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Diversity during COVID-19: Do ethnic divisions impact pandemic responses in developing countries?

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Diversity during COVID-19:

Do ethnic divisions impact pandemic responses in developing countries?

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1. Introduction

The unprecedented nature of the COVID-19 pandemic has raised real challenges for governments around the globe trying to determine the proper policy response (Nelson, 2021). By late June 2020, more than 540 million cases worldwide had been confirmed, out of which 6.3 million cases were fatal (Ogunleye et al., 2022). Officially announced as a pandemic in March 2020, the virus had put millions of lives at risk and caused serious public health crises both for treatment and policy implementation (Hale et al., 2021). Enforcing policies affecting individuals' behaviour was central to limiting contagion. However, measures like physical distancing or mask-wearing often proved hard to impose and monitor as they met social resistance (Bicalho et al., 2021).

Just like investigating public compliance, responsiveness to the pandemic can be studied on a macro-level by investigating governments' ability to contain the disease with restrictive measures. The degree to which the COVID-19 pandemic has been handled effectively hinges on the management and policies taken by governments which varied substantially among countries (Liu et al., 2022, p. 571). The dynamic of this crisis has challenged policymakers and national authorities remarkably (Vito et al., 2022). Both the effective policy response and compliance were often hampered by high polarization (Cornelson & Miloucheva, 2022; Velasco-Guachalla et al., 2022), or distrust in the government (Arriola & Grossman, 2021; Tsai et al., 2020). That distrust is often spurred or exacerbated by ethnic divisions (Arriola & Grossman, 2021, Frisco et al., 2022).

Frequently, social identity like ethnicity conditions domestic policymaking. Although the political salience of ethnic boundaries varies between countries, they still serve as a major mechanism embedded in national politics (Arriola & Grossman, 2021, pp. 808-809). There is an implicit scholarly consensus about ethnic diversity's detrimental effect on development and policymaking (Alesina et al. 1999; Easterly & Levine, 1997; Liebermann 2009). Testing whether that effect holds in the case of COVID-19 pandemic responses would contribute to the broader understanding of ethnic diversity and its role during public health crises.

Studying factors that affect responses to health crises is crucial for future effective health crises management (You, 2020). Through an increased understanding of social conditions undermining responsiveness in times of crises, future public health challenges could be tackled faster. Importantly, existing literature provides no information on ethnic diversity as a predictor of the COVID-19 pandemic response. Thus, the following study would ultimately

aim to fill in that scientific literature gap. The unprecedented features of the pandemic allow to question whether existing theory on ethnic diversity would apply in these circumstances.

Recent studies have revealed that governments often struggled to curtail the transmission, especially during the first wave of the pandemic (Li et al., 2021; Okereke et al., 2022). In diverse Nigeria, the government failed to establish a coherent emergency framework and struggled to coordinate at the multi-sectoral level (Okereke et al., 2022). Similarly, in Brazil, the authorities did not impose many vital national-level recommendations from the WHO (Li et al., 2021). Could the diverse composition of these countries partially explain the lack of a comprehensive approach? Thus, the research question this study will seek to answer is:

Does ethnic diversity reduce COVID-19 responsiveness?

To answer it, this study quantitatively investigates the impact of country-level ethnic diversity measures on low and middle-income countries' policy responsiveness. It will also discuss the extent to which existing theories might be applied to the context of the recent pandemic. The analysis concludes with scholarly and policy implications.

2. Theory

2.1 Ethnicity and public policies

Political scientists and economists studying the effect of ethnic diversity have come to reasonably consistent findings. Conventional scholarship posits that ethnically divided societies experience impediments to policymaking and development outcomes such as public health (Liebermann, 2007). Despite several nuances in their studies, scholars have established a rather negative perspective on ethnic diversity and public outcomes (p. 1408).

First, ethnic heterogeneity has been found to play a key role in determining the public goods provision and subsequent economic growth through the mechanism of conflicting interests (Easterly & Levine, 1997; Alesina et al. 1999). In the scholarly debate, this mechanism has been long associated with polarization between ethnic groups further incentivizing them to mobilize and compete over resources (Alesina et al. 1999; Banerjee & Somanathan, 2007; Easterly & Levine, 1997). Polarization hampers coordination, compromise, and collaboration between groups (Velasco-Guachalla et al., 2022, pp. 530-531). These studies argued that

ethnically divided societies experience suboptimal public goods distribution as it is contingent upon ethnic identification and harder cooperation. According to the influential work of Easterly & Levine (1997), the lack of consensus between ethnic groups ultimately impeded growth and effective policymaking by encouraging rent-seeking and inhibiting agreement on public issues.

Secondly, Alesina et al. (1999) emphasized that ethnic groups have divergent preferences over public policies which ultimately leads to a conflict of interest. Importantly, the undersupply of public goods has not been linked to the fact of one ethnic group reaching the majority. The detrimental effect comes rather from the interplay and competition between different ethnicities (Alesina et al., 1999, p. 1244). However, the evidence only comes from the U.S. census data and the findings have not been yet replicated in other locations which challenge the external validity of this theory (Gisselquist et al., 2016, p. 310). Additionally, in less institutionalized and centralized settings like sub-Saharan Africa, to which this hypothesis is often adapted, the explanations for dampening public goods outcomes may not remain accurate (p. 310). The provision of public goods has been mainly looked at from the state-level perspective which is less relevant in the settings of informal and local governance. Importantly, the empirical evidence for ethnic heterogeneity's harmful effect yields less robust conclusions when studied at the sub-national level (p. 310).

Nevertheless, in Kenya, although identifying a slightly different mechanism, investigation of ethnic groups and development outcomes produces comparable findings. Apart from divergent preferences, Miguel and Gugerty (2005) have identified additional dynamics through which the suboptimal provision occurs. In rural Kenya, less homogenous communities were found to experience greater coordination problems on local public goods. Specifically, the detrimental effect occurs due to cooperation and collective action barriers.

Similarly, this interaction has also been identified to exacerbate the adverse effects during economic downfall (Bluhm & Thomsson, 2020). Countries with politized ethnic groupings face greater barriers to cooperation during economic shock and subsequent recovery. The struggle for agreement over policies caused a delayed policy response as ethnic groups confronted with uncertainty followed self-interest logic (p. 1).

However, vast majority of the literature proposing ethnicity as a negative development predictor omits the key conceptual differentiation between diversity and divisions. As Liebermann (2007) argued, ethnic diversity refers to various ethnic groups as separate coexisting units, whereas ethnic divisions are inherently liked to in-group bias and conflicting interests (p. 1412). Singh (2011) exposed an important insistency within existing literature whereby the negative relationship between ethnic diversity and public goods has been

established solely on the ground of ethnic fragmentation with the implicit assumption of political polarization. A vast majority of the benchmark research on ethnic diversity relied on the ethnolinguistic fractionalization (ELF) index. However, while it encapsulates the enumeration of ethnic groups, it disregards their political involvement (Posner, 2004, p. 853). Objective diversity as such does not imply a negative political concept of polarization. It is ethnic divisions, closely linked to polarization, that are responsible for the negative effects in the public domain and not descriptive ethnic diversity per se (Singh, 2011, p. 282).

While most of the scholarship on the topic introduced a rather descriptive conceptualization of ethnic diversity, most of them implied a divisionary polarization concept ingrained within it (Singh, 2011, p. 282). Considering such remarkable distinction and its implications, this study will employ a more political conceptualization of diversity by testing ethnic divisions as a predictor of COVID-19 policy responsiveness.

2.2 Ethnic barriers during a health emergency

A second influential body of literature depicts a rather psychological perspective, as opposed to an economic one. Specifically, it asks how collective ethnic identity can shape human perception as well as institutions, and thus determine the stringency of policy responses (Gauri & Lieberman, 2006; Lieberman 2007). Boundary institutions regulating or monitoring interethnic behavior and social construction of belongingness were found critical in policymaking during the global HIV/AIDS pandemic (Gauri & Lieberman, 2006). These procedural norms, like census or policies highlighting group identity, reinforce sub-national ethnic divisions and shape risk perceptions among ethnic and racial groups. Not only did it affect public compliance but also determined the aggressiveness of the policy intervention in response to the HIV/AIDS in South Africa (Gauri & Lieberman, 2006, pp. 60-64). This division projected onto the decisions of those in power who considered HIV/AIDS as a problem of "them" (p. 64). This suggests that effective policy responses during public health emergencies are prone to interethnic barriers.

On the contrary, ethnicity although salient in Brazil's politics, has not shaped the national response and ethnic politics has remained relatively irrelevant to the policy debate (Gauri & Lieberman, 2006, pp. 62-64). This supports the general distinction that ethnic diversity only impedes development and policymaking when racial and ethnic groupings are divided by politicized boundaries (p. 64).

Although the evidence comes from South Africa only, it complements the findings of Liebermann (2007) who in a series of cross-national analyses found similar explanations for undermining prompt policy response. Social identity theory implies that individuals' preferences can be affected by attributing positive or negative utility to choices depending on ethnic affiliation (Alesina & Ferrara, 2005, p. 765). That theory has been attributed to political leaders, who in the context of politized ethnicity are likely to diminish the overall salience of disease-associated risks and claim critical policies as unnecessary in fear of shame, loss of status or positive identity (Lieberman, 2007). The HIV/AIDS was a major social taboo and hence was widely perceived as a stigmatized condition (Gauri & Lieberman, 2006, p. 48). Therefore, as the perception of an imminent risk was low and political leaders objected to the salience of such unpopular issue, ethnically divided societies experienced significantly smaller AIDS expenditures and worse policy response (pp. 1414-1428).

2.3 Trust and ethnicity

Similarly to how ethnic boundaries can affect risk perceptions and lead to inferior policy response, public trust can be an important predictor for the effectiveness of public health interventions (Siegrist & Zingg, 2014; Tsai et al., 2020; Bicalho et al., 2021; Liu et al., 2022). As polarization is common in ethnically diverse societies (Easterly & Levine, 1997, p. 1206), distrust is a likely social pattern (Bicalho et al., 2021, p. 531).

According to Arriola & Grossman (2021), individuals' perceptions vis-à-vis state authorities are crucial within the public health domain. In many multiethnic postcolonial countries, distrust originates from coercion, extractive institutions, control, or violence in the past. This, consequently, created incentives to mobilize along ethnic ties in contemporary politics and initiated prevalent distrust of government (p. 809).

Furthermore, when a state lacks legitimacy and trust, policymaking is severely undermined as there is less mutual engagement and active cooperation (Levi et al., 2009). Under such circumstances, governing remains much harder as enforcement, monitoring and coercion are necessary to elicit obedience (p. 355). Apart from decreased compliance and cooperation from the society, low-trust settings can also impact the policy strategy in disease containment and effective management, especially in a protracted emergency (Siegrist & Zingg, 2014). Naturally, governments should have less motivation to impose strict measures if they expect little adherence. During the COVID-19 pandemic legitimacy and trust were essential for effective management (Liu et al., 2022). For instance, the political crises in Bolivia

which decreased the general trust and legitimacy of the government has led to divergent policy responses to the pandemic on the local level (Velasco-Guachalla et al., 2022). This has ultimately hampered a coordinated response which highlights the crucial role of trust during the pandemic.

Importantly, distrust in authorities has been found to extend into the legitimacy of international actors. When state authorities lack legitimacy and trust, foreign organizations receive similarly low levels of trust (Arriola & Grossman, 2021). Those findings are relevant in the context of COVID-19 and the involvement of global pharmaceutical corporations in the vaccine rollout.

2.4 New studies on ethnicity

Yet, some scholars started challenging the conventional understanding of ethnic diversity. A majority of the existing literature has come to negative conclusions which only recently have started to be critiqued (Banerjee & Somanathan, 2007; Gisselquist et al., 2016; Singh, 2011; Putnam, 2007). Through gradual development of a common subnational identity superseding ethnic divisions (Singh, 2011), or effective and inclusive policymaking (Putnam, 2007), the negative effect of ethnic divisions could be mitigated. Given varying COVID-19 exposure depending on geographical location (Barnard, 2020, p. 753), some areas may suffer significantly while others barely experience it. In turn, the deadly threat of the COVID-19 pandemic may allow societies with high ethnic fragmentation to mobilize against the common threat on a sub-national level leading to a better response from both the government and society. Banerjee and Somanathan (2007) found that despite stark ethnic and social divisions, national policies have led to a more equal public goods provision in diverse regions of India. Considering the evidence from rural India, there are reasons to assume that the conventional reasoning about ethnic diversity is not rigid and may not hold in the context of COVID-19. As You (2020) identified, this pandemic is a “transboundary crisis” which yields new solutions and approaches (p. 801). Its rapid development challenged governments trying to control the transmission by imposing new rules and standards on the whole society leaving everyone affected (An et al., 2021). As such, ethnic politics agenda could be less likely to determine political leaders’ decisions. Perhaps, the unprecedented nature of this crisis alleviates the adverse effects of ethnic divisions, so that diverse societies would take joint action to protect the health of the community.

Additionally, development and welfare efforts need not be determined by the mere diverse demographics of the country. In fact, social development could be enhanced by the subnational common sense of belongingness which encourages citizens from a broad range of backgrounds to cooperate and commit to the common good (Singh, 2011). Ethnic divisions may not be harmful to social cohesion as it depends on the changes in the social environment and overlap of additional cleavages that deepen the divide (Meer & Tolsma, 2014). Thus, it could be hypothesized that diverse political communities are capable of responding equally aggressively to the common threat of COVID-19. As Liebermann (2007) concluded, ethnic disparities are not inherent to public health politics and other factors are equally capable of generating policy responses (p. 1429).

Alternatively, the way in which a country responded to the pandemic, could be determined by its domestic institutions. Non-democracies have been found to respond more aggressively in the early stages of the pandemic when compared to democracies (Chiplunkar, 2021). Moreover, some scholars have linked growing diversity with increased authoritarian practices (Velez & Lavine, 2017; Mehta, 2022). If political regime conditions stringency of the response and the diversity-authoritarianism considerations hold true, this has considerable implications for this study. Hence, responsiveness to the COVID-19 pandemic must be looked at also from a political perspective as it could depend on the regime type.

2.5 Policy responsiveness during the pandemic

Governmental interventions, international organizations' mandates, or recommendations are all generally referred to as policies (Krasnikov et al., 2022, p. 62). Policy responsiveness within this framework will refer only to the policies mandated by the national governments within the initial phase of the pandemic. Given the rapid spread of the virus and limited scientific knowledge at that time, governments were forced to react quickly adopting mostly recommendations from international bodies or mimicking neighboring countries (An et al., 2021, p. 1158; Hale et al., 2021, p. 532). These reactions could be evaluated on the grounds of various measures like speed or scope (An et al., p. 1167). As the local capabilities, individual capacity, and the number of cases varied significantly (Hale et al., 2021), it is important to recognize the problematic conceptualization of the response. Nevertheless, with simultaneous accounting for the local epidemiological developments, the strictness of the policies encapsulates the governments' responsiveness to the virus most accurately.

2.6 COVID-19

Despite growing scholarship challenging the traditional understanding of ethnic diversity, most literature implies that ethnic divisions are detrimental to policymaking. The evidence suggests a long process of consensus-seeking and bargaining over policies within ethnically divided societies. However, while the theories discussed above address the possible effect of ethnic divisions on policymaking, they present differently when applied to the context of COVID-19.

Although COVID-19 has become a politized issue (Roozenbeek et al., 2020), the logic of altered risk perceptions and ethnic divisionary consequences for policymaking may not apply to it the same way it did for HIV/AIDS. Indeed, the recent pandemic has brought similar implications and challenges for all countries and the speed of the transmission required rapid containment decisions (Chiplunkar, 2021, p. 661). Additionally, as the geographical origins of the SARS-CoV-2 virus were known to the public (Nguyen et al., 2021), and contagion put every population group at risk, social identity theory is less likely to be relevant within the COVID-19 context. Hence, risk perception bias is unlikely to determine policy aggressiveness to the extent it did with the HIV/AIDS pandemic as the origins of viruses differ substantially.

Public health crises apart from general state capacity require a considerable amount of consensus and coordination between national authorities (Gauri & Lieberman, 2006, pp. 55-60). During the COVID-19 pandemic, the coverage of governments' interventions varied significantly spanning different policy areas with remarkable political implications (Hale et al., 2021). Governments were faced with unmatched uncertainty associated with epidemic progression, economic trade-offs, and social backlash (An et al., 2021). This implies that rapid policymaking, cooperative governance, and adaptability were key in the early policy response (You, 2020).

Imposing sharp restrictions during the pandemic should face serious impediments among societies with deep ethnic divisions as it requires difficult to achieve collaboration among different groups. Therefore, it seems plausible that while COVID-19 would not affect political decisions identically to HIV/AIDS pandemic, any politically salient ethnic divisions, however, are likely to impede an effective top-down response. Given the overarching nature of COVID-19 and its implications for agreement in rapid policymaking and interventions, this study will test the theories on impediments to public goods provision and ethnic barriers to policymaking. The nature of the COVID-19 pandemic allows to expect that ethnic divides matter during a health crises decision-making process. If the existing theoretical assumptions

about ethnic divisions hold for other instances, we would expect a less robust policy response to COVID-19.

Finally, as previously discussed, effective policy intervention during the pandemic was contingent on legitimacy and trust (Liu et al., 2022). Governments faced significant barriers to the enforcement of the containment mandates (Bicalho et al., 2021). These issues were often exacerbated by preexisting political or legitimacy crises (Cornelson & Miloucheva, 2022; Velasco-Guachalla et al., 2022). As Yen and Liu (2021) argued, the pandemic fatigue decreased overall trust in the government and thus compliance with restrictive measures (p. 562). However, since the pandemic has seen a global policy diffusion with countries often mirroring each other's actions to contain the pandemic (Hale et al., 2021), the ethnically mediated trust issues are less likely to interfere with the COVID-19 policy interventions. Plausibly, the ethnic divide could hamper compliance and be relevant for trust in the enforcement of the containment measures. Nevertheless, this study tests the theory with emergency policy interventions, not public compliance.

2.7 Hypothesis

Liebermann (2007) argued that, despite extensive research explaining the effects of ethnic divisions, our understanding of interethnic dynamics remains incomplete and poses important questions (p. 1408). Moreover, while citizens' adherence to public health crises guidelines has been investigated extensively (Roozenbeek et al., 2020; Qeadan et al., 2020; Arriola & Grossman, 2021; Bicalho et al., 2021; Yen & Liu, 2021;), the conditions of governments' policy responsiveness have received much less attention (Qeadan et al., 2020, p. 15). Therefore, the hypothesis tested in this study is that greater ethnic divisions decrease COVID-19 policy responsiveness.

3. Research Design

Testing this hypothesis will allow for an investigation of the general trend of ethnic division's effect in a novel context of the recent pandemic. Contrasting it with existing theoretical argument will allow to gain a more refined and generalized knowledge about the overall impact of ethnic divisions during globalized public health crises. The primary aim of this study is to test the theoretical assumptions about the consequences of ethnic divisions in

developing countries. As the goal is to test for the effect of ethnic boundaries on policy responsiveness rather than to examine the effectiveness or design of underlying mechanisms through which such responsiveness occurs, the study will take a quantitative form. Specifically, it will assess the relationship between the extent of national ethnic divisions and policy responsiveness during the pandemic. To draw such inference, the analysis will compare country-level data on ethnic diversity with an accurate responsiveness measure recorded for each selected country. This will allow to draw important conclusions about developing countries' diversity and its consequences.

Given the substantial variation in geographical COVID-19 exposure (Hale et al., 2021), facilitating a regression with controls can generate more generalizable results. To claim causal inference, the ordinary least square regression (OLS) will control for potential confounding variables discussed in detail later in the paper. The complexity of ethnic composition and the individual capabilities of a country to respond to a health crisis imply that there could be other factors potentially interfering with the relationship between them. Accounting for alternative explanations will allow to claim causality between the ethnic diversity and policy responsiveness. The model will control for the level of democracy, continental location, and incidence of an armed conflict and income, all of which could explain the variation in both ethnic divisions and policy responsiveness during a crisis.

3.1. Methodology

1. Case Selection

The primary aim of the study is to assess previously discussed theoretical assumptions cross-nationally, rather than evaluating ethnicity's effect within specific entities. To test whether ethnic diversity harms COVID-19 responses this study will examine available data from all developing countries declared as low and middle-income countries by the World Bank (2022). Policy interventions during the pandemic found greater efficacy and resilience in developed societies (Krasnikov et al., 2022). Hence, the goal is to investigate countries with lower state capacity and where ethnicity has been politized. For instance, such conditions are generally prevalent across Africa (Bluhm & Thomsson, 2020, p. 16). Importantly, majority of developing countries experience higher rates of ethnic fragmentation (Karnane & Quinn, 2019, p. 435). Furthermore, many developing countries have been colonized in the past. Ethnic

identity in these countries remains a politically salient indicator within domestic politics (Arriola & Grossman, 2021).

2. Data and Operationalization

Increasingly, scholars move away from traditional interpretations of ethnic diversity, emphasizing the relevance of the political component that hampers development outcomes (Porten et al., 2022, p. 12). The widely used ELF index captures the mere likelihood of two randomly chosen people belonging to a different ethnic group (Posner, 2004, p. 849). While it encapsulates the size of the groups, no politically relevant information capable of affecting governance could be derived from it (Baldwin and Huber, 2010, p. 644). Therefore, the ELF index has been questioned for being based on outdated ethnographic data and criticized for obscuring other important constructivist interpretations of ethnic distinctions (Posner, 2004; Banerjee & Somanathan, 2007; Singh, 2011).

Independent variable - Politically relevant ethnic groups

As measuring ethnic diversity remains considerably problematic, the choice of an accurate measurement depends to a large extent on the study-specific context such as the causal mechanism being put to a test (Posner, 2004, p. 850). The goal of this study is to examine and test the established political argument which posits that ethnically diverse societies experience worse governance and public goods provision. Therefore, it is necessary to capture the extent to which ethnic diversity projects onto the political competition between the groups (Posner, 2004, p. 853). Ethnic diversity will be studied through the lens of politically relevant ethnic groups to assess whether that affected management of the pandemic. Such ethnicity is politicized and not merely a reflection of descriptive diversity within society.

Posner (2004) calculated an index of Politically Relevant Ethnic Groups by revising the primary ethnic breakdowns employed for the traditional ELF index, using secondary sources, and adjusting the population baseline of each group so that the total population captures only the politically relevant part (Posner, 2004, pp. 854-855). Originally, the index however covered only 40 African states. Therefore, I computed an up-to-date PREG index for all the states included in this study by applying the ELF formula to the most recent data on politically relevant ethnic groups. Hence, the explanatory variable in this study encapsulates the extent to

which society is divided along politized ethnic lines including majority, minority, discriminated and state-controlling ethnic groups (Vogt et al., 2015, p. 1329).

PREG Index calculations

The Ethnic Power Relations (EPR) 2021 Core Dataset contains cross-country annual data on politically relevant ethnic groups (Vogt et al., 2015). It identifies and records groups that benefit from political representation or experience systematic discrimination. There are two country-specific conditions for inclusion in the dataset. A population of at least 500.000 and politicized ethnicity referred to as the situation when "at least one political actor has claimed to represent its ethnic group's interest at the national level" or when members of that group are repeatedly discriminated against in domestic politics by direct political exclusion (Vogt et al., 2015, p. 1329). Ethnicity is marked according to the Weberian definition - "subjectively experienced sense of commonality based on a belief in common ancestry and shared culture" (Vogt et al., 2015, p. 1329). The EPR data was collected online by surveying almost one hundred experts asked to identify the political salience of ethnic groups within each country. Each country code has been reviewed and evaluated by an academic committee to ensure reliability of the results.

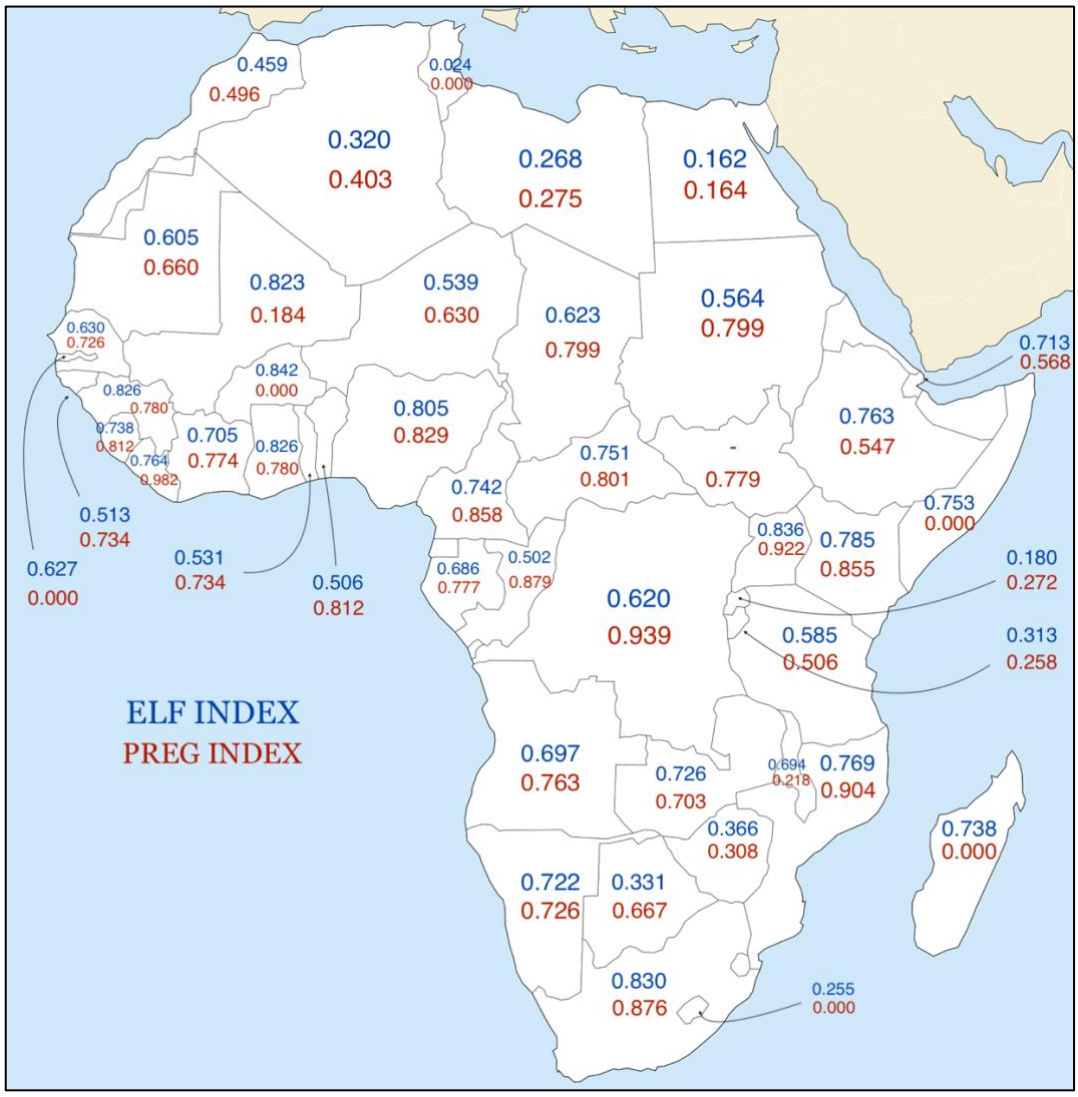
Although the EPR dataset measures the presence of politically relevant ethnic groups over time, this research will only address the outcome from 2020. As historical developments are outside the scope of this study, the value from the year of the COVID-19 pandemic onset will be most suitable. Applying the ELF formula to the country-level data on the size of each distinct ethnic group essentially presents an ethnic fractionalization index but within politically relevant part of ethnic population. The index of politically relevant ethnic groups' fractionalization presents as follows:

$$PREG_j = 1 - \sum_{i-1}^{N} Y_{ij}^2$$

The Y_{ij} symbol represents the share of group *i* in the total population (*i*=1-N) of politically relevant fraction of society, while *j* stands for a country. This measure ranges from 0 to 1 indicating least to most ethnically divided society respectively. The value takes on the maximum value of 0.982 and a median of 0.493. Figure 1 presents the variation in the fractionalization within politically relevant ethnic groups among African countries and

compares it with the widely used ELF index. Data on the ELF index comes from the Replication data for Ethnicity and Conflict: An Empirical Study dataset (Esteban et al., 2012).

Figure 1. Africa's PREG and ELF indices distribution



Dependent variable - COVID-19 policy responsiveness

The policy responsiveness in handling the pandemic could be measured by looking at the provision of restrictive mandates or critical medical services, for instance, vaccine rollout. Despite being an effective tool in fighting the pandemic, within the first few months countries had to rely primarily on alternative containment mandates to mitigate outbreaks (An et al., 2021, pp. 1168). Additionally, the logistics and procurement of COVID-19 vaccines have raised serious challenges for many low and middle-income countries (Lucero-Prisno et al.,

2021). Many African states' health systems faced barriers forcing them to rely on the assistance from COVAX initiative or the World Bank funding which shows the limited capacity of many countries and the important role of international politics (p. 795). Therefore, measuring COVID-19 responsiveness through immunization rates would serve as inaccurate indicator.

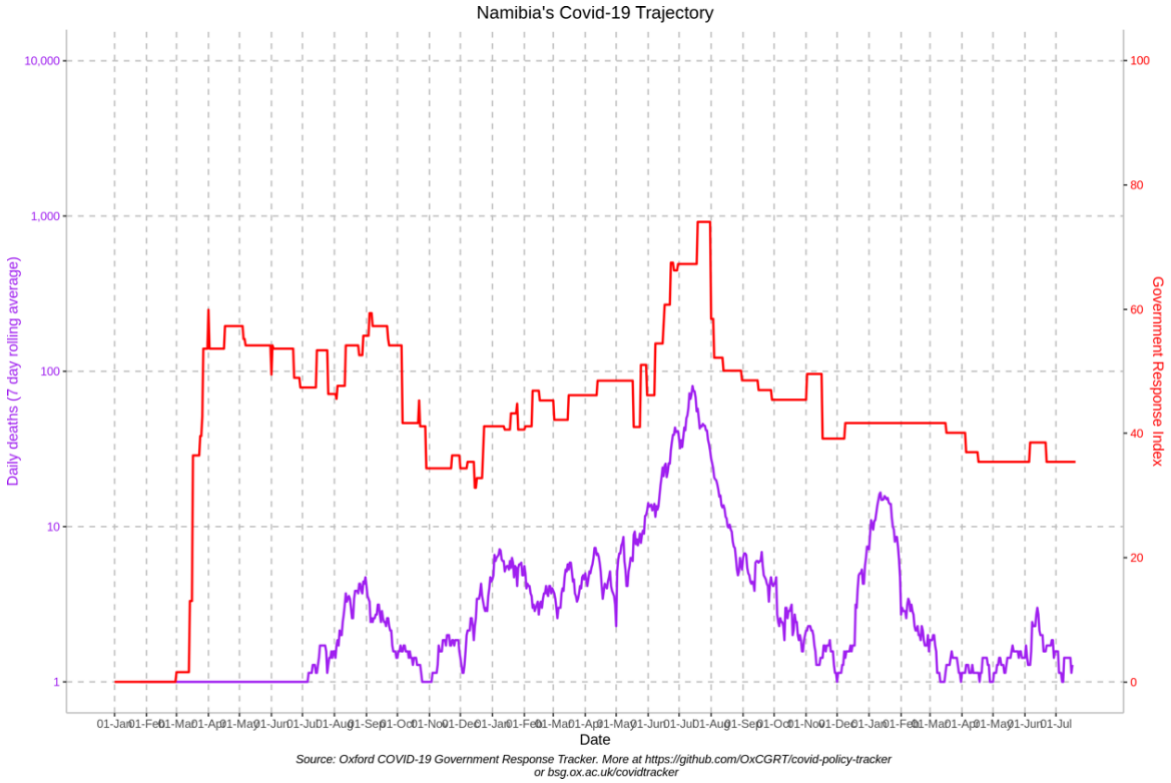
In the toolbox of governments' crises management instruments, one can find a wide range of restrictive measures varying across countries (Qeadan et al., 2020, p. 2). Hence, studying policy responsiveness in the early stages of the pandemic should rely on nonpharmaceutical measures which were widely accessible instruments for all governments (An et al., 2021, pp. 1168-1169). The responsiveness variable in this study will comprise of a broader composite of pandemic policy responses such as nonpharmaceutical containment measures. To verify the existing theory by addressing cross-national patterns and fully capture the responsiveness of the governments, this study will use the index obtained from The Oxford Covid-19 Government Response Tracker (OxCGRT) as the outcome variable (Hale et al., 2021).

The OxCGRT reports comprehensive data on COVID-19 responses and is widely used by policymakers, journalists, and scholars (Hale et al., 2021). The Stringency Index comprises all the conventional restriction measures imposed by national authorities across the globe. It systematically gathers information on policy measures taken during the COVID-19 pandemic (Hale et al., 2021). The publicly available data was collected from governmental sources or news articles by volunteers from the Oxford University community. That data was coded into ordinal scale measurements of separate categories of policies, which are then combined into indexes of policy responsiveness. The index ranges from 0 to 100 indicating lenient to strict response respectively. The composite encompasses lockdown metrics like workplace and school closures, public events and gatherings restrictions, internal and international travel controls but also information campaigns and isolation requirements. The OxCGRT Response Tracker constrained the case selection of low- and middle-income countries by several missing countries. Namely, no data on COVID-19 response was coded for Armenia, Comoros, Eritrea, Equatorial Guinea, and Guinea-Bissau.

During the first months of the pandemic, the policy responses across the globe converged which has been linked to limited knowledge and policy guidance of the WHO (Hale et al., 2021, p. 532). Moreover, some countries implemented solutions regardless of the local progression of the pandemic. Many imposed strict high-level responses before dealing with any COVID-19 related deaths (Hale et al., 2021, p. 532). Figure 2 displays this sudden policy

jump on the example of Namibia with a Government Response Index which apart from containment measures consists of pharmaceutical responses (Hale et al., 2021).

Figure 2. Namibia's COVID-19 trajectory



Regardless of initial global timing consistency, the related strength of the policies appeared to vary remarkably (p. 532). The individual scores range from 16.67 to 100 at maximum, with a median of 77.78. Importantly, the Stringency Index does not measure the effectiveness nor the appropriateness of the measures but rather the overall policy responsiveness and activity of the government. Furthermore, it ignores the timing of policy adoption as it solely indicates the strictness of adopted policies on each specific date. However, the timing of containment policies remains a large part of responsiveness during a pandemic.

Given the variation in the spread of the virus, it is impossible to reliably measure responsiveness within one specific timeframe and the adoption of policies must be studied in relation to the country-specific circumstances (An et al., 2021, p. 1168). Although the sequence of policy adoption has seen a generally comparable pattern in the initial phase of the pandemic, the strength of the intervention and the number of outbreaks differed across countries (Hale et

al., 2021, p. 532). Therefore, to account for such variation, the Stringency index for each country will be taken from the day on which the number of total reported cases per million inhabitants in each country has surpassed 100. Testing the theory under equal pandemic circumstances will allow to draw reliable conclusions. Hence, the study measures the stringency of the policy response while simultaneously accounting for the timing of policy adoption.

3. Control variables

To establish causality between the variables, it is necessary to account for alternative explanations. First, continents vary in their average levels of ethnic fragmentation. For instance, Africa's ethnic composition differs substantially from other continents (Posner, 2004; Gisselquist et al., 2016). Similarly, COVID-19 had seen a significant geographical disparity between continents, with Africa remaining relatively stable in terms of cases which has been attributed to its young demographics, low urbanization, and lower participation in the global economy (Barnard, 2020, p. 753). It is reasonable to assume that COVID-19 policy responses varied accordingly to the size of the threat. Controlling for the continent covers additional contributions for the causal power like accounting for the socio-political disparities between continents. Essentially, the model would therefore compare the effect within continents. The continent control variable has been recoded into a series of dummies leaving out Africa as a control group.

Second, literature on ethnic diversity suggests the salience of democracy for public goods provision (Alesina & Ferrara, 2005; Baldwin & Huber, 2010). As previously discussed, if diverse societies are more prone to authoritarianism, the true outcome this study would measure would reflect the ability of undemocratic places to impose strict measures. Thus, the extent to which a country is governed by a democratic rule may explain some of the variation in promptness of a critical policy response (Chiplunkar, 2021). Similarly, democracy can also affect how citizens perceive their ethnicity and sense of belongingness ultimately impacting ethnic diversity measures. Therefore, to control for the level of democracy in the country the model will include a variable which codes countries' democracy score ranging from 0 to 10 with higher values indicating stronger democracy. The index comes from the widely used in political science 'Polity5 Annual time-series' (2018).

Third, to estimate the effect of ethnic divisions on policy responsiveness reliably, the model will control for GDP per capita to account for the disparities in state capacity to deal with the

problem. The expectation is that resources and the size of the economy matter for public health response (Liebermann, 2007, p. 1419). Similarly, wealth could affect ethnic divisions. Countries with significantly low resources to provide their constituencies with may exhibit greater distancing between citizens and those in power further deepening the ethnic boundaries. The measure has been included in the Global Database of COVID-19 vaccinations (Mathieu et al., 2021).

Finally, the model will control for the incidence of an ongoing armed conflict during the COVID-19 pandemic. Specifically, the regression will include a dummy variable extracted from the Uppsala/PRIO Armed Conflict Database (ACD) dataset which codes various conflict measurements like interstate, intrastate or ethnic and non-ethnic (Gleditsch et al., 2002). The control included in the model will account for the incidence of conflict in the year 2020. The dummy variable 'Conflict' has a value of 1 assigned to countries that experienced at least one type of ACD conflict, and a value of 0 otherwise. This may explain a considerable amount of variation in both ethnic fragmentation of the society and the state capacity to deal with public health crises. Armed conflicts often result in all sorts of resettlements and migrations which may ultimately explain some of the variation in the level of ethnic diversity (Mitchell, 2011). Respectively, a war onset can correlate with the dependent variable as it can reduce the legislative and governance capacity of those in power.

The model will therefore compare countries that differ in their ethnic composition and policy responsiveness but do not exhibit divergent levels of democracy, war, and do not vary in continental location.

4. Data Analysis and results

4.1 Statistical model

To study whether ethnic diversity harms responses to COVID-19 I use an OLS regression analysis. It allows to measure the strength of the association between the rate of fractionalization within politically relevant ethnic groups population and the index of policy responsiveness for each country. Since the outcome variable is continuous, and to address potential confounders, the most suitable statistical model is multiple linear regression. Overall, 111 observations were investigated while controlling for the continent, level of democracy, armed conflict, and GDP/ capita.

4.2 Assumptions

Prior to the statistical analysis, the data has been tested for all linear regression assumptions such as independent errors, linearity, homoskedasticity, multicollinearity, and checked for outliers and influential cases. Results for these tests are provided in Appendix A. However, some evidence of the assumptions' violation has been detected. The Probability-Probability plot presents evidence of issues with the normal distribution of errors with points spreading away from the diagonal line (see. Appendix A). Deviations from the normal distribution could be resolved by variable transformation, namely - introducing a log-transformed outcome variable. Therefore, the equation of the regression before controlling for confounding variables presents as follows:

$$logY_i = b_0 + \beta_{X_i} + \varepsilon_i$$

The transformation failed to provide normal distribution of errors. Nevertheless, with large number of cases, as in this study, the OLS model should be relatively robust in terms of this violation. (Field, 2018). However, the problematic distribution of errors must be taken into account when interpreting the results.

The second violation pertains to the homogeneity of variances and has been detected in some of the partial plots between the dependent variables and the PREG index. These minor signs of heteroskedasticity were solved by the logarithmic transformation.

Transforming the outcome variable into a natural logarithm brings several implications for the interpretation of the results. The model becomes exponentiated. As a result, the relationship requires additional treatment. The coefficients must be back-transformed by exponentiation and read in percentages to correctly assess the magnitude of the effect.

4.3 Analysis and discussion

Figure 3. Scatterplot between stringency index (y-axis) and PREG fractionalization index (x-axis)

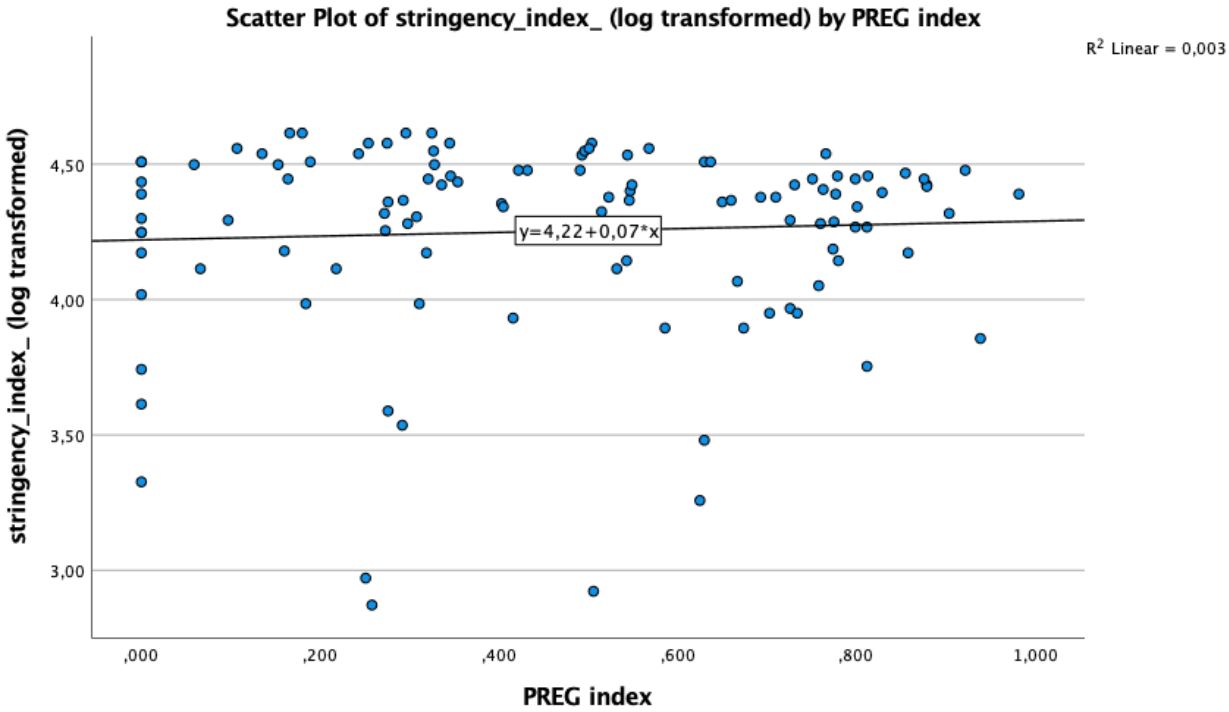


Table 1. Linear regression model report

	Model 1	Model 2
(Constant)	4.202	3.989
	(0.071)	(0.119)
PREG Index	0.115	0.254*
	(0.134)	(0.144)
Continent=Asia		0.206**
		(0.097)
Continent=Europe		0.277*
		(0.155)
Continent= N. America		0.236
		(0.147)
Continent=S. America		0.385*
		(0.146)
Continent=Oceania		0.115
		(0.220)
democracy		0.004
		(0.012)
conflict		-0.036
		(0.085)
GDP/capita		-7.763E-7
		(0.000)
R2	0.008	0.141
Adj. R2	-0.003	0.053
N	111	111

Note: OLS regression coefficients with standard errors in brackets.

***p < 0.01, **p < 0.05, *p < 0.1

Figure 3 shows little evidence of a correlation between the PREG index and the stringency index as no clear pattern emerges from the graph. Additionally, the R^2 value indicates that the PREG index alone accounts for 0.3% of the variation in the Stringency Index. A small positive correlation can be observed between the extent of ethnic divisions and policy responsiveness with little clustering within the upper range of both variables.

Table 1 reports the relationship between the explanatory and outcome variables. The first model without controls indicates a moderately positive relationship between PREG and Stringency index. That means, when ethnic divisions increase, so does the strictness of the response. Although the coefficient for PREG implies a 0.115 increase in the log-transformed dependent variable for every one-unit change on the divisions' index, it is not a statistically significant predictor at the 90% level. Since the predictor has been logarithmically modified, every coefficient needs to be transformed by exponentiation through this equation - (e^{β}-1) x 100. Thus, every one-unit increase in PREG is associated with a 12% increase in policy responsiveness. With a p-value of 0.392, this result is statistically insignificant. The direction of the relationship is nevertheless surprising as it contrasts with theoretical expectations.

Moreover, model 2 also indicates a positive relationship between ethnic divisions and policy responsiveness score while controlling for continent, democracy, armed conflict and GDP/capita. Overall, societies that are more fractionalized within politically relevant ethnic population exhibit better overall domestic responsiveness to COVID-19. A one-unit shift from less ethnically divided to a more divided place, all else equal, increases the aggressiveness of the COVID-19 response by 29% [($e^{0.254}$-1) x 100]. This relationship is only statistically significant using a 90% confidence intervals with a p-value of 0.08 so the results should be interpreted with caution.

Nonetheless, the results are striking. Regardless of the magnitude, the direction of the relationship is surprising as it contradicts the underlying theoretical argument. Literature suggests decision-making under crises to be inherently difficult for ethnically divided countries. And yet, the results show the opposite. Ethnic divisions have no negative effect on the index aggregating policy responsiveness. Remarkably, countries with sharper ethnic divides seem to respond more aggressively to the COVID-19 pandemic than countries with politically homogenous ethnic composition. The estimation through an OLS with controls confirms that the underlying theory does not hold during a broad public health crisis like COVID-19. Every one-unit increase on the PREG index increases the Stringency Index by a considerable amount of 29%.

For instance, Liberia which exhibits significant levels of fractionalization among politically relevant ethnic groups (0.982), imposed surprisingly sharp measures to contain the spread of the pandemic. In particular, the OxCGRT Response Tracker recorded a score of 79.63, 87.96 and 89.81 on the Stringency Index after 100, 500 and 1000 cases per million respectively. In contrast, homogenous Nicaragua (PREG index 0.251), has a much less aggressive track record of containment policies with a Stringency index below 25 throughout the entire pandemic.

Importantly, the model without controls revealed no effect of ethnic divisions on policy responsiveness to COVID-19. Looking at the relationship without accounting for factors such as income or geographical location shows no pattern, whereas model 2 revealed an effect of the explanatory variable. The included controls were therefore confounders and omitting them would negatively bias the results. This highlights the importance of the factors captured by the control variables in establishing a causal effect of ethnic divisions.

The coefficient for every continent represents a difference in means between that continent and the one omitted as a reference category (in this case the most frequent – Africa). This means, that each continent scored on average a higher value on the stringency index compared to Africa. The coefficient is however statistically insignificant for North America and Oceania. Democracy has been found to have a slightly positive effect on policy responsiveness, while armed conflict a negative. Both coefficients are however statistically insignificant.

According to the adjusted R^2 value which accounts for the inflation caused by the additive effect of multiple variables, model 2 explains roughly 5.3% of the variance in the Stringency index. Although controlling for alternative explanations increased the overall model fit, there is a significant amount of the variance being unaccounted for. Whereas the model with controls did not significantly improve the prediction, the coefficients for individual predictors reveal an interesting outcome. The positive relationship between PREG and Stringency index while controlling for extraneous effects confirms that ethnic diversity may not impede public goods provision and policy response.

The regression disproved the hypothesis put forward that ethnic divisions harm policy responsiveness. The findings thus complement the literature emphasizing the complexity of ethnic diversity and its gains for development (Gisselquist et al., 2016; Singh 2011). Specifically, it is in line with Singh (2011) who has challenged the traditional understanding of the mechanisms responsible for suboptimal development on the sub-national level. This study builds on this analysis and finds that health outcomes may also be supported by a diverse

national-level political community. Plausibly, the lack of expected effect relates to the overarching nature of the recent crises and the resilience of a diverse society jointly mobilizing against a common threat. On the other hand, authorities in ethnically divided countries could expect little compliance and act forcefully to contain the pandemic. However, the findings highlight the need to investigate the reasons why these results defied expectations.

To address the conceptual split between diversity and divisions, the same analysis has been performed using the ELF index. When controlling for the same confounders it shows no effect highlighting the importance of the distinction. Future research should take account of this when investigating ethnic diversity.

5.4 Robustness checks

This analysis relied on the assumption that governmental response should be measured during equal pandemic intensity. Nevertheless, the research should not be fully dependent on measuring the responsiveness in an arbitrary threshold of 100 cases per million citizens. To ensure the results do not reflect solely the effect of ethnic divisions within an arbitrary timeframe, a robustness check verified them with an alternative threshold of 1000 cases per million. The received results are consistent with only minor deviations from the initial test (see Appendix B). Although when controlling for democracy, income, armed conflict and continent the magnitude of the effect is marginally smaller, the overall direction of the relationship is qualitatively the same which validates the findings. The expected negative relationship between ethnic divisions and the COVID response turned false.

6. Conclusions and limitations

The conventional understanding of ethnic divisions was tested in the novel COVID-19 context. Against most literature, it has been found that ethnic diversity in the form of ethnic divisions does not harm COVID-19 responsiveness. Among limitations, however, it is crucial to note the limited case selection of this study. Developing countries may have characteristics that are hard to apply to the global context. It seems plausible that first-world countries that deal with increased ethnic diversity and experience a deepening divide can be affected differently as their resource capacity is much bigger (Meer & Tolsma, 2014). Nevertheless, the goal of this study was to investigate the average effect of ethnic divisions in developing

countries as previous literature suggested these countries to be specifically affected. Understanding whether these results are applicable beyond the developing world context would be especially valuable for politicians and policymakers.

Another caveat relates to the nature of the pandemic and the generalizability of the findings. Despite being surprising these results may turn out to be intrinsically COVID-19-specific given the unprecedented nature of this pandemic. It seems plausible that under less prevalent and infectious diseases the effect of ethnic divisions may induce different results. It is also worth noting the inherent risk related to the research design. Although the model controlled for confounding variables, there is always a risk of an omitted alternative explanation. Additionally, as the outcome variable encapsulates solely the aggressiveness of the response, further research is needed on the enforcement and appropriateness of these containment mandates.

This study reveals a wide knowledge gap regarding the effect of ethnic diversity, especially with regards to public health which is widely thought to be impeded by ethnic divisions. Moreover, it contributes in four specific ways.

First, it subscribes to the broader literature on the role and impact of ethnic divisions within society and understanding of its effects. While controlling for continents, democracy, armed conflict and GDP/capita, the results revealed a surprising effect in contradiction with accepted theories. Conventional approaches to ethnic diversity expect a negative effect on development outcomes and policymaking. This thesis showed it does not hold for the COVID-19 response. Furthermore, considering the deepening economic crises stemming from the pandemic, this finding may have implications beyond the pandemic. If the ethnic divide does not impede policy intervention during COVID-19, there are reasons to question the theory about its adverse effects during the subsequent economic recovery. However, more research should follow to assess additional contexts in which the conventional understanding ethnic diversity requires reconsideration.

Secondly, studying ethnic diversity through politicized ethnic divisions contributes to the growing literature emphasizing the distinction between descriptive ethnic diversity and political ethnic divisions. Given that ethnic diversity may not necessarily imply cleavage, it is crucial to highlight the difference between the two concepts. As most of the previous research rests on the implicit assumption of the ethnic divide within diverse societies, this study supports the conceptual split. It finds no effect using the ELF index as a predictor of the COVID-19 policy response.

Third, it tests existing theory and refines its understanding in the context of public health crises responsiveness. It aimed at filling the literature gap of ethnic division's role in response to the COVID-19 pandemic which had previous been given little attention in the literature. Since ethnic divisions in developing countries do not impede policy intervention during COVID-19, other barriers these countries face should receive close attention.

Finally, it brings the additional value of calculating an up-to-date PREG fractionalization index for 110 countries (see Appendix C). The updated index can be employed for future research on developing countries.

Undoubtedly, with growing ethnic diversity across the world, also within first world countries, the need to study the effects of ethnic diversity is only accelerating (Van Assche et al., 2016). Given the investigated association of the two variables in question, more study needs to be done on ethnic divisions to draw robust policy implications for the future well-being of diverse societies. More broadly, additional research should investigate the mechanism that caused ethnic divisions to have a positive effect on the policy responsiveness under circumstances of profound uncertainty.

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Appendix A. OLS regression assumptions

Chart 1. Scatterplot of standardized residuals (ZRESID) on Y-axis and standardized prediction (ZPRED) (before & after transformation). – linearity and heteroskedasticity check.

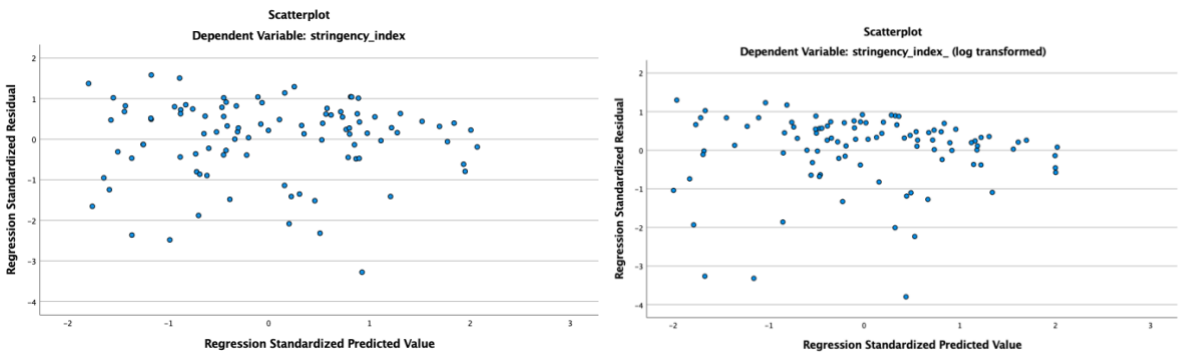

Chart 2. Partial regression plots (before & after transformation). – heteroskedasticity check.

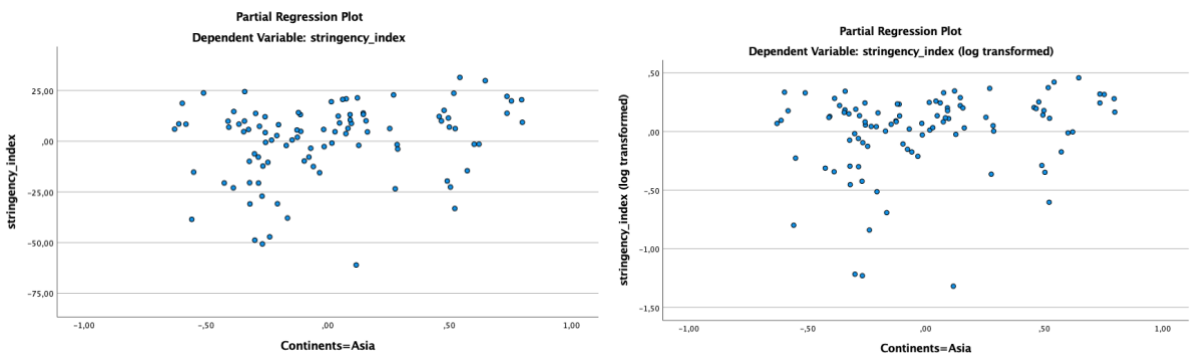

Chart 3. Normal P-P plot of standardized residuals (before & after transformation).

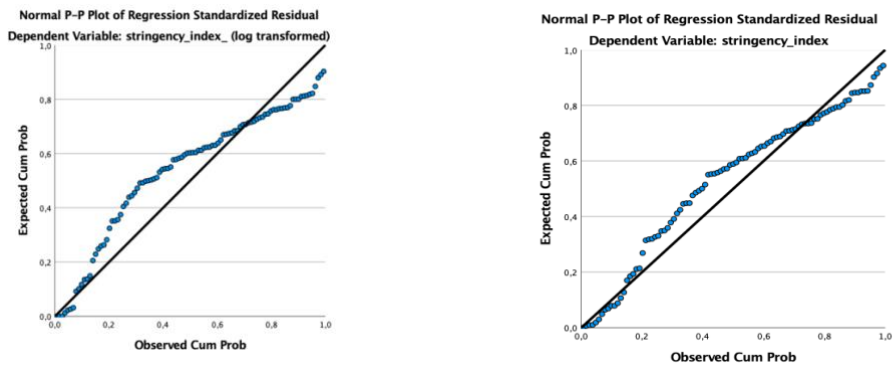

Table 1. Residuals statistic table (Cook's distance<1) – influential cases assumptions check.

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3,9817	4,5305	4,2544	,13661	97
Std. Predicted Value	-1,996	2,021	,000	1,000	97
Standard Error of Predicted Value	,069	,213	,110	,027	97
Adjusted Predicted Value	3,9370	4,5551	4,2543	,14448	97
Residual	-1,34276	,45935	,00000	,33664	97
Std. Residual	-3,797	1,299	,000	,952	97
Stud. Residual	-4,029	1,367	,000	1,000	97
Deleted Residual	-1,51156	,50866	,00007	,37212	97
Stud. Deleted Residual	-4,441	1,374	-,011	1,039	97
Mahal. Distance	2,662	33,755	8,907	5,476	97
Cook's Distance	,000	,204	,011	,028	97
Centered Leverage Value	,028	,352	,093	,057	97

a. Dependent Variable: stringency_index_ (log transformed)

Table 2. Coefficients table (tolerance > 0.2; VIF < 5) – multicollinearity assumption check.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	4,202	,071		59,036	<,001		
	PREG index	,115	,134	,088	,860	,392	1,000	1,000
2	(Constant)	3,989	,119		33,551	<,001		
	PREG index	,254	,144	,194	1,765	,081	,815	1,228
	Continents=Asia	,206	,097	,255	2,113	,037	,676	1,478
	Continents=Europe	,277	,155	,211	1,790	,077	,711	1,407
	Continents=North America	,236	,147	,198	1,599	,114	,641	1,559
	Continents=Oceania	,115	,220	,055	,520	,604	,886	1,128
	Continents=South America	,385	,146	,309	2,636	,010	,717	1,395
	Conflict	-,036	,085	-,045	-,422	,674	,853	1,172
	democ	,004	,012	,040	,346	,730	,749	1,335
	gdp_per_capita	-7,763E-7	,000	-,014	-,125	,900	,741	1,350

a. Dependent Variable: stringency_index_ (log transformed)

Table 3. Model summary (Durbin-Watson statistic > 1) – independent errors assumption check. With a Durbin-Watson statistic of 1.54, no autocorrelation has been detected in the model.

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,088[a]	,008	-,003	,36380	
2	,376[b]	,141	,053	,35362	1,541

a. Predictors: (Constant), PREG index

b. Predictors: (Constant), PREG index, democ, gdp_per_capita, Continents=Oceania, Continents=South America, Continents=Europe, Conflict, Continents=Asia, Continents=North America

c. Dependent Variable: stringency_index_ (log transformed)

Table 4. Frequencies tables of residuals with absolute values greater than 3.29, 2.58, 1.96 – outliers assumption check.

|Std Residuals|>3.29

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	97	87,4	100,0	100,0
Missing	System	14	12,6		
Total		111	100,0		

|Std Residuals|>2.58

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	96	86,5	99,0	99,0
	1,00	1	,9	1,0	100,0
	Total	97	87,4	100,0	
Missing	System	14	12,6		
Total		111	100,0		

|Std Residuals|>1.96

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	,00	92	82,9	94,8	94,8
	1,00	5	4,5	5,2	100,0
	Total	97	87,4	100,0	
Missing	System	14	12,6		
Total		111	100,0		

Table 5. ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,098	1	,098	,739	,392[b]
	Residual	12,573	95	,132		
	Total	12,671	96			
2	Regression	1,792	9	,199	1,592	,130[c]
	Residual	10,879	87	,125		
	Total	12,671	96			

a. Dependent Variable: stringency_index_ (log transformed)

b. Predictors: (Constant), PREG index

c. Predictors: (Constant), PREG index, democ, gdp_per_capita, Continents=Oceania, Continents=South America, Continents=Europe, Conflict, Continents=Asia, Continents=North America

Appendix B. Robustness check

Table 1. Linear regression model report

	Model 1	Model 2
(Constant)	4.048	3.793
	(0.129)	(0.207)
PREG Index	0.006	0.084*
	(0.242)	(0.250)
Continent=Asia		0.183
		(0.169)
Continent=Europe		-0.016
		(0.269)
Continent= N. America		-0.217
		(0.256)
Continent=S. America		0.325
		(0.254)
Continent=Oceania		0.334
		(0.383)
democracy		0.004
		(0.022)
conflict		-0.330**
		(0.148)
GDP/capita		2.687E-5**
		(0.000)
R2	0.004	0.204
Adj. R2	-0.011	0.122
N	111	111

Note: OLS regression coefficients with standard errors in brackets.

***p < 0.01, **p < 0.05, *p < 0.1

Appendix C. PREG index

Country	PREG index
Afghanistan	,751
Albania	,321
Algeria	,403
Angola	,763
Argentina	,059
Azerbaijan	,153
Bangladesh	,189
Belarus	,292
Belize	,273
Benin	,812
Bhutan	,760
Bolivia	,345
Bosnia and Herzegovina	,630
Botswana	,667
Brazil	,515
Bulgaria	,298
Burkina Faso	,000
Burundi	,258
Cambodia	,097
Cameroon	,858
Cape Verde	,000
Central African Republic	,801
Chad	,799
China	,160
Colombia	,432
Congo	,879
Costa Rica	,293
Cote d'Ivoire	,774
Cuba	,000
Democratic Republic of Congo	,939
Djibouti	,568
Dominican Republic	,135
East Timor	,000
Ecuador	,327
Egypt	,164
El Salvador	,180
Ethiopia	,547
Fiji	,532
Gabon	,777
Gambia	,000
Georgia	,325
Ghana	,780
Guatemala	,504
Guinea	,710
Guyana	,491
Haiti	,000
Honduras	,166
India	,879
Indonesia	,775
Iran	,674
Iraq	,549
Jamaica	,000
Jordan	,586
Kazakhstan	,493
Kenya	,855
Kosovo	,243
Kyrgyzstan	,544
Laos	,650
Lebanon	,813
Lesotho	,000
Liberia	,982
Libya	,275
Madagascar	,000
Malawi	,218
Malaysia	,693
Mali	,184
Mauritania	,660
Mauritius	,731
Mexico	,336
Moldova	,422
Mongolia	,276
Morocco	,496
Mozambique	,904
Myanmar	,523
Namibia	,726
Nepal	,766
Nicaragua	,251
Niger	,630
Nigeria	,829
Pakistan	,637
Papua New Guinea	,066
Paraguay	,107
Peru	,501
Philippines	,254
Russia	,346
Rwanda	,272
Senegal	,726
Serbia	,296
Sierra Leone	,812
Solomon Islands	,000
Somalia	,000
South Africa	,876
South Sudan	,779
Sri Lanka	,416
Sudan	,799
Suriname	,546
Syria	,543
Tajikistan	,311
Tanzania	,506
Thailand	,319
Togo	,734
Trinidad and Tobago	,758
Tunisia	,000
Turkey	,405
Uganda	,922
Ukraine	,328
Uzbekistan	,354
Vietnam	,276
Yemen	,625
Zambia	,703
Zimbabwe	,308