels of readiness (Figure 1a). However, even in these cases less than a third of the urban population is fully ready for lockdown. The ranking of countries is slightly different for partial readiness, capturing variation in access to basic services at home. Also the range of partial readiness is much broader – from as low as 7 per cent in Liberia to more than 80 percent in Senegal. See the Appendix for detailed, country-specific results.

INSERT FIGURE 1 ABOUT HERE

INSERT FIGURE 2 ABOUT HERE

Obviously, our measure of lockdown readiness captures some generic features of 'development'. However, as hinted by the previous figures, there is not a one-to-one relationship between readiness and aggregate development indicators, such as real GDP per capita. As shown in Figure 2a, the cross-country relationship between aggregate income and full readiness is in fact log-linear. Approximately speaking, a doubling of real income is associated with just a 5 percentage point increase in the share of the population that is fully ready. Furthermore, we see that some nominally rich countries, such as Gabon, show much poorer readiness for lockdown given their level of income.

Trust and lockdown

Adequate living conditions, a stable income and access to information alone may not ensure a lockdown is sustainable. As discussed, trust in national and local institution, as well as social cohesion, might play a crucial role in enforcing lockdown measures or provide a basis for alternative approaches. To investigate the relationship between trust and readiness, we first define two continuous measures of trust, applying latent trait modelling (e.g., Vandemoortele, 2014). One is a measure of institutional trust, which combines answers to questions about trust in the president, the parliament, the police and traditional leaders. The second captures a metric of social or community trust, defined from membership in religious groups, voluntary associations, community groups and attendance in community meetings. While we admit that pooling these different indicators is crude and potentially hides important heterogeneities across countries, our aim is merely exploratory in nature. Also, by definition, the latent variables lack an external anchor point and therefore can only be interpreted in relative terms, explaining why they are normalized to have a mean of zero and standard deviation of one (as is standard practice).

We present two sets of results. First, we plot lockdown readiness against the residuals of a cross-country regression of the trust indicators on GDP per capita and individual characteristics. This seeks to show whether there remains a correlation across countries between levels of trust and levels of readiness after removing any correlation between trust and other factors. Figures 3a and 3b show the results. While both figures reveal a diverse relationship between readiness and (residual) trust, there remains a moderate positive relationship on average, which is especially apparent if one excludes the small (more homogenous) countries of eSwatini and Cabo Verde. This means readiness and trust seem to be positively related across countries. And, critically, there is a group of countries that display both very low relative levels of trust *and* very low lockdown readiness, namely the West African countries of Benin, Gabon and Niger.

INSERT FIGURE 3 ABOUT HERE

The visual analysis provides a preliminary indication that there is no simple trust 'offset' – i.e., low levels of readiness are *not* compensated by relatively higher levels of trust on average, implying the risks of a backlash from imposing lockdown cannot be ignored. To explore these relationships more formally, we set-up a log-linear model, akin to a multi-way contingency table, from which the presence and direction of conditional associations between variables can be ascertained, without needing to decide which variables are dependent or independent as in a more conventional regression framework (for details of this approach see Agresti, 2003). To do so, we dichotomize our latent trust variables (low versus high) and further classify individuals into ordinal categories of age group, education and country income groups (also high and low). We then aggregate the individual-level dataset into unique groups formed from all possible combinations between these categories (readiness, trust, income groups, etc.), counting the number of observations within each group.[2] The (log) of this count then serves as the dependent variable of interest and we focus on which interactions (if any) between categories improves upon a simple model in which we assume all variables are assumed to be mutually independent. Intuitively, this approach represents an extension of a chi-squared type analysis (of a two-way contingency table) to a more complex setting.

Table 2 reports the main results from this analysis. Column (1) presents the marginal model, which assumes all variables are independent (i.e., no interactions are included). Column (2) adds all two-way interactions, as well as the three-way interactions between income, trust and readiness. Comparing the two models, the second model is clearly to be preferred, as shown by the log-likelihood statistics (and AIC). Moreover, the latter results show a strong positive conditional association between the two measures of trust and readiness. This confirms the earlier insight – higher trust is positively associated with higher readiness, after controlling for a range of confounding factors. So, there is no trust offset on average. Columns (3) and (4) repeat the same two-way analysis for each of the two aggregate income groups, which effectively allows for all three-way interactions including income in the specification. These further results show that the positive relationship between trust and readiness is most systematic within the lowest income group of SSA countries.

INSERT TABLE 2 ABOUT HERE

Conclusion

To summarise, we developed a simple index of lockdown readiness and applied this to harmonized survey data collected in 2019 to 34 sub-Saharan African countries. This revealed that less than 3 in 10 urban households are fully ready for a prolonged lockdown and less than 1 in 10 in rural areas. While this measure is positively correlated with aggregate measures of development, such as per capita GDP, it is by no means perfectly correlated and some outliers are evident.

We also investigated the relationship between trust and readiness in urban areas, motivated by existing evidence that trust can greatly enhance the effectiveness of public health interventions in various contexts, including low income countries. Unfortunately, the analysis here revealed the absence of a trust offset. Rather than lower readiness being compensated by higher institutional and social trust, the opposite seems to be the case, at least when we look across countries in the region. This suggests that strict lockdown policies may be even more difficult to enforce where readiness is lowest.

What are the implications? First, given that low readiness is often crucially determined by a lack of a regular income (or savings), basic social protection measures in the form of food or cash transfers

[2] We undertake the aggregation at the country level to ensure sufficient degrees of freedom and allow for country-specific analysis. This is not reported due to space limitations.

must be considered as essential complementary measures alongside social distancing policies. This is all the more important since poorer populations generally do not blindly trust their governments or have a cohesive community on which they can draw support. Second, the need for effective communication and community engagement cannot be considered an optional extra. And while it is not possible to find 'off the shelf' solutions to build trust, the point is that top-down administrative measures to contain the virus risk backfiring among the poorest communities that may be economically worst hit and thus most vulnerable.

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Appendix – Country-specific results

Table A1: Summary statistics of main variables by country for urban population

	N	Age	Female (%)	Years of Education	Water (%)	Sanitation (%)	Electricity (%)	Phone (%)	Not cash constrained (%)	Fully ready (%)	Partially ready (%)	Ready dimensions
Benin	1159	30	49.6	6.5	50.7	62.9	60	94.6	5.8	3.3	37.7	2.7
Botswana	1117	31	50.2	9.6	95.1	95.6	83.3	97.5	21.6	18.4	81.3	3.8
Burkina Faso	1146	30.5	51.7	7.2	69.2	89.1	69.2	97.3	6.3	5.3	60.3	3.3
Cabo Verde	1093	31.4	50.1	8.8	85.5	91.8	94.9	96.3	35.7	30.7	78	4
Cameroon	1154	27.8	50.4	9.9	51.1	85.3	89.3	97.2	5.9	3.6	47.1	3.3
Côte d'Ivoire	1170	29.4	50.3	7.7	73.5	83.8	84.2	96.8	7	4.9	64.8	3.4
eSwatini	1120	29.8	48.8	10.5	90.1	92.1	91.1	99	35.5	30	81.8	4.1
Gabon	1178	28.5	50.2	10.9	71.9	87.9	96.5	97.8	6	5	67.8	3.6
Gambia	1146	30.1	50.8	6.5	46.4	92.8	59.2	97.6	22.8	11.8	37.1	3.2
Ghana	2254	30.7	50.8	8.7	47.7	55.5	94.9	97.9	48.5	22.7	38.5	3.4
Guinea	1092	31.2	51.2	6.9	45.4	85	78.1	95.8	2.8	1.9	37.4	3.1
Kenya	1526	29.2	50.2	9.5	60.7	86.4	81.7	93.7	27.7	16.4	52.6	3.5
Lesotho	1026	32.1	51.3	9.1	67.1	90	61.2	96	13.5	9.1	47.1	3.3
Liberia	1173	28.1	50.2	9.1	30.1	64.8	40.9	93.6	9.5	2.1	14.2	2.4
Madagascar	1133	32.7	51.8	9.2	62.7	86.1	78	82.4	9	6.9	53.1	3.2
Malawi	1132	29.2	51.1	8.8	48.9	68.8	54.8	82.8	15.8	8.1	33.9	2.7
Mali	1111	30.7	50	6	62.4	95.7	82.2	97.3	9.7	7.8	56.2	3.5
Mozambique	2303	27.9	50.1	8.2	58.3	86.4	70.3	88.3	16.5	11.6	49.7	3.2
Namibia	1157	28.6	50.9	10.3	69.2	65.6	65.9	96.1	27.2	17.2	54.1	3.2
Niger	1127	31.5	52.1	5.6	61.3	88.1	77.3	90.2	7.2	6.2	53.1	3.2
Nigeria	1561	27.3	50.2	10.5	58.1	86.4	91.1	97.1	26.9	15.7	51.8	3.6
Senegal	1136	31	50.9	7.1	89.7	97.3	90.7	99.7	6.6	6.3	85.4	3.8
Sierra Leone	1155	29.7	50.2	7.5	24	68.9	44	88.4	13.3	4.7	14.7	2.4
South Africa	1728	32.1	49.5	10.4	89.9	89.6	84.1	96.4	32	25.5	73.8	3.9
Tanzania	2253	31.1	51.2	7.3	40.4	78.2	70.1	96.1	25	9.1	33.8	3.1
Togo	1151	29.6	50.8	9	52.9	88.2	93.7	97.4	1.7	1.5	48.6	3.3
Uganda	1155	27.9	50.2	9.1	32	65.9	60.4	93.8	20	6.9	23.9	2.7
Zambia	1145	28.2	50.1	9.2	59.8	91.7	69.3	90.1	15.9	10.1	48.9	3.3
Zimbabwe	1095	29.7	51.2	10.7	90.5	95.3	88.6	97.9	8.6	7.2	80.2	3.8

Table A2: Summary statistics of main variables by country for rural population

	N	Age	Female (%)	Years of Education	Water (%)	Sanitation (%)	Electricity (%)	Phone (%)	Not cash constrained (%)	Fully ready (%)	Partially ready (%)	Ready dimensions
Benin	1159	30.2	51.2	4.2	15.5	23.7	16.3	89.3	3.5	0.2	3.6	1.5
Botswana	1117	34.3	48	7.7	62.4	74	54.1	90.1	14.7	9.6	48	2.9
Burkina Faso	1146	32	50.9	2.1	8.9	39.1	3.7	90.5	1.3	0	0.6	1.4
Cabo Verde	1093	33.5	51.5	6.7	74.5	71.7	85.4	89.2	21	14.6	52.3	3.4
Cameroon	1154	29.1	50.3	7.2	23.8	82.8	50.9	89.8	7.4	2	17.2	2.5
Côte d'Ivoire	1170	31.9	49.8	5.4	29.2	46.3	41.1	90	3.6	1.4	17.7	2.1
eSwatini	1120	31.2	49.9	8.6	58.1	73.6	77.7	96	15.5	8.2	41.4	3.2
Gabon	1178	32.4	49.6	8.9	20.3	69.4	36.4	84.3	1.7	0.4	12	2.1
Gambia	1146	30.5	51.2	6.1	53	93.1	53.7	98.6	21.4	15	46.5	3.2
Ghana	2254	32.1	50.4	6.4	10.8	25	71.9	90.2	30.7	3.2	7.4	2.3
Guinea	1092	34.1	52.3	2.5	14.8	54.3	4.5	88.8	0.3	0	1.6	1.6
Kenya	1526	31.1	51.3	7.4	34.1	80.9	23.5	87.3	16.7	3.1	13.9	2.4
Lesotho	1026	34.7	49.6	6.3	9.2	62.8	15.9	89.3	4	0.3	3.5	1.8
Liberia	1173	29.6	50.6	6.4	13.3	25.8	2.3	74.5	5.1	0.2	0.2	1.2
Madagascar	1133	33.6	51	6.2	33.4	62.7	7.1	46.4	4.7	0.5	3.8	1.5
Malawi	1132	29.5	51.3	5.6	9.5	41.9	3.6	56.4	3.8	0.2	0.8	1.1
Mali	1111	33.2	52.9	2.1	25.6	81.8	8.9	92.9	3.2	0.1	4.8	2.1
Mozambique	2303	28.4	51.5	6.1	20.2	66.9	23.8	73.1	8	1.8	8.4	1.9
Namibia	1157	31.5	50.3	8.1	51.4	21.9	27.5	89.2	13.3	3.5	12.6	2
Niger	1127	31.9	52.2	1.7	4.6	30.5	10.3	71.2	1.4	0.1	1.8	1.2
Nigeria	1561	27.9	50.7	7.9	31.9	73	65.8	91.1	20.5	5.6	21	2.8
Senegal	1136	31.5	52.3	2.8	65.3	82.4	45	94.1	3.5	2.6	39.3	2.9
Sierra Leone	1155	30.2	50.5	5.7	16.5	57.5	12.6	74.2	6.2	1.1	5.3	1.7
South Africa	1728	31.8	50.6	9.1	52.7	71.1	82.1	95.4	16.3	8.1	38.8	3.2
Tanzania	2253	31.7	51	5.3	9.9	55.9	11.6	85	16.6	1.2	3.9	1.8
Togo	1151	30.6	50.3	7	15.6	44.9	36.9	87.2	1.3	0.1	10.8	1.9
Uganda	1155	31.1	50.2	6.2	4.2	38.1	3.1	76.8	8.6	0.1	0.7	1.3
Zambia	1145	31.1	50.8	6.7	23.8	84.1	7.5	66.2	8.1	1.6	4.1	1.9
Zimbabwe	1095	32.8	51.1	8.2	33.7	67.2	9.8	89.1	4.4	0.6	7.1	2

TABLES & FIGURES

Table 1: Pooled statistics from AfroBarometer 2019

	Mean	SD	Urban	Rural	Country min	Country max
(a) Descriptive statistics						
Age	30.7	11.8	29.9	31.3	27.6	33.4
Female (%)	50.7	50.0	50.5	50.9	49.5	52.6
Years of education	7.1	4.6	8.8	5.8	2.5	10.5
(b) Lockdown readiness "inputs"						
Access to clean water (%)	41.5	49.3	62.5	25.1	11.8	86.1
Access to sanitation (%)	68.4	46.5	82.5	57.4	41.7	92.9
Access to electricity (%)	49.8	50.0	77.9	28.0	13.5	91.3
Access to mobile phone/telephone (%)	88.3	32.2	95.3	82.8	54.6	98.0
Not cash constrained (%)	13.8	34.5	19.4	9.5	1.0	39.7
(c) Lockdown readiness						
Fully ready (%)	6.7	25.0	12.2	2.4	0.6	24.6
Partially ready (%)	29.9	45.8	52.9	12.1	6.5	72.1
Number of dimensions	2.6	1.4	3.4	2.0	1.4	3.8
Observations	37,696					

Notes: Weighted by country population.

Source: Authors' own calculations from AfroBarometer round 7.

Table 2: Log-linear model results

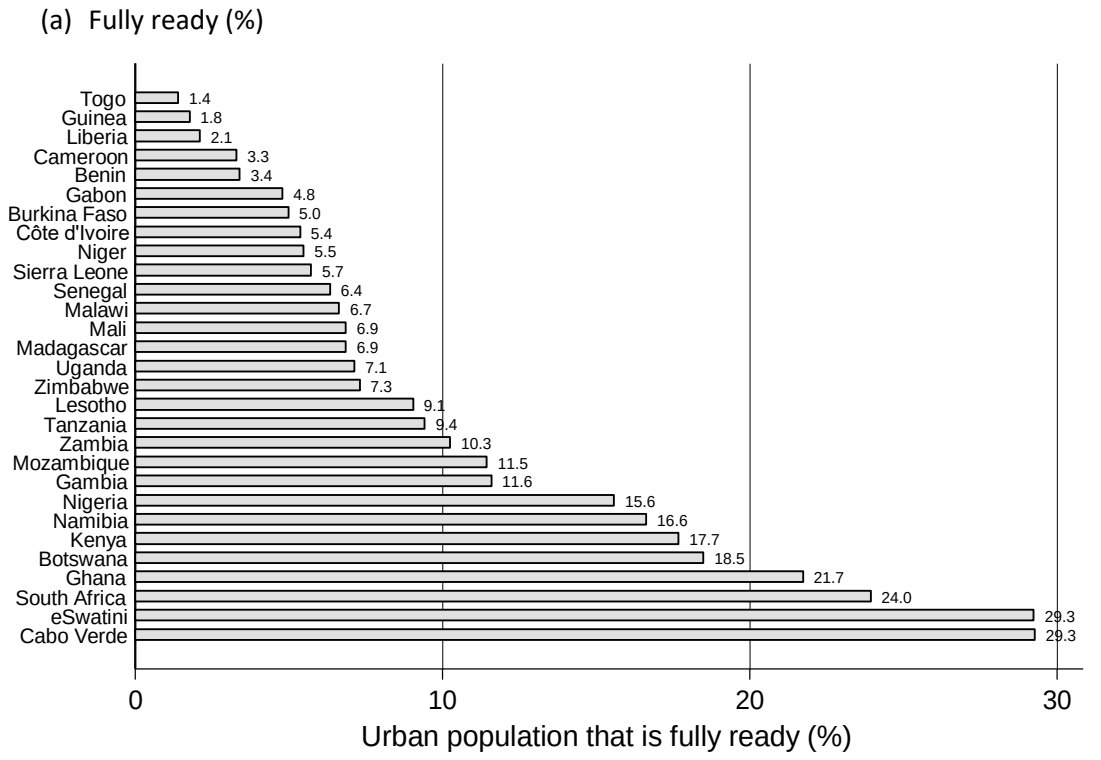
	(1) Baseline	(2) Full	(3) By income group Low	(4) By income group High
Fully ready (%)	0.003***	0.176***	0.195***	0.294***
	(0.001)	(0.021)	(0.024)	(0.059)
Institutional trust	0.488**	0.921	0.868	0.721*
	(0.145)	(0.124)	(0.117)	(0.135)
Community trust	0.221***	0.842*	0.798**	0.636***
	(0.065)	(0.083)	(0.084)	(0.092)
Income group	9.159***	1.788***		
	(2.748)	(0.315)		
Years of education	1.249***	1.037***	1.006	1.070***
	(0.038)	(0.010)	(0.009)	(0.014)
Age	0.830***	0.968***	0.969***	0.967***
	(0.009)	(0.002)	(0.002)	(0.003)
Fully ready (%) # Institutional trust		1.323**	1.282**	1.215
		(0.154)	(0.156)	(0.251)
Fully ready (%) # Community trust		1.161*	1.161*	1.081
		(0.103)	(0.100)	(0.123)
Institutional trust # Community trust		1.178**	1.319***	1.053
		(0.088)	(0.123)	(0.115)
Fully ready (%) # Income group		1.779***		
		(0.379)		
Institutional trust # Income group		0.749		
		(0.166)		
Community trust # Income group		0.723**		
		(0.104)		
Fully ready (%) # Institutional trust # Income		0.916		
		(0.211)		
Fully ready (%) # Community trust # Income		0.936		
		(0.135)		
Observations	2727	2727	1462	1265
Pseudo log-likelihood	-9444.8	-10540.1	-4928.5	-5423.8
AIC	18903.7	21110.1	9875	10865.6

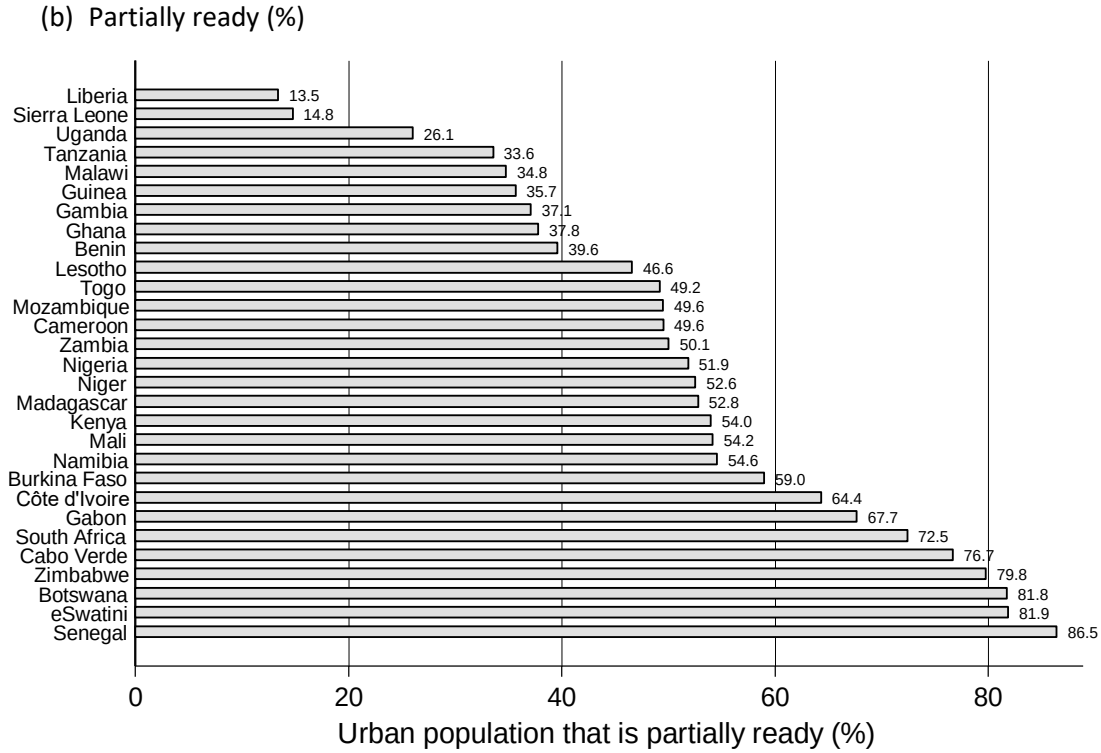
significance levels * p<.10, ** p<.05, *** p<.01;

Notes: are log odd ratios. Column 1 presents the basic model without interactions. Column 2 includes all two-way interactions between readiness, trust variables and income group. Column 3 and 4 repeat column 2 splitting the sample into low- and high-income group, respectively.

Source: Authors' own calculations from AfroBarometer round 7 & World Development Indicators.

Figure 1: Proportion of (partially) ready urban population by country



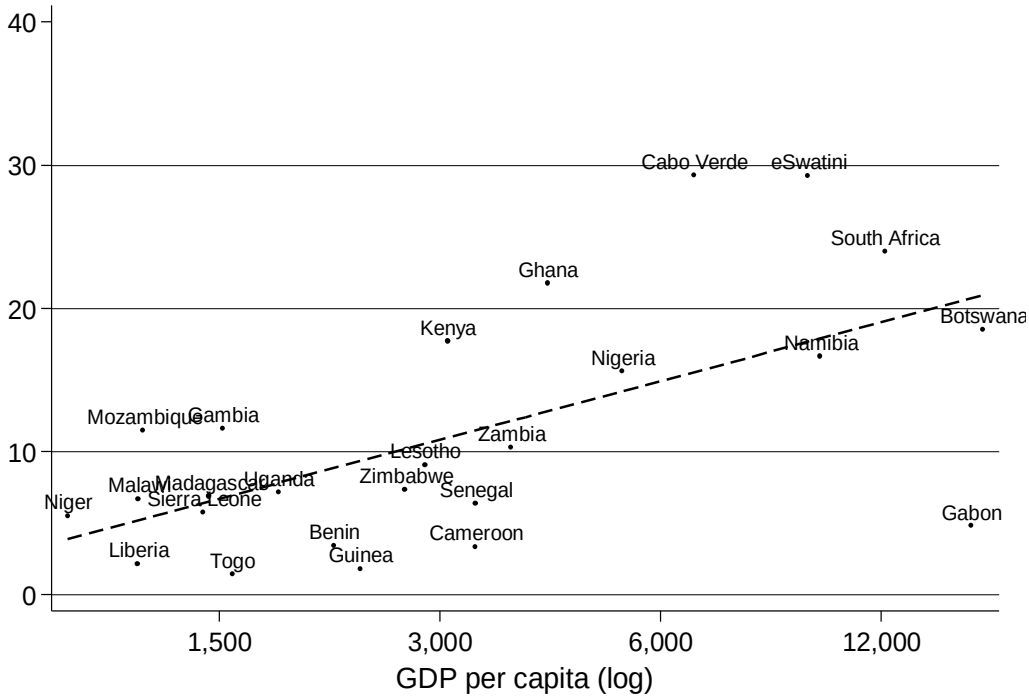


Notes: Weighted by country population.

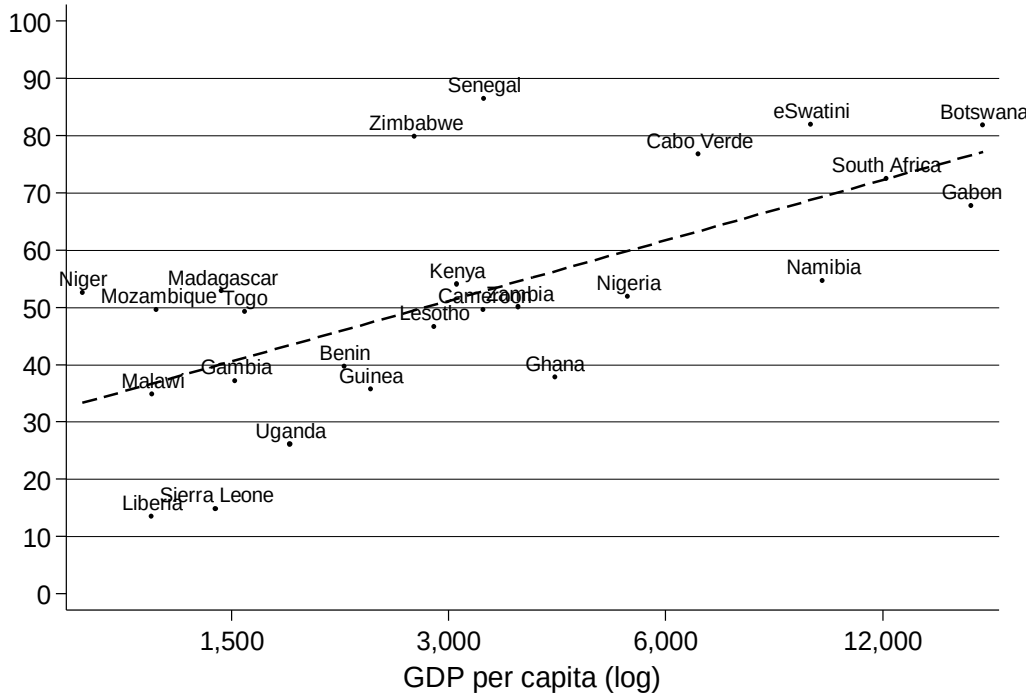
Source: Authors' own calculations from AfroBarometer round 7.

Figure 2: Percentage of the population (partially) ready for lockdown and GDP per capita

(a) Full readiness



(b) Partial readiness

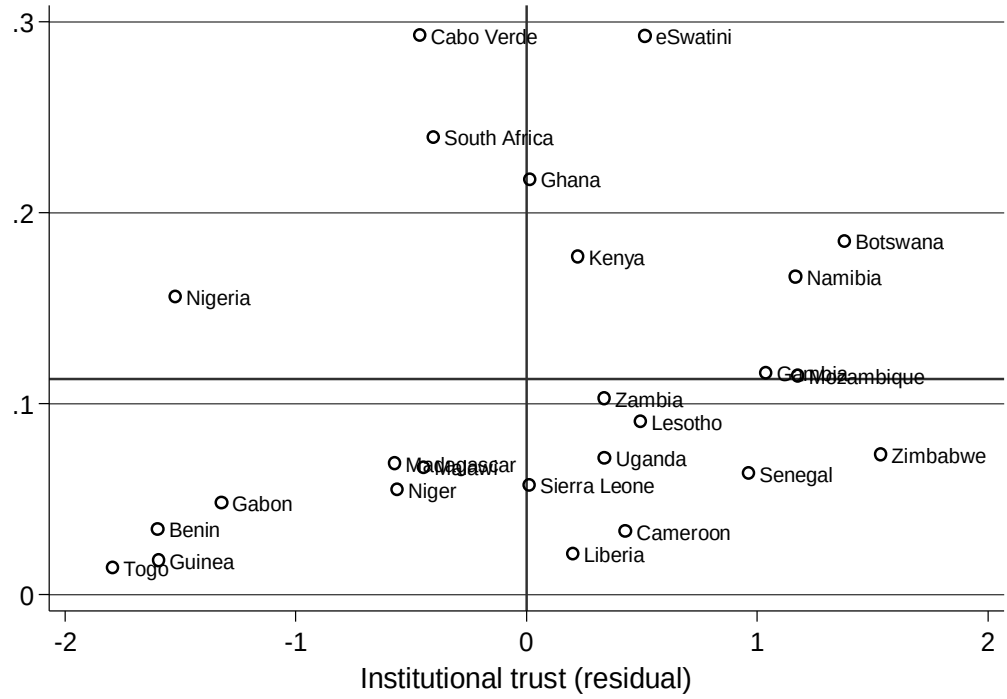


Notes: Weighted by country population.

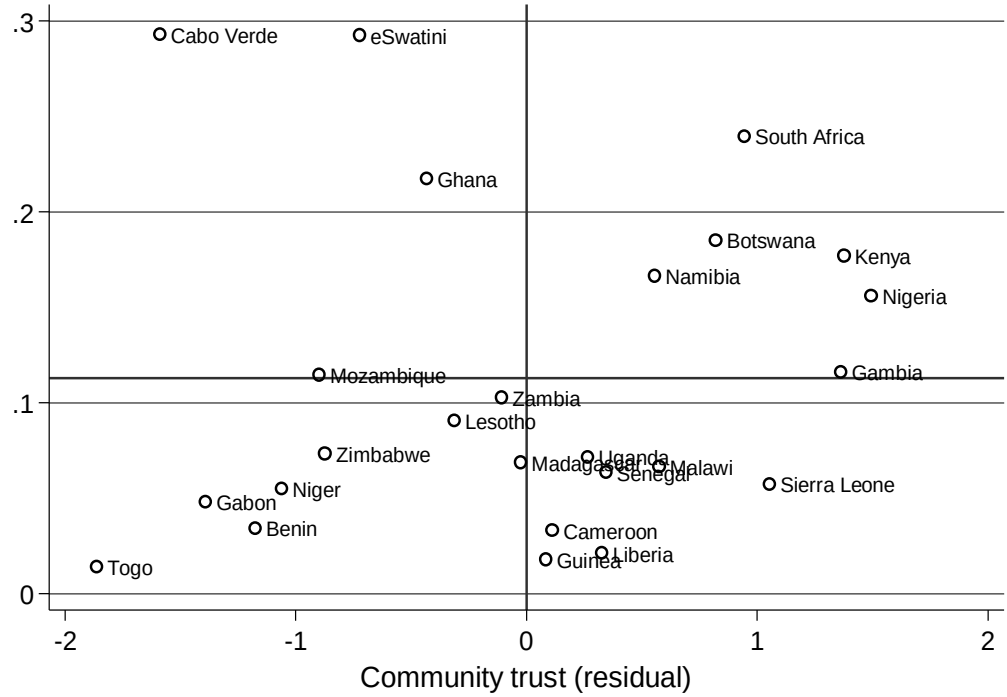
Source: Authors' own calculations from AfroBarometer round 7 and World Development Indicators.

Figure 3: Full lockdown readiness and trust at the country level

(a) Institutional trust



(b) Community trust



Notes: The residuals come from a linear regression of trust on log(GDP per capita), its squared term, age, sex and education at the individual level.

Source: Authors' own calculations AfroBarometer round 7 and World Development Indicators.