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Policy Responses to COVID-19

Why Social Cohesion and Social Protection Matter in Africa

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Preface

This Discussion Paper is part of IDOS's research project "**Policies for Social Cohesion in Africa**". Social cohesion – or social solidarity – within societies is a key success factor for sustainable development in Africa. Social cohesion is particularly under-pressure in most world regions, including Africa. The inter-disciplinary IDOS team aims to identify patterns of social cohesion in Africa, analyse factors that influence the degree of social cohesion and identify domestic and international policies that contribute to the creation and consolidation of social cohesion. The team addresses five issue areas:

- **measurement** and understanding of patterns of social cohesion in African countries;
- **inclusive economic development,** including urbanisation, financial sector development, and foreign direct investment with an emphasis on how to maximise opportunities for sustainable economic development;
- **social policy, poverty and health**, addressing the specific role that different social and health policies can have in promoting social cohesion;
- **values, political institutions and resource mobilisation,** spanning from the relevance of value orientations for the functioning of political institutions to tax systems, which affect the interaction between citizens and the state; and
- **conflict and societal peace**, including the influence of political institutions and regime transitions on societal peace in post-conflict societies and how international support can contribute to social cohesion.

This research is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ).

We hope that IDOS research will not only help to better understand the drivers and consequences of social cohesion but will also inform effective policies that contribute to cohesive societies worldwide.

Bonn, October 2022

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Abstract

This empirical analysis investigates whether and to what extent social cohesion and the coverage of social protection schemes influence governments' decisions about the stringency of COVID-19 containment policies during the first and second waves in 2020 in Africa. Our results indicate that societal and social factors influenced the stringency of containment policies. Social cohesion has a negative effect on the stringency of containment policies in response to COVID-19 over time. Social protection coverage has a positive effect on the stringency of containment policies in response to COVID-19 over time. States implemented more stringent containment policies in less cohesive societies if they already had social protection schemes in place before the pandemic. Contextual factors mediated these effects. While stringency of containment policies softened over time where levels of democracy, poverty, and inequality were higher, social protection made a mediating difference only in autocratic states and societies with higher poverty. Three contributions of the empirical analysis stand out. First, the conceptual integration of societal and social factors ("societal triangle") provides a novel basis from which to analyse policy responses during external shocks like a global pandemic. Second, to overcome the limitations of current measurements of social cohesion, we use a novel measurement to determine pre-pandemic levels of social cohesion. Third, this is the first cross-national study that addresses a world region, Africa, which has gained little attention in the study of policy responses to the COVID-19 pandemic.

Keywords: social cohesion; lockdowns; social protection; containment policy; COVID-19 pandemic

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Abbreviations

ASPIRE	Atlas of Social Protection Indicators of Resilience and Equity (ASPIRE)
OECD	Organisation for Economic Co-operation and Development
OxCGRT	Oxford COVID-19 Government Response Tracker

1 Introduction

During the COVID-19 pandemic, governments were forced to make prompt decisions under extreme uncertainty and complexity (Berger et al., 2021). In such situations, societal and social factors are decisive for successful policy implementation (Elgar, Stefaniak, & Wohl, 2020). The degree to which governments anticipate their societies to support, resist, or passively accept restrictions shape politicians' choice of containment policies as well as their level of severity (Han et al., 2020). Given the high level of uncertainty that a pandemic brings, political decisions are often open-ended and prone to error. What seems plausible today may develop differently, so that present decisions turn out to be wrong in the future. It is, therefore, particularly important to have broad social support for current decisions. Two factors are particularly important to political decision-making in uncertain situations: social cohesion, which consists of trustful and cooperative relations within society and with the state (Abrams, Lalot, Broadwood, Davies Hayon, & Platts-Dunn, 2020); and social protection schemes, which express shared values about distributing state resources for the common good in a society (Burchi, von Schiller, & Strupat, 2020).

Although the need for societal backing of governments is particularly high during phases of extreme uncertainty, societal factors have not been at the focus of analyses of containment policies so far. Recent studies highlight trust in government as an important societal determinant of containment policies and compliance with them (Bargain & Aminjonov, 2020; Devine, Gaskell, Jennings, & Stoker, 2020). However, we still lack evidence on the role of more generic characteristics of society in times of uncertainty, such as social cohesion. Although risk studies typically conceive of social cohesion as a precondition for social resilience (Greene, Paranjothy, & Palmler, 2015; Townshend, Awosoga, Kulig, & Fan, 2015), and governments constantly refer to its importance during the pandemic,[4] its influence on pandemic policy-making has received little attention. Instead, scholars identify other determinants of political decisions, mainly policy diffusion, culture and democracy (Dostal, 2020; Nelson, 2021; Sebhatu, Wennberg, Arora Jonsson, & Lindberg, 2020), global leadership (Yam et al., 2020) and age structure of the population (Mbow et al., 2020).

The state of the art on social protection schemes and policy responses to COVID-19 is similar to that of social cohesion – it got limited attention. Instead, most of the literature addresses if and how social protection mediates negative effects of the pandemic (Bottan, Hoffmann, & Vera-Cossio, 2021; Brooks, Donovan, Johnson, & Oluoch-Aridi, 2022; Londoño-Vélez & Querubín, 2022; Strupat & Nshakira-Rukundo, 2022). Social protection schemes that were in place before the outbreak of the pandemic may influence decisions on containment policies because policy-makers factor in that groups who receive social protection are likely to be more resilient. It is generally accepted in research that societies' resilience capacity relies on assistance through social protection schemes (Ulrichs, Slater, & Costella, 2019). Where they are in place, people are likely to be more resilient to external shocks. Moreover, they represent an infrastructure that governments can adapt to cushion socioeconomic effects of unforeseen events like the pandemic.

We investigate to what degree levels of social cohesion and the extent of coverage by social protection schemes influence governments' decisions about stringency of COVID-19 containment policies during the first and second waves in 2020. Our empirical analysis focuses on Africa. Despite its relevance, evidence on policy responses to the COVID-19 pandemic in Africa is still scarce because scholars pay most attention to East Asia (The Lancet, 2020) and countries that are members of the Organisation for Economic Co-operation and Development

4 See, for instance, APHR (2020), EUROsociAL (2022) and Ramaphosa (2020).

(OECD) (Dostal, 2020). After the first wave of the pandemic, African infection rates remained below initial expectations (Gesesew et al., 2021).[5] Global and African health experts reckoned that the pandemic is a "ticking time bomb" in Africa (Nordling, 2020). Some scholars associate lower spread of the pandemic in Africa with swift policy responses, strict lockdown measures, low global connectedness, and young, rural populations (Maeda & Nkengasong, 2021; Nguimkeu & Tadadjeu, 2020). However, given the low speed of the vaccination campaigns, the COVID-19 pandemic affects some African societies substantially and will affect African societies much longer than countries in the OECD.

Our paper provides three contributions. First, we present empirical evidence on whether and to what extent social cohesion and social protection influence political decision-making during an external shock such as a global pandemic. We integrate societal and social factors (the "societal triangle"), which builds a new conceptual basis for this type of empirical analysis. Second, to overcome the limitations of current measurements of social cohesion, we use a novel measurement to determine pre-pandemic levels of social cohesion. Third, to the best of our knowledge, this is the first cross-national study that addresses policy responses to the COVID-19 pandemic in Africa. Our findings on generic societal and social determinants of containment policies can inform theory-building and empirical analyses of other world regions.

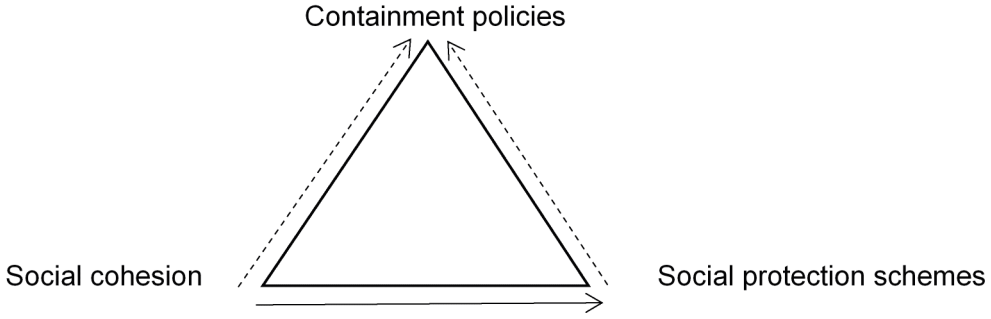
2 The societal triangle: How social cohesion and protection influence containment policies

In order to understand political decision-making in pandemic crisis, we propose a societal triangle composed of social cohesion and two policy sectors, containment and social protection policies (Figure 1). First, social cohesion refers to the ties that hold societies together. It comprises relationships among members of society (horizontal level) as well as society and the state (vertical level) and is characterised by three attributes: *inclusive identity, trust,* and *cooperation for the common good* (Leininger, Burchi, et al., 2021). While consequences of containment policies are likely to influence social cohesion i+

n the long run (Abrams et al., 2020), social cohesion can also influence political decision-making. Second, containment policies aim to keep individuals apart to restrict the spread of the virus with measures such as closing shops, interrupting economic value chains, or locking down schools, which have immense impacts on economies and individual freedoms (Lührmann, Edgell, & Maerz, 2020). Third, and following from the previous point, social protection schemes address poverty and vulnerability and aim to foster societal resilience. They, thus, support individuals and enterprises in dealing with the economic and social consequences of a pandemic. For instance, social cash transfers can mitigate risks during times of crises and help reduce inequality (Jawad, 2019). Although not part of this analysis, we acknowledge that social cohesion is likely to influence social protection schemes in the long run and vice versa.

5 Although infection and death rates are likely to be higher de facto because of limited testing in Africa (Maeda & Nkengasong, 2021), they are still lower than the worldwide average.

Figure 1: The societal triangle of pandemic responses



Note: Dashed arrows indicate the direction of influence in the short run immediately after the initial outbreak of a pandemic. Our analysis covers these short-term relationships, not the long-term relationships. Over time, the directions of influence between the three elements changes. We assume that the influence of social cohesion on social protection is longer term. Although this might imply a certain multicollinearity, we cannot address it with the fixed effects in our model.

Source: Authors

This societal triangle is key to understanding immediate policy decisions in response to the COVID-19 pandemic as well as the long-term effects of these decisions. According to political decision-making theory, contextual factors are decisive because they determine expectations of how policies are made (March, 1994; Platteau & Verardi, 2020; Sebhatu et al., 2020). Social cohesion within a society is a contextual factor that shapes and affects the content of policy responses in both sectors, containment policies and social protection.

How does social cohesion affect the stringency of policies to contain the COVID-19 virus? At the outbreak of a pandemic, caused by an unknown virus, governments often choose strict policies because they do not know how the virus spreads in society. However, governments still opted for different levels of stringency during the outbreak and different waves of a pandemic (see Figure A2 of the Appendix). Where societies are cohesive, governments can assume that their policies enjoy public confidence (Abrams et al., 2020; Wilkinson, Parker, Martineau, & Leach, 2017) and that individuals show solidarity with each other when facing collective problems (Green & Janmaat, 2011). In other words, where horizontal and vertical social cohesion is high, members of society are more likely to accept and follow government decisions regardless of their specific content. Overall, issue-independent compliance fosters effective policy-making under time pressure because governments do not seek explicit consent for all decisions (Deitelhoff, Groh-Samberg, & Middell, 2020). Governments should, thus, presuppose that members of cohesive societies hold back their own interests, keep social distance, and comply with lockdown rules for the common good, which, in the case of a pandemic, is the physical integrity of all (Bargain & Aminjonov, 2020, p. 286; Chan, To, & Chan, 2006; Schmelzle & Stollenwerk, 2018). We reason that, in such a context, governments do not necessarily need to depend on harsh rules because they can trust that the majority of people follow less stringent measures, like recommendations, without strict regulations and legal sanctions (van Bavel et al., 2020). In addition, people behave in the interest of the common good voluntarily where relationships between individuals and social groups are cohesive. Governments can rely on more self-help and self-organisation within society (Coleman, 1988, p. 17; Toshkov, Yesilkagit, & Carroll, 2020). Our first hypothesis reads as follows.

> *Hypothesis 1:* The higher the level of social cohesion, the less stringent the containment policies are in response to COVID-19.

How does social protection affect the stringency of policies to contain the COVID-19 virus? In the beginning of a pandemic, social protection schemes and the rationale that drive these

schemes are likely to influence political decision-making. Welfare institutions like social protection schemes create strong path dependencies as studies in historical institutionalism substantiate (Lynch & Rhodes, 2016; Skocpol, 1996). Like few other institutions, they express shared values about redistributing state resources for the common good, and they can also foster a fiscal contract between the state and its citizens (Burchi et al., 2020; Nowack & Schoderer, 2020). Where social protection schemes are in place, political decision-makers are more sensitive to the expectations of citizens towards common good provision. In the African context, decision-makers must factor in the levels of vulnerability of social groups (Devereux & White, 2010). In general, the African poor depend on volatile, daily incomes, which stringent containment policies affect negatively (Bargain & Aminjonov, 2021; Leininger, Strupat, et al., 2021, pp. 33-39). Thus, states tend to provide alternative income when restricting human interactions during lockdowns. With more extensive social protection policies in place, the greater the buffer against hardships resulting from measures that negatively impact poor people's earnings. We, thus, reason that governments that provided more ambitious social protection schemes before the pandemic were more likely to opt for stricter policy measures once the pandemic began. Our second hypothesis reads as follows.

> *Hypothesis 2:* The greater the coverage of social protection policies, the more stringent the containment policies are in response to COVID-19.

3 Research design and variable construction

Datasets

Our empirical approach combines different cross-country panel datasets to analyse the relationships between containment policies, social cohesion and social protection from 1 January to 31 December 2020. We use the Atlas of Social Protection Indicators of Resilience and Equity (ASPIRE) dataset (ASPIRE, 2017) and the Social Cohesion in Africa Database of the German Institute of Development and Sustainability (IDOS) (presented in Leininger, Burchi, et al., 2021). Variables measuring countries' COVID-19 containment policies are drawn from the Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale & Webster, 2020), which also includes daily counts of the number of people infected and the number of deaths related to COVID-19 for each country. The social cohesion measure is based on IDOS's social cohesion dataset. It generates data from the sixth (2016) and seventh rounds (2019) of the Afrobarometer surveys as well as data from the Varieties of Democracy (V-Dem) database. The social protection data is from the ASPIRE database of the World Bank (ASPIRE, 2017). Our sample of analysis includes 29 African countries,[6] which are home to 60 per cent of the total African population (2019).

Dependent variable

The dependent variable is a daily measure of the stringency of containment policies between 1 January and 31 December 2020. This stringency is measured as an index that is a daily aggregation of eight containment indicators: school closure, workplace closure, public event cancellation, gathering size limits, public transport closure, stay-at-home requirements, internal movement restrictions, and international travel restrictions. The index comprises an aggregated number between 0 (no stringency) and 100 (very high stringency) that reflects the overall stringency of a government's response. Most of the countries instituted timely responses in an early stage of the pandemic. In particular, at the beginning of February 2020, they introduced

6 See Table A2 in the Appendix for the list of countries

containment measures (mostly travel restrictions and border closures) before any cases or deaths of COVID-19 were confirmed. Given the limited capacity of most African countries' healthcare systems, the homogeneity in prompt timing of implementing containment policies was necessary to avoid collapse of the health systems (Rutayisire, Nkundimana, Mitonga, Boye, & Nikwigize, 2020). By mid-March 2020, almost all countries had implemented substantial lockdowns that were lifted gradually after May 2020 as a surge of COVID-19 cases and deaths was unlikely (see Figure A1 of the Appendix).

Independent variables

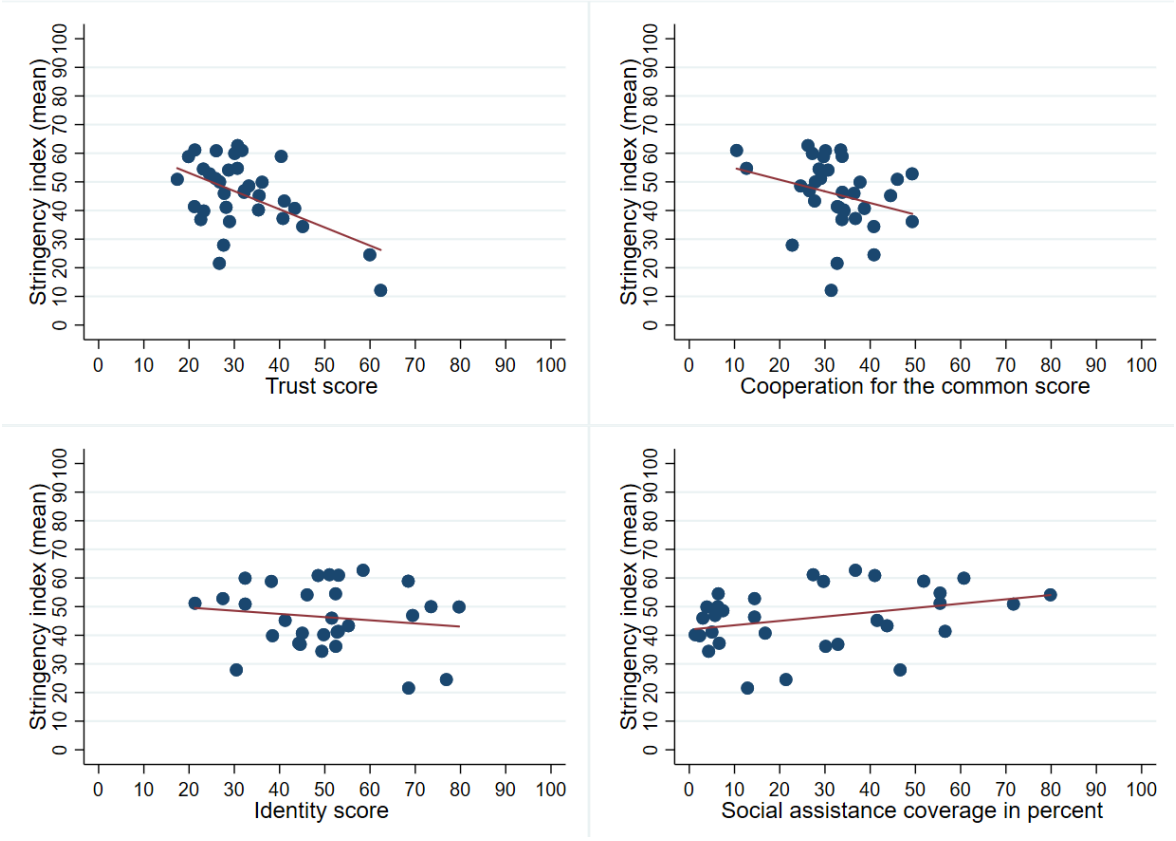
Country-specific pre-pandemic levels of social cohesion are measured by using three indicators that measure the attributes of social cohesion: trust, cooperation for a common good and inclusive identity.[7] The trust score is the geometric mean of social and political trust including trust in police, courts and parliament. The score of cooperation for the common good is the geometric mean of three indicators of horizontal cooperation (membership in voluntary associations, involvement in civil society organisations and the willingness to join others beyond one's own community to raise an issue) and two indicators of vertical cooperation (participation in community meetings and level of interaction with different public officials). The inclusive identity score is the geometric mean of the respondents' feeling of national identity in comparison with the (ethnic) group identity. All three are scored as a number between 0 and 100 reflecting the average pre-pandemic levels of the three social cohesion attributes.

Descriptive bivariate analyses show the expected relationships. Figure 2 indicates a negative correlation for all three attributes of social cohesion: countries with higher levels implemented less stringent containment policies.[8] Figure 2 also shows a positive correlation between containment policy stringency and social protection programme coverage as measured by the share of the population covered by social protection programmes (ASPIRE, 2017).

7 See detailed information on the construction of the variables in the Appendix.

8 We have checked whether our correlation results are sensitive to outliers. The results remain similar.

Figure 2: Correlation between containment policy stringency, attributes of social cohesion and social protection



Source: Authors

Control variables

Since the main objective of COVID-19 containment policies is to prevent further spread of the coronavirus, it is essential to control for (a) the number of confirmed cases of people infected by COVID-19 in the respective country, and (b) the number of deaths due to the virus, relative to population size (per 100,000). Both measures account for what is publicly reported by each country and likely to underpin the process of policy adoption if decision-makers are sensitive to official figures. While confirmed cases of COVID-19 underestimate actual cases, confirmed cases are the only data available to officials who are making decisions in real time. The number of confirmed cases and number of deaths are highly collinear, and we, therefore, use only the number of deaths (per 100,000). We calculate a rolling average of the number of COVID-19 deaths over the past seven days. Replacing the number of deaths with confirmed cases did not change any of the main results. We did not include a range of time-invariant variables in order to control for a country's economic, demographic and public-health-related characteristics, as we employ a correlated random effects model that is considered time invariant.

The correlated random effects model

A correlated random effects model provides a more rigorous test of the two hypotheses related to the stringency of COVID-19 containment policies in Africa.[9] Our model examines to what extent attributes of social cohesion and social protection before the pandemic affect the stringency of daily COVID-19 containment policies between 1 January and 31 December 2020. Because the pandemic has evolved in waves that differ between the countries, we make use of the panel structure of our dataset and estimate the extended model (Bell & Jones, 2015) as

$$Y_{ti} = \beta_0 + \beta_1 Tr_i + +\beta_2 Co_i + \beta_3 Id_i + \sum_{m=1}^{12} \beta_{4,m} D_m Tr_i + \sum_{m=1}^{12} \beta_{5,m} D_m Co_i + \sum_{m=1}^{12} \beta_{6,m} D_m Id_i + \beta_7 Sp_i + \sum_{m=1}^{12} \beta_{8,m} D_m Sp_i + \sum_{v=1}^{V} \beta_{9,v} X_{via} + \sum_{v=1}^{V} \beta_{10,v} \overline{X_{vi}} + [(u_{0i}) + \varepsilon_{ti}] \quad (1)$$

where Tr_i, Co_i and Id_i represent the social cohesion attributes; Sp_i is the social protection coverage variable; D_m is the month dummy variable; $\overline{X_{vi}}$ is the average of the time variant variables v for country i (which includes the average number of confirmed COVID-19 deaths over the past seven days per 1,000 country inhabitants) and the time invariant variables (such as pre-COVID-19 poverty and inequality); and X_{via} represents centred variables at the country level and represents the within-country variation. For a full explanation and definition of the variables see the Appendix.

While multilevel models have also been used in other related studies (Bargain & Aminjonov, 2020), correlated random effects models present an advantage as they allow the estimate of the effects of time invariant variables alongside their interactions with time varying factors, while also controlling for fixed effects (Bell & Jones, 2015). This is an essential advantage as social cohesion and social protection are measured with respect to their pre-COVID-19 values (see more information in the Appendix). Our main estimation model includes the interaction between all social cohesion attributes and their interaction with each individual month included in the analysis. In addition, the variables at the country level ($\overline{X_{vi}}$) are demeaned using the grand mean of the sample for better interpretation of coefficients and results.

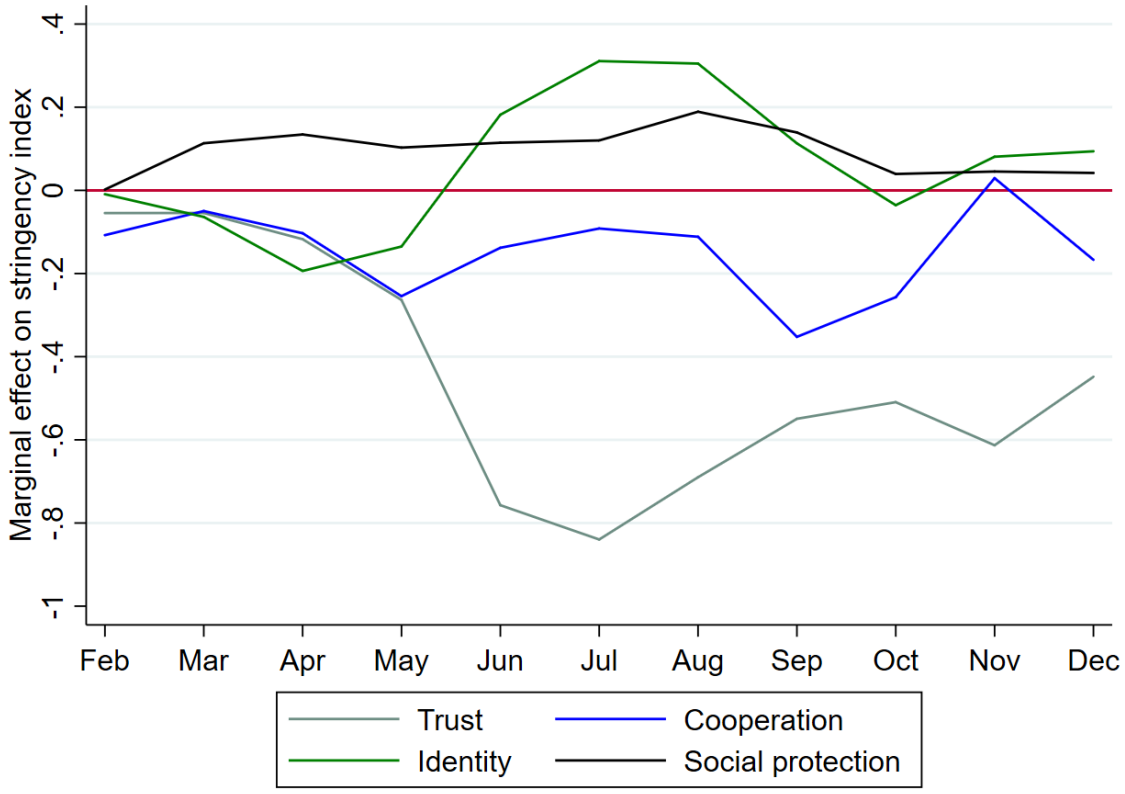
4 Empirical results

Figure 3 shows the coefficient estimates of the interaction between the three attributes of social cohesion and of the social protection indicator with the binary month indicators as shown in Equation 1 (see detailed results in Table A1 of the Appendix). As COVID-19 was detected in February 2020, we use January 2020 as the reference period in order to estimate the coefficients. We find that trust and cooperation are negatively associated with the containment policy stringency at the beginning of the pandemic between March and May 2020. A higher level of trust (by 10 points) reduces the increase in containment policy stringency in April by 1.1 index points. As containment policy stringency increases from March to April on average by 25 index points, this is a relative decrease of 4.4 per cent. From May onwards, countries ease their lockdown and containment policies (see Figure A1 of the Appendix), and trust seems to reinforce

9 The choice of the model was given by a couple of significant advantages compared with fixed effects models (Bell, Fairbrother, & Jones, 2019). First, they allow the estimation of coefficients related to constant variables, while also controlling for fixed effects; this is crucial as the pre-pandemic indicators of social cohesion and social protection are time invariant. Second, we can also conduct a better analysis of the heterogeneity of effects of the variables across countries.

these policy changes. Countries with higher levels of trust have a significantly larger average decrease of containment stringency during the period of easing. Interestingly, the effect is much lower for cooperation during the same period. Cooperation affects containment policy stringency negatively, but the effect sizes are statistically significantly smaller than the ones for trust in the months June to August. Turning to identity, our findings indicate that identity is negatively associated with policy stringency at the beginning of the pandemic but positively associated between May and June. It seems that countries with higher identity scores have a significantly larger increase in containment policy stringency than average. Finally, the results on social protection show a positive relationship between the coverage of the population with social assistance programmes and containment policy stringency. Countries that have higher levels of social protection coverage implemented increasingly more stringent containment policies over the course of the year.

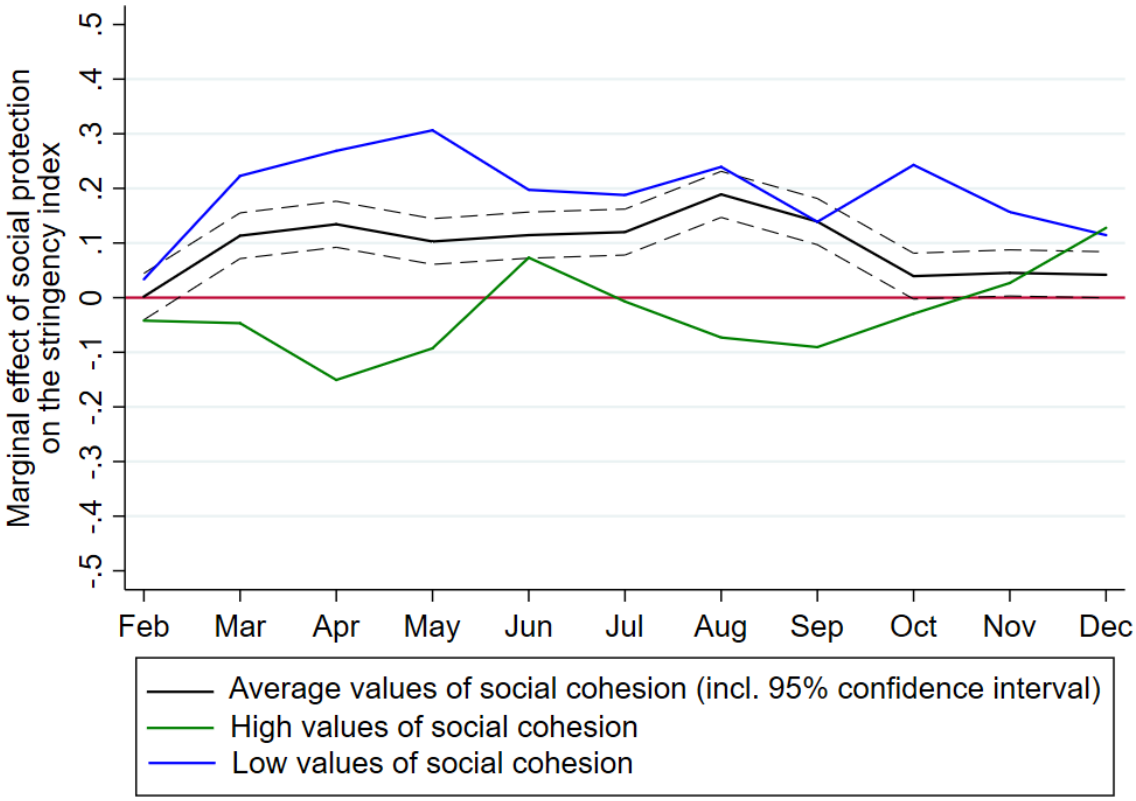
Figure 3: Social cohesion, social protection and stringency of policy responses



Source: Authors

In order to explore the extent to which interactions between social protection and the three attributes of social cohesion affect the stringency of the containment policies, we plot the coefficient estimates of social protection coverage and its interactions with the three attributes of social cohesion in Figure 4. The black line shows the estimates of social protection coverage (holding social cohesion levels at average). The green line shows the estimates of the interaction with low levels of social cohesion (holding social cohesion levels at the 25th percentile). The blue line presents the estimates of the interaction with high levels of social cohesion (holding social cohesion levels at the 75th percentile). We find that countries with low levels of social cohesion implemented increasingly more stringent containment measures over time if they did cover their population with social protection schemes before the pandemic (green line). In contrast, social protection coverage leads to a smaller increase in stringency of containment measures over time in countries with high levels of social cohesion (blue line). The result points to the relevance of social cohesion and its interplay with social protection schemes in the decision-making process on the stringency of containment measures.

Figure 4: Interaction of social protection and social cohesion



Source: Authors

Context variables

Our main model considers all time-invariant contextual factors; however, it is interesting to explore the direct effects of such factors as political regime, inequality and poverty levels and to what extent they might mediate the influence of social cohesion and social protection on the policy response to COVID-19.[10] The results of this context-variable-specific analysis will be presented as follows. It seems regime type strongly mediates the effect of trust (Figure A4). While in autocracies trust does not affect stringency of containment policies over time, trust has a significant negative effect on stringency in democracies started in May/June 2020 when countries eased their containment policies. Trust seems to reinforce the easing of containment policies, but only in democratic countries. No statistically significant effects can be found for the other social cohesion attributes. Poverty also seems to mediate the effect of social cohesion. In countries with medium to high levels of poverty, all social cohesion attributes have a significant negative effect on stringency from May/June onwards (Figures A5-A7). A similar trend can be identified by exploring inequality levels (Figures A8-A10). Interestingly, social protection only affects the stringency of containment policies in autocratic countries, while it has no effect in democracies (Figure A11). Poverty seems to mediate the effect of social protection: social protection affects stringency over time in countries with higher poverty levels (Figures A12).

10 For a description of the datasets and the theory of change that outlines the mechanisms of the relationship between the contextual factors and investigated relationships, see the Appendix.

5 Discussion and conclusions

Governments responded quickly and mostly with very stringent containment policies to the COVID-19 pandemic. While stringency peaked generally in March 2020 when the first wave of the pandemic rolled out, governments loosened containment policies, such as lockdowns, at varying paces throughout the year. What explains this variety? Our results indicate that social cohesion and social protection systems influenced the level of stringency of containment policies. First, social cohesion matters. We understand social cohesion as trustful and cooperative relationships within society and between society and the state. On average, two attributes of social cohesion, trust and cooperation, have a negative effect on the stringency of containment policies in response to COVID-19 over time, while the attribute of identity contributes to the stringency of containment policies. Second, we provide evidence indicating that social protection coverage has a positive effect on the stringency of containment policies in response to COVID-19 over time. Third, the interplay between the three social cohesion attributes and social protection seems to be relevant, which suggests that states implemented more stringent containment policies in less cohesive societies if they already had social protection schemes in place before the pandemic. Fourth, contextual factors have mediated these effects. While stringency of containment policies softened over time where levels of democracy, poverty and inequality were higher, social protection made a mediating difference only in autocratic states and societies with higher poverty.

Our findings not only support our hypotheses but also help shape policy responses to the COVID-19 pandemic in Africa in the future. While our results cannot speak to what an “optimal” stringency of containment policies or timing of easing such policies would be for any country, it follows from our findings that societal and social structures influence political decisions. Therefore, policy advice should consider social structures. More specifically, the results show that decisions about new containment measures will be constrained by levels of social cohesion and social protection. Investing into both factors could reduce such constraints and potentially allow for a better balance between controlling the spread of the virus (and the overloading of the health system) and the significant social and economic cost in terms of citizens’ well-being in the future. Where societies become more cohesive, governments do not have to implement strict containment measures that lead to high social and economic costs, as they can trust that the society will follow less stringent measures. Expansion of social protection coverage allows governments to implement stricter containment measures, as the social protection schemes will reduce some of the social and economic costs of the containment policies. Taking into account the mediating effect of social cohesion on social protection suggests that cohesive societies potentially reduce the costs of containment policies as much as social protection policies. African countries should, therefore, consider and invest in both factors in the future so that they can suppress the spread of the virus by a potentially less costly set of containment policies from a social and economic perspective.

In addition to our main results, the findings on the contextual factors illuminate the varying relevance of social structures for decision-making in specific regime types and in different settings of poverty and inequality. While our findings confirm previous studies’ findings that democracies with high levels of trust ease the strictness of containment policies earlier than autocratic states (Nelson, 2021; Sebhatu et al., 2020), the results regarding social protection schemes are more puzzling. While no significant effect of social protection coverage is identified in democracies, in autocracies the effect on the stringency of containment policies is significantly positive and relatively large in magnitude. One possible explanation is that autocratic states use social protection measures more often to foster support of the incumbent government amongst the poorer parts of the population (Cassani, 2017). During a pandemic, they are likely to compensate the effects of strict containment policies – which may allow them to expand their power by limiting space for the political opposition (Hellmeier et al., 2021) – with social protection schemes.

Although it comes as no surprise that poverty and inequality levels mediate for social cohesion's effects on stringency, it is noteworthy that they only do so where social cohesion and levels of poverty and inequality are high. This suggests that poorer societies have societal ties that governments can build on when designing containment policies. While our findings resonate with established structural factors like levels of poverty and inequality that are present in other world regions, they might still indicate an African exceptionalism. The next step must be to expand the empirical scope of the study and test whether our findings reach beyond the African continent.

In the mid- and long term, we also expect the causal effects within the societal triangle (Figure 1) to reverse. In this case, the containment policies will affect social cohesion levels as well as the degree of necessary relief policies (Borkowska & Laurence, 2021). The more stringent containment policies are, the more likely they are to be met with resistance and to endanger social cohesion (Calain & Poncin, 2015). Emergency social protection policies, and how they are perceived, can also affect social cohesion. For instance, social protection can contribute to an increase in solidarity and trust or can have positive effects on social capital and social cohesion (Aldrich, 2012; Barrientos & Hulme, 2016). Studying reversed causalities and the long-term effects of containment policies will be necessary to cushion the negative effects on the social fabric of societies.

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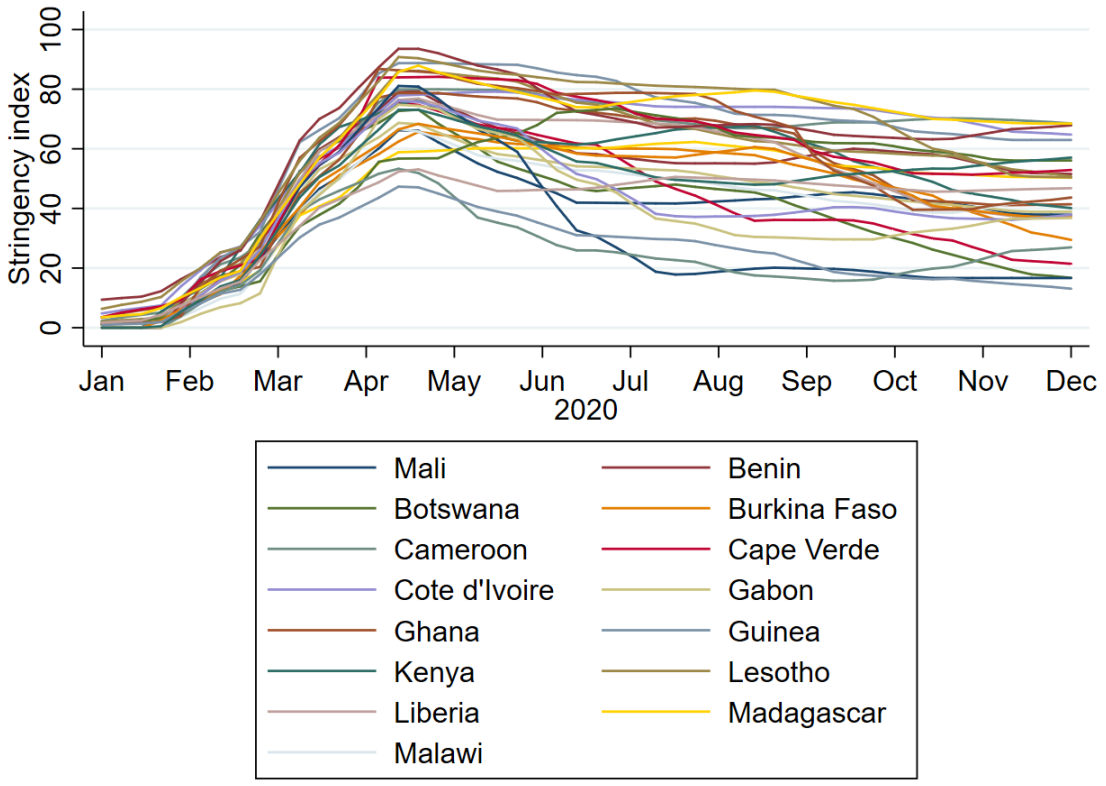
Appendix

Figure A1: Containment policy stringency index (1 January-31 December 2020)

Source: Authors

Figure A2: Containment policy stringency index by country (1 January-31 December 2020)



Source: Authors

Table A1: Results (main model)

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Trust score						
February	-0.0545694	0.0562463	-0.97	0.332	-0.1648102	0.0556713
March	-0.0543583	0.0553321	-0.98	0.326	-0.1628072	0.0540906
April	-0.1173958	0.0557758	-2.1	0.035	-0.2267143	-0.0080772
May	-0.2635138	0.0553311	-4.76	0	-0.3719607	-0.1550668
June	-0.7570981	0.0557743	-13.57	0	-0.8664138	-0.6477824
July	-0.8396773	0.0553312	-15.18	0	-0.9481244	-0.7312301
August	-0.6899267	0.0553307	-12.47	0	-0.798373	-0.5814805
September	-0.549384	0.0557737	-9.85	0	-0.6586985	-0.4400695
October	-0.509349	0.0553285	-9.21	0	-0.6177908	-0.4009072
November	-0.6129936	0.0557696	-10.99	0	-0.7223001	-0.5036871
December	-0.4484228	0.0553305	-8.1	0	-0.5568687	-0.3399769
Cooperation score						
February	-0.1077693	0.0693123	-1.55	0.12	-0.2436189	0.0280803
March	-0.0497261	0.0681866	-0.73	0.466	-0.1833693	0.0839171
April	-0.1030604	0.0687337	-1.5	0.134	-0.2377761	0.0316552
May	-0.2544202	0.068188	-3.73	0	-0.3880662	-0.1207742
June	-0.1381022	0.0687395	-2.01	0.045	-0.2728292	-0.0033752
July	-0.0917099	0.0681995	-1.34	0.179	-0.2253784	0.0419586
August	-0.1115756	0.0682096	-1.64	0.102	-0.2452641	0.0221128
September	-0.3523536	0.0687491	-5.13	0	-0.4870994	-0.2176078
October	-0.2569444	0.0682016	-3.77	0	-0.3906171	-0.1232718
November	0.0293972	0.068753	0.43	0.669	-0.1053561	0.1641506
December	-0.1669724	0.0682134	-2.45	0.014	-0.3006682	-0.0332765
Identity score						
February	-0.0091118	0.0372004	-0.24	0.807	-0.0820233	0.0637996
March	-0.0638153	0.0365986	-1.74	0.081	-0.1355473	0.0079167
April	-0.1937874	0.0368914	-5.25	0	-0.2660933	-0.1214816
May	-0.1350598	0.0366028	-3.69	0	-0.2067999	-0.0633197
June	0.1818053	0.0369049	4.93	0	0.109473	0.2541376
July	0.3109072	0.0366339	8.49	0	0.239106	0.3827084
August	0.3049058	0.0366546	8.32	0	0.2330641	0.3767475
September	0.1131248	0.0369155	3.06	0.002	0.0407718	0.1854779
October	-0.0356389	0.0366239	-0.97	0.331	-0.1074206	0.0361427
November	0.0809463	0.0369166	2.19	0.028	0.0085911	0.1533014
December	0.0939882	0.0366471	2.56	0.01	0.0221612	0.1658151
Social protection						
February	0.0019695	0.0216962	0.09	0.928	-0.0405543	0.0444933
March	0.1133674	0.0213451	5.31	0	0.0715318	0.155203
April	0.1343762	0.0215163	6.25	0	0.0922049	0.1765474
May	0.1028397	0.02135	4.82	0	0.0609945	0.144685
June	0.1144906	0.0215465	5.31	0	0.0722603	0.1567209

Table A1 (cont.): Results (main model)

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Trust score						
July	0.120059	0.0214482	5.6	0	0.0780212	0.1620968
August	0.1890978	0.0215167	8.79	0	0.1469258	0.2312697
September	0.1392995	0.0215787	6.46	0	0.097006	0.181593
October	0.0393797	0.0214061	1.84	0.066	-0.0025755	0.0813348
November	0.0453223	0.0215708	2.1	0.036	0.0030443	0.0876004
December	0.0419263	0.0214915	1.95	0.051	-0.0001962	0.0840488
Trust score	0.0162922	0.2225587	0.07	0.942	-0.4199148	0.4524992
Cooperation score	-0.0701822	0.2742151	-0.26	0.798	-0.607634	0.4672696
Identity score	-0.0068245	0.1469826	-0.05	0.963	-0.2949051	0.2812561
Social protection	0.0271085	0.0916918	0.3	0.767	-0.1526042	0.2068212
Number of deaths in past 7 days (per 100,00)	0.017469	0.002837	6.16	0	0.011908	0.02303
Number of observations	10,556					

Source: Authors

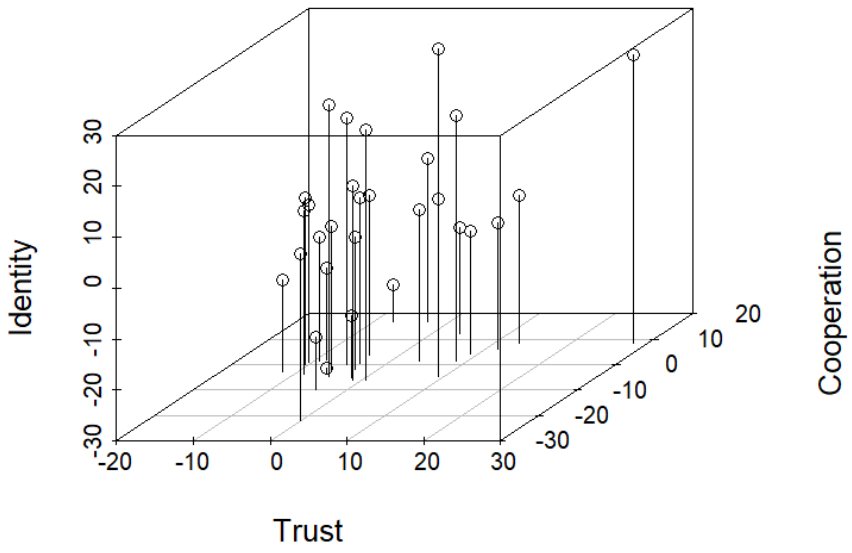
Data and methodology

Data and selected outcomes

As the main dependent variable, we use the Daily Stringency Index from the Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale & Webster 2020). This follows the majority of the literature. The number of deaths data comes from the same source.

The data on social cohesion comes from IDOS's Social Cohesion in Africa Database (Leininger, Burchi, et al., 2021), which is generated from the sixth (2016) and seventh rounds (2019) of the Afrobarometer surveys as well as data from the Varieties of Democracy (V-Dem) database.

Figure A3: Variation of social cohesion attributes (deviation from average)



Source: Authors

The social protection variable represents the population coverage of all social assistance programmes (including labour market ones). The data comes from the Atlas of Social Protection Indicators of Resilience and Equity (ASPIRE, 2017).The choice of this variable was based on data availability and also on theoretical grounds. In fact, we were interested in a variable that captured the overall coverage of social protection through both contributory and non-contributory programmes, which could be linked to social cohesion.

Countries included in the study

The following 29 countries are included in the empirical analysis. We had to exclude Burundi, Egypt, Sudan, and Tunisia as they had no data for the identity score. In addition, Algeria and Burundi had no data on social protection coverage.

Table A2: Countries included in the analysis

Benin	Mauritius
Botswana	Morocco
Burkina Faso	Mozambique
Cameroon	Namibia
Cape Verde	Niger
Côte d'Ivoire	Nigeria
Gabon	Senegal
Ghana	Sierra Leone
Guinea	South Africa
Kenya	Tanzania
Lesotho	Togo
Liberia	Uganda
Madagascar	Zambia
Malawi	Zimbabwe
Mali	

The correlated random effects model

To analyse the effects of social cohesion and social protection on the stringency of the response, a correlated random effects model is employed. This model has the advantage of controlling for all time-invariant factors (as in the fixed effects model), but also explicitly considers these fixed characteristics in the estimations. It could also be used to estimate the heterogeneity of the effects while maintaining the quasi-experimental setting.

One of the assumptions of the common random effects model is that the random effects should not be correlated with the covariates. But this might not be the case. If the *within* and *between* effects are different, then the coefficient is an "uninterpretable weighted average of the three processes" (Bell & Jones, 2015, p. 137). Mundlak (1978) proposed a solution allowing for this heterogeneity bias to be corrected and explicitly modelled; his proposal was further developed into a *within-between* formulation by Bell and Jones (2015) and Snijders and Bosker (2011). Compared with the original formulation from Mundlak (1978), their solution includes one additional term (for each higher level) in the model for each time-varying covariate that accounts for the *between* effect, the higher-level mean. The additional variables are treated in the same

way as any higher-level variable. This type of model, with the inclusion of higher-level means for each lower-level variable, can also be referred to as a correlated random effects (CRE) model (Wooldridge, 2013). The *within-between* model is of the form

$$Y_{ti} = \beta_0 + \beta_1 X_{ia} + \beta_2 \overline{X}_i + \beta_3 Z_i + [(u_{0i}) + \varepsilon_{ti}] \quad (1A)$$

where t is the time occasion and i represents the country. The constant term is composed of a fixed part β_0, equal for all countries, and a random term u_{0i}, different for each county i. In terms of variables, X_{it} are the time-varying variables.[11] $\overline{X}_i$ is the average of each variable for country *i*, while X_{ia}, equal to $(X_{it} - \overline{X}_i)$, represents a vector of centred variables at the country level and represents the within-country variation and is the coefficient of interest. Finally, Z_i are fixed country characteristics, which would be discarded in the case of a fixed effects model. This is the main advantage of using this model, as the social protection and social cohesion data refers to pre-COVID-19 estimates and is, therefore, time invariant. Therefore, using a fixed-effects model does not allow for the estimation of the effects of social cohesion and social protection on the stringency index. As previously discussed, the heterogeneity of the effects of a variable can be used. But in this case, it is not interesting as we are interested in time-fixed variables.

In addition, we are also interested in the effects across time; therefore, we add the interactions of the main variables (the social cohesion variables) with the month dummy variables. By using multiple time-invariant variables (the three social cohesion variables (*Tr, Co, Id*), the social protection variable (*Sp*) plus eventual other variables (such as poverty and inequality), and the time-varying variables *X* (number of deaths plus other eventual control variables), the model becomes

$$\begin{aligned} Y_{ti} = \beta_0 + \beta_1 Tr_i + +\beta_2 Co_i + \beta_3 Id_i + \sum_{m=1}^{12} \beta_{4,\mathrm{m}} D_m Tr_i + \sum_{m=1}^{12} \beta_{5,\mathrm{m}} D_m Co_i + \sum_{m=1}^{12} \beta_{6,\mathrm{m}} D_m Id_i \\ + \beta_7 Sp_i + \sum_{m=1}^{12} \beta_{8,\mathrm{m}} D_m Sp_i + \sum_{v=1}^{V} \beta_{9,v} X_{via} + \sum_{v=1}^{V} \beta_{10,v} \overline{X_{vi}} + [(u_{0i}) + \varepsilon_{ti}] \end{aligned} \quad (2A)$$

where the terms D_m are the dummy variables for each month.

The *within-between* formulation has three main advantages over the original formulation from Mundlak (1978). First, when using temporal data, the coefficients of the demeaned variables are easy to interpret. The *within* and *between* effects are, in fact, separated (Snijders & Bosker, 2011). Second, if there is correlation between X_{ti} and $\bar{X}_i$ by group, mean centering this collinearity is lost. This also results in more stable and precise estimates (Raudenbush, 1989). Finally, if multicollinearity exists between multiple $\bar{X}_i$ and other time-invariant variables, $\bar{X}_i$s can be removed without the risk of heterogeneity bias returning to the occasion-level variables. In summary, this formulation addresses the key sources of correlation (Bartels, 2008). Even if correlation exists between mean-centred variables and their respective error terms, this is no more likely than in fixed effects models.

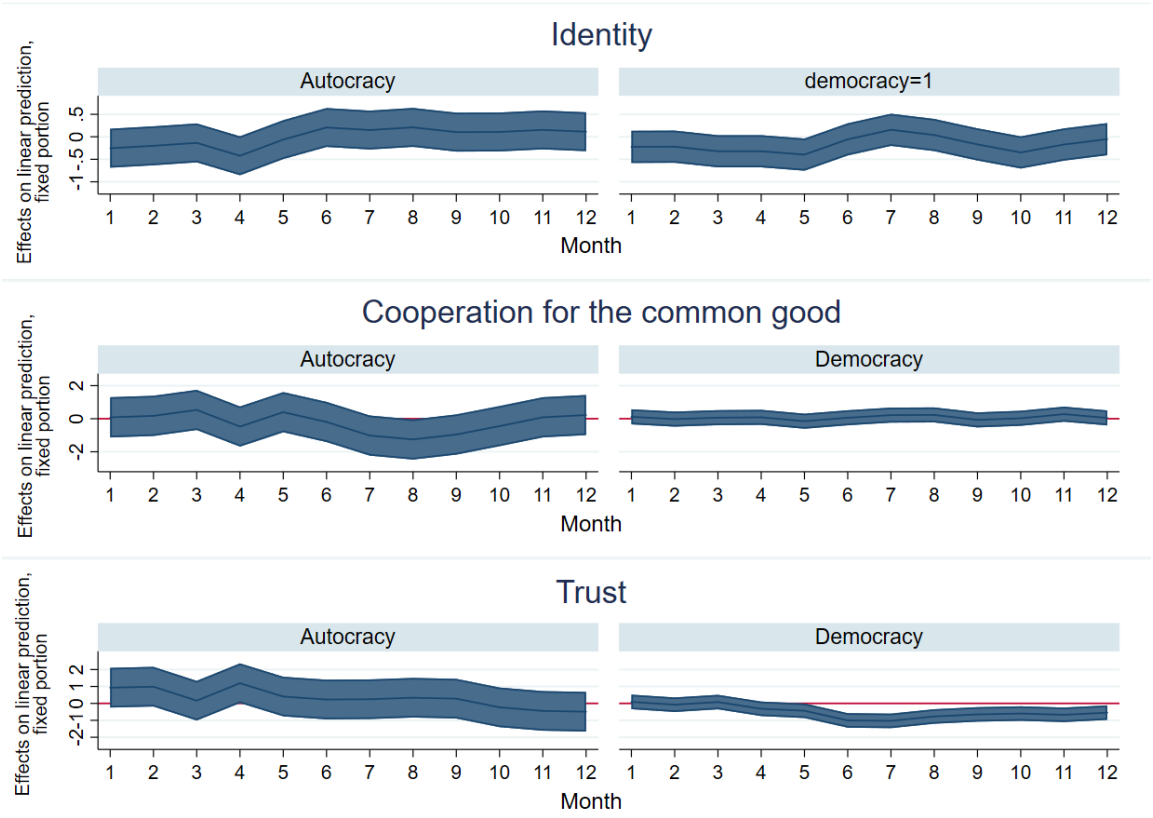
11 Therefore, u_0i and ε_tij represent the estimation of the variance at each level and estimate the importance of data hierarchy and clustering. To decompose the total variance into variance between and within clusters the intraclass correlation coefficient (ICC) can be calculated. The ICC is defined as the proportion of between-group variance out of the total variance. When using ordinary least squares (OLS) estimations, it is assumed that ICC is 0.

Contextual factors

We explore the direct effects of the contextual "political regime" as well as the "inequality and poverty level". The variable "political regime" is from the V-DEM dataset (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al., 2022). Relying on the variable "v2x_regime", a binary variable of regime type (democracy versus autocracy) was generated. Closed autocracies and electoral autocracies are recoded as autocracies. Electoral democracies and liberal democracies are recoded as democracies. The four options listed above cover all coding options in the v2x_regime variable (see Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al., 2022).

These contextual factors may affect decision-making by changing incentives. For instance, in a democratic political regime, the government might be reticent to implement harsh measures due to electoral concerns associated with the implementation of an unpopular decision. Impending elections in democracies have been shown to affect stringency (Pulejo & Querubín, 2021). Governments in autocracies, on the other end, might perceive the fight against the spread of the virus (or other potential crisis) as an opportunity to implement stringent measures that are also instrumental for the government to further erode democratic principles and institutions as well as attack the opposition.[12] Poverty and inequality predict citizens' inability to cope with the negative socioeconomic consequences of stringent containment policies and are taken into account by governments. Data for inequality (measured as Gini Index) and poverty (measured as the percentage of people under the poverty line) are from World Bank (2021).

Figure A4: Marginal effects of each attribute of social cohesion on stringency, conditional on political regime (95% confidence interval)



Source: Authors

12 This phenomenon is being analysed under the label "pandemic backsliding" by the research team at the Varieties of Democracy (V-Dem) Institute. See, for instance, Lührmann et al. (2020). Frey, Chen and Presidente (2020) have shown that autocracies imposed more stringent lockdowns measures, although they appear not to have been more effective in reducing geographic mobility.

Figure A5: Marginal effect of identity on stringency, conditional on level of poverty (95% confidence interval)

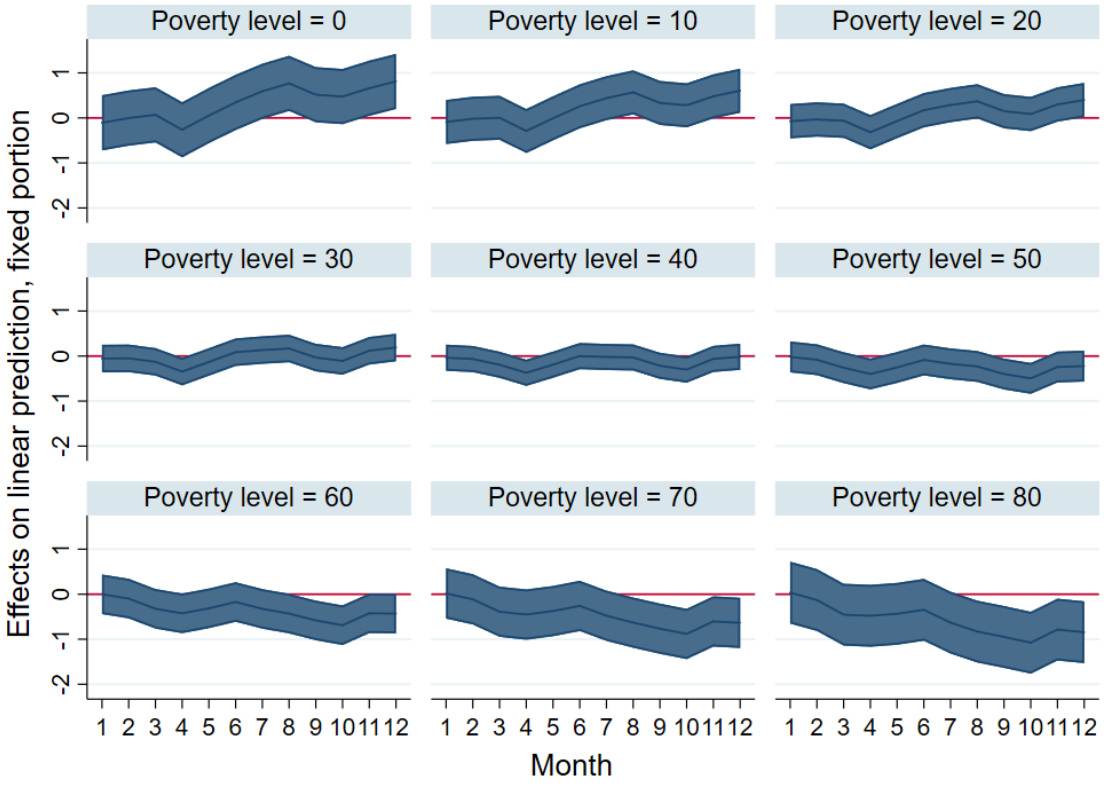


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Figure A6: Marginal effect of trust on stringency, conditional on level of poverty (95% confidence interval)

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Figure A7: Marginal effect of cooperation for the common good on stringency, conditional on level of poverty (95% confidence interval)

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Figure A8: Marginal effect of cooperation for the common good on stringency, conditional on level of inequality (95% confidence interval)

Source: Authors

Figure A9: Marginal effect of trust on stringency, conditional on level of inequality (95% confidence interval)

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Figure A10: Marginal effect of identity on stringency, conditional on level of inequality (95% confidence interval)

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Figure A11: Marginal effect of social protection coverage on stringency, conditional on political regime (95% confidence interval)

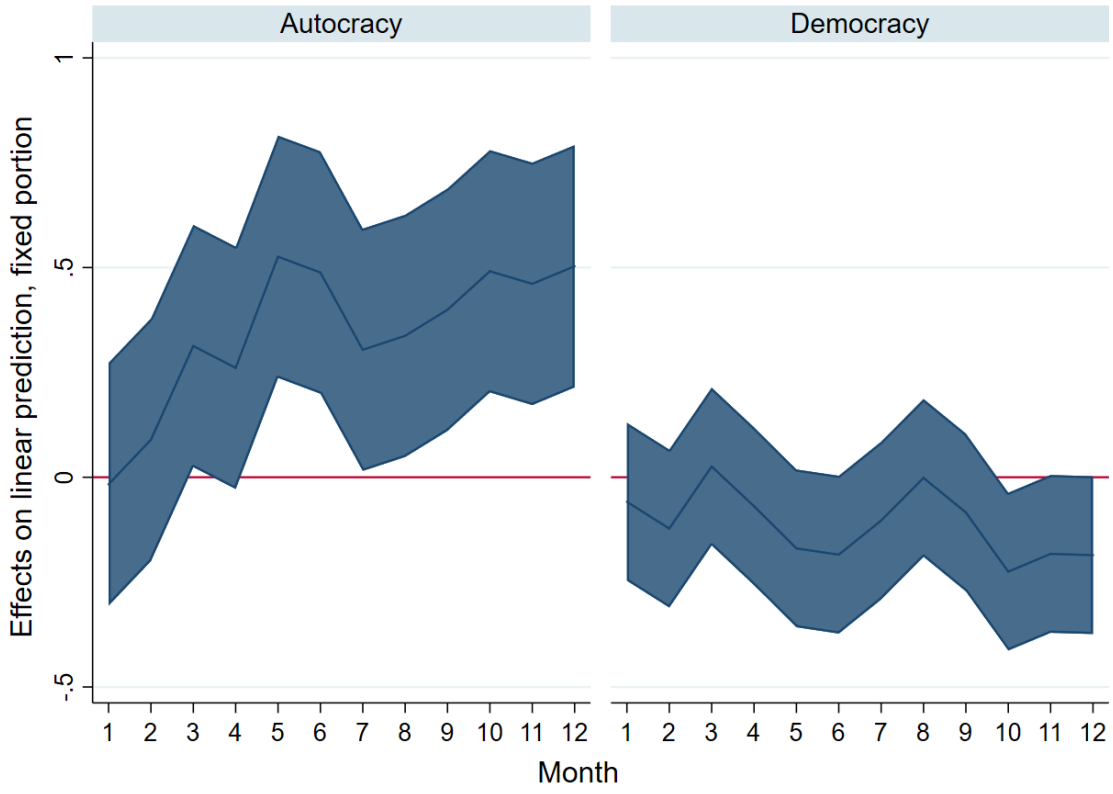

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Figure A12: Marginal effect of social protection coverage on stringency, conditional on level of poverty (95% confidence interval)

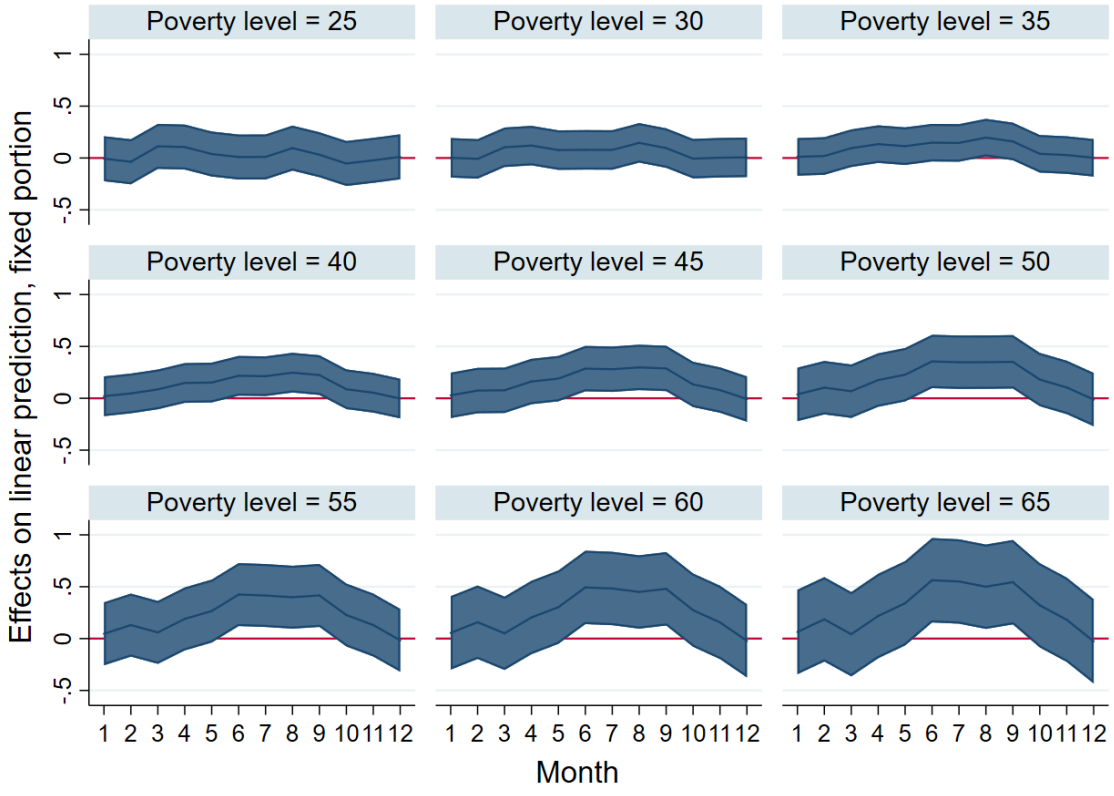

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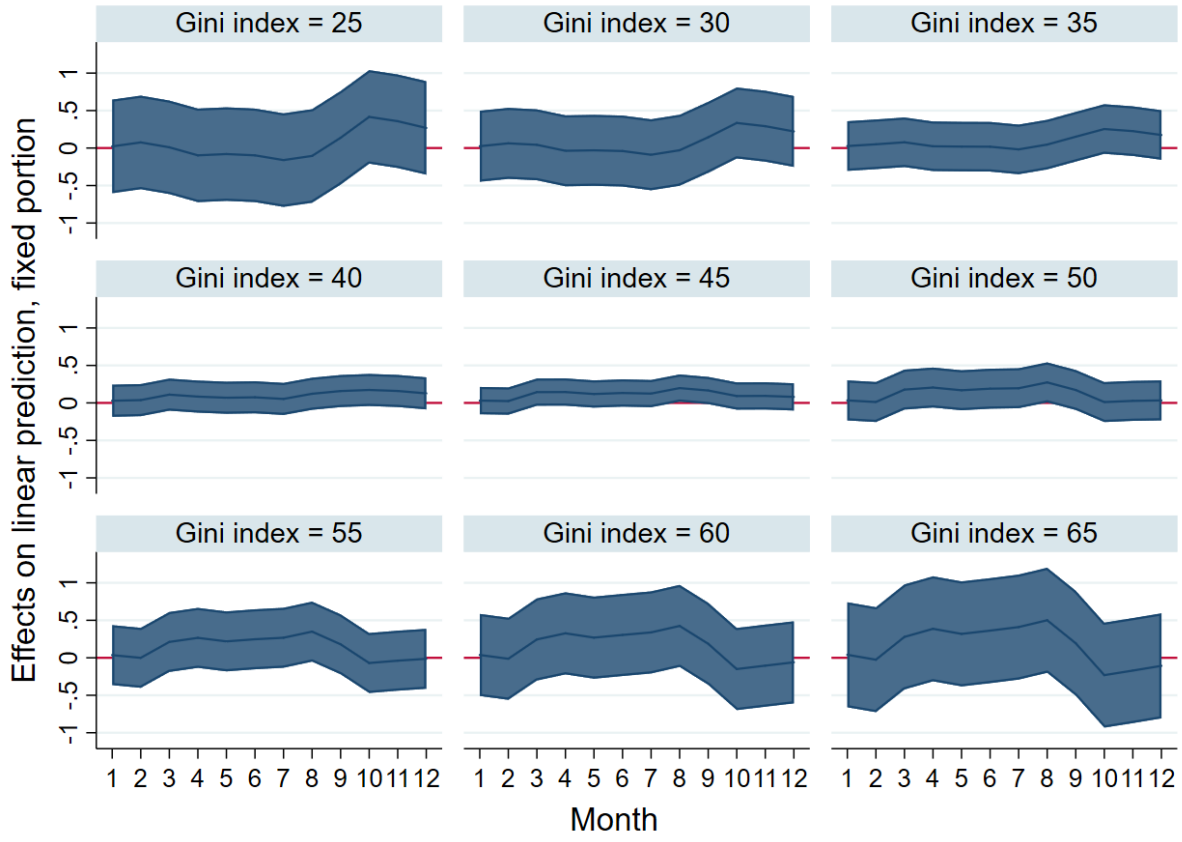
Figure A13: Marginal effect of social protection coverage on stringency, conditional on level of inequality (95% confidence interval)



Source: Authors