Inequality and Social Cohesion in Africa

Theoretical Insights and an Exploratory Empirical Investigation

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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.

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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.

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Abstract

Inequality is bad per se and has adverse effects, among other things, on economic development and the environment. It is also often argued that high and increasing inequalities put societies under stress, which increases the likelihood of social conflicts. However, the literature on this topic is scarce and some of the conclusions are not adequately supported by empirical evidence. This is mainly because there are different definitions and measurements of social cohesion. Moreover, some definitions of social cohesion incorporate inequality, thus making it impossible to examine how these two phenomena interact with one another.

This paper analyses both theoretically and empirically, the relationship between inequality and social cohesion. To do so, it employs a recent definition of social cohesion provided by Leininger et al. (2021). According to this definition, social cohesion is composed of three core attributes, namely trust, inclusive identity and cooperation for the common good. These attributes are examined in two dimensions, namely the horizontal (relationship among individuals) and vertical (relationship between individuals and state institutions) dimensions of social cohesion.

This paper provides an overview of the empirical evidence regarding the relationship between inequality and the three attributes of social cohesion. We find that while inequality is likely to have a negative effect on all three attributes, the intensity of the relationship may depend on some key mediating factors. Moreover, we highlight the main pathways through which inequality could affect each of the three key attributes.

The empirical analysis focuses on Africa. While there is some work in this field in Europe and Asia, to the best of our knowledge, there has not been any related empirical work thus far that has focused on African countries. To measure the three attributes of social cohesion, we use a database generated by Leininger et al. (2021), which is based on data from Afrobarometer and the V-Dem Institute. Inequality is mainly measured by the Gini coefficient and data are sourced from the World Income Distribution dataset.

As expected, our analysis shows that countries with higher inequality usually have lower levels of social cohesion, which is measured by an aggregate index. This negative correlation holds when we analyse the relationship between the Gini coefficient and the three attributes separately; however, the intensity varies. It is stronger for trust (rho=0.25) compared with the other two attributes (both of which have a rho equal to approximately 0.1).

Additional investigations point to substantially different results for the horizontal and vertical dimensions of social cohesion. Higher levels of inequality are associated with lower levels of horizontal trust and horizontal cooperation. On the other hand, higher levels of inequality are associated with higher levels of vertical trust and are essentially uncorrelated with vertical cooperation. These relationships remain substantially unchanged when we use measures of income inequality other than the Gini coefficient. Further analyses that aim to explain the puzzling results for the vertical dimension of social cohesion reveal that our findings are not clearly driven by trust in a specific institution and are also not an artefact of the specific data we used. Indeed, we obtain similar results using data from the World Values Survey. At the same time, it appears that the positive relationship between inequality and vertical trust is visible only among African countries, whereas it is not observed at the global level or for other regions. Further research is needed to confirm whether Africa is truly exceptional in this regard, and if so, why that may be the case.

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Abbreviations

CSO	Civil society organisations
UNDP	United Nations Development Programme
US	United States
WID	World Inequality Database

1   Introduction

Among the multiple problems caused by inequality, it has been said that it increases the social distance between groups, eroding people's trust in one other and trust in political institutions, reducing the sense of common citizenship and isolating individuals from social and cultural life, thus undermining social cohesion (Green, Janmaat & Cheng, 2011; Schiefer & Van der Noll, 2017). High levels of inequality can weaken social cohesion since they might cause a fracture between social classes, particularly in large societies due to different perceptions of deprivation from social groups at opposite ends of the income spectrum (Bjørnskov, 2008). While the existence of a division between rich and poor does not provide any direct information on the degree of social cohesion present in a given society, it is possible to argue that if individuals and social groups have equal access to resources and opportunities, their trust in other people, groups and institutions will be strengthened. Such equal access would allow people to establish and participate in networks and would promote a positive sense of belonging, improving their well-being and, in turn, social cohesion (Schiefer & Van der Noll, 2017). On the contrary, in a society that maintains various types of social divisions – inequality being one of them – it is more likely that social cohesion will emerge as a problem in the public discourse (Green et al., 2011).

This paper aims to understand the relationship between inequality – especially vertical economic inequality – and social cohesion. A comprehensive examination of the theoretical and empirical linkages between these two phenomena is missing in the literature. Only limited empirical research that is scattered throughout different disciplines has been produced thus far related to this topic, most of which is not very recent.

In a cross-sectional exploratory study, Sage (2013) examines the relationship between two different measures of income inequality and 18 indicators of social cohesion using a sample of 30 European countries, the US, New Zealand and Singapore. The study's indicators of social cohesion can be grouped into six dimensions: civic norms and values, social order and solidarity, sense of identity, civic participation, associational activity and social networks. The study found negative correlations between inequality and some social cohesion indicators, such as general social trust, blood donations, neighbourhood trust, electoral turnout and newspaper readership. A particularly strong negative relationship was found between trust and inequality. However, the results are susceptible to the choice of countries. For example, excluding some countries from the sample eliminates these correlations. Moreover, the strength of the correlations is often reduced when controlling for gross domestic product per capita and population size.

Delhey et al. (2018) proposed a concept of social cohesion, which brings together nine dimensions under three central domains, namely social relations, connectedness and the common good. They then measured social cohesion for 34 Western and 22 Asian countries and analysed its correlation with different socio-economic and political phenomena. As expected, for Western countries they found a strong negative correlation between income inequality – measured by the Gini coefficient – and social cohesion, which holds after controlling for the level of economic development. The findings are very different for Asian societies where countries with moderate inequality experience higher social cohesion. In Asia, the authors found that the relationship between income inequality and social cohesion is non-linear. Instead, it is an inverted U-shaped quadratic relationship: "moving from small to moderate inequalities in income tends to promote social cohesion, whereas moving from moderate to high income inequality undermines it" (Delhey et al., 2018, p. 446).

Besides income disparities, other forms of inequality might also affect the degree of social cohesion. Green (2009) and Green, Preston and Sabates (2003) find that educational inequality is negatively correlated with various measures of social cohesion, such as trust in people and institutions and civic cooperation, and is positively correlated with crime. These relationships hold over time in many countries, even when income inequality is held constant. Countries that

have more equal educational outcomes usually have narrower distributions of skills in the adult population, as is the case in East Asian and Nordic countries. These countries tend to have low crime rates and high levels of civic trust and cooperation. On the contrary, countries like the United States (US) and United Kingdom, which show larger inequalities in educational attainment, show more serious problems related to trust and tolerance (Green, 2009). A common factor among these countries with greater social cohesion is that they have more egalitarian state/public educational systems. Green, Preston and Janmaat (2006) showed that measures of inequality in skill outcomes are higher in English-speaking countries such as the United Kingdom and the US compared to some northern European countries (for example, Germany and Sweden). They found a significant and high correlation (rho=-0.592) between skill inequality and general trust. The higher the level of educational inequality, the lower the level of general trust.

There are different reasons why there is only limited literature which has attempted to examine the relationship between inequality and social cohesion and why an overview of these few studies is inconclusive. One reason is that inequality is sometimes considered an element of social cohesion, making it impossible to examine their relationship. Another important reason lies in the very diverse understanding of social cohesion. This study builds on recent work on the conceptualisation and measurement of social cohesion, especially in Africa (Leininger et al., 2021).

Against this background, this paper provides an overview of the empirical evidence regarding the relationship between inequality and the three key attributes of social cohesion identified by Leininger et al. (2021): 1) trust (between groups and trust of individuals towards the state); 2) inclusive identity (feeling of belonging to a nation); and 3) cooperation for the common good. Finally, the (limited) existing evidence concentrates on upper-middle income countries in Latin America or high-income countries. Instead, the empirical analysis in this paper focuses on Africa, which has mostly been neglected in the literature. This is despite the fact that along with Latin America, two regions in Africa, namely Sub-Saharan Africa and North Africa, have the highest levels of inequality, the lowest levels of social trust and are among the regions with the lowest levels of peace (Institute for Economics & Peace, 2020; Mattes & Moreno, 2018).

In order to investigate the association between different measures of inequality and the three attributes of social cohesion, this paper uses the new country-level social cohesion database produced by Leininger et al. (2021) for 36 African countries. The database was built mostly based on microdata from Afrobarometer and was integrated with expert-level data sourced from the V-Dem Institute. From Leininger et al. (2021)'s database, we used social cohesion attribute scores from Round 6 (years 2014-15) from Afrobarometer, which is the latest available round in the dataset (see Table A1 in the Appendix for details on the countries used in this study).

The remainder of this paper is structured as follows: the following section provides the definition of social cohesion and its attributes, explaining the main two viewpoints in the literature on the connection between inequality and social cohesion. The third section describes the theoretical linkages between inequality and the three attributes of social cohesion (identity, trust and cooperation for the common good). The fourth section describes the data sources and the methodology used to measure social cohesion attributes and inequality for the selected African countries. The fifth sections presents the results of the empirical analysis, while the final section provides conclusions.

2 Definition of social cohesion

As stressed in the introduction, there is no universal agreement on the meaning of social cohesion. The initial debate was mainly confined to high-income countries and the "horizontal" dimension of social cohesion – with researchers interested in understanding the forces that keep people together within a society. Since then, it has been expanded to middle-income and low-income countries with development organisations, such as the United Nations Development Programme and the World Bank playing a key role (Alexandre, Willman, Aslam & Rebosio, 2012; UNDP [United Nations Development Programme], 2020) and to the "vertical" dimension of social cohesion (Alexandre et al., 2012; Chan, To & Chan, 2006; Fonseca, Lukosch & Brazier, 2019). The addition of the emphases on the vertical dimension of social cohesion was a clear recognition that it is not enough that there are healthy relationships between people and between groups for a society to be socially cohesive. We also need to look at how these people and groups relate to formal and informal public institutions.

The most controversial aspect of this debate concerns the identification of the "attributes" or constitutive elements of social cohesion. Several elements have been proposed in the literature, as shown in the comprehensive overview article of Schiefer and Van der Noll (2016). The most interesting debate, in light of the purpose of this paper, is the possible inclusion of inequality. Langer, Stewart, Smedts and Demarest (2017) argue that inequality should be a component of social cohesion and include it in their Social Cohesion Index.[4] However, the way the authors justify this choice appears to point to the role of inequality as a determinant of social cohesion more than as an element of social cohesion. Horizontal inequality or inequalities between groups are particularly important for social cohesion in diverse societies, which can be comprised of different ethnic, religious, and/or regional groups. Diverse societies are usually more prone to political and/or religious conflicts that can fuel violence between groups. According to Langer et al. (2017), in addition to perceived group inequalities, a relevant factor is the perception of fair or unfair treatment by the government. Vertical inequalities or inequalities among individuals are also relevant since high and rising inequality can undermine bonds among people. One would expect less social cohesion in highly unequal societies, which most likely have less feelings of belonging to a shared national project.

Similarly, the approach followed by the Canadian Council on Social Development is centred on the idea that social cohesion can be built by promoting more social capital combined with less inequality and exclusion. According to this perspective, economic conditions, such as the distribution of income, poverty and employment, among others, are favourable conditions for inclusive social cohesion. Motivated by these considerations, the Canadian Council on Social Development uses the level of income inequality as a key indicator of differences in opportunities and life chances in their measurement of social cohesion (Canadian Council on Social Development, 2000).[5]

A similar view is shared by Berger-Schmitt (2002). This study presents a proposal on how to measure social cohesion within the framework of the European System of Social Indicators. It includes inequality as a key dimension inherent in the concept of social cohesion. Inequality is

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4   Specifically, they use the extent of perceived inequalities – both horizontal and vertical – as measures of inequality.

5   The specific indicators of social cohesion that are related to income inequality used by the Canadian Council on Social Development (2000) are: average disposable income per capita; distribution of disposable income by quintile; distribution of earnings (holding work hours constant); provincial income as a per cent of the national average; minorities' total income as a per cent of national total income; aboriginals' total income as a per cent of national total income; and persons with disabilities' total income as a per cent of national total income.

concerned with the goals of promoting equal opportunities and reducing disparities and divisions within a society, as well as social exclusion. Regional disparities are taken into account concerning access to transport, leisure and cultural facilities, educational and health care institutions, employment opportunities and the environment. Income inequality and equality of opportunity are also considered across many life domains. These indicators capture differences between women and men, generations, social strata, disabled and non-disabled and nationals and non-nationals in the respective countries. The study offers a way to conceptualise social cohesion through a series of indicators; however, it does not delve into the mechanisms behind the relationships. The empirical results show considerable deficiencies in social cohesion both within and between European countries.

The three above contributions to the literature seem to be more oriented at building a social cohesion framework – where drivers and consequences of social cohesion are included in a chain analysis – for the *analysis* of social cohesion rather than for the *measurement* of social cohesion. According to Chan, To and Chan (2006), this is a means-end approach of conceptualising social cohesion since it is effectively defining the concept of social cohesion in terms of the conditions needed to achieve social cohesion. Although there is no doubt that inequality plays a crucial role in determining the level of social cohesion in a society, Chan et al. (2006) suggest that this relationship should be posed as a possible correlation subject to empirical testing, instead of an element used to define social cohesion. Similarly, Schiefer and Van der Noll (2017) argue that values such as equality should be treated as antecedents or consequences of social cohesion, rather than inherent essential components and one should test a possible causal relationship between inequality and social cohesion.

We share this view and are in favour of a "thin" concept of social cohesion, as proposed by Chan et al. (2006). This is one of the main reasons why we adopt the following definition of social cohesion proposed by Leininger et al. (2021, p. 3): "Social cohesion refers to the vertical and horizontal relations among members of society and the state that hold society together. Social cohesion is characterised by a set of attitudes and behavioural manifestations that includes trust, an inclusive identity and cooperation for the common good."

Based on this definition, the fundamental attributes of social cohesion are trust, inclusive identity and cooperation for the common good. Each of these attributes is examined in both horizontal and vertical dimensions:

1. Trust: its horizontal dimension refers to generalised trust and institutional trust. Generalised trust is the ability to trust people outside one's familiar or kinship circles. The vertical level refers to institutional trust towards formal, legal organisations of the government and state.

2. Inclusive identity: the horizontal component relates to the social or collective identity of individuals who co-exist peacefully with one other. In an inclusive society, there are no dominant identities over the overall collective identity. The vertical dimension includes the feeling of belonging to a broader entity (e.g., nation) that is more than the sum of individuals and that bridges different identities of a society.

3. Cooperation for the common good: the horizontal level refers to cooperation among individuals in the form of solidarity. This occurs in a society when many people and groups cooperate towards interests that go beyond and sometimes even conflict with those of the individuals involved. The vertical component is related to cooperation between individuals and the state through participation in public life and civic engagement.

The next section illustrates the main theoretical linkages between each of the components of social cohesion and inequality, and reviews the existing empirical evidence.

3 Linking inequality to the three attributes of social cohesion

3.1 Inequality and trust

The literature generally establishes a negative correlation between inequality and trust. Intuitively, any factor that reduces the social distance among citizens of a country can be expected to lead to higher levels of trust. Inequality increases the social and cultural distance between groups and makes trust more difficult (Green et al., 2011). Therefore, higher levels of inequality are associated with lower levels of trust in others and in governments (Rothstein & Uslaner, 2005). Societies in which there are fewer differences between rich and poor have shown to have a stronger community life and more people feel they can trust others (R.Wilkinson & Pickett, 2010).

The depth and quality of social relationships are fundamental elements of trust, while hostility may be interpreted as the opposite of trust. Using data on income inequality in the metropolitan areas of the US, R.G. Wilkinson (1999) found that hostility scores were highly correlated with income inequality (rho=0.7). These strong correlations suggest that monetary inequality is strongly and systematically related to the character of social relations and nature of the social environment in a society (R. G. Wilkinson, 1999).

In many high-income countries where inequality is rising, there has been a decline in social trust (trust in others)[6] and political trust (measured in terms of confidence in parliament), with the exception of Nordic countries (Green et al., 2011). Green, Janmaat and Cheng (2011)'s research shows that these countries have less tension between socio-economic classes (the rich and the poor, workers and managers) and generations. Although the perceived tension among ethnic and racial groups is not low, Nordic countries are, on average, more tolerant compared with other high-income nations. In low-income countries where inequality has declined, measures of trust have also not increased. South America and Sub-Saharan Africa are regions with the highest levels of inequality in the world, which have been slightly declining in the 15 years prior to the COVID-19 pandemic (WID [World Inequality Database], 2022). In both regions, citizens express very low levels of horizontal interpersonal trust, which are among the lowest in the world (Mattes & Moreno, 2018). However, according to Mattes and Moreno (2018), these regions differ sharply with respect to vertical trust: people in Sub-Saharan Africa express relatively high levels of trust in national institutions, while people in Latin America distrust their local institutions.

Most of these arguments suggest a direction of causality from inequality to trust. However, as Bjørnskov (2007) showed, there is bi-directional causality between these two phenomena. Theoretically, high trust could induce a feeling of solidarity between people in different income segments, which would favour redistributive policies. It is also possible that lack of trust in state institutions may lead to violent protests and uprisings, eroding economic stability which, in turn, might increase inequality (Langer, Stewart, Smedts & Demarest, 2017). Bjørnskov (2008) explored causes of cross-country differences in generalised trust using data from 76 countries from the World Values Survey supplemented by data from the Danish Social Capital Project. This study claims that the stability of the indicators of generalised trust and inequality (Gini coefficient) over time could be partially explained by this endogeneity. His results show that the most important determinant of generalised trust is income inequality.

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6 Green et al. (2011) understand trust as people's willingness to place their confidence in a wide range of others, including people they do not know.

3.2   Inequality and cooperation for the common good

Inequality has a negative effect on cooperation. The reason argued by Putnam (1995) is that inequality erodes cohesion and trust among members of society, by undermining norms of cooperation and pro-social behaviour. Social interactions and participation in group activities, such as religious groups, hobby clubs and sport groups, are particularly conducive to generating beneficial effects on social cohesion (Alesina & La Ferrara, 2000). This holds as long as there is tolerance between groups and their particular interests do not go against or in conflict with the collective interests of the society (Schiefer & Van der Noll, 2017). Dense networks of interaction broaden the participants' sense of self, detracting from individualism in favour of collective benefits (Putnam, 1995).

Inequality might cause isolation of individuals or groups from social and cultural life as a consequence of unequal distribution or accessibility of resources (Schiefer & Van der Noll, 2017). Income inequality also reduces the propensity to participate in different social activities and can skew participation of certain groups. For example, Putnam (1992) found that the level of involvement in local community life was highly correlated with income inequality (rho=0.8), concluding that equality is an essential feature of the civic community. David et al. (2018) found that about 70 per cent of South Africans who feel that inequality has increased or has not varied are substantially less willing to participate and socially interact compared with those who perceive that inequality has declined. Alesina and La Ferrara (2000) theorized that richer or more educated people have a disproportionately higher propensity to join certain groups or participate in political action and found empirical evidence in support of this hypothesis in the US. This may generate a vicious cycle, in which disadvantaged minorities reduce their participation, have less representation and become even more disadvantaged, leading to a series of social problems including the perpetuation of inequalities over time.

As stated by Alesina and La Ferrara (2000), belonging to an ethnic or racial minority in an unequal society may also favour political participation. In their study about the influence of heterogeneity on participation in different types of groups, after controlling for the determinants of participation, they found that the African American population participates more in politics since they are a minority in the US. The explanation given is that African Americans are more conscious of being a minority and have an extra incentive to engage in political action to preserve their identity and foster their political and civil rights. However, in this case, political participation seems to be driven mainly by overcoming the disadvantage faced by being a minority, rather than by an idea of the common good.

Camera, Deck and Porter (2019) argue that field data offer ambiguous evidence of the idea that motivations related to inequality are a real obstacle to a society's cohesion, since many institutional and environmental factors co-vary with economic inequality. For instance, a reduction in social cohesion may be due to increasing migration, not economic factors. Moreover, inequality may stem from a mix of factors, such as choice, luck, power or ability, or it may alter returns from cooperation. Social experiments allow to control for these types of confounding factors. Their study suggests that inequality alters economic behaviour and reduces cooperation even when it leaves economic incentives unaltered, as inequality inhibits pro-sociality and fosters discrimination. In a controlled experiment, Aksoy (2019) shows that inequality reduces cooperation between individuals involved in a social dilemma. The study found that this mainly happens because higher inequality incentivises a more anti-social behaviour of the better-off individuals.

More egalitarian systems promote a sense of solidarity and connectedness between social groups (Green et al., 2011). Because such systems include most people on the same terms, people feel more or less that they are on the same boat (Uslaner, 2003). Advanced democracies that have implemented policies which favour multiculturalism have been able to counteract the

negative effects associated with diversity, increasing civic engagement and political participation (Ariely, 2013).

3.3   Inequality and inclusive identity

Individuals have various identities that co-exist and fluctuate by diverse factors. Some of these identities are imposed socially or culturally while others are more freely chosen. In a cohesive society, individual, group and collective identities are respected and valued. According to Langer et al. (2017), when group identities have stronger precedence over national or collective ones, national cohesion is likely to be threatened.

Inequality is seen as a source of division that crosscuts group identity. Inequality can serve as yet another social dimension in which identities are formed, such as through the identification with one's own social class. Social class can overlap with other forms of group identity, such as race and ethnicity, reinforcing or mitigating the effects of inequality. If some groups are consistently worse than others, the greatest threat to social cohesion is the consolidation of social identity and material resources (Aksoy, 2019). Since ethnicity is a strong identity marker, multi-ethnic societies are at a higher risk. This is the case, for example, in Africa, where nations often do not have clearly marked natural boundaries. Instead, boundaries were often created by colonising countries and were artificial (Langer et al. 2017).

Using data from 21 Sub-Saharan African countries and 85 ethnic groups from Afrobarometer (rounds 3, 4 and 5), Higashijima and Houle (2018) found that individuals identify most strongly with their ethnic identity when ethnicity is reinforced by economic inequality. The assumption behind this research is that inequality associated with ethnic backgrounds strengthens ethnic identify. They argue that members of ethnic groups who are at the extremes of their country's income distribution, either much richer or much poorer than other groups, are more likely to identify with their own ethnicity. Moreover, the magnitude of the effect of between-group differences is conditional on the level of inequality within ethnic groups. They indicate that this relationship is mainly driven by two mechanisms. First, when there is high inequality between groups and low inequality within groups, individuals are more likely to identify with people of the same ethnicity as they share similar living conditions that are very different from those of other ethnic groups. The second mechanism operates through the effect of ethnic inequality on political preferences. Greater inequality distances economic policy preferences between ethnic groups. For instance, the poorest ethnic groups will support more pro-poor policies, such as greater access to public health care, compared with members of the richest ethnic groups. In this vein, they might perceive each other as different co-ethnic groups.

4   Data sources and methods

4.1   Attributes of social cohesion

The three attributes of social cohesion were measured by Leininger et al. (2021) based on data from Afrobarometer. In this paper, we use the latest data which is from Round 6, covering the period between 2014 and 2015. The only exception is for horizontal trust since its related question was not asked in Round 6 for all countries in our analysis. Thus, in line with Leininger et al. (2021), we use data from Round 5 which was collected between 2011 and 2013 and

assume that this sub-component did not change between the two survey rounds.[7] To measure cooperation for the common good, Afrobarometer data are integrated by expert-level data gathered from the V-Dem Institute. In the next sub-sections, we briefly explain how the three attributes of social cohesion are measured. Further details can be found in Leininger et al. (2021).

4.1.1 Measurement of trust

Horizontal (or generalised) trust is measured by the proportion of respondents reporting that most people can be trusted. Vertical (or institutional) trust, instead, is captured by the mean of the proportion of respondents reporting high trust in three institutions: parliament, police and courts. This choice is motivated by the belief that social cohesion is a relatively stable phenomenon and that we should therefore focus on trust in the structural, long-standing institutions of a country rather than the confidence in current political leaders, parties or governments, which is guided by partisanship and political alignment. Finally, the trust score is obtained by aggregating the horizontal and vertical dimensions of trust through the geometric mean. It ranges between 0 and 1 with higher numbers representing more trust.

4.1.2 Measurement of cooperation for the common good

Equation (1) presents how horizontal cooperation (*coop_horiz*) is measured. The measure combines two indicators derived from the Afrobarometer data with one indicator from the V-Dem database. The two indicators constructed from the Afrobarometer data reflect membership in voluntary organisations (*member_org*) and proactive behaviour, focusing on whether individuals joined others to raise an issue (*raise_issue*). Both of these indicators were adjusted to give more weight to spatial units with higher ethnic diversity as this is more likely to indicate genuine cooperation for the common good (see Leininger et al., 2021 for technical details). The indicator based on V-Dem data indicates the extent to which civil society organisations are participatory (*CSOenviron*). All three indicators were first re-scaled between 0 and 1. Then, the two indicators on associational membership were aggregated through a simple arithmetic mean as they are intended to measure the same aspect. Finally, we aggregated the derived measure with the indicator through the arithmetic mean to obtain the final index representing horizontal cooperation, which is given by:

$$coop\_horiz = \left(\frac{\frac{member\_org + CSOenviron}{2} + raise\_issue}{2} \right). \tag{1}$$

For the vertical dimension of cooperation, Leininger et al. (2021) first use information collected by Afrobarometer on the frequency of attending community meetings (*community_meeting*) and the frequency of contacting four different types of officials: local government councillors, Members of Parliament, officials of a government agency/ministry and traditional leaders/rulers (*contact_official*). To capture public institutions' interest in cooperating with civil society, two measures constructed from V-Dem data were employed: one indicating the level of state repression towards civil society organisations (*CSO_No_repress*) (Bernhard, Tzelgov, Jung, Coppedge and Lindberg,, 2015) and the other measuring the extent to which civil society

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7   For most of the countries for which information on the attributes of social cohesion other than horizontal trust are available for round 6, 5 and 4, there is only a small change in value and ranking of horizontal trust between rounds 4 and 5. Since, on average, the number of years between the surveys for rounds 4 and 5 (3.85 years) is higher than that for rounds 5 and 6 (2.3 years), this appears to be a reasonable assumption.

organisations are consulted by policy-makers (*CSOconsult*). The final index of vertical cooperation is obtained by aggregating these four indicators using the following equation:

$$coop\_ver = \left(\frac{community\_meeting + contact\_official + \frac{CSO\_No\_repress + CSOconsult}{2}}{3} \right). \tag{2}$$

Like for trust, the overall cooperation score is computed by aggregating the horizontal and vertical dimensions through the geometric mean, thus ensuring non-linear substitutability between the two dimensions. The range of variation of the cooperation score, as well as for vertical and horizontal cooperation is between 0 and 1, with higher values indicating more cooperation.

4.1.3   Measurement of inclusive identity

This attribute is measured with a single index, without further distinguishing between the horizontal and vertical dimension. Indeed, it is based on a comparison between national and group (ethnic) identity. In the Afrobarometer survey, respondents were asked how strong their feeling of national identity is compared with the (ethnic) group identity. Situations in which individuals perceive their national identity to be stronger than their ethnic identity are indicative of "inclusive identity". The final index is not simply calculated as the proportion of these "positive" answers out of the total number of answers since this may be biased if responses were triggered by few, dominant ethnic groups. To address this issue, the following two-stage procedure is implemented: 1) calculation of the proportion of positive answers for different ethnic groups; 2) aggregation of the group values into a single index, using the simple (unweighted) arithmetic mean.[8] The resulting identity score varies between 0 and 1.

4.1.4   Composite index of social cohesion

Since the level of social cohesion of a country should be the result of the interplay among the three attributes, we attempted to aggregate these attributes into a composite index of social cohesion. It should be highlighted that this is our own attempt, as Leininger et al. (2021) did not generate such an index and instead just mentioned the possibility of constructing one in the future. To ensure imperfect (non-linear) substitutability across the three attributes – that is, to avoid the possibility that a poor performance in one attribute can be linearly compensated by a good performance in another attribute – we use the geometric mean as an aggregation function. This measure is also used in other indices, such as the Human Development Index (UNDP, 2010). The three attributes carry the same weights and their measures have been first normalised.[9] Equation (3) shows the formula used to calculate the index of social cohesion:

$$Index\ of\ SC = (Trust\ score * Identity\ score * Cooperation\ score)^{1/3}. \tag{3}$$

4.2   Inequality indices

Data on monetary inequality are from the World Inequality Database (WID), which provides annual estimates of the distribution of income and wealth for all the countries in this study.[10]

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8   Further adjustments were done to ensure that ethnic groups are not too small. For details, see Leininger et al. (2021).

9   For normalisation, we considered the minimum and maximum values for each attribute since 2005.

10   For details of the methodology, national dataset and extrapolation method see https://wid.world/methodology/.

The main inequality index used is the Gini coefficient, which corresponds to pre-tax national income at the household level. It includes social insurance benefits (and removes corresponding contributions), yet excludes other forms of redistribution (income tax, social assistance benefits, etc.).[11] Inequality data is available for the whole sample except for the Ivory Coast in 2013. Post-tax Gini indexes were not available for the countries in this study; however, this would not change much of the results as African countries, unlike European ones, have limited distributive policies, which reduces differences between pre- and post-tax inequality levels.

WID data also provide inequality estimations for top incomes and wealth, combining national accounts and survey data with fiscal data sources. As the relationship between inequality and social cohesion – as a whole, as well as its components – may vary depending on the emphasis we place on the different segments of society, we include the 90/10 inequality ratio. This ratio compares the income shares of the top decile (wealthiest) and the bottom decile (poorest).

Initially, we wanted to include other measures of inequality to capture horizontal inequalities, as well as different dimensions besides income (e.g., wealth, nutrition, access to health, employment and opportunities). Unfortunately, comparable data were not available for the countries in this study.

Data on inequality were merged with those for social cohesion from the same year. To carry out a preliminary investigation of the bilateral relationship between the two phenomena, we do not use lagged values in the main analysis. However, as our primary interest is to understand how inequality affects social cohesion and this effect may take time to materialise, we also investigated the relationship using a (one-year) lagged measure of inequality. Results are very similar to those without lags.

5 Empirical analysis

5.1 Correlation between inequality and trust

The trust component of social cohesion combines an indicator of trust in others (horizontal trust) and an indicator of trust in institutions (vertical trust). Based on the literature and theoretical considerations, we expect a negative relationship between trust and inequality, but that the relationship may differ for the two types of trust measures.

We observe a negative correlation (rho=-0.245) in Figure 1. The negative correlation holds when two major outliers are excluded, namely Niger and Burundi. These two countries exhibit higher levels of trust (twice the average) and below-average inequality.

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11   Note that Gini estimates from the WID are usually higher than those from other sources, such as the World Bank, since they include survey and administrative data, thus incorporating higher income individuals who are generally not represented in survey data.

Figure 1: Correlation between trust scores and income inequality
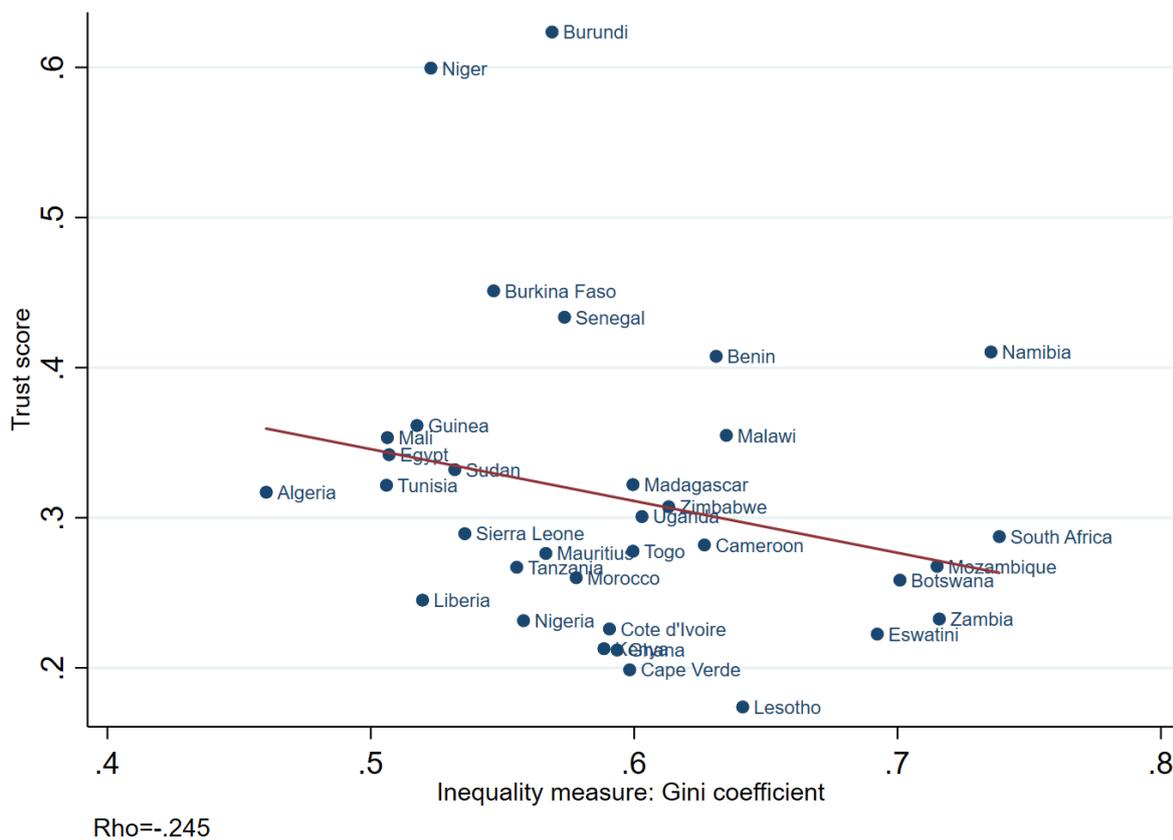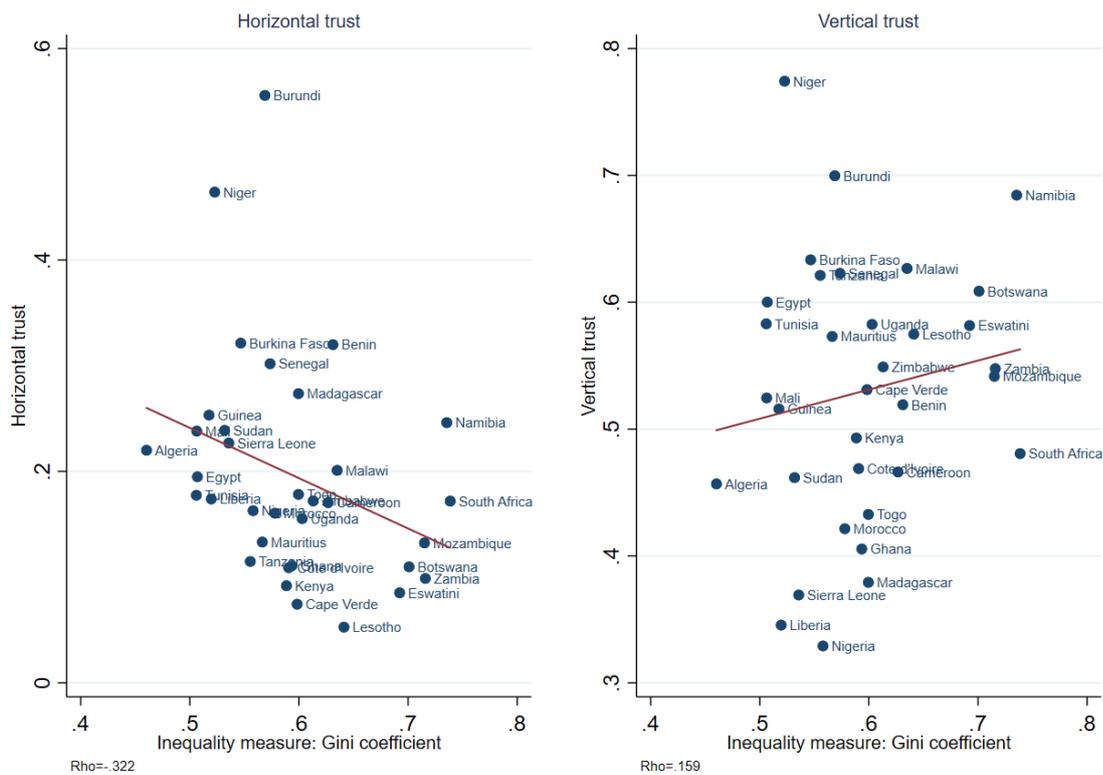

Note: This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The sample includes 34 observations. Data is missing from Gabon and São Tomé and Príncipe. The red line shows the prediction of trust scores from a linear regression of trust on inequality. The correlation coefficient (rho) is shown in the bottom left part of the figure.

Source: Based on inequality data from the WID and trust scores from Leininger et al. (2021).

To better understand the trust component of social cohesion, we decompose this score into its horizontal part (trust in people) and vertical part (trust in institutions). It is interesting to notice that each dimension of the trust score has a different type of correlation with the inequality measure (Figure 2). While trust in other people (horizontal trust) decreases with higher levels of inequality, trust in institutions (vertical trust) increases with a higher dispersion of income. However, this positive correlation is largely driven by the presence of a single outlier, Namibia. After excluding this country, the correlation remains only weekly positive and is very close to zero (rho=0.073).

Figure 2: Correlation between horizontal and vertical trust scores and income inequality

Note: Horizontal trust is trust in others. Vertical trust is trust in institutions. This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The number of observations is 34. Data is missing from Gabon and São Tomé and Príncipe. The red line shows the prediction of trust scores from a linear regression of trust on the inequality measure. The correlation coefficient (rho) is shown in the bottom left part of the figure.

Source: Based on inequality data from the WID and trust scores from Leininger et al. (2021).

Given the puzzling result that high levels of inequality are slightly positively correlated with vertical trust, we decided to dig deeper into this issue. First, we examined whether this result was predominantly driven by trust in one of the three institutions included in the vertical trust measure. Figure 3 shows the correlation between trust in each of the three institutions included in the vertical trust measure (court, parliament and police) and the Gini coefficient. We find only a weak negative correlation between trust in police and inequality.

Figure 3: Correlation between each component of vertical trust and monetary inequality
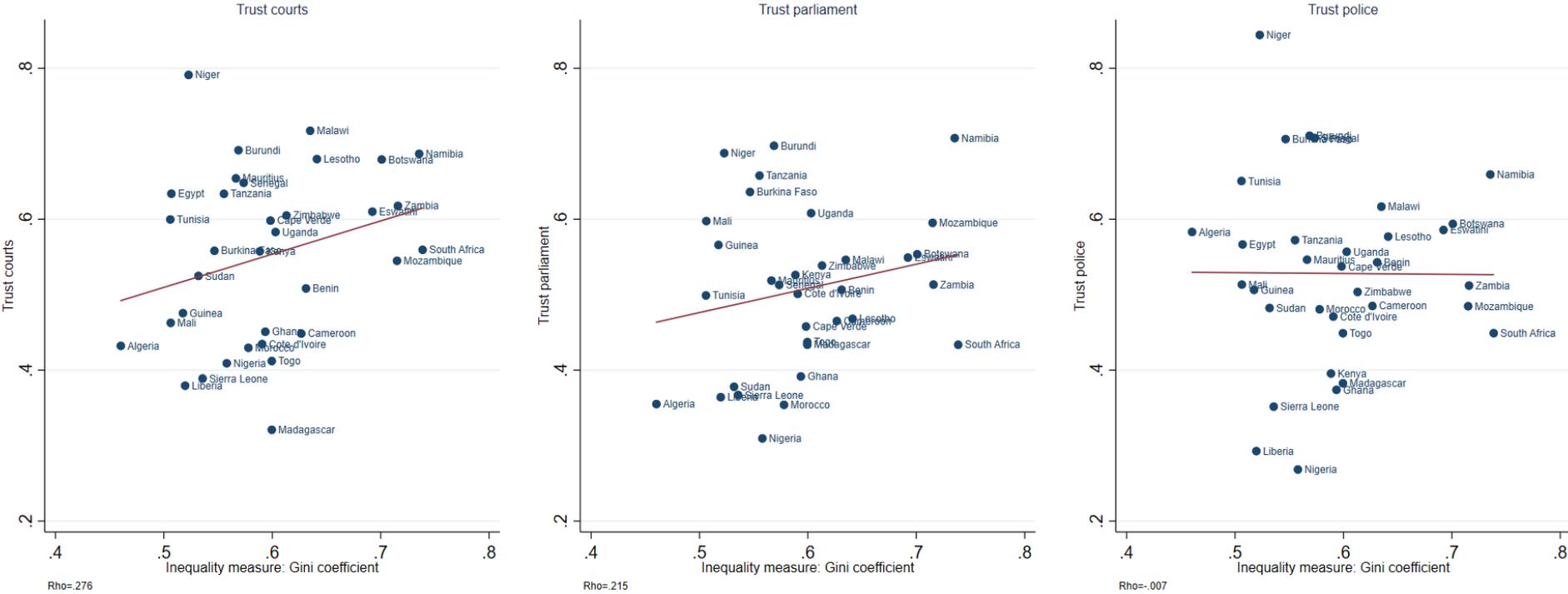
Note: This figure uses Round 6 of the Afrobarometer. Each panel shows a different component of vertical trust. The red line shows the prediction of trust scores from a linear regression of trust on the inequality measure (the Gini coefficient). The correlation coefficient (rho) is shown in the bottom left part of each figure. The number of observations is 34 for trust in the courts and trust in police. Data is missing from Gabon and São Tomé and Príncipe). The number of observations is 33 for trust in parliament (there is additional missing data from Egypt).

Source: Based on inequality data from the WID and trust scores from Leininger et al. (2021).

Second, we wanted to check whether this relationship is valid for all regions of the world or if it is a special feature of the African countries included in our sample. This is motivated by previous research showing that Sub-Saharan African countries experience higher average levels of trust in national institutions compared with other regions, despite the high income inequality (Mattes & Moreno, 2018). For this purpose, we collected recent data from the World Values Survey. Vertical trust is measured as the average confidence/trust in institutions. In line with the Afrobarometer data, we considered three institutions: parliament, court and police. We used the most recent country-level data for a sample of 98 countries, out of which 14 are African. The left panels of Figures 4-6 confirm that African countries have relatively high trust in the three institutions. The only exceptions are Tunisia for confidence in parliament and Nigeria for confidence in police.

While we should generally reframe from deriving a clear pattern across only 14 African countries, we do notice substantially different relationships between inequality and confidence in the three institutions depending on whether we focus on all 98 countries or only on Africa. For the full sample, we notice a weak, statistically insignificant negative correlation between the Gini coefficient and average confidence in parliament and the court. We also observe a stronger and significant (at the 5 per cent level) negative correlation between the Gini coefficient and average confidence in police.[12] On the other hand, the same relationships are all clearly positive for African countries. Despite the very small sample size, these correlations are statistically significant for confidence in parliament (at the 5 per cent significance level). To verify whether this is a specific finding for the three institutions selected, we replicated the analysis with confidence in the government and found the same pattern (results not reported). Finally, the difference is not remarkable for generalised/horizontal trust. The relationship between inequality and the proportion of people trusting others is negative for both the full sample and the African sample, though it is stronger for the former.

We replicated the same analysis for Asian countries, given that other studies also show unexpected results for this continent (Lee, Chang & Hur, 2020). The results (not reported here) indicate that inequality is negatively correlated with confidence in police. In addition, there is a positive correlation between inequality and confidence in the other two institutions, but it is much weaker and is not statistically significant. All these findings point to the exceptionalism of African countries. Thus, the relationship between inequality and vertical trust in Africa is not representative of the same relationship at the global level. Further research is needed to understand better why that is the case.[13]

Another explanation of this unexpected finding for African countries is a mismatch between actual inequality and subjective inequality. Indeed, trust is more directly driven by the perception of inequality. Unfortunately, this cannot be tested directly as there are no available data on subjective inequality for this continent. Based on evidence from Latin America and Asia, the relationship between inequality and political trust does not seem to change depending on whether we focus on subjective or objective inequality (Lee et al., 2020). However, we cannot exclude that this does not apply to Africa and that this partly explains the alleged exceptionalism of this continent.

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12 Throughout the paper, we do not refer systematically to the statistical significance of the correlations as the sample size is often small. For this specific analysis, we highlight it because of the larger sample size.

13 Part of the explanation of these unexpected results could be due to measurement errors of household income – and therefore income inequality – which have been especially stressed for African countries.

Figure 4: Correlation between average confidence in parliament and income inequality (Gini coefficient) for all countries and only for African countries
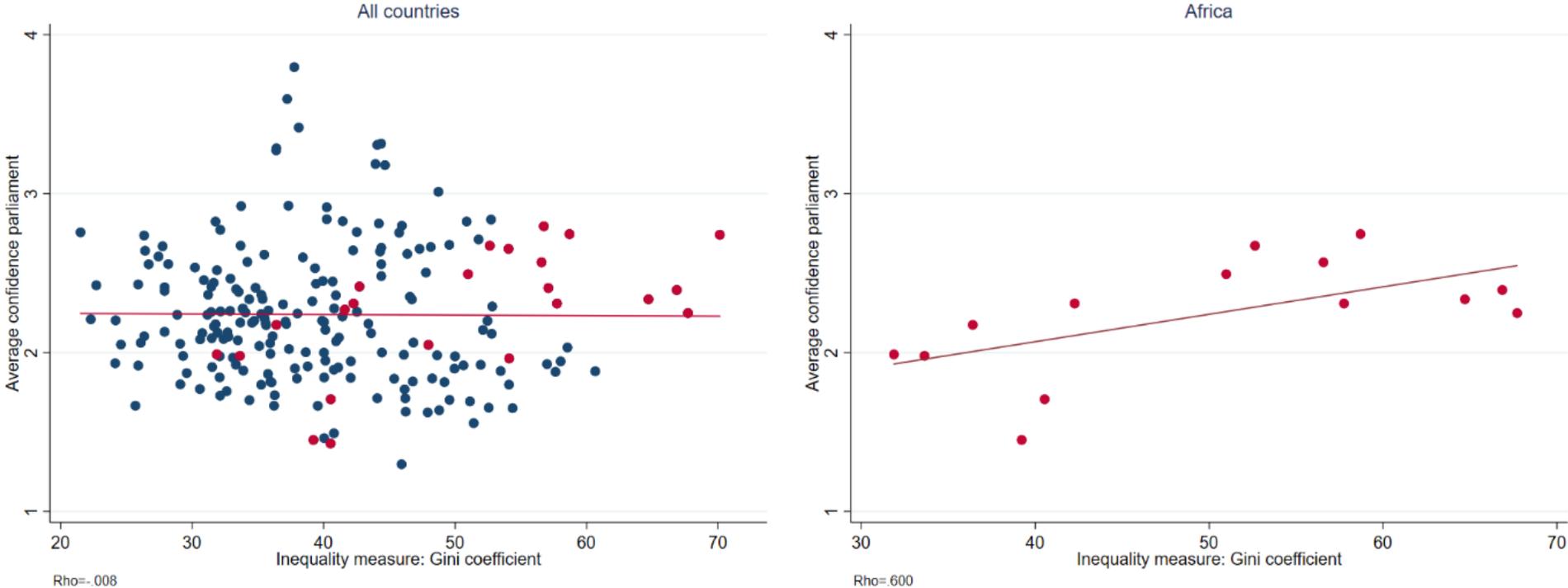
Note: Red dots indicate African countries. The graph on the left panel is based on a sample of 98 countries (including African countries). The graph on the right panel is based on a sample of 14 African countries.

Source: Based on data from the World Values Survey.

Figure 5: Correlation between average confidence in the court and income inequality (Gini coefficient) for all countries and only for African countries

Note: Red dots indicate African countries. The graph on the left panel is based on a sample of 98 countries (including African countries). The graph on the right panel is based on a sample of 14 African countries.
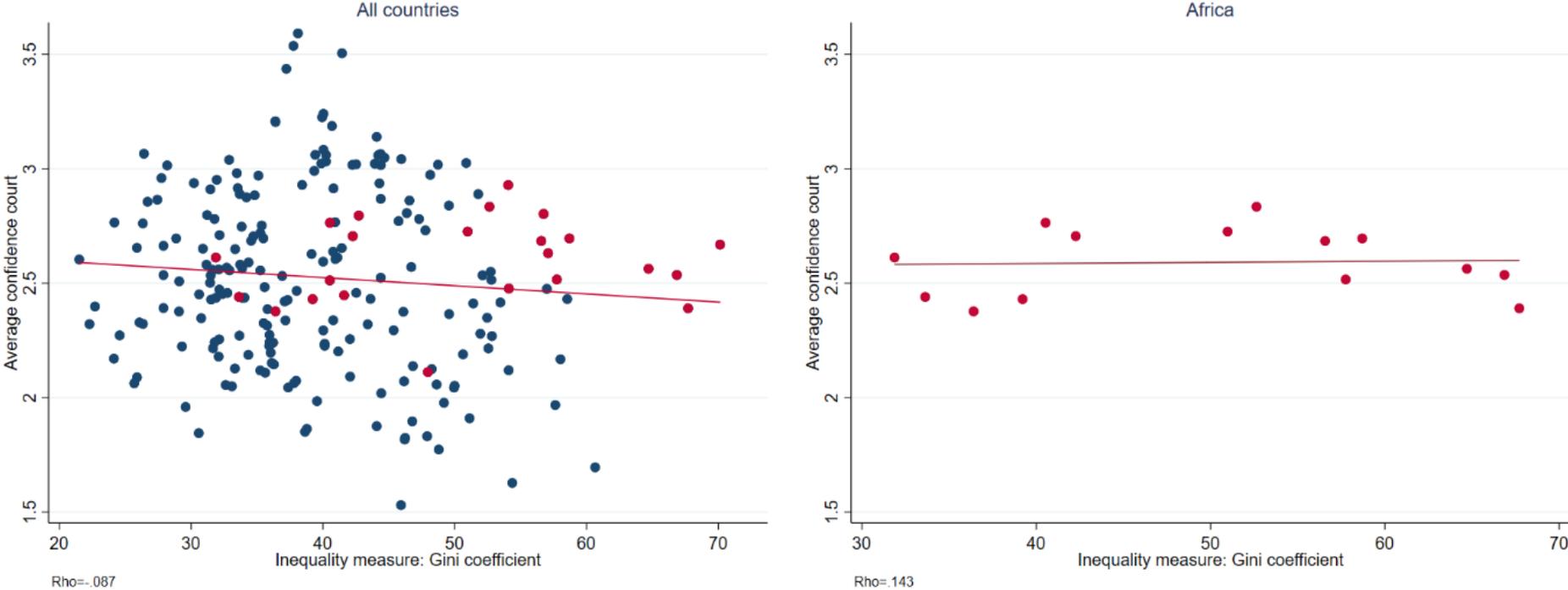
Source: Based on data from the World Values Survey.

Figure 6: Correlation between average confidence in police and income inequality (Gini coefficient) for all countries and only for African countries

Note: Red dots indicate African countries. The graph on the left panel is based on a sample of 98 countries (including African countries). The graph on the right panel is based on a sample of 14 African countries.

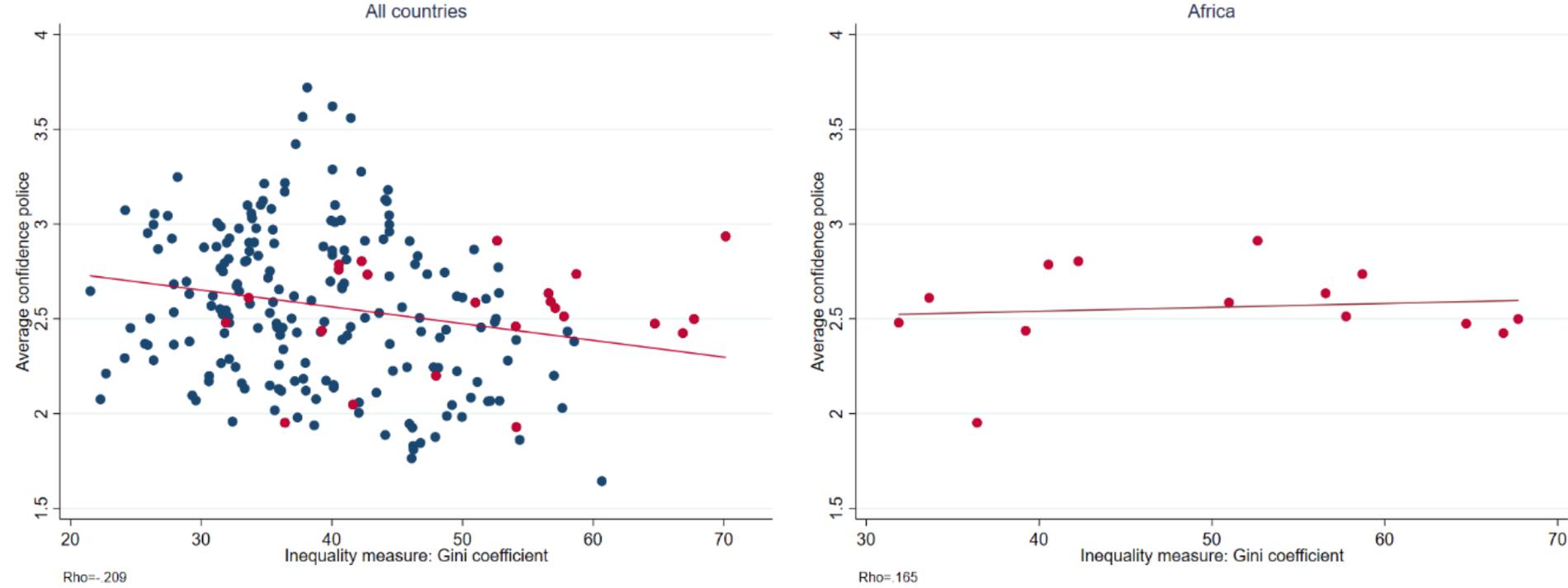Source: Based on data from the World Values Survey.

Finally, estimating linear regressions, we also check whether factors such as the coverage of social protection (based on the ASPIRE database), level of conflicts, number of people displaced by conflict and violence and the level of institutional and social fragility (World Bank indicators) act as mediators between vertical trust and the inequality measure. The positive correlation did not change in any of these cases. In most cases, these potential mediating factors had a statistically significant effect on vertical trust.

5.2 Correlation between inequality and cooperation for the common good

It was previously stated that inequality is likely to erode cooperation by undermining norms of social cooperation and prosocial behaviour (Putnam, 1995). This negative correlation is also detected in our empirical analysis (Figure 7, rho=-0.095) and becomes substantially stronger (rho=-0.364) by excluding Algeria, which is a clear outlier.

Figure 7: Correlation between cooperation scores and monetary inequality (Gini coefficient)
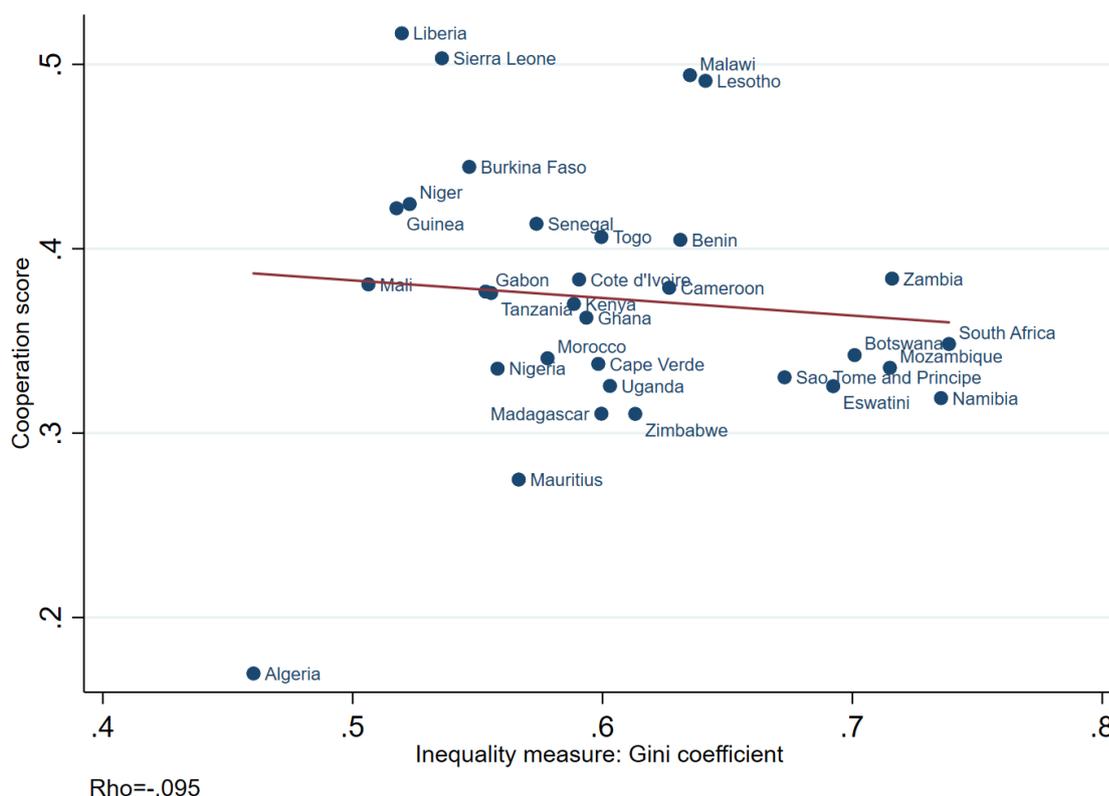
Rho=-.095

Note: This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The sample includes 32 observations. Data is missing from Burundi, Egypt, Sudan and Tunisia. The correlation coefficient (rho) is shown in the bottom left part of the figure.

Source: Based on inequality data from the WID and cooperation scores from Leininger et al. (2021).

Figure 8 shows correlations between the Gini coefficient and horizontal and vertical components of cooperation. While the relationship with inequality is clearly negative in the case of horizontal cooperation, it is (unexpectedly) very close to zero (rho=-0.017) in the case of vertical cooperation.

Figure 8: Horizontal and vertical cooperation scores and income inequality (Gini coefficient)

Note: The horizontal component is citizen engagement and participation, and the vertical component is cooperation for the common good between individuals and the state-inequality measure: Gini coefficient. This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The correlation coefficient (rho) is shown in the bottom left part of the figure. The sample includes 32 observations. Data is missing from Burundi, Egypt, Sudan and Tunisia.

Source: Based on inequality data from the WID and cooperation scores from Leininger et al. (2021).

To investigate these last findings further, we first checked the same correlation using the 90/10 ratio as a measure of inequality, which compares the income share of the top decile with the share of the bottom decile. The results are almost identical to those found for the Gini coefficient (see Figure A1 in the Appendix). Cooperation between individuals is negatively associated with this measure of extreme inequality, while vertical cooperation is substantially independent.

To try to explain better this partially unexpected finding for vertical cooperation, we also run a heterogeneity analysis to check whether the relationship varies according to the country's income level (Figure 9). Income levels are based on the World Bank's economic classification. The results show a strong positive correlation for upper-middle income countries (rho=0.854) and a negative correlation for low-income countries (rho=-0.413). The correlation is also negative for lower-middle income countries, yet it is close to zero (rho=-0.044). Overall, this reveals that the relationship between inequality and vertical cooperation is not the expected negative sign due to the presence of upper-middle income countries. In particular, North African countries (Algeria and Morocco) show clearly different patterns compared with countries in the other income groups.

Unlike for trust, we do not have comparable data for similar indicators of vertical cooperation from other sources. However, it is important to highlight that the unexpected findings concern the relationship between inequality and the vertical dimension of social cohesion. Indeed, vertical trust and vertical cooperation are closely linked: higher trust in public institutions is likely to promote better cooperation with these institutions. Moreover, experiencing positive cooperation with public institutions is likely to increase trust towards them. For this reason, many of the arguments raised earlier for vertical trust are likely to also be valid for vertical cooperation.

Most of the relationships found above are in line with those in the existing literature; however, as already emphasised, we should refrain from giving causal interpretation to the relationships analysed given the method, data and sample constraints. As Camera et al. (2019) point out, controlled experiments could offer a better understanding of the cooperation phenomenon. In many cases, since many institutional and environmental factors co-vary with economic inequality, survey and non-experimental data offer ambiguous evidence regarding the idea of inequality presenting an obstacle to cooperation. For instance, a decline in social cohesion might stem from migration rather than economic factors. A mix of factors, such as choice, luck, power and ability, may affect inequality or alter returns from cooperation. Experiments allow the study to control for these kinds of confounding factors.

Figure 9: Correlation between vertical cooperation scores and income inequality by income group
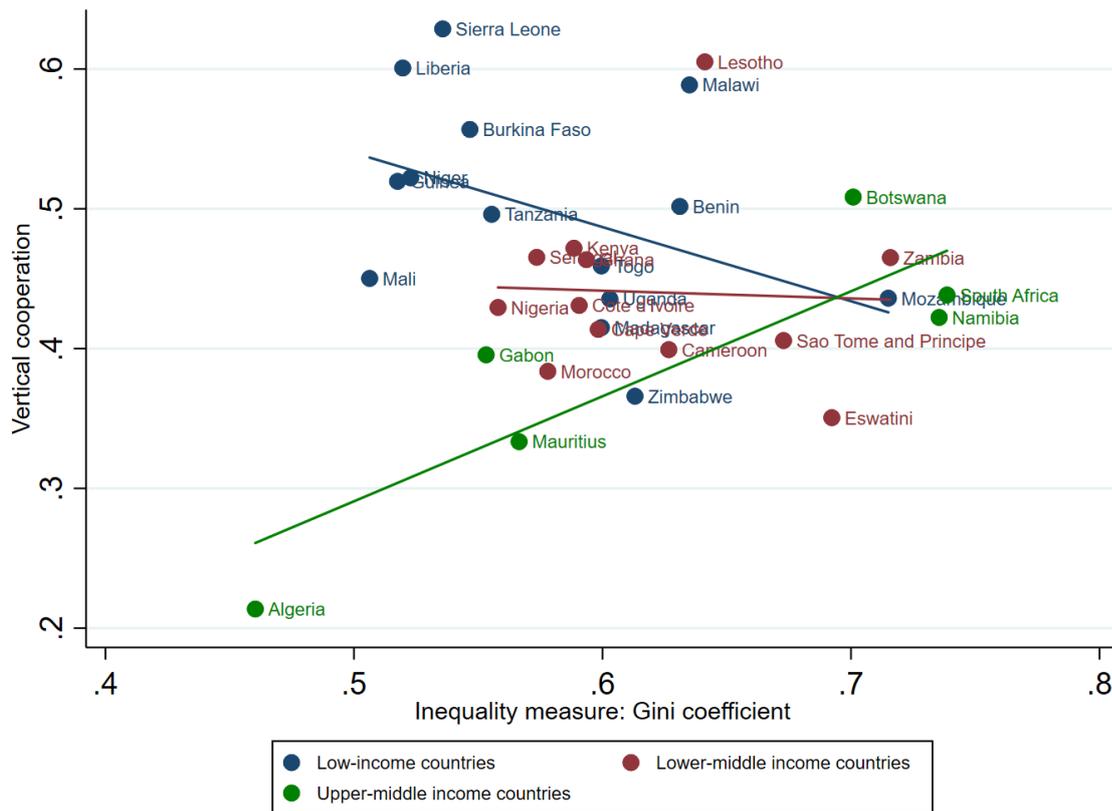
Note: Income levels are based on World Bank country classifications by income level for 2021-2022. The inequality measure is the Gini coefficient. This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The sample includes 32 observations. Data is missing from Burundi, Egypt, Sudan and Tunisia.

Source: Based on inequality data from the WID and cooperation scores from Leininger et al. (2021).

As is the case for vertical trust, we also checked whether the coverage of social protection (based on the ASPIRE database), level of conflicts, number of people displaced by conflict and violence and institutional and social fragility (World Bank indicators) act as mediators between vertical cooperation and inequality. In this case, we also find that the introduction of these variables did not affect the correlation between vertical cooperation and inequality.

5.3   Correlation between inequality and inclusive identity

According to the literature, inequality can threaten social cohesion when some group identities are constantly worse than others, since it could distance the groups left behind from a larger collective or national identity (Aksoy, 2019; Langer et al., 2017). Thus, we expect a negative relationship between inequality and our identity score measure. Figure 10 shows a negative correlation (rho=-0.074) between the identity score and the Gini coefficient, though of a modest intensity. This negative correlation also holds when using the 90/10 ratio as the inequality measure (see Figure A2 in the Appendix). Unlike the other attributes of social cohesion, identity is not measured separately for the horizontal and vertical dimensions.

Figure 10: Correlation between identity scores and inequality (Gini coefficient)
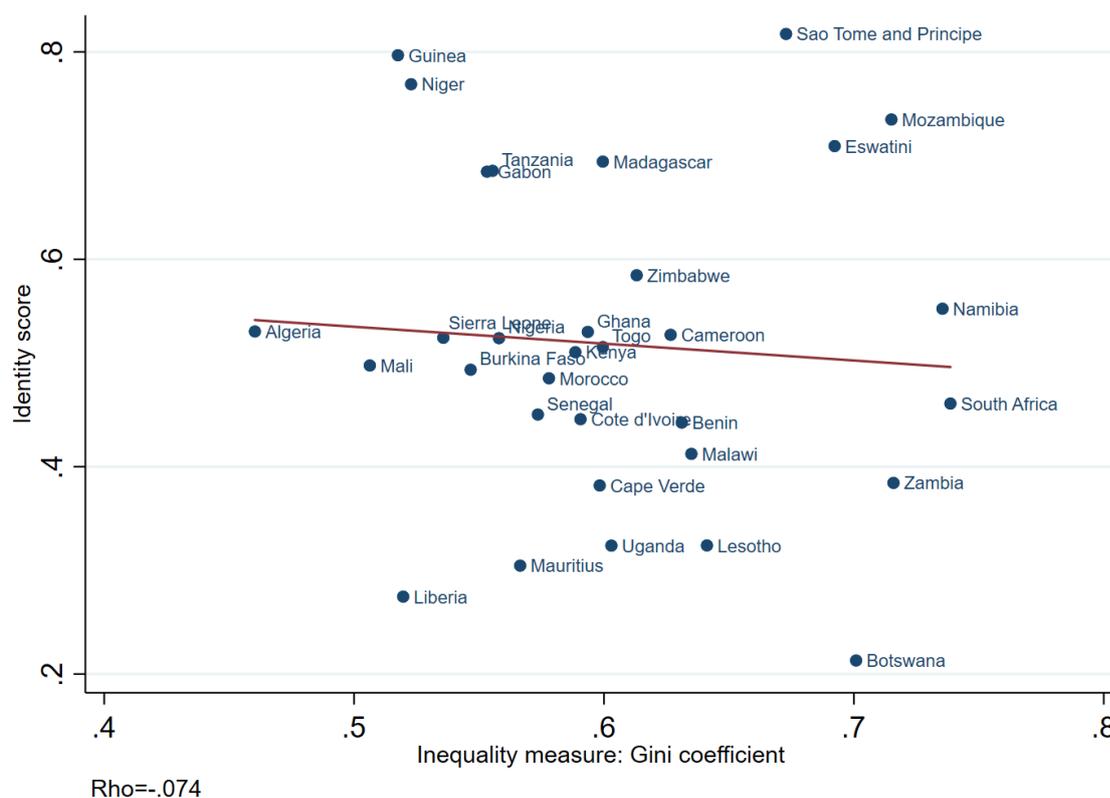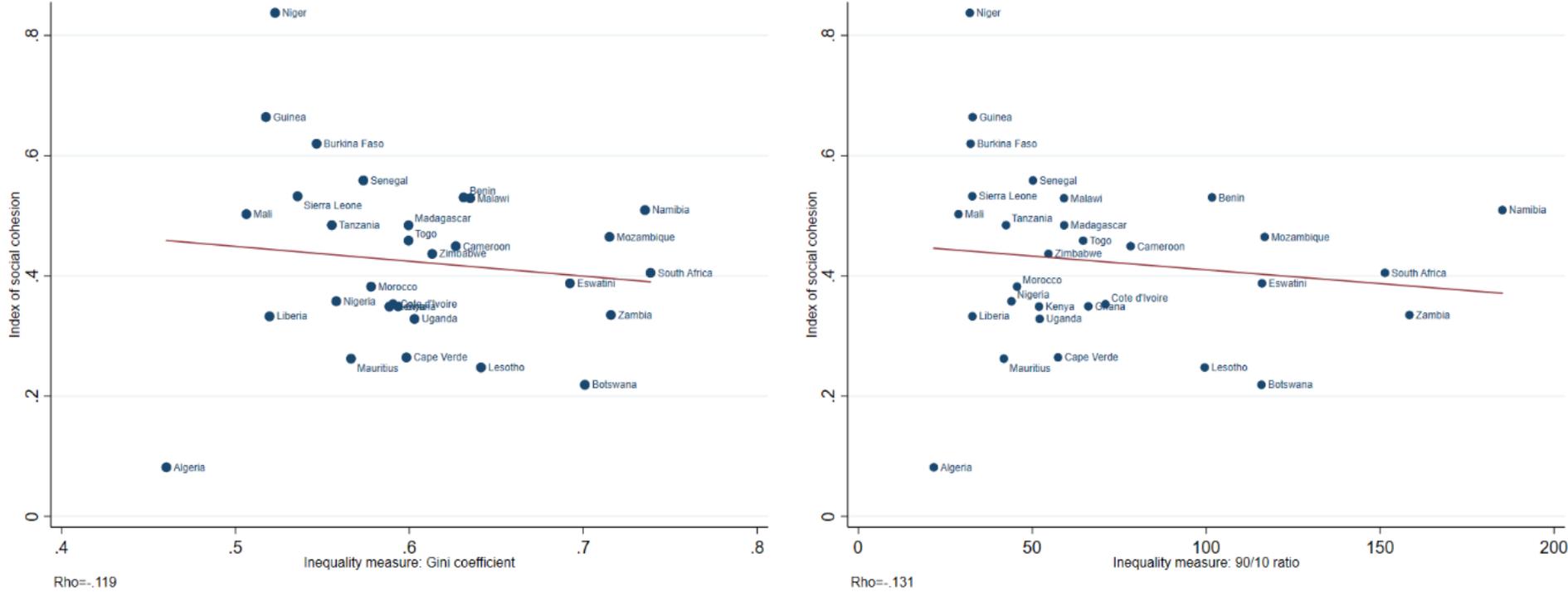

Rho=-.074

Note: This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The sample includes 32 observations. Data is missing from Burundi, Egypt, Sudan and Tunisia. The correlation coefficient (rho) is shown in the bottom left part of the figure.

Source: Based on inequality data from the WID and identity scores from Leininger et al. (2021).

5.4 Correlation between inequality and the index of social cohesion

Finally, Figure 11 shows the correlation between income inequality – measured through the Gini coefficient (left panel) and the 90/10 ratio (right panel) – and the aggregate index of social cohesion. This relationship is analysed with a sample of 30 countries for which information on all three attributes is available (see Table A1 in the Appendix). Overall, there is a negative relationship: higher levels of inequality are associated with lower levels of social cohesion (rho=-0.12 for the Gini coefficient and rho=-0.13 for the 90/10 ratio). However, the correlation is not statistically significant, which is partly due to the reduced sample size. Once we remove the two clear outliers, namely Niger and Algeria, the negative correlation between the two indicators increases (rho=-0.254 and -0.189), but remains statistically insignificant.

Figure 11: Correlation between the index of social cohesion and inequality

Note: This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The sample includes 30 observations. Data is missing from Burundi, Egypt, Gabon, São Tomé and Príncipe, Sudan and Tunisia. The red line shows the prediction of social cohesion from a linear regression of social cohesion on the inequality measure (the Gini index on the left hand-side and the 90/10 ratio on the right-hand side). The correlation coefficient (rho) is shown in the bottom left part of the figure.

Source: Based on inequality data from the WID and social cohesion scores from Leininger et al. (2021).

6 Final remarks

This paper aimed at analysing, both theoretically and empirically, the relationship between inequality and social cohesion. While it is often argued that high and increasing inequalities put societies under stress, increasing the likelihood of social conflicts, the literature on this topic is scarce. This is mainly because there is a diverse understanding of social cohesion. Moreover, some definitions of social cohesion incorporate inequality as one of its elements, thus making it impossible to examine how these two phenomena interact.

In this paper, we endorse the definition of social cohesion recently proposed by Leininger et al. (2021), which builds on a large number of studies in this field. Based on this definition, social cohesion is composed of three core attributes, namely trust, inclusive identity and cooperation for the common good, which have often been mentioned as key components of social cohesion. Unlike in other works, we view inequality as a potential driver or consequence of social cohesion, rather than as one of its attributes. This allows us to conduct an exploratory empirical study.

This paper examined the relationship between inequality and social cohesion in the context of Africa. While there is some work in Europe and Asia, to the best of our knowledge, no empirical work in this field has thus far focused on African countries. To measure the three attributes of social cohesion, we used the database generated by Leininger et al. (2021), which relies predominantly on micro-level data from Afrobarometer and integrates this data with expert data from the V-Dem for one attribute, cooperation. Inequality is mainly measured by the Gini coefficient and data are sourced from the WID dataset.

The empirical analysis, as expected, highlights a negative – though not very strong – correlation between inequality and an aggregate index of social cohesion. However, this masks different relationships between inequality and the attributes (and sub-attributes) of social cohesion. An attribute-by-attribute analysis also enabled a comparison with findings from a broader set of studies. We found that the Gini coefficient is negatively correlated with the scores of all three separate attributes and that the intensity of this relationship is higher for trust (rho=0.25) than for the other two attributes (both have a rho of around 0.1). These results hold when we used the ratio between the income of the top 10 per cent and that of the bottom 10 per cent as measure of inequality instead of the Gini coefficient.

To better understand the drivers of these results, we also investigated the correlation between inequality and the indices for the horizontal and vertical dimensions of social cohesion, trust and cooperation for the common good. We found substantially different results: higher levels of inequality are associated with lower levels of horizontal trust and horizontal cooperation, while they are associated with higher levels of vertical trust and are essentially uncorrelated with vertical cooperation. The relationships remain substantially the same with alternative measures of inequality.

We conducted different analyses to explain these puzzling results for the vertical dimension of social cohesion. We found that the results are not clearly driven by trust in one specific institution and are not even an artefact of the specific data we used. Indeed, we obtained similar results using data from the World Values Survey. At the same time, this analysis revealed that the positive relationship between inequality and vertical trust is clearly visible only among African countries – it is not at the global level or in other regions. Further research is needed to clarify why Africa is exceptional in this regard.

Finally, it is important to remark once more that the empirical assessment conducted in this paper is only a preliminary investigation of the relationship between inequality and social cohesion in Africa. In particular, this paper has several limitations. First, the sample of countries is small, ranging between 30 and 34 countries depending on the specific analysis. Second, due to data constraints, we could focus only on vertical inequality (inequalities among individuals)

and monetary inequality. The literature indicates that horizontal inequality (inequalities between groups) and inequality in non-monetary dimensions of wellbeing could also play important roles in explaining social cohesion. Third, our analysis concentrates on static levels of inequality and social cohesion. To establish causal relationships, we should ideally focus on changes in the two phenomena over a long period of time. This was not possible in our study due to the very small sample size for the first years of our dataset for which the measures of the different attributes of social cohesion were available. Lastly, future analyses should use more recent data as the main data in this paper were from 2014-2015.

Despite these limitations, this study provides new insights. Tackling income inequality is likely to improve the horizontal components of social cohesion, but this is not necessarily the case for the vertical component of social cohesion. Given our finding that the relationship between inequality and social cohesion in Africa is not representative at the global level and is probably not indicative for just low- and middle-income countries, more research is needed to understand why this is the case. This would provide additional evidence that could support the design of policies that enhance social cohesion in Africa and beyond.

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Appendix

Table A1: Sample of countries, by social cohesion measure

Countries	Cooperation score	Trust score	Identity score	Index of social cohesion
Algeria	x	x	x	x
Benin	x	x	x	x
Botswana	x	x	x	x
Burkina Faso	x	x	x	x
Burundi	-	x	-	-
Cameroon	x	x	x	x
Cape Verde	x	x	x	x
Cote d'Ivoire	x	x	x	x
Egypt	-	x	-	-
Gabon	x	-	x	-
Ghana	x	x	x	x
Guinea	x	x	x	x
Kenya	x	x	x	x
Lesotho	x	x	x	x
Liberia	x	x	x	x
Madagascar	x	x	x	x
Malawi	x	x	x	x
Mali	x	x	x	x
Mauritius	x	x	x	x
Morocco	x	x	x	x
Mozambique	x	x	x	x
Namibia	x	x	x	x
Niger	x	x	x	x
Nigeria	x	x	x	x
São Tomé and Príncipe	x	-	x	-
Senegal	x	x	x	x
Sierra Leone	x	x	x	x
South Africa	x	x	x	x
Sudan	-	x	-	-
Eswatini	x	x	x	x
Tanzania	x	x	x	x
Togo	x	x	x	x
Tunisia	-	x	-	-
Uganda	x	x	x	x
Zambia	x	x	x	x
Zimbabwe	x	x	x	x
Total	32	34	32	30

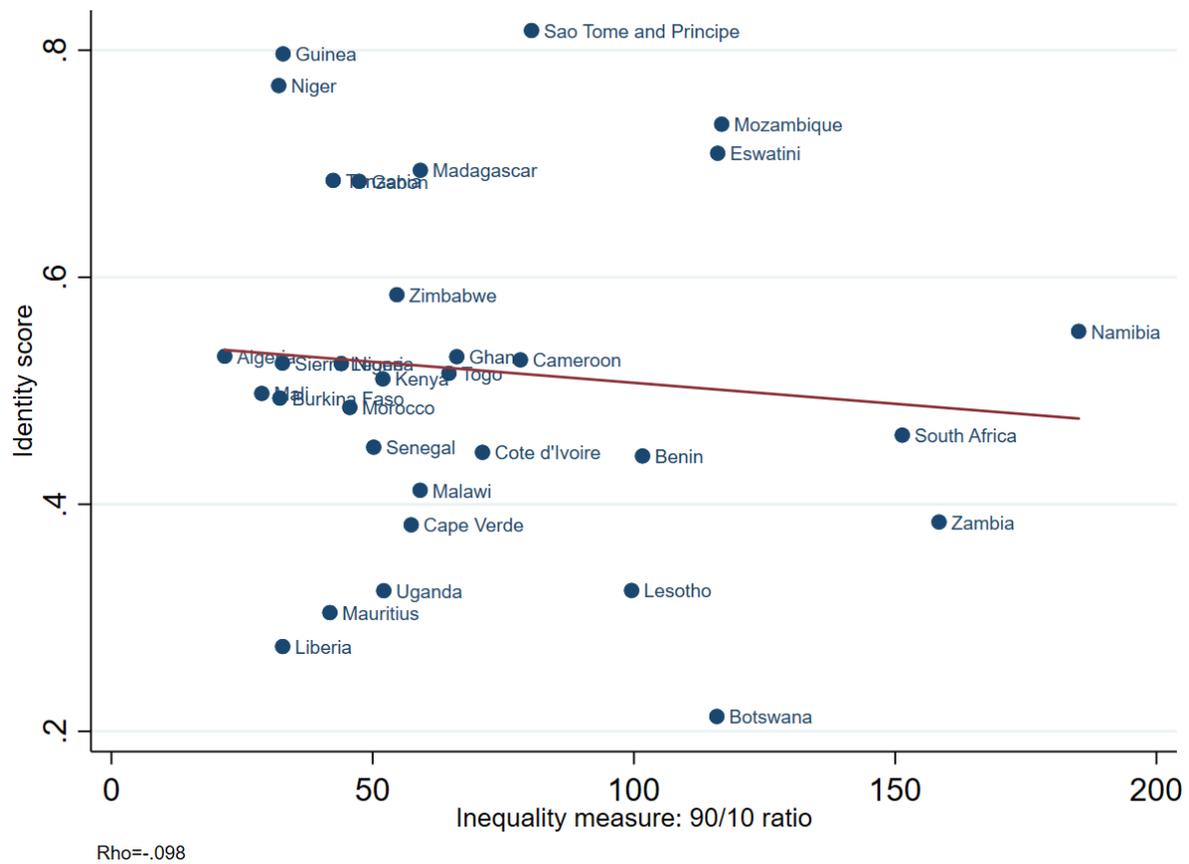Source: Based on the country-level database compiled by Leininger et al. (2021).

Figure A1: Correlation between horizontal and vertical cooperation and inequality (90/10 ratio)
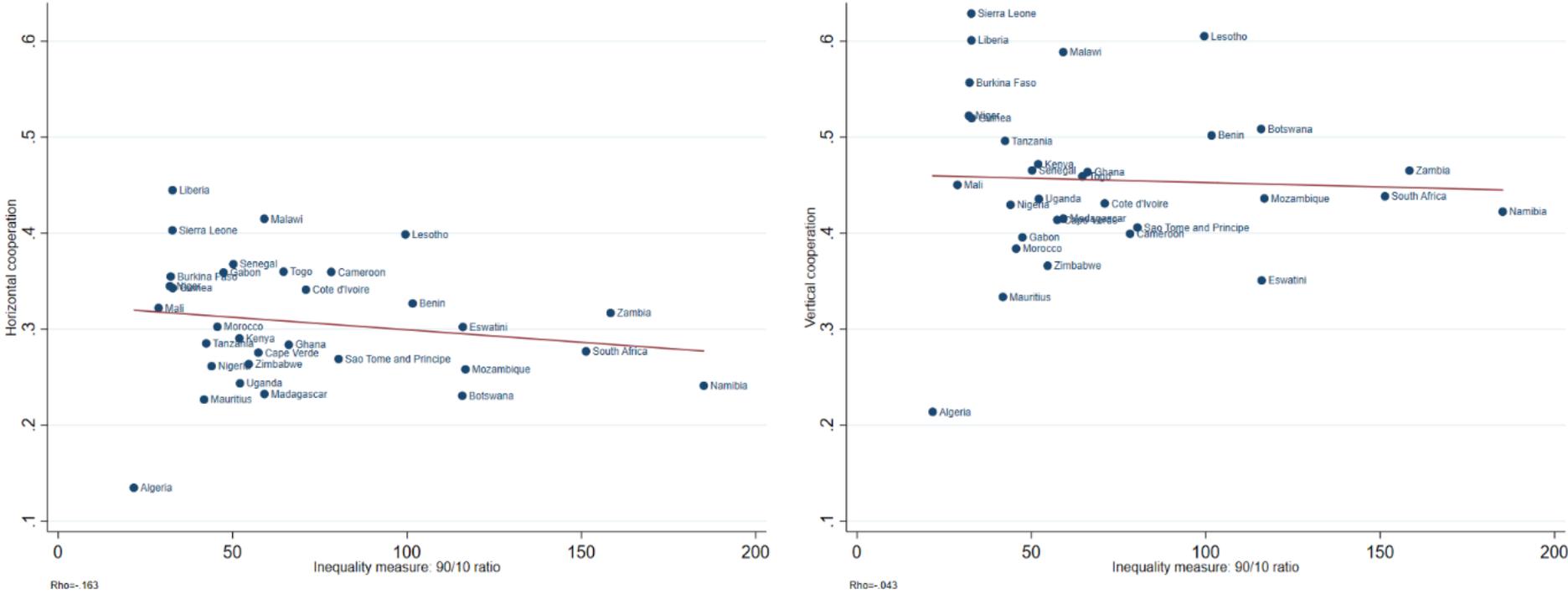
Note: The horizontal component is citizen engagement and participation. The vertical component is cooperation for the common good between individuals and the state. The inequality measure is based on the 90/10 ratio. This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The sample includes 32 observations. Data is missing from Burundi, Egypt, Sudan and Tunisia. The correlation coefficient (rho) is shown in the bottom left part of the figure.

Source: Based on inequality data from the WID and cooperation scores from Leininger et al. (2021).

Figure A2: Correlation between identity scores and the 90/10 ratio as measure of inequality

Note: This figure uses Round 6 of the Afrobarometer (years 2014 to 2015). The sample includes 32 observations. Data is missing from Burundi, Egypt, Sudan and Tunisia. The correlation coefficient (rho) is shown in the bottom left part of the figure.

Source: Based on inequality data from the WID and identity scores from Leininger et al. (2021).