KDIS Working Paper 21-09

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Micro-Level Evidence Using a Measure of Perceived Economic Position

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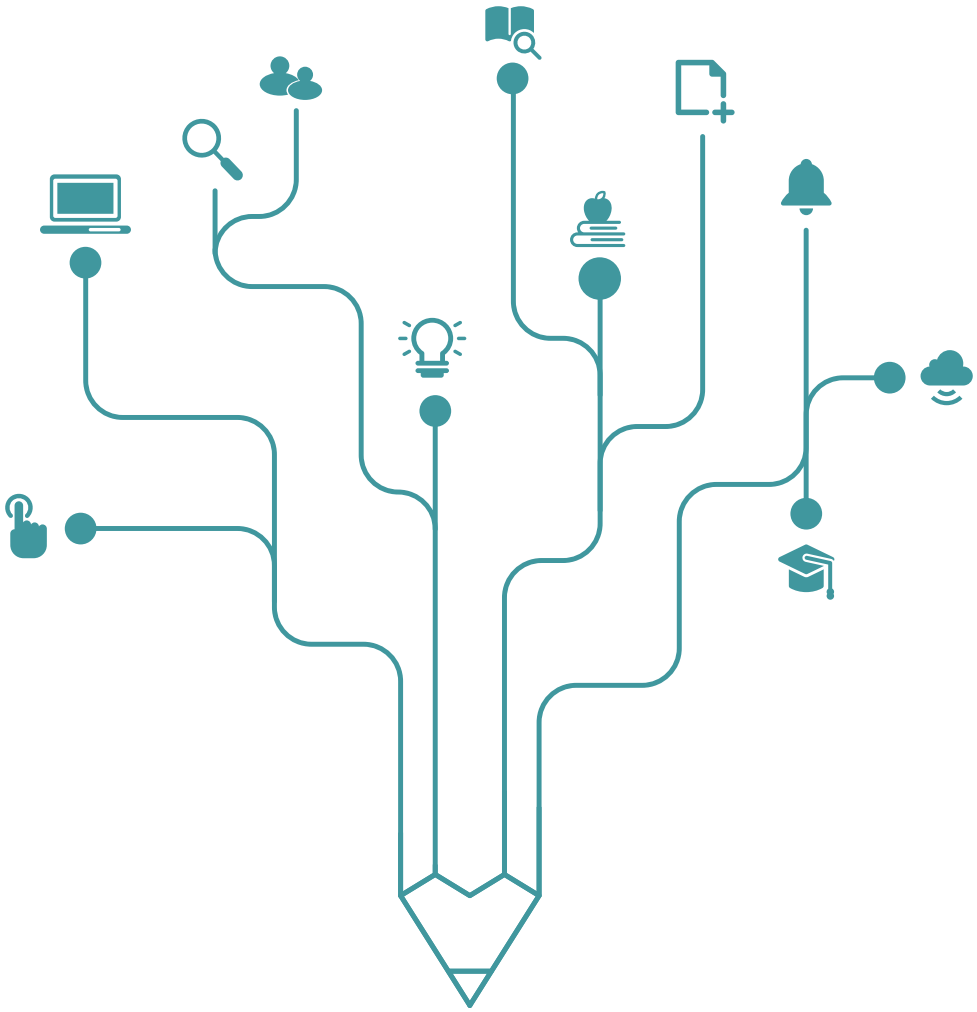

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Inequality and Social Identity: Micro-Level Evidence Using a Measure of Perceived Economic Position

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Abstract

Although several theories have it that income inequality shapes social identity formation,there has been hardly any conclusive evidence in large multi ethnic environments. A recent wave of scholarship attributes the absence of such results to the use of objective measures of inequality. Drawing from this strand of the literature, we test the hypothesis that perceived inequality dissipates the sense of belonging to a nation. Employing individual level survey data from 3-7 rounds of the Afrobarometer, we find that individuals reporting higher inequality tend to identify less with their nation vis a vis their ethnicity. The results are robust to accounting for reverse causation as well as to the inclusion of controls and are not driven by unobservables. We get suggestive evidence that violence and negative "sociotropic" evaluations are the mechanisms as to why inequality reinforces sub-national identity.

***Keywords:*Perceptions, Inequality, Identity, Afrobarometer, Africa**

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1 Introduction

Social identity is an individuals's perceived sense of belonging to a socially relevant group (see H. E. Tajfel 1978; H. Tajfel et al. 1979; Turner 1975). It comes in several forms—national identity, ethnicity, economic class, gender or religious group—and should be included in economic analysis (Akerlof and Kranton 2000). Ethnic networks promote trade (Rauch and Trindade 2002), whereas ethnic diversity weakens the effect (Duanmu and Guney 2013) for it lowers trust (Kimenyi 2006). Ethnic diversity is also found to limit the productivity of the private sector due to under supply of inputs to non co-ethnics(e.g., Hjort 2014). For Africa, ethnic diversity explains slower economic growth, widespread corruption and bureaucratic delays (Alesina, Devleeschauwer, et al. 2003). One mechanism is that diversity makes social policies ineffective by undermining public goods provision either because each ethnic group has unique policy preferences or because the probability of sustaining cooperation with social sanctions (finding and punishing free-riders) is lower in such societies (Habyarimana et al. 2007b).

Although identity has been systematically introduced to economic analysis following the pioneering identity economics work of (Akerlof and Kranton 2000), its formation remains one of the least understood topics. Inequality is one factor that affects social identity formation. Theoretically, there are different ways as to how inequality shapes the success of nation building. First, diversionary responses may lead to more national attachment. In a diversionary policy pursuit, a country's leader may instigate a diversionary policy to distract the population from a domestic strife borne by inequality. The diversionary theory explanation has received support in (Solt 2011) who reports a positive correlation between economic inequality and an individual's national pride (measured from World Values Survey) for a cross section of countries. Second, relative deprivation theorists argue that inequality hatches divisive and conflict engendering grievances as a result of which attachment to the state gets hampered. Although with different predictions, both of these theories (diversionary and deprivation) assume that the effect of inequality on national identity does not depend on income. However, a variant of the social identity theory, which (Solt 2011) refers to as the psychological benefits theory, argues that inequality hypes identification with the nation for identifying with the nation gives the poor a psychological pleasure (e.g.,see Shayo 2009, for the formal treatment of such a theory). Finally, ethnic mobilization theory argues that inequality (when it overlaps with an ethnic cleavage) could be instrumentalized to activate ethnic

identity for political or economic gains and this ruptures national identity. This theory, however, reverberates that crosscutting cleavages such as economic status may dampen the negative effects of inequality on national identity.

In relative terms, Africa is the most ethnically diverse continent and has the highest ethnic inequality (Alesina, Michalopoulos, and Papaioannou 2016). Then, if it is anywhere, it is in Africa that inequality should matter for identity or for outcomes such as conflict. Despite this, the evidence from Africa hitherto is little and the works outside Africa too are inconclusive. For a cross section of mainly non-African countries, (Shulman 2003) reports an insignificant link between equality and national identity. In a cross section of ethnic level analysis for some countries, (S. Ray 2018) reports a negative (a zero) association between ethnic political (economic) inequality and national pride. For him, it is political inequality, not income inequality, that matters for identity with an implication that ethnic exclusion from central state power corrodes national attachment and eventually breeds a civil war (Deiwiks, Cederman, and Gleditsch 2012). Although conflict has been shown to weaken national identity (Besley and Reynal-Querol 2014), most studies fail to find any relationship between conflict and inequality (see Østby, Nordås, and Rød 2009, for review). Furthermore, (Higashijima and Houle 2018) argue that ethnic income inequality makes ethnicity salient only when conditioned on within ethnic inequality. Therefore, the question of whether economic inequality matters for identification in a multi-ethnic setting remains an open empirical question.

We extend the existing works in several ways. First, the existing evidence provides hardly any conclusive support that inequality (de)activates national identification in a multi ethnic environment such as Africa. We argue that the absence of such results is due to the use of objective measures of inequality. For social identity theorists, identity formation depends on perceived, not objective, similarity or distance (Shayo 2009). At least theoretically, the political effects of inequality are operational only when people feel disadvantaged relative to others even though there may not be objective deprivation at all (Auvinen and Nafziger 1999). The implication is that inequality will have a negligible effect when objective inequality does not automatically translate into perceived inequality (see for instance Langer and Mikami 2013, who report that objective and subjective inequalities differ substantially in Ghana, Zimbabwe, Uganda, Nigeria, and Kenya). The recent evidences are such that objective inequality mismatches perceived inequality (for the case of Niger Delta, see Rustad 2016); and such a mismatch is a likely reason as to why (S. Ray 2018) documents a zero relationship between objec-

tive economic inequality and identity. Likewise, a robust relationship between objective measure of inequality (Gini coefficients) and civil war onset is yet to be found in cross country setting (Huber and Mayoral 2019; Fearon and Laitin 2003). Nevertheless, the prediction from Meltzer-Richards model that inequality shapes the demand for redistribution policies receives empirical support when perceived, not actual, inequality is considered (Kuhn 2019; Gründler and Köllner 2017; Hauser and Norton 2017). The poor (the rich) overestimates (underestimates) its position and that perceived inequality, not actual inequality, is strongly associated to reported conflict between the rich and the poor of (Gimpelson and Treisman 2018). If anything, economic, social, political, cultural and historical inequalities are inseparable (Cramer 2003). On this basis, a recent scholarship (see e.g., Gimpelson and Treisman 2018) advances the argument that theories on inequality shall be reconsidered as theories of perceived inequality because what matters is how inequality is printed in the minds of members of a community. In the column of this strand of the literature, we rely on perceived measure of inequality at the individual level. As far as our knowledge is concerned, this work is the first empirical work to link perceived inequality to identity formation in a multi ethnic environment.

Second, the existing works are correlations in nature, meaning that a casual inference is difficult. The relationship between inequality and identification could be a result of unobserved omitted factors that are correlated with both inequality and identification. There may also arise a reverse causation when ethno-nationalist politicians resort to ethnic signaling, a theory known as "ethnic outbidding," for winning in elections (Chandra 2007). As the evidences from India (Huber and Suryanarayan 2016),Uganda (Carlson 2015) and Zambia (Posner 2005) suggest, people vote for co-ethnic parties and national policies have ethnic favouritism. This in turn may increase inequality between groups or individuals. Thus, inequality and identification may co-evolve. To tackle these identification challenges, we pursue two main empirical strategies. First, we account for alternative explanations by controlling for a set of controls and then assess for omitted variable bias. Second, we account for reverse causation by instrumenting our measures of perceived inequality by a measure of malaria ecology to which an individual's ancestors are exposed to.

Finally, little is known of the theoretical mechanisms through which inequality matters for identification. We test for two mutually reinforcing mechanisms through which inequality molds national identity. Due to the desire for positive social identity, people identify with valued groups (H. Tajfel 1982). In his model of social identity, (Shayo

2009) argues that the utility of identifying with the nation falls if perceived inequality degrades the perceived status of the nation[1]. Similarly, economic voting theory suggests that an individual's voting behavior depends on a rational cost-benefit calculus and that an individual's subjective evaluation of national economic conditions (a proxy for sociotropic motives) is the best predictor of his or her voting decision (Lewis-Beck and Paldam 2000). A set of works apply this utilitarian theory to European identity and provide evidence that individuals prefer supranational identities when their subjective assessment of the national economy conditions are positive. In particular, the evidences are that positive self-reported national economic perceptions decrease Euroscepticism (Yu and Wang 2017; Aiello, Reverberi, and Brasili 2019; N. Levy and Phan 2014; Anderson and Kaltenthaler 1996)[2]. Inequality (or the grievance it produces) depresses individual's positive overall assessment of the national economic condition (Olsen 2015; Ansolabehere, Meredith, and Snowberg 2014), and thus decreases support for supra national identity. This has been the case in the vote for Brexit (Dorling, Stuart, and Stubbs 2016). Inequality has a negativity bias and thus negatively affects optimism and social mobility (Rothstein and Uslaner 2005; J. A. Robinson 2003; Uslaner 1998). When there is less optimism about the future, interacting with strangers and transferring allegiance from ethnic to national identity diminishes. Identifying with the nation involves a cost of passing or leaving one's own group (Habyarimana et al. 2007a); and this strengthens the endowment effect—a psychological mechanism where individuals place higher value on the object they own (ethnic identity is a good example for it has emotional or symbolic significance) than they do to acquire it (Kahneman, Knetsch, and Thaler 1990). Thus,we hypothesize that one mechanism through which inequality creates social divides is through its negative effect on subjective assessment of national economic conditions.

Likewise, a fall in national status or state capacity decreases the opportunity costs of engaging in riskier activities such as conflict (Sambanis and Shayo 2013; J. S. Levy

[1](Shayo 2009) formalizes a model of social identity that relies on a perceived similarity and status mechanics. Let S_N and S_A denote the status of the nation and that of group A, respectively. Let d^2_{iN} and d^2_{iA} represent an i^{th} agent's perceived distance from the nation and from group A's typical attribute, respectively. Then (Shayo 2009) predicts that an individual i from social group A identifies with group A if S_N-$S_A < d^2_{iN} - d^2_{iA}$;that is when the status of the nation vis a vis the status of A is smaller than the similarity of members in the overall nation vis a vis the similarity of members of A.

[2]Consistent with the economic voting theory, several works find that positive self-reported national economic conditions evaluations (sociotropic motives) and pro-incumbency tendencies are positively related (e.g., Healy, M. Persson, and Snowberg 2017; Lewis-Beck and Stegmaier 2013).

2003). When inequality is the result of unequal division of scarce resources and that group boundaries are impermeable, the low status group opts to a "realistic social competition" as a strategy to improve their status (Turner 1975; H. E. Tajfel 1978; Turner and Oakes 1986). Inter-group competition for scarce resources cements in-group solidarity, cooperation, identification and thus may result in conflict (H. Tajfel et al. 1979). In other words, inequality instigates violence and obliterates nationhood sentiments for individuals with better economic privileges aim to protect their hegemony or that a lack of social standards in the low class group facilitates rebel recruitment and thus reduces the opportunity cost of violent behaviour in a community (Alcorta et al. 2020). Thus, behavior of violence is one of the mechanisms through which inequality breeds divisive tendencies in a society.

We utilize individual level data from the Afrobarometer surveys. Our results illuminate that higher perceived inequality makes individuals to prefer their ethnic identity over their national identity. We pursue two empirical strategies. First, we account for alternative explanations by controlling for a set of controls. Using the heuristics of (Altonji, Elder, and Taber 2005)'s approach, there is no evidence that omitted variables drive our results. Second, we account for reverse causation by instrumenting our measures of perceived inequality by a measure of malaria ecology to which an individual's ancestors are exposed to. The results are robust to these empirical exercises. We are able to distinguish participation in violence and a negative national economic condition perception as the two likely mechanisms explaining our results.

The organization of the rest of the work is as follows. Section II puts the literature on inequality and identity formation in perspective. The sketch of the identification strategy for the empirical analysis is in section III. Section IV provides the description of the data. We summarize the main findings in section V. Section VI concludes.

2 Inequality and Identity: A Theoretical Consideration

How does inequality matter for identity formation? Different predictions emerge from competing theories, the predictions of which we summarize in Table 1. A comprehensive insight on identity formation (specifically on identifying with a certain group) is

imprinted in the social identity theory (SIT). According to the SIT, an individual or group continuously compare their group to other groups with the objective of maintaining favourable self-esteem for the "us" over the "them" groupings (H. Tajfel et al. 1979; Turner 1975). Consider the poor and the wealthy as distinct psychological or social groups. By degrading the economic status of the masses, economic inequality forces a low status group or its members to develop a negative social identity (Jiang 2020; Akfirat, Polat, and Yetim 2016; Rojas 2011). In an attempt to change their negative self-concept or social identity—arising from a depressed social status due to inequality or poverty—to a positive one, the low status group or some of in-group members resort to behavioural strategies that are meant to achieve positive social identities and these strategies are collectively known as "identity management strategy" (for a review, see Bezouw, Der Toorn, and Julia Christina Becker 2020; Malovicki Yaffe et al. 2018; Blanz et al. 1998).

Two classes of identity managing strategies are distinguished by (H. Tajfel et al. 1979). The choice of each of these strategies basically lies on the insecurity of the economic status of the high status group and the impermeability of group boundaries (Ellemers 1993). The first is individual mobility or an "exit" strategy. In this strategy, a low status group's member exits his or her in-group for a high status out-group as a mechanism of improving one's personal standing in the society. Mobility is possible and achieves the intended objective when moving to the out-group is permeable and the status of the out-group is perceived to be secure or stable. Another identity managing strategy available for low status groups is social creativity; and is suited to be invoked when a social hierarchy is perceived as stable, legitimate or impermeable (H. Tajfel et al. 1979; Julia C Becker 2012).

Social creativity strategies refer to re-evaluation of the existing comparison dimensions and a search for new comparison dimensions by low status groups, without changing the status of one's social group, to provide a positive identity (Blanz et al. 1998). It takes the form of rejection of the economic dimension and a search for a new comparison dimension on which members of one's group have a better position than the out-group (H. E. Tajfel 1978). In particular, a group employs a re-evaluative social creativity by devaluing the positive pole of economic dimension in identification and replacing its value with connotations such as "poor but happy, rich but miserable" (Akfirat, Polat, and Yetim 2016) or "it is richness of the heart that is more noble than economic wealth" (Malovicki Yaffe et al. 2018). Similarly, nationalist sentiments could

serve as a social creativity strategy that people adopt when identifying with the national has psychological benefits that helps people feel better in a society. Recently, (Shayo 2009) summarises this observation from social identity theory where he argues that the low status group chooses to identify with the nation to compensate for the psychological distress inflicted by inequality, whereas the rich identifies less with the nation for it perceives the nation as the home of the poor or low status groups. In an empirical work, this theoretical insight can be captured by including an interaction term that equals Inequality*Income. According to this psychological benefits theory, inequality is positively related to national attachment and the interaction between inequality and income (Inequality *Income) lowers attachment to the nation.

Another prediction follows from the theories of "ethnic mobilization." In this theory, identity is rationally chosen on the basis of a cost-benefit analysis. With the help of a wealth of case studies from Africa, (Bates 1974) is probably the first to illuminate that rational agents instrumentalize ethnicity to control scarce resources. In particular, he argues that "Ethnic groups persist largely because of their capacity to extract goods and services from the modem sector and thereby satisfy the demands of their members for the components of modernity. Insofar as they provide these benefits to their members, they are able to gain their support and achieve their loyalty." The implication of his argument is that ethnonationalist political entrepreneurs invoke inequality to illicit ethnic support to gain political power or extract rents (see e.g, Olzak 1983; Gill 1995; J. A. Robinson 2003; Lustick, Miodownik, and Eidelson 2004; Posner 2005). In turn, institutionalized ethnicity reinforces and kindles ethnic identities for it equips ethnic groups with highly ethnocentric regional legislatures, media, police forces, and political parties that makes it easier for regional leaders to mobilize co-ethnics for a collective action (Riker 1964; Kymlicka 1998; Lieberman and Singh 2012). This might culminate in cessation as was the case of former Yugoslavia (Brancati 2006). Thus, inequality (in ethnically diverse societies) makes nation building a quite challenging endeavor for it may deactivate national identity in favor ethnic identity.

Notwithstanding, the ethnic mobilization theory argues that the impact of inequality is conditional of the level of income or economic status of group members. One group of theorists in this camp see the variation in income level across members of the same ethnic group as a form crosscutting cleavage that mediates the effects of inequality (e.g., Houle 2015; Dunning and Harrison 2010; Hechter 1978). For instance, (Houle 2015) argue that between-group inequality cements ethnic identity or in-group solidarity when

the intra-group income is low. The implication is that the poor, who are the majority with more or less similar economic status, mostly identify with ethnicity vis a vis the nation. When the intra-group income inequality is high, however, not every member gets mobilized for ethnic causes for they may have different policy preferences (Huber and Suryanarayan 2016). This line of reasoning suggests that economic status mediates the inequality's effect on identity. In particular, it says that the negative effect falls as the economic status of a fraction of group members rises; and thus the interaction between inequality and income (Inequality*Income) nurtures attachment to the nation. Nevertheless, another group of theorists in the ethnic mobilization theory camp see the variation in income level across members of the same group as a form of reinforcing cleavage that strengthens the effect of inequality. (Esteban and D. Ray 2011) argue that within-group inequality lowers the opportunity cost of fighting along ethnic lines. In their economic model of ethnic mobilization, the costs are that the poor contributes labor (fighters) and the rich contributes financial (capital) resources. With high within-group inequality, the opportunity cost of contributing these resources decreases due to the fact that "mobilizing the poor is cheaper, and the rich have more resources to implement that mobilization" (Esteban and D. Ray 2011). Thus, high within-group inequality decreases attachment to the nation and income only serves to reinforces this effect. In Table 1, we account for these explanations by including the theoretical expectations on the interaction term, Inequality*Income.

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Table 1: Inequality and Identity: Theoretical Predictions

	Relationship to National Identity	
Theory	Inequality	Inequality*Income
Psychology Benefits Theory	+	-
Ethnic Mobilization Theory	-	-/+
Diversionary(foreign/domestic) Theory	+/-	ambiguous
Deprivation Theory	-	ambiguous

A third prediction evolves from the "rally around the flag" mechanism of a diversionary inter-state conflict or foreign policy crisis (Haynes 2017). The international diversionary theory (IDT) claims that a leader threatened by domestic political unrest,

due to inequality in our case, manufactures external threat or a foreign policy crisis as a "scapegoating mechanism." Such a foreign threat makes citizens "rally around the flag" due to the common enemy effect and hence, the embattled leader gets a reprieve, garners domestic support or may crackdown vociferous opponents so as to revitalize his regime (Sobek 2007). This "rally around the flag" effect of responding to inequality with a diversionary force hypes nationalism for all citizens, regardless of their economic status (Solt 2011). This theory assumes that the effect of inequality on attachments to the nation is uniformly positive or does not depend on the economic status (income) of members of the society. Unlike the preceding two theories, the diversionary theory is silent on what the interaction effect of inequality and income is. This foreign diversionary theory receives empirical support in (Solt 2011), who reports that inequality is a positive correlate of national pride.

Despite its popularity, the foreign diversionary theory has received sparse empirical support (e.g., Chiozza and Goemans 2003). Generally, "a gambling on resurrection" diversionary policy, where a leader targets a powerful international state, is less likely. The embattled leader has little incentive to attack powerful states as losing such a war damages his/her ability to stay in political power (De Mesquita et al. 2005). Attacking weak states may also be less beneficial for they could be friends with powerful states (Huth 1990) or are economic, social, and security allies to the embattled leader (Oneal, Russett, and Berbaum 2003). In the absence of suitable international target, (J. S. Levy 1998) advises that domestic ethnic adversaries may suit for diversionary action. Following this observation, (Tir and Jasinski 2008) provide domestic level diversionary theory for ethnically diverse nations. They argue that embattled leaders bolster public support by militarily targeting disliked ethnic minorities within their country. The classic example is the civil war between rebel groups and Ethiopia state during the derge regime. Upon victory in 1991, the Tigrean People's Liberation Front took over the state leadership, and the Eritrean People's Liberation Front seceded Eritrea from Ethiopia. Such a domestic level diversionary policy may contribute to conflict. Thus, the impact of inequality on national identity is negative when embattled leaders turn to inter-ethnic conflicts as a diversionary action.

A final prediction comes from the deprivation theory. Increasing income or wealth inequalities drive the poor and the rich apart for the rich eschew public goods such as schools while the have-nots are forced into ghettos to barely find jobs (A. Green, Janmaat, and Cheng 2011). Such disparities jettison social cohesion for they make people

feel that they no longer belong in the same community as result of which any sense of common citizenship wanes and "social conflict and degenerative" tendencies become ubiquitous (see e.g., Gilbert 2018; Shulman 2003). In this theory, conflict or violence instigation arises when privileged groups aim to protect their economic or power hegemony or when the low class group perceives that it can successfully appropriate the resources held by the high status group (Alcorta et al. 2020; Kunst et al. 2017; Van der Toorn et al. 2015; Staub 1989). According to this theory, distributive policies or a social policy in general, as was the case in Scotland, are needed for maintaining national identity (Béland and Lecours 2005). Similar to the diversionary theory, deprivation theory also assumes homogeneity—the effect of inequality on attachment to the nation is income independent. In this case, the hypothesised relationship between inequality and national identification is negative, while the interaction effect of inequality and income is ambiguous.

At this juncture, we also highlight the relationship between individual's economic status, say wealth, and national identity. Instrumental rationality and value rationality entail the important sources of identification (e.g.,see Varshney 2003). Instrumental rationality claims that a rational cost-benefit analysis determines the choice of identity. Accordingly, the rich should identify more with the nation since it is more likely to materially or economically benefit from the nation, maybe due to access to power or resources, than the poor (see Shulman 2003). From this materialistic instrumentalism perspective, one can expect a positive relationship between wealth and national identity. However,there can also be a sentimental or a value source of identification such as culture, history, or dignity. If such value rationalities are overriding, income and attachment to the nation could be unrelated. Maybe this is one reason why (Shulman 2003) and (Solt 2011) document insignificant income effects on identity. Yet, (Shayo 2009) argues and finds support that the poor vis a vis the rich, in advanced countries, identify mostly with the nation. Unlike us, the sample of countries or individuals in those works are mostly from economies or countries outside Africa. Thus, just like the inequality-identity nexus, the relationship between income and attachment to the nation in a multi-ethnic environment also remains an empirical question.

3 Empirical Strategy

We test the hypothesis that income inequality corrodes senses of nationhood. To establish this relationship, we estimate,

$$NI_{idct} = \alpha PI_{idct} + \theta Income_{idct} + \lambda (PI * Income)_{idct} + {I_{idct}}'\sigma + D'\beta + \mu_c + W_t + \varepsilon_{idct} \tag{1}$$

Where NI_{idct} is the measure of strength of national identity for the i^{th} individual living in district or region d of country c in the survey round t, PI_{idct} is individual's self-reported or perceived inequality;$Income_{idct}$ is income; ${I_{idct}}'$ is the set of controls that includes individual's age, place of residence, gender, and level of educational attainment; D' is a set of controls including public goods index at the EA level, Institutional Trust Index, Satisfaction with Democracy (SWD), Trust the ruling Party; μ_c are country fixed effects; W_t are survey rounds fixed effects; and ε_{idct} is the idiosyncratic error term.

Our interest in specification (1) is in α. The casual identification of α is challenging. The first challenge comes from attempting to identify the direct impact from survey data on respondents sampled from multiple countries. That is, national attachment variations across countries could be the result of cross-country differences in nation building policies (Bandyopadhyay and E. Green 2013), ethnically favouring national policies (Burgess et al. 2015; Franck and Rainer 2012), political arrangements (Eifert, Miguel, and Posner 2010) or colonial policies (Leeson 2005). To tackle such a confounding problem, we first control for country fixed effects. By comparing individuals within the same country, this helps us eliminate the concern of capturing the cross-country time-invariant differences in a survey year. Nonetheless, there remains the issue that, even within the same country, individuals may benefit differently from the country. Instrumental nationality implies that individuals that have materially benefited from the nation are likely to identify with it (Shulman 2003). Therefore, as a second step, we control for an individual's levels of education and income. (E. Green 2020) finds evidence that national identity is higher for individuals sharing same ethnicity with a country's president. To account for this possibility, we control for a measure of trusting the ruling party. Furthermore, (Kpessa, Béland, and Lecours 2011) argue that the neo-liberal policies of welfare retrenchment or reduced social policy weakened national unity in SSA. So, we control for present day development indicators at the enumeration area. It could also be

the case that sentiments of nationhood are influenced by an individual's evaluation of the performance of democratic institutions (Mattes and Bratton 2007; Miodownik and Nir 2016). To that end, we control for two measures—the Institutional Trust Index and Satisfaction with Democracy (SWD).

One may still counter-intuitively argue that other omitted variables bias our results. The relationship between inequality and identification could be the result of unobserved omitted factors that are correlated with both inequality and identification. To gauge if omitted variables are biasing our estimates, we employ the heuristics from (Nunn and Wantchekon 2011). This heuristics draws from the insights of the approach of (Altonji, Elder, and Taber 2005), which involves calculating a ratio that helps to gauge the size of unobservable factors relative to observable factors. In particular, the ratio tells us how much the size unobservables need to be to entirely attribute an estimated relationship to omitted variables. The larger that ratio is, the less likely that an estimated relationship suffers from selection on unobservables.

As pointed out earlier, an important challenge results from reverse causation. We attempt to overcome this empirical challenge by employing an instrumental variables (IV) strategy, where a measure of disease environment serves as an instrument. In particular, we instrument PI_{idct} by malaria ecology to which an individual's ancestors are exposed to. The next natural question then is: why would ancestral malaria affect inequality today? Our IV is motivated by "an ancient quarantine of intertribal enmity" explanation for spatial ordering of ethnic groups (i.e., members of an ethnic group cluster in space). Africa has the highest malaria burden due to the ecological suitability it has for the malaria vector. In his work "Guns, Germs, and Steel: the Fates of Human Societies," Jared Diamond gives a historical account that Africans lived in smaller communities as a cultural avoidance and adaptation response to the spread of malaria. This "ancient quarantine of intertribal enmity"—limited admixing behavior to contain malaria's danger—according to the leading epidemiological historian (Webb 2009), has resulted to "the tapestries of ethnicity" in Africa today. Recently, (Cervellati, Chiovelli, and Esposito 2019) formalize the "ancient quarantine of intertribal enmity" argument and document that ancestral malaria explains the spatial distribution of ethnic diversity in Africa. Given that each society faces different levels of ancestral malaria, we argue that the social responses to malaria affect inequality between groups that are spatially clustered. In other words, not only does malaria incubate spatial ethnic diversity, but also makes it salient.

Malaria and the admixing social responses to may affect between or within group inequality through several mechanisms. First, malaria deaths reduce the amount of adult as well as child labor available for economic activities; and this has been the case for pre-colonial Africa (Depetris-Chauvin and Weil 2018). Second,additional resources should be made available to hire labour to compensate for labour hours foregone to malaria-related morbidity and mortality. Third and according to the fetal origins hypothesis, early exposure to malaria may have adverse inter-generational impacts. Fourth, malaria inhibits productivity maximization for it limits workers' mobility across geographic regions. It also reduces profitable trade expansions to malarious regions. These burdens are found mostly in poorer areas (Krefis et al. 2010; Were et al. 2018; Christian and Akpalu 2021), whereas the rich groups have resources to either force or employ people of the lower castes to labor in malaria-ridden environments and this in turn contributes to inequality (Webb 2009).

One concern with malaria as an instrument is that it may affect the outcome of interest through other mechanisms. To minimize this concern, we control for a set controls of that includes the indivudual's income, place of residence, and level of education; Institutional Trust, Satisfaction with Democracy (SWD), Trust for the ruling Party and country-specific factors. One might still argue for a concern that comes from colonial institutions. Following (Acemoglu, Johnson, and J. A. Robinson 2001, AJR for short)'s seminal work, malaria has been advocated as "Africa's burden" that affects contemporary development through its indirect (via European settler mortality) effect on colonial institutions. We believe this is less of an issue in our case. First, the line of argument of AJR (and the literature that followed) is currently in a state of flux. After correcting for the errors in AJR's European settler's mortality data, (Albouy 2008) finds a paucity of cross-country evidences to support the theoretical hypotheses of the AJR. Second, a recent line of the scholarship has competing hypothesis that casts doubt on the colonial origins of Africa's institutions. On the one hand, there is little within-country evidence that colonial legacy (as captured by share of Europeans in the population, the legal tradition; and artificiality in colonial border designs or European settlers mortality) is linked to contemporary group inequality (see Alesina, Michalopoulos, and Papaioannou 2016, for summary of these works). On the other hand,the influence of colonial institutions is by and large limited to few areas; and the local economic differences within Africa are the result of precolonial ethnic institutions (Bandyopadhyay and E. Green 2016; Michalopoulos and Papaioannou 2013). Thus, first and foremost, malaria has an effect

on the spatial ordering or clustering of ethnic groups.

According to (Gallup and Sachs 2001)'s estimates (in cross-country regressions), a reduction in malaria would lead to about 1.3 percent rise in economic growth per year. However, the macro-level evidence on the direct effect of malaria on economic growth is also disputed. The finding of (Gallup and Sachs 2001) sparked large international efforts aimed at reducing malaria and the anti-malaria campaigns have been substantially effective in reducing the burden of malaria; and that nonetheless has not translated into positive aggregate effects on economic growth (Weil 2017). Likewise, (Gallup and Sachs 2001)'s line of research tends to explain macro level findings with arguments operating at the micro level. What a micro-level analysis suggests is that ancestral malaria may affect development, mainly through its role for precolonial ethnic diversity (Cervellati, Chiovelli, and Esposito 2019). Accordingly, our instrument is the proportion of an Afrobarometer respondent's ethnic group's land area in which malaria is prevalent or endemic in the precolonial times. The concern here is that ancestral malaria may have contributed to contemporary differences in development through precolonial development. In the works employing a disaggregated level of analysis, the empirical evidences are that malaria had no influence on precolonial development outcomes such as on urbanization or population density (e.g.,see Depetris-Chauvin and Weil 2018; Alsan 2015).

As we argued so far, it is more unlikely that the role of ancestral malaria on inequality is through colonial development or its correlates. How does malaria affect development in Africa then? Another competing theory to the colonial thesis is that of ethnic diversity theory, which attributes Africa's poor institutions (and thus its underdevelopment) mainly to its ethnic fractionalization (Alesina, Devleeschauwer, et al. 2003; Easterly and Levine 1997; Mauro 1995). In that framework, we argue, if any, the effect of historical malaria on development is through its indirect effect on ethnic salience via inequality. That is to say that effective anti-malaria campaigns have not brought positive aggregate effects on economic growth due to malaria's lasting legacy on inequality.

4 Data

The Afrobarometer surveys are the main sources of data in our analysis. The Afrobarometer surveys are large scale attitudinal surveys on Africa's public attitude on issues

Table 2: Descriptive Statistics

VARIABLES	N	mean	sd	min	max
Social Identity	174,914	3.648	1.194	1	5
National Pride	51,220	4.396	1.092	1	5
Violence Use	50,641	0.146	0.524	0	4
Sociotropic Evaluation	200,860	2.538	1.258	1	5
Horizontal Inequality	52,062	0.542	0.143	0.267	0.801
Vertical Inequality	204,455	0.653	0.110	0.367	0.870
Income	160,529	-6.72e-09	1.188	-1.504	2.345
Public Goods Index	196,785	3.197	1.721	0	6
Trust Ruling Party	188,761	1.530	1.143	0	3
Satisfaction with Democracy	187,843	2.437	1.046	0	4
Institutional Trust Index	175,288	8.399	4.425	0	18
Age	203,049	37.01	14.67	18	130
Urban dummy	204,455	0.410	0.492	0	1
Male dummy	204,455	0.499	0.500	0	1
Education Levels	203,759	3.329	2.155	0	9

such as democracy, trust, violence, social identity, and subjective as well as objective living conditions. The survey began in 1999 and there are now total of 7 rounds. The number of countries covered by the survey are 12 in round 1 (1999 to 2001), 16 in round 2 (2002 to 2004), 18 in round 3 (2005/2006), 20 in round 4 (in 2008), 34 in round 5 (2011 to 2013), 36 in round 6 (2014/2015), and 34 in round 7 (2016 to 2018). We are not the first to use the Afrobarometer surveys. For instance, (Nunn and Wantchekon 2011) use round 3 for their analysis of slave trade on mistrust; rounds 2-6 are used in the study of aid on corruption in (Isaksson and Kotsadam 2018); rounds 3-5 are used in (Moscona, Nunn, and J. A. Robinson 2017) for studying segmentary lineage and social capital; and (Depetris-Chauvin, Durante, and Campante 2020) use rounds 2-5 for quantifying the role of sports on nation building.

Our work utilizes rounds 3-7 of the Afrobarometer surveys. Among other, we extracted measures of perceived identity, perceived inequality, income (proxied by a wealth index), attitudes towards institutions and indicators of public goods. The description of these and other variables from the Afrobarometer is given in the following section.

4.1 Description of Variables

4.1.1 Social Identity

Our aim is to capture how individuals make identity choices in relative terms. Africa is characterized by co-existence of ethnic and national identities. The Afrobarometer provides a Moreno question (named so after the Spanish journalist, sociologist, and political scientist who invented such a question) that helps to capture the relative strength of sub-national to national identity. In the survey, respondents are first asked to report their ethnicity. Those who report ethnicity are then asked as,

"Let us suppose that you had to choose between being a national ID and being a [Respondent (R)'s Ethnic Group]. Which of the following best expresses your feelings?".

The relevant answer to this question takes the value 1 for "I feel only (R's ethnic group)," 2 for "I feel more (R's ethnic group) than national ID," 3 for "I feel equally national ID and (R's ethnic group)," 4 for "I feel more national ID than (R's ethnic group)," and 5 for "I feel only national ID." Higher values on this variable indicate that the respondent prefers his/her national identity to that of his/her ethnic group. This is our key dependent variable.

4.1.2 Perceived Inequality

The relative deprivation theory posits that discontent results from perceptions of relative deprivation (Gurr 2015). People's action is the result of their perceived (not actual) relative position. As a result, there is little overlap between perceived and objective inequality (Nygård et al. 2017; Rustad 2016; Langer and Mikami 2013). In a nutshell, social identity is mainly shaped by perceived group dissimilarity (Stewart 2016; Shayo 2009). Thus,our key explanatory variable is a measure of perceived inequality.

Subjective perceptions are formed due to a social comparison process, where an individual compares his group's subjective situation to that of other groups (Cederman, Weidmann, and Gleditsch 2011). It is thus important to frame subjective relative deprivation in group terms if one is to capture the role of subjective social comparison in triggering identity choice. To that end, we require a measure of inequality between socially relevant groups, which (Stewart 2000) conceptualized as horizontal inequality.

Our measure of perceived ethnic or horizontal inequality (denoted as PIH for brevity) comes from the question,

"Think about the condition of ——[Respondent's Ethnic Group]. Are their economic conditions worse, the same as, or better than other groups in this country?". The relevant answers to this question are *1 for "much better"; 2 for "better"; 3 for "same"; 4 for "worse"; and 5 for "much worse"*..

In the literature, a similar question is being employed to measure subjective inequality. This question can also be thought of as a measure of relative deprivation and higher values on this variable reflect relative deprivation. We will continue to call it a measure of perceived inequality as that is how it is commonly referred to in the extant research. In their work on the link between objective inequality and perceived inequality for Kenya, Ghana, Zimbabwe, Uganda, and Nigeria, (Langer and Mikami 2013) used a similar question the answers of which they grouped into a 3-scale measure that takes a value of 3, 2, and 1 respectively for the categories *'much better and better'; 'same'; and 'worse/much worse'*. In their assessment of perceived and objective ethnic inequality, (Nygård et al. 2017) used the same measure from round 4 of the Afrobarometer.

In the Afrobarometer survey, the above question is covered only in rounds 3 and 4 for only 20 countries. In Figure 1*a*, we present the proportion of individuals in a country that answer "worse, Worse =2, Better, Much better=." The majority (about 45 percent) feel that their living condition is similar to other co-citizens. As depicted in 1*b*,there is a cross-country difference in this measure too.

Another measure of perceived inequality (denoted as PIV for brevity) comes from a question in the Afrobarometer that reads as

"In general, how do you rate your living conditions compared to those of other [Respondent's co-citizens]?"

The relevant answers to this question range from *1 for "much worse," 2 for "worse," 3 for "same," 4 for "better," and 5 for "much better"*.

Among others, (Langer, Stewart, et al. 2017) use this question; and their measure of perceived inequality is the share of responses that are answered as *"much worse"; "worse"; "better" and "much better"*. Following this conceptualization, perceived

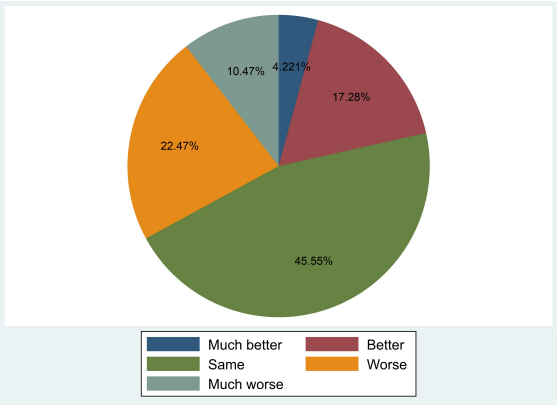

Fig. 1a: Horizontal Inequality Shares

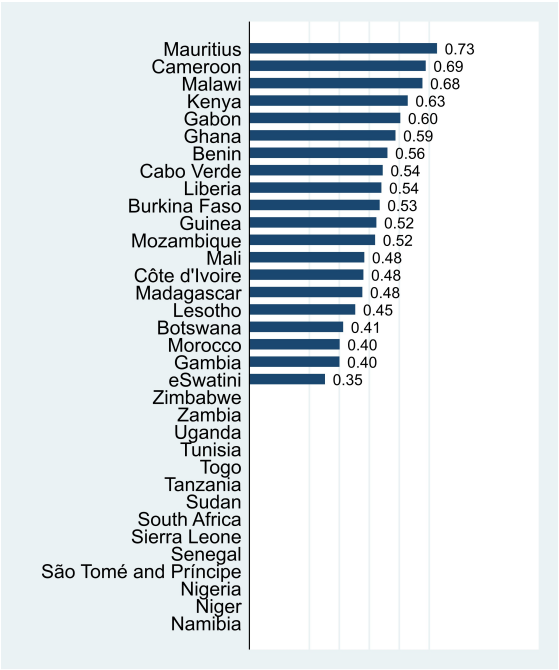

Fig. 1b: Horizontal Inequality Variations

inequality can be captured as the share of "much worse; worse; better; much better" responses in a country in a survey round r [3]. We refer to this measure as a measure of perceived vertical inequality (denoted as PIV for brevity).

In Figure 2a, we present the share of "much worse; worse; better; much better" responses in a country. This value ranges between 0 and 1. A relatively higher value on this measures reflects higher inequality. In our sample of 34 countries, about one-third or 35 percent feel equal to others in living situation; 27 percent feel worse while about 26 percent feel better. The resulting average values are plotted in Figure 1*b*. As can be seen in Figure 2*b*, there is cross-country variation in this measure. Ghana and Tanzania score the highest on this measure while the Gambia has the lowest score.

In our sample, there in a significant overlap between PIH and PIV. We calculated a simple correlation coefficient (r^2) between them. These measures have a statistically significant (at the 1 percent) correlation (r^2) of 0.6778. This reflects the concept of individual socioeconomic contamination, where one's own perceptions color the perception

[3] On their work on aid and perceived inequality, (D'Onofrio and Maggio 2015) created a dummy measure of perceived inequality that equals 1 if a respondent feels her or his living condition is "much worse, worse, better, much better" than other countrymen or zero if she or he feels the same.

of an in-group's conditions (Rustad 2016; Langer and Mikami 2013).

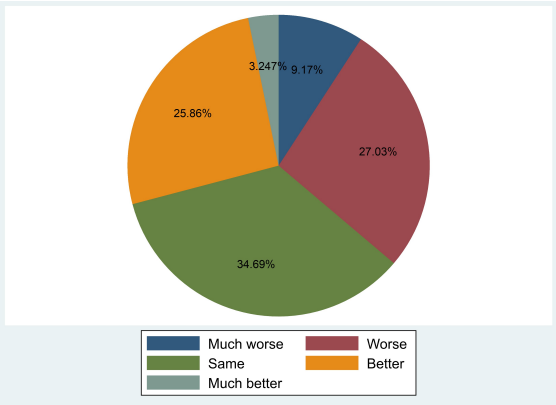

Fig. 2a: Vertical Perceived Inequality Shares

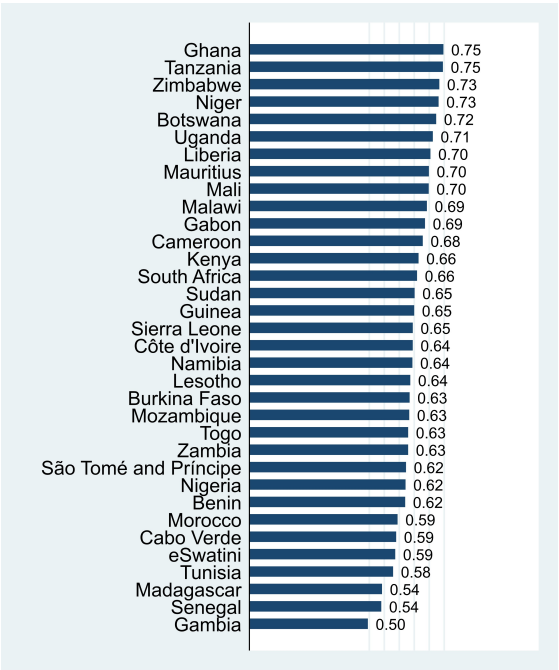

Fig. 2b: Vertical Perceived Inequality

The next variable we are looking for is income. It is challenging to get an income measure in survey data in the Sub-Saharan Africa given that people mostly lead subsistence lives. As in works such as (A. L. Robinson 2014), we resort to using an asset ownership as a proxy for income or wealth. In the Afrobarometer, respondents are asked three questions to indicate whether they own an asset. The answer to each of these questions takes a value of one for having an asset (i.e., a television, a radio, or a motor vehicle) or zero for not having any. From the answers to these questions, we generated the first principal component from dummies of owning an item. This strategy gives us a continuous measure that captures the variation across individuals. This is our measure of income.

In addition, the following variables are also extracted from the Afrobarometer. The description of the rest of the variables is shown in Table 2 and their construction is described as follows.

Institutional Trust Index: We construct an institutional trust index based on the Afrobarometer question "How much do you trust each of the following? The Parliament / The Police / Courts of Law /Your elected local council." The answer categories are 0

for "Not at all," 1 for "Just a little," 2 for "Somewhat," and 3 for "A lot." It is from this variable that we construct our measure of institutional trust after deleting the missing values and the answer "Do not know." By using these four variables the intention is to consider the different powers of the state. In order to capture a common underlying determinant, these four measures are aggregated by summative index.

Public Goods Index: summative index of the availability of electricity, school, health center, market, sewage and pipe water in the district.

Democratic Quality: As in (Quaranta 2018), we construct quality of democracy measure at individual level from "How satisfied are you with the way democracy works in [your country]?". This measure is found to be correlated with Freedom House scores and Bertelsmann score on democratic quality (Logan and Mattes 2012).

5 Results and Discussion

5.1 Baseline Estimates

The baseline estimates are reported in Table 3 and Table 4. Table 3 reports the relationship between perceived vertical inequality (PIV) and national identity. Table 4 reports the association between perceived horizontal inequality (PIH) and national identity. The unit of observation in both tables is the i^{th} individual in d^{th} district from country c. The results in Table 3 are for vertical inequality based on survey rounds 3-7, whereas Table 4 reports results for horizontal inequality from survey rounds 3-4.

We first turn to the analysis of the point estimates of α in Table 3. In column 1, we control for individual characteristics that include age, age-squared, and dummies for being female, levels of education and place of residence. We get a point estimate of α that equals -1.555. In column 2, we further add a vector of controls that include income, public goods index, institutional trust index, democratic satisfaction index, index of trusting the ruling party, and country fixed effects. The point estimate remains similar to the one in column 1 and is statistically significant. The result remains significant in column 3 when survey fixed effects are also included. In columns 1-3, the point estimate for α suggests a statistically significant negative association between perceived vertical inequality and senses of national attachment or unity.

In column 4 of Table 3, we interacted the measure of perceived vertical inequal-

ity with the income of the individual. Taking the partial derivative of NI with respect to inequality (i.e., $\frac{\partial NI}{\partial PIV}$), we have $-1.678 - 0.096 * Income$. If we evaluate this first derivative for any value of income, we get $\frac{\partial NI}{\partial PIV} < 0$. On the other hand, differentiating NI with respect to income (i.e., $\frac{\partial NI}{\partial Income}$), we have $0.077 - 0.096 * Inequality$, which is greater than zero for inequality of < 0.8.

In Table 4, the same procedures are followed for linking perceived horizontal inequality (PIH) and national unity, except the results in this case are from rounds 3-4. As can be seen in the first row and all columns of Table 4, the point estimates for α are not so sensitive to the inclusion of a set of controls. Let us focus on column 4. First, we get a negative association between perceived horizontal inequality and national identity. Second, $\frac{\partial NI}{\partial PIH} = -0.321 - 0.125 * Income$ is < 0. Differentiating NI with respect to income, we get $\frac{\partial NI}{\partial Income} = 0.089 - 0.125 * Inequality$, which is less than zero for $Inequality > 0.712$. Lastly,the point estimates for all controls (expect the urban dummy in Table 4) are positively related to national identification.

Although a number of controls are accounted for, there is a possibility that our result is confounded by unobservable factors correlated with both inequality and national identity. Thus,before attaching any meaning to the point estimates of α, it is important to first assess the degree of omitted variables bias (OVB). Following the heuristics of gauging OVB in (Nunn and Wantchekon 2011), we compare the point estimate of α in column 4 of Table 3 which includes a full set of controls (i.e., $\hat{\alpha}^F = -1.678$) with the point estimate obtained from a restricted model in column 1 where only few controls are included (i.e., $\hat{\alpha}^R = -1.555$). The ratio between $\hat{\alpha}^F$ and $\hat{\alpha}^R - \hat{\alpha}^F$ is about 13. We repeat the same exercise for the estimates on horizontal inequality in Table 4. In this case, we compare the point estimate of α in column 4 of Table 3 (i.e., $\hat{\alpha}^F = -0.321$) with the point estimate in column 1 (i.e., $\hat{\alpha}^R = -0.224$). The ratio between $\hat{\alpha}^F$ and $\hat{\alpha}^R - \hat{\alpha}^F$ is about 3.3. This exercise suggests that the influence of unobservables would have to be more than 13 (in the first case) or 3 (in the second case) times the influence of observables to explain away the entire statistical relationship between inequality and national identity. This implies that our results are less likely driven by OVB.

5.2 Instrumental Variable (IV) Estimates

As pointed out in the empirical strategy section, our instrumental variable is the malaria ecology. We draw data on malaria ecology from (Fenske 2013). This variable mea-

sures the proportion of an Afrobarometer respondent's ethnic group's land area in which malaria is prevalent or endemic. Matching the malaria ecology data from (Fenske 2015) to the Afrobarometer data is a difficult task for ethnic name codes differ across these data sets. Recently, (Muller-Crepon, Pengl, and Bormann 2019) develop a LEDA matching concordance for matching data sets of such types. Using that concordance, we are able to match these two data sets for ethnic groups appearing with similar names in both data sets [4]. This match yields 50,797 and 13,320 observations for rounds 3-7 and rounds 3-4 of the Afrobarometer surveys,respectively.

Table 5 reports the estimates from the Instrumental Variable (IV) strategy. The unit of observation is an individual respondent. Columns 1-2 of Table 5 report the second stage estimates from the IV method, whereas the reduced form estimates are in column 5 and the first stage estimates are in columns 3-4. In all columns, robust standard errors are reported in the parentheses.

As can be seen from column 3 of Table 5, the instrument is positively and statistically correlated with the vertical measures of inequality. A similar pattern holds for the measure of horizontal inequality in the fist stage reported in column 4. These results are in line with the claim that malaria has contributed to perceptions of inequality. The instrument also satisfies the instrument relevance condition as implied by the > 10 first stage F statistic in the fourth row of columns 2-3. The size of the IV estimates are different than the OLS estimates. The p-values associated with the Hausman test statistic rejects the consistency of the OLS estimates at the 1 percent. This is consistent with the claim of reverse causation.

With an assumption that the exclusion restriction is satisfied, we find that inequality, be it vertical or horizontal, weakens identification with the nation.

5.3 Discussion

Using alternative strategies, we find a consistent negative effect of inequality on attachment to the nation. In particular, the results from the instrumental variables method (in Table 5) indicate that both vertical (in column 1) and horizontal (in column 2) perceived inequalities negatively impact the senses of attachment to the nation. This finding is

[4]The matching codes are publicly available at https://rdrr.io/github/carl-mc/LEDA/man/LEDA.html#heading-4

consistent with both the "ethnic mobilization" and the "deprivation" theories of national identification and inequality. However, a different picture emerges when inequality is interacted with income. In the regressions with vertical inequality (see Table 3, column 4), the interaction term of inequality and income is negatively related to national identity. This is inconsistent with the prediction of the "ethnic mobilization" theory as income fails to mediate the negative effects of inequality. That is, $\frac{\partial NI}{\partial PIV}$ is negative that income falls short of reversing the negative effect of inequality on national identity. In other words, the results are not conditional on within-group variations in income, at least in the sample we are considering. This is consistent with the deprivation theory hypothesis that inequality nurtures degenerative tendencies regardless of income.

A similar pattern is observed in the regressions with horizontal inequality (see Table 4, column 4). In this case too, we have $\frac{\partial NI}{\partial PIH} < 0$. As in the vertical inequality case, the interaction term of inequality and income is negatively related to national identity. Income falls short of reversing the effect of inequality in this case as well. The general implication is that income reinforces the negative effects that inequality has on national identity.

The results from the control variables are also in line with the existing literature. The significant and positive estimates on education and income are in support of the instrumental rationality hypothesis. That is, people identify mostly with the nation when they benefit from it materially. The positive coefficient on public goods is in line with the social policy and nationalism literature (Béland and Lecours 2005; Kpessa, Béland, and Lecours 2011). Democratic satisfaction is positively related to national identity. This result is consistent with the "democratic capital" literature that the experiences of democracy enhance national identity (T. Persson and Tabellini 2009). The positive correlation between trust in the ruling party and national identification is also consistent with ethnic favoritism or neo-patrimonialism nature of politics in Africa (Kramon and Posner 2016; Burgess et al. 2015; Franck and Rainer 2012)

5.4 Further Sensitivity Checks

So far we have shown that our results are robust to a set of controls and an instrumental variables method of estimation. In this section, we undertake additional robustness checks. First, we use an alternative measure of national identity. It is a measure of national pride and is based on the item in the 5th round of the Afrobarometer survey

that reads as,

"Please tell me whether you agree or disagree with the following statement: It makes you proud to be called a [respondent's country]?"

The relevant answers to this question are 1 for "Strongly disagree," 2 for "Disagree," 3 for "Neither agree nor disagree," 4 for "Agree," and 5 for "Strongly Agree." The results of regressing this variable on our measure of vertical inequality (PIV) is in column 1 of Table 6.

Second, Tanzania has been a country of successful state building in the Sub-Saharan Africa (Bandyopadhyay and E. Green 2013). This poses a challenge to our results, as it might be the case that our result are lower due to the presence of Tanzania. So, we report the results after dropping Tanzania in columns 2 and 4 of Table 6 for PIV and PIH, respectively.

Third, there could be concern that our results are sensitive to group specific factors. For instance, (Posner 2004) argues that the Chewa and Tumbuka ethnic groups are friendly in Zambia while they are enemies in Malawi because their sizes are larger in Malawi than in Zambia. Similarly, an individual might shun his nation if his ethnic group is excluded or unfairly treated in the country (Wimmer, Cederman, and Min 2009). There can be a case of domestic diversionary policy. When faced with internal political turmoil, leaders attempt to solicit support from the public; and one way such a domestic diversionary policy is to mobilize domestic war against hated ethnic minorities (Tir and Jasinski 2008). This in turn might decrease identification with the nation. To see the robustness of our results to these alternative explanations, we control for ethnic fixed effects. The results of this exercise are reported in columns 3 and 5 of Table 6 for PIV and PIH, respectively.

Our results are robust to these sets of sensitivity checks.

5.5 Mechanisms

We now test for the mechanisms behind our result. Our measure of violence is based on participation in violence. It is based on the question in the Afrobarometer that asks an individual how often she or he "Used force or violence for a political cause," and responses are structured to capture this frequency with never (0), never but would if he or

she had the chance (1), once or twice (2), several times (3), and often (4). Hence, higher values imply more participation in violence. The use of such measure is consistent with the observation that the sub-Saharan African regions with popular acceptance of violence are also the ones that engage in actual violence or conflict (Linke, Schutte, and Buhaug 2015).

To capture the "Sociotropic" mechanism, we rely on respondents' economic condition ratings of their country. It is constructed from the question in the Afrobarometer that reads as,

"In general, how would you describe: The present economic condition of this country?".The relevant answers to this question are 5 for "Very good," 4 for "Fairly Good," 3 for "Neither good nor bad," 2 for "Fairly Bad," and 1 for "Very Bad".

The results from regressing our measure of violence on the measure of inequality are listed in column 1 of Table 7. We see a positive link between participation in violence and inequality. This is consistent with the finding of (Besley and Reynal-Querol 2014) that conflict deactivates national identity. In columns 2-3 of Table 7, we report the results regarding the "sociotropic" mechanism. We find a negative association between an individual's perceived inequality and his or her economic conditions ratings of the country.

6 Concluding Remarks

There are cases where studies using objective measures fail to find any effect of inequality. In particular, the studies linking national identity and inequality could not find casual link between the two. We fill in this gap by relying on measures of perceived inequality. Using such measures from the Afrobarometer survey, we are able to find that inequality is posing a real threat to nation building in Africa. This finding is robust to controlling different sets of controls and to an alternative estimation technique.

When turning to the specific likely mechanisms that explain our result, we get suggestive evidence for two mechanisms. First, we find that higher perceived inequalities instigate individuals to participate in violence. Second, higher perceived inequalities incite individuals to negatively rate the economic conditions of the country. These are the two likely mechanisms through which perceived inequalities corrode national identification.

Our work contributes to different strands of the literature. First,our results resonate with different theories of nationalism and inequality. It is consistent with the deprivation theory hypothesis that inequality nurtures degenerative tendencies such as conflict. It is also consistent with the ethnic mobilization theory that ethnic identity is a social construct of socio-economic conditions. That is,individuals identify with their ethnicity when they perceive that there is high disparity in living conditions and that individuals who are rich can also be mobilized for a political cause on the basis of ethnic identity. Our results are inconsistent with the sentimental or psychological basis of identification (e.g., Shayo 2009) and the diversionary theory of nationalism popularized by (Solt 2011).

Second, we contribute to the literature on inequality, conflict, and development (Huber and Mayoral 2019; Collier and Hoeffler 1998; Cederman, Weidmann, and Gleditsch 2011). Recently, (Alesina, Michalopoulos, and Papaioannou 2016) have documented that group (along ethnic lines) inequality has negative consequences for development—yet the mechanism remains to be explained. Similarly, the empirical research on consequences of inequality on conflict remains mixed. While (Cederman, Weidmann, and Gleditsch 2011) show that ethnic inequality increases the frequency of conflict between the poor and the rich, (Huber and Mayoral 2019) find no relationship between horizontal inequality and conflict. Our use of perceived measure of inequality overcomes the gaps in this strand of the literature. In that regard, our results suggest that both within-group and between-group inequality provoke conflict through their effect on identity and this ultimately leads to underdevelopment.

Third, our findings are in line with the "instrumentalist" tradition in economics and political science that argues and documents that identity choice is rational (Caselli and Coleman 2013; Posner 2005; J. A. Robinson 2003; Bates 1974). We also add to the ethnic favouritism research which argues and documents that politicians in Africa engage in ethnic favouritism and voters support politician from their ethnic group(Kramon and Posner 2016; D'Onofrio and Maggio 2015) [5].

[5]See (Huber and Suryanarayan 2016) and (Chandra 2007) for discussion on causes of ethnic favouritism.

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Table 3: Perceived Vertical Inequality and National Identity(NI)

	(1)	(2)	(3)	(4)
Vertical Inequality	-1.555***	-1.748***	-1.671***	-1.678***
	(0.035)	(0.047)	(0.048)	(0.048)
Vertical Inequality*Income				-0.096***
				(0.031)
Income		0.018***	0.014***	0.077***
		(0.003)	(0.003)	(0.021)
Male dummy	0.051***	0.048***	0.045***	0.045***
	(0.006)	(0.007)	(0.007)	(0.007)
Age	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Urban dummy	0.052***	0.017**	0.023***	0.024***
	(0.006)	(0.009)	(0.009)	(0.009)
education	0.029***	0.022***	0.023***	0.023***
	(0.002)	(0.002)	(0.002)	(0.002)
Public goods Index		0.015***	0.009***	0.009***
		(0.003)	(0.003)	(0.003)
Institutional Trust Index		0.001	0.004***	0.004***
		(0.001)	(0.001)	(0.001)
Satisfaction with Democracy		0.060***	0.062***	0.062***
		(0.004)	(0.004)	(0.004)
trust ruling party		0.012***	0.014***	0.014***
		(0.004)	(0.004)	(0.004)
Observations	173,239	105,324	105,324	105,324
R-squared	0.048	0.059	0.069	0.069
Survey FE	No	No	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Survey Rounds	3-7	3-7	3-7	3-7

Notes: The dependent variable is the i^{th} individual's measure of his or her attachment to his or her nation vis a vis his or her ethnic group (NI). Inequality is the proportion of individuals perceiving as not same to others based on their economic conditions. Robust standard errors are in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

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Table 4: Perceived Horizontal Inequality and National Identity (NI)

	(1)	(2)	(3)	(4)
Horizontal Inequality	-0.224***	-0.303***	-0.295***	-0.321***
	(0.052)	(0.062)	(0.066)	(0.066)
Horizontal Inequality*Income				-0.125***
				(0.046)
Income			0.022***	0.089***
			(0.007)	(0.026)
Male dummy	0.053***	0.045***	0.041***	0.041***
	(0.011)	(0.013)	(0.014)	(0.014)
Age	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.001)	(0.001)
Urban dummy	0.068***	0.026*	0.017	0.018
	(0.012)	(0.015)	(0.017)	(0.017)
Education	0.046***	0.039***	0.035***	0.035***
	(0.003)	(0.004)	(0.004)	(0.004)
Public Goods Index		0.028***	0.026***	0.026***
		(0.004)	(0.005)	(0.005)
Institutional Trust Index		-0.004*	0.002	0.002
		(0.002)	(0.002)	(0.002)
Democratic Satisfaction		0.065***	0.072***	0.072***
		(0.007)	(0.007)	(0.007)
Trust ruling party		0.041***	0.038***	0.038***
		(0.007)	(0.008)	(0.008)
Observations	47,660	35,111	29,541	29,541
R-squared	0.058	0.061	0.069	0.069
Survey FE	No	No	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Survey Rounds	3-4	3-4	3-4	3-4

Notes: The dependent variable is the i^{th} individual's measure of his or her attachment to his or her nation vis a vis his or her ethnic group (NI). Inequality is the proportion of individuals perceiving as not same to others based on their economic conditions. Robust standard errors are in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

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Table 5: Inequality and National Identity: IV estimates

	(1) (IV)	(2) (IV)	(3) (FS)	(4) (FS)	(5) (RD)
Vertical Inequality	-6.202***				
	(0.360)				
Horizontal Inequality		-12.337***			
		(0.793)			
Malaria Ecology			0.131***	0.100***	-0.836***
			(0.003)	(0.002)	(0.046)
1^{st} stage F statistic	1401.8	1734			
Hausman test (p-value)	0.000	0.000			
Observations	45,090	13,223	50,797	13,320	45,090
Controls	Yes	Yes	Yes	Yes	Yes
Survey FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Survey Rounds	3-7	3-4	3-7	3-4	3-7

Notes:Controls include age, a male dummy, income, levels of education, an urban residence dummy, public goods index,institutional trust index, satisfaction with democracy, and an indicator of trusting the ruling party. Instrumental variables (IV) estimates are in columns 1-2, the First stages (FS) are in columns 3-4 and reduced form (RD) is in column 5. Robust standard errors in the parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

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Table 6: Robustness

Variables	(1)	(2)	(3)	(4)	(5)
Vertical Inequality	-0.739***	-1.691***		-1.628***	
	(0.236)	(0.048)		(0.094)	
Vertical PI*Income	0.111**	-0.093***	-0.237***	-0.159***	
	(0.047)	(0.031)	(0.062)	(0.033)	
Horizontal Inequality			-0.300***		-0.620**
			(0.066)		(0.246)
Horizontal PI*Income					0.013
					(0.047)
Income	-0.059**	0.075***	0.176***	0.123***	0.014
Observations	38,104	102,908	29,541	103,862	28,079
R-squared	0.035	0.071	0.070	0.119	0.143
Controls	Yes	Yes	Yes	Yes	Yes
Survey FE	No	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Ethnicity FE	No	No	Yes	No	Yes
Survey Rounds	5^{th}	3-7	3-4	3-7	3-4

Notes: The controls are similar to the controls included in column 4 of Table 3 or 4. Robust standard errors in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.

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Table 7: Mechanisms

Variables	(Violence Use)	(Sociotropic eval.)	(Sociotropic eval.)
Vertical Inequality	0.253***	-1.704***	
	(0.075)	(0.062)	
Horizontal Inequality			-1.104***
			(0.247)
Income	0.010***	0.032***	0.019**
	(0.003)	(0.005)	(0.009)
Male dummy	0.038***	0.017*	0.011
	(0.005)	(0.009)	(0.017)
Age of respondent	-0.001***	-0.003***	-0.003***
	(0.000)	(0.000)	(0.001)
Education	-0.006***	0.032***	0.046***
	(0.002)	(0.003)	(0.005)
Urban dummy	-0.018***	-0.060***	-0.015
	(0.007)	(0.011)	(0.021)
Generalized Trust	0.044***	0.081***	0.075***
	(0.007)	(0.013)	(0.024)
Trust in Relatives	-0.045***	0.039***	0.035***
	(0.004)	(0.006)	(0.010)
Public Goods Index	-0.001	0.021***	0.004
	(0.002)	(0.003)	(0.006)
Democratic Satisfaction (SWD)	-0.003	0.218***	0.202***
	(0.003)	(0.005)	(0.010)
Trust Ruling Party	-0.009***	0.160***	0.146***
	(0.003)	(0.005)	(0.009)
Observations	42,719	60,290	17,448
R-squared	0.029	0.180	0.225
Survey FE	No	Yes	Yes
Country FE	Yes	Yes	Yes
Survey Rounds	5^{th}	3-7	3-4

Notes: The Unit of observation is individual. The dependent variable is the frequency the i^{th} "Used or violence for a political cause" in column 1 and is the economic conditions ratings of the country b individual. Robust standard errors in the parentheses. *** p<0.01, ** p<0.05, * p<0.1.