How Is Power Shared In Africa?

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Abstract

A consequential question in the study of political systems is how power is allocated and shared across multiple heterogeneous groups. This is particularly relevant in the case autocracies, often lacking formal allocation rules. This paper presents novel evidence on the power-sharing dynamics of national political elites in a panel of African countries, most of which autocracies for the vast portion of the period in analysis. Employing a new data set on the ethnicity of cabinet ministers since independence, we show that political power is allocated across ethnic groups proportionally to population shares, in line to what observed in parliamentary democracies. We also show that the ruling ethnic group enjoys an over-representation relative to other groups in the government which is large, but not different from standard formateur premia of democracies, and that movements in and out of autocracy in the country do not reduce the disproportionality in the representation of ethnicities in the cabinet. As opposed to the view of a ruling ethnic elite monolithically controlling power in Africa, the paper shows that power is proportionally divided between ethnicities, implying that within-ethnicity frictions may be more central in explaining political failure than previously assessed.

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1 Introduction

This paper addresses the question of how political power is shared across ethnic groups in African autocracies. Analyzing how ruling elites evolve, organize, and respond to particular shocks is paramount in understanding the patterns of political, economic, and social development of both established and establishing democracies. For autocratic or institutionally weak countries, many of them in Africa, it is plausible that such understanding is even more critical (Bueno de Mesquita, Smith, Siverson, and Morrow (2003), Acemoglu and Robinson (2001b, 2005), Aghion, Alesina, and Trebbi (2004), Besley and Kudamatsu (2008), Wintrobe (1990, 1998)).

It is apparent, however, that scarcity and opacity of information about the inner workings of ruling autocratic elites are pervasive. Notwithstanding the well-established theoretical importance of intra-elite bargaining (Acemoglu and Robinson (2005), Bueno de Mesquita et al. (2003)), systematic research beyond the occasional case study is rare[1]. This is not surprising. Institutionally weak countries usually display low (or null) democratic responsiveness and hence lack reliable electoral or polling data[2], making it impossible to precisely gauge the relative strength of the various factions and political currents affiliated to different groups in the population. Tullock's (1987) considerations on the paucity of data employable in the study of the inner workings of autocracy are still valid in large part.

This paper presents new data on the ethnic composition of African political elites, specifically focusing on the Cabinet of Ministers, helpful in furthering our understanding of the dynamics of power sharing in institutionally weak political settings. Our choice of focusing on ethnic divisions and on the executive branch are both based on their relevance within

[1] Posner (2005) offers an exception with regard to Zambian politics. Other recent studies relevant to the analysis of the inner workings of autocracies include Geddes (2003) and Magaloni (2010), who investigate the role of parties within autocracies, and Gandhi and Przeworski (2006), who consider how a legislature can be employed as a power-sharing tool by the leader. For a discussion also see Gandhi (2008) and Haber, (2006).

[2] Posner and Young (2007) report that in the 1960s and 1970s the 46 sub-Saharan African countries averaged 28 elections per decade, less than one election per country per decade, 36 in the 1980s, 65 in the 1990s, and 41 elections in the 2000-05 period.

African politics and their proven importance for a vast range of socioeconomic outcomes. First, the importance of ethnic cleavages for political and economic outcomes in Africa cannot be understated[3]. Second, it is well understood in the African comparative politics literature that positions of political leadership reside with the executive branch, usually the president and its cabinet[4]. Legislative bodies have often been relegated to lesser roles and to rubber-stamping entities to the executive branch[5]. To link the two, Arriola (2009) further explains that "*All African leaders have used ministerial appointments to the cabinet as an instrument for managing elite relations.*"

This paper shows that contrary to a view of African ethnic divisions as furthering massive disproportionality in the access to power, African autocracies function through an unexpectedly high degree of proportionality in the assignment of power positions, even top ministerial posts. While the leader's ethnic group receives a substantial premium in terms of cabinet posts relative to its size, measured as the share of the population belonging to that group, such premia are comparable to formateur advantages in parliamentary democracies. The responsiveness of the number of cabinet posts to group size is also similar to what observed in terms of responsiveness to seat shares in democratic parliaments. Rarely large ethnic minorities are left out of government in Africa and their size does matter in predicting the share of posts they control, even when they do not coincide the leader's ethnic group[6].

While this does not imply that proportionality in government will reflect into equality of political benefits to common members of all ethnic groups, it implies that a certain fraction

[3]The literature is too vast to be properly summarized here. Among the many, see Bates (1981), Berman (1998), Bienen et al. (1995), and Easterly and Levine (1997).

[4]Africanists often will offer detailed analysis of cabinet ethnic compositions in their commentaries. See Khapoya (1980) for the Moi transition in Kenya, Osaghae (1989) for Nigeria, Posner (2005) for Zambia. Arriola (2009) considers cabinet expansion as a tool of patronage and shows cabinet expansion's relevance for leader's survival in Africa.

[5]See Barkan (2009, p.2).

[6]While these results are new, this observation has been occasionally made in the literature. Contrasting precisely the degree of perceived ethnic favoritism for the Bemba group in Zambia and the ethnic composition of Zambian cabinets, Posner (2005, p.127) reports "*...the average proportions of cabinet ministers that are Bemba by tribe are well below the percentages of Bemba tribespeople in the country as a whole, and the proportion of Bemba-speakers in the cabinet is fairly close to this group's share in the national population. Part of the reason for this is that President Kaunda, whose cabinets comprise twelve of the seventeen in the sample, took great care to balance his cabinet appointments across ethnic groups.*"

of each ethnic group's upper echelon seems able to systematically gain access to a measure of political power. Importantly, given that such gains are not random, but in proportion to the size of the group powerbase, our findings suggest that this phenomenon is not just nominal, but it reflects a relevant intra-elite bargaining outcome function of the relative numerical strength of each ethnic group.

These findings are important for one main reason. The level of proportionality in the representation of ethnic groups of the African political systems seems to suggest that the support of critical members of a large set of ethnic groups is sought after by the leader. The data reject the view of a single ethnic group ruling the country expropriating the rest of the population and favors a view where a selected few in each ethnic group may benefit from access to power. By emphasizing the presence of non-trivial intra-elite heterogeneity and redistribution, these findings support fundamental assumptions made in the theory of the selectorate (Bueno de Mesquita, et al. (2003)), the contestable political market hypothesis[7], and in theories of autocratic inefficiency (Wittman (1995)).

The rest of the paper is organized as follows. Section 2 presents our main protocol for data collection and describes the data. Section 3 presents our empirical model. Section 4 reports the main empirical evidence on the allocation of cabinet posts at the group level (either party or ethnicity), drawing a comparison between African countries and a sample of parliamentary democracies used as benchmark. Section 5 further explores the issues of disproportionality in the representation of ethnic groups focusing on country-level evidence. Section 6 discusses and presents our conclusions.

2 Data

We will now illustrate briefly the process of data collection for each country. We devised a protocol that involves four stages.

[7] Mulligan and Tsui, (2005) in an adaptation of the original idea in product markets by Baumol et al. (1982).

First, we recorded the names and positions of all the members of government that appear in the annual publications of Africa South of the Sahara or The Europa World Year Book between 1960 and 2004. Although their official titles vary, for simplicity we refer to all the cabinet members as "ministers" in what follows.

Second, for each minister on our list, we searched the World Biographical Information System (WBIS) database for explicit information on his/her ethnicity. Whenever we could not find explicit information on the minister's ethnicity, we recorded his or her place of birth and any additional information that could shed light on his/her ethnic or regional origin (e.g., the cities or regions in which he or she was politically active, ethnic or regional organizations he/she was a member of, languages spoken, ethnic groups he/she wrote about, etc.).

Third, for each minister whose ethnicity was not found in the WBIS database, we conducted an online search in Google.com, Google books, and Google Scholar. Again, we primarily looked for explicit information on the minister's ethnicity, but also collected data on his/her place of birth and other information that may indicate ethnic affiliation. In addition to the online searching, we sometimes also employed country-specific library materials, local experts (mostly former politicians and journalists with political expertise), and the LexisNexis online database as alternative data sources.

Fourth, we created a complete list of the country's ethnic groups based on ethnic categories listed by Alesina, Devleeschauwer, Easterly, Kurlat and Wacziarg (2003) and Fearon (2003), and attempted to assign every minister to one of these groups using the data collected in the second and third stages. When our sources explicitly mentioned the minister's ethnicity, we simply matched that ethnicity to one of the ethnic groups on our list. Even when the explicit information on the minister's ethnicity was missing, we could often assign the minister to an ethnic group based on his or her place of birth or other available information. Whenever we lacked sufficient evidence to determine the minister's ethnic group after this procedure, we coded it as "missing".

This paper employs completed data since independence from colonization on Benin,

Cameroon, Cote d'Ivoire, Democratic Republic of Congo, Gabon, Ghana, Guinea, Liberia, Nigeria, Republic of Congo, Sierra Leone, Tanzania, Togo, Kenya, and Uganda. In these countries we were able to identify the ethnic group of more than 90 percent of the ministers between 1960 and 2004. The cross-sectional sample size exceeds that of most studies in government coalition bargaining for parliamentary democracies.[8]

3 Empirical Model

In this section we highlight the essential empirical features of the distribution of cabinet seats across samples. In order to properly assess magnitudes we will benchmark the estimates from our African sample to the selected sample of parliamentary democracies of Ansolabehere, Snyder, Strauss, and Ting (2005, ASST henceforth) and Snyder, Ting, and Ansolabehere (2005), whose data we employ here[9]. This benchmarking allows us to draw appropriate parallelisms with the vast literature on coalition formation, which for the most part focuses on established democracies. We begin with an overview of two empirical models which capture the different forces driving cabinet formation in democracies and autocracies.

3.1 Parliamentary Democracies

ASST's empirical specification is derived from a homogeneous weighted voting game, with $N > 2$ parties bargain over the division of a pie of fixed size. This representation encompasses a large class of legislative bargaining models studied in the literature pioneered by Baron and Ferejohn (1989) and fits well the case of coalition governments in parliamentary democracies. A cabinet allocation is proposed by the formateur party and implemented if supported by the majority (simple or qualified). In ASST's formulation each party has a

[8] See for instance Diermeier,Eraslan, and Merlo (2003), Ansolabehere, Snyder, Strauss, and Ting (2005) and Snyder, Ting and Ansolabehere (2005).

[9] The sample of democracies includes Australia, Austria, Belgium, Denmark, Finland, Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden and is restricted to the same time period (1960-2004) to which our African sample is limited.

(minimal-integer) voting weight w_i, implying a total voting weight in the game $W = \sum_i^N w_i$. The relative strength of party i in the bargaining is determined by its share of the total voting weights w_i/W, that is party i's importance in building a minimum-winning coalitions[10] and by the position of the party as the proposer, indicated by $L_i = 1$ if i is the formateur. ASST emphasize that shares of voting weights w_i/W are usually different from shares of parliamentary seats associated to each single party i, s_i/S (i.e. number of i's seats/size of parliament).

For given price per unit-share of voting weight, v, it is possible to show that y_i, the share of the cabinet ministers belonging to party i, is

$$y_i = \begin{cases} v\frac{w_i}{W} + \left(1 - v\frac{W+1}{2W}\right) L_i & \text{if } i \text{ in coalition} \\ 0 & \text{if } i \text{ not in coalition.} \end{cases} \tag{1}$$

Regressing cabinet seat shares y_i on shares of voting weight in parliament $\frac{w_i}{W}$ and a formateur dummy, one obtains estimates of $v = \partial y_i / \partial \left(\frac{w_i}{W}\right)$, the price per unit of voting weight and the formateur premium $1 - v\frac{W+1}{2W}$.

3.2 African Polities

Let us now move to the case of an African cabinet. While the majoritarian logic fits the process of legislative bargaining for cabinet seats in democracies, it hardly captures the incentives for coalition formation in institutionally weak polities. As we will show more in detail below, certain features of the African data clearly appear non-majoritarian. For instance, as evident from Figures 1 and 2, in the African sample the size of the winning coalition, computed as the share of ethnic groups included in the cabinet, often exceeds substantially 50 percent, while in democracies often fluctuates right around .5.

Consider a country with population P divided in different ethnic groups $g = 1, ..., M$. Define p_g the number of individuals belonging to ethnic group g. Let the country to be ruled

[10] The size of the minimum winning coalition is $(W + 1)/2$ votes for W odd and simple majority rule.

by a leader and indicate with L_g an indicator function taking value of 1 if leader belongs to group g. With a slight abuse of notation let us indicate with G both the cabinet and the subset of ethnic groups in it. Define as y_g the share of the cabinet ministers belonging to ethnic group g and with α the total value of the control of the entire cabinet G.

We assume that each ethnic group's elite is involved in negotiations with the leader that such elite behaves as a unitary agent. Negotiations involve the sharing of the cabinet and support for the leader.

There is one period. At the beginning of the period support for leadership is transacted among the leader and ethnic groups and payoffs from running the cabinet realize. At the end of the period support is employed by the leadership in an attempt to maintain power and gather private rents B. The interaction between the leader and the other ethnic groups is modeled through a multiple bilateral bargaining problem. The leader engages in simultaneous bilateral bargaining with each of the ethnic groups in his country.

We assume that the elite in g cares about the monetary return αy_g from the concession of cabinet seats, but also about the total cost of supporting the leader, C_g, for instance mobilization and training of the non-elite in the group, which we assume proportional to the size of the group:

$$C_g = \lambda \frac{p_g}{P}.$$

The utility of g's elite from supporting the leader is:

$$U_g = \alpha y_g - \lambda \frac{p_g}{P} \quad \text{if } L_g = 0$$

and normalized to zero if no support is given or the negotiation breaks down.

In addition to the control of the cabinet, a leader is concerned with maintaining power or extracting private rents, so his expected utility also depends on the exogenous return from

retaining power B and the probability of maintaining power $\Pr(WIN)$:

$$U_g = \alpha\left(1 - \sum_{j \neq g} y_j\right) - \lambda\frac{p_g}{P} + B\Pr(WIN) \quad \text{if } L_g = 1$$

We will assume that each period there is a random net number of opposers to the regime, arising exogenously from the ranks of all ethnic groups x, which could be negative, indicating that some spontaneous support for the leadership arises. We assume x to be distributed with continuous and differentiable density F. An investment in support of the leadership of $\lambda\frac{p_g}{P}$ neutralizes a proportional number of opponents equal to $\rho\frac{p_g}{P}$. Finally, indicate for a given aggregate support to the leadership $\sum_{j\in G}\rho\frac{p_j}{P}$ the probability of retaining power:

$$\Pr(WIN) = \Pr\left(x \leq \sum_{j\in G}\rho\frac{p_j}{P}\right) = F\left(\sum_{j\in G}\rho\frac{p_j}{P}\right).$$

Bargaining between the leader and each ethnic group determines the share of cabinet seats promised. We assume that the outcome of the negotiations between group g and the incumbent is given by the Nash bargaining solution, taking as given the behavior of other groups $g' \neq g$ in the country. We assume that the breaking down of the negotiation between the leader and any lobby produces the retention by the leader of the posts at stake and exclude further renegotiation with the remaining ethnic groups.

Cabinet shares can be obtained as solution to the following problem:

$$\begin{aligned} y_g \quad = \quad & \arg\max_{\tilde{y}_g}\left[\alpha\tilde{y}_g - \lambda\frac{p_g}{P}\right]^{\frac{1}{2}} \times \\ & \left[-\alpha\tilde{y}_g + BF\left(\sum_{j\in G}\rho\frac{p_j}{P}\right) - BF\left(\sum_{\substack{j\in G \\ j\neq g}}\rho\frac{p_j}{P}\right)\right]^{\frac{1}{2}} \end{aligned}$$

Defining $\Phi_g = BF\left(\sum_{j\in G}\rho\frac{p_j}{P}\right) - BF\left(\sum_{\substack{j\in G \\ j\neq g}}\rho\frac{p_j}{P}\right)$, the equilibrium cabinet share allocated to group g is:

$$(2) \qquad y_g = \begin{cases} \frac{1}{2\alpha}\left[\lambda\frac{p_g}{P} + \Phi_g + \left(2\alpha - \lambda - \sum_{j\in G}\Phi_j\right)L_g\right] & \text{if } g \text{ in coalition} \\ 0 & \text{if } g \text{ not in coalition.} \end{cases}$$

Just like (1), expression (2) allows for a positive correlation between cabinet posts shares y_g and group size $\frac{p_g}{P}$ and for a leadership premium, if the condition $2\alpha - \lambda - \sum_{j\in G}\Phi_j > 0$ is satisfied. Notice, however, that the effect of $\frac{p_g}{P}$ is not limited to the linear term here, but also influences the allocation through its contribution to the likelihood of leader's survival Φ_g.[11]

4 Group-Level Analysis: Cabinet Posts Allocation

4.1 Group Size and Leadership

Size and leadership identity have been long considered fundamental features in the allocation of cabinet posts and relevant determinants of bargaining strength within ruling coalitions[12]. In Table 1a we begin our analysis by considering the relationship between shares of cabinet posts and shares of voting weights. Our specification follows (1):

$$y_{ict} = \beta_1\frac{w_{ict}}{W_{ct}} + \beta_2 L_{ict} + \gamma_c + \delta_t + \varepsilon_{ict}$$

with the addition of country c and time t fixed effects to the specification. These fixed effects are important in order to capture unobserved heterogeneity both at the country level and across time and are an addition to the original ASST specification. For the sample of parliamentary democracies column (1) reports both a degree of proportionality around 1 (a chi2(1) test does not reject the relationship between cabinet seats and voting weights to

[11] Finally, g will not be in the coalition if its cost to the leader in terms of seats αy_g exceeds its value in terms of increased likelihood of survival for the leader Φ_g, or $\Phi_g < \lambda\frac{p_g}{P}$.

[12] See Ansolabehere, Snyder, Strauss, and Ting (2005) for a detailed literature review in the context of parliamentary coalition governments.

be strictly linear, although the point estimate suggests large parties being overweighted). Column (1) also displays a statistically significant formateur effect $\beta_2 = 13$ percent. These are coefficients with direct structural correspondence to (1) and similar to ASST's original results.

Column (2) presents the parallel specification to the African sample:

$$y_{gct} = \beta_1 \frac{p_{gc}}{P_c} + \beta_2 L_{gct} + \gamma_c + \delta_t + \varepsilon_{gct}.$$

As for ASST we focus in Table 1a only on groups represented in the cabinet, $y_{ict} > 0$ or $y_{gct} > 0$, dropping the rest. This makes sense if one is interested in assessing relative strength of groups within G, but not the selection into G. Column (2) shows two striking features. First, the effect of group size β_1, measured as the ethnic group shares in the cabinet, is positive and significant, indicating a non trivial degree of proportionality around .66. This figure is statistically different from the size coefficient of column (1), as reported by the chi2(1) test in the lower portion of the table, but rejects clearly the hypothesis of cabinet posts being allocated independently of the population strength of a group or simply at the whim of the leader. Second, the leader's seat premium in the cabinet is positive and sizeable, around 9 percent, but cannot be rejected being of the same size of the formateur premium in column (1) (with a p value of .48). Columns (3) and (4) repeat the parallelism adding a control for the party/group being the largest in terms of size, in order to capture some of the nonlinearities that the specification (2) implies. Reassuringly both the size and the formateur coefficients remain stable. The coefficients on 'being the largest' are both not significant and indistinguishable from each other. Finally, columns (5) and (6) present even more stringent specifications with group x country fixed effects:

$$\begin{aligned} y_{ict} &= \beta_1 \frac{w_{ict}}{W_{ct}} + \beta_2 L_{ict} + \chi_{ic} + \delta_t + \varepsilon_{ict} \\ y_{gct} &= \beta_1 \frac{p_{gc}}{P_c} + \beta_2 L_{gct} + \chi_{gc} + \delta_t + \varepsilon_{gct}. \end{aligned}$$

This reduces the size of the estimated β_1 and β_2 for parliamentary democracies, but leaves unaffected the leader's premium in column (6).

In Table 1b we present an alternative specification, aimed at highlighting the robustness of both the proportionality and formateur effects. We extend the sample to include parties and groups that are not members of the winning coalition ($y_{ict} \geq 0$ or $y_{gct} \geq 0$) and focus on shares of seats in parliament for the sample of parliamentary democracies:

$$\begin{aligned} y_{ict} &= \beta_1 \frac{s_{ict}}{S_{ct}} + \beta_2 L_{ict} + \gamma_c + \delta_t + \varepsilon_{ict} \\ y_{gct} &= \beta_1 \frac{p_{gc}}{P_c} + \beta_2 L_{gct} + \gamma_c + \delta_t + \varepsilon_{gct}. \end{aligned}$$

The sign, significance, and qualitative similarity in the estimates across the democratic and the African sample remains (although we can rule out that the estimates are exactly identical). Quantitatively however the estimates fluctuate more, the reason being the drastic difference in the size of winning coalitions across the two sets of countries.

The allocation of top positions in African cabinets is explored in Table 1c. We consider top ministerial posts: the Presidency/Premiership, Defense, Budget, Commerce, Finance, Treasury, Economy, Agriculture, Justice, Foreign Affairs. The specifications in columns (1)-(3) follow columns (2),(4) and (6) of Table 1a. Both size and leadership status are positive and significant. Quantitatively, it is surprising that proportional allocation remains sizable in columns (1) and (2), close to what estimated for the whole cabinet in Table 1a columns (2) and (4). Notice also how the effect of leadership increases for top ministerial appointments.

An important check of the stability of our estimates of leadership premia involves heterogeneity across countries. We split the sample country by country and report the results in Tables 2a and 2b. Leadership premia seem a stable feature across all countries, but magnitudes vary. Notable examples include Liberia, where very small American-Liberian minorities ruled until the 1980's.

Relevant to some of the discussion above is the selection of ethnic groups into the ruling

coalitions and into the leadership position. We analyze the role of group size in explaining leadership identity and coalition membership in Tables 3 and 4, respectively. Once again we draw the parallelism between parliamentary democracies and autocracies in order to understand along which dimension the main quantitative differences arise. In Table 3 we present probit results for the leadership position. African countries do present a large role of group size in accessing the leadership position, which can be interpreted as the system of selection being proportional to the size of the group. What is also interesting is that the estimated marginal effects are once again not different from the parliamentary sample, especially once the effect of being the largest group in parliament is removed. In Table 4 the parallelism breaks down, as the marginal effect of size in joining the winning coalition is drastically higher for the African sample. This suggests that large groups are much less likely to be left out of the ruling coalition in autocracies than in democracies. We interpret this finding as casting additional doubt on the view of African autocracies being run by individual, insulated ethnic entities. The picture seems more one in which the leader's survival relies on a wide set of ethnic players.

4.2 Linguistic Proximity to the Leader's Group

We now enrich the analysis of the allocation of cabinet posts in Africa by constructing a measure of proximity between the leader's ethnic group and all the other groups in the country. Under the expectation of a deliberately ethnically concentrated cabinet, groups closer to the leader should obtain higher representation, all else equal. Alternatively, in a setting where cabinet representation is proportional, linguistic closeness should be unrelated to ministerial allocation.

We rely on Fearon (2003) proposed linguistic distance measure generated from counts of common linguistic branches in *Ethnologue*[13]. Fearon recommends using a concave function of the number of common branches as a measure of linguistic proximity. This is because "early

[13] Available at www.ethnologue.com.

divergence in a language tree probably signifies much more cultural difference on average than later divergence". Fearon also recommends the following normalization: $r(i,j) = (l/m)^{1/2}$, where l is the number of shared classifications (i.e. the common branches) between group i and j and m is the highest number of classifications for any language in the data set. In Fearon's case m was 15, in our African sample m is 12.

Table 5 shows that linguistic proximity to the leader linguistic group displays a positive sign, indicating a certain degree of over-representation for groups that are more likely to be leader's allies. The estimated coefficients are however highly imprecise across the specifications we present (columns (1) and (2) report within-country estimates, while column (3) reports within-ethnic group/country estimates).

Poolability across countries is an issue here, as the data display substantial heterogeneity in the estimates. In Table 6a we account for such heterogeneity by splitting the analysis by country. While countries like Liberia and Uganda display positive, large, and significant effects of linguistic proximity in explaining shares of cabinet posts, countries like Gabon or Nigeria display the exact opposite, with most countries actually reporting negative coefficients. This is the result of two potential factors. The first is that our measure of closeness is clearly more precise in certain settings than others, in particular where tribal and linguistic identities display higher correspondence. Second, even for the leadership the intensity of ethnic premia varies somewhat across countries, indicating a differential bearing of ethnic politics. Indeed, Table 6b and Figure 3 show an extremely strong correspondence between leader's premia and effect of linguistic closeness, which line up almost perfectly. In conclusion, ethnic proximity measures do not contradict the view of a relative balance in terms of proportionality in the cabinet representation of groups for the majority of African countries in our sample, but exceptions are present.

5 Country-Level Analysis: Representation and Disproportionality

The focus of this section now shifts from the group level analysis to the study of country-wide measures. We begin by investigating the size of coalitions.

5.1 Share of the Polity without Representation in the Cabinet

An important comparison to be drawn between democracies and African polities regards their inclusiveness, in particular the share of the population not represented in the cabinet. The size of coalitions in strictly majoritarian settings should be quite close to 50 percent of the voting weights, if the minimum winning coalition logic of ASST (or of any majoritarian voting game) applies. Obviously, a certain deviation may be registered especially if the focus shifts from voting weights to seat shares in parliament, as discussed in ASST. Indeed, Figure 1 and Table 7 report shares of total electoral votes without party representation in the cabinet (i.e. share of the electorate with representatives left out of the winning coalition) in a tight neighborhood of 50 percent.

Figure 2 shows an analogous illustration for African countries where we consider the share of the population belonging to ethnic groups for which there is no minister belonging to that ethnicity. There the story is different. Winning coalitions in African countries are much larger than for parliamentary democracies, often in the 80 percent range, as noted in Table 7. This clearly suggests that the net value of support by a substantial share of groups is positive, i.e. condition $\Phi_g > \lambda \frac{p_g}{P}$ is often satisfied, or that uncertainty about the threshold for consolidation of power by the leadership requires a more inclusive cabinet. Given that in no country in our sample any ethnic group represents more than 39 percent of the population and in no country in our sample any leader's group represents more than 30 percent of the population, Figure 2 implies that at least some members of non-leader ethnic groups are always brought in.

5.2 Disproportionality

The issue of disproportionality is the subject of a substantial literature in political economics and political science as a feature of electoral rules[14], more than of apportionment of executive seats. Nonetheless, some Africanists have discussed the issue of cabinet disproportionality in some detail (Posner, 2005), emphasizing how for the instance of countries with few reliable elections, cabinet information might be substantially more revealing.

A first operational concept is the degree of proportionality of the cabinet:

Definition 1. *A perfectly proportionally apportioned cabinet is one for which for every* $g \in \{1, ..., M\}$, $p_g/P = y_g$ *holds*

Governments, particularly in autocracies, are considered to operate under substantial overweighting ($p_g/P < y_g$) of certain factions and underweighting ($p_g/P > y_g$) of other ethnic groups. As discussed in Gallagher (1991) deviations ($p_g/P - y_g$) of shares can be differentially weighted, with more weight given to large deviations or attention paid to relative versus absolute deviations. Following Gallagher's discussion of different measures and dropping the country c index for brevity, let us define as measures of disproportionality in the government:

Definition 2. *The least squares degree of government disproportionality at time* t *is given by* $\pi_t^{LSq} = \sqrt{\frac{1}{2}\sum_{g=1}^{M}\left(100 * \left(y_{g,t} - p_g/P\right)\right)^2}$

Definition 3. *The Loosemore-Hanby (LH) degree of government disproportionality at time* t *is given by* $\pi_t^{LH} = \frac{1}{2}\sum_{g=1}^{M} 100 * |y_{g,t} - p_g/P|$

Definition 4. *The Rae degree of government disproportionality at time* t *is given by* $\pi_t^{RAE} = \frac{1}{M}\sum_{g=1}^{M} 100 * |y_{g,t} - p_g/P| * I\left[p_g/P > .005 \& g \neq Other\right]$

Definition 5. *The Sainte-Laguë degree of government disproportionality at time* t *is given by* $\pi_t^{S} = \sum_{g=1}^{M}\left(100 * \left(y_{g,t} - p_g/P\right)\right)^2 * P/p_g$

[14] In particular seat-votes differences. Gallagher (1991) explores the issue in detail and Carey and Hix (2011) offer a recent discussion.

π is minimal when the country is perfectly proportional. The reader familiar with the civil and voting rights literature on representation in the United States will notice an analogy between some of these measures and those commonly employed to assess the degree of racial proportionality of city councils in U.S. municipalities[15]. Notice further than by replacing $(y_{g,t} - p_g/P)$ with $(y_{i,t} - s_i/S)$ for every party in parliament disproportionality measures can be computed for democracies as well. In Figure 4 we report as a benchmark π^{LSq} for our sample of democracies[16]. There are some large fluctuations in the π^{LSq} measure mostly determined by large parties being left out of the winning coalition (weighted more by least squares than small deviations). The degree of (dis)proportionality however is significantly lower in African countries, as shown in Figure 5 and tested in Table 8 looking at differences in within-country averages. Notice also that π^{LSq} captures well-known features of the data, for instance, the political monopoly on the Liberian-American minority in Liberia until the 1980's.

Does the level proportionality in a country change when the country democratizes? Tables 9a, 9b,and 9c provide the within-country evidence employing Polity 2 scores. We consider inclusiveness in Table 9a and we focus on both the whole cabinet's proportionality (Table 9b) and on proportionality in the subset of top ministerial posts (Table 9c). We use all four measures of disproportionality, including country, a country-specific trend, and time fixed effects, in addition to controlling for cabinet and leader time in office and dropping observations in periods of political transition (Polity $=-66$, -77 or -88).

No statistically robust path emerges. The evidence suggests some mild improvement in the level of inclusiveness and proportionality at democratization (the negative coefficients indicate a drop in share not represented and in disproportionality when the Polity score of the country improves), but the coefficients are quantitatively small and statistically insignificant at conventional levels. In Table 10 we further explore whether some of the underlying

[15] See Amy (2002) for a discussion.

[16] In Appendix Figure 1 we also report the time series for the standard electoral LSq measure, employing the data from Carey and Hix (2011).

dimensions of the Polity scores for π^{LSq}, in particular whether executive constraints and political competition indexes matter, but once again the pattern is unclear.

What is evident from Figure 6 is that the measures of democracy present much poorer dynamics and much higher persistency than inclusiveness or disproportionality in the cabinet. Some of this might be due to measurement error in disproportionality, but possibly some of this may be due to our measures capturing more of the finesse in the bargaining between different power groups in the country. Along these lines Figure 7 explores the presence of breaks in the time series around periods of leadership transition. There is an increase in the volatility of the disproportionality index around transitions. Figure 8a and Figure 8b suggest an explanation by focusing on the dynamics of $(y_{g,t} - p_g/P)$ within Guinea and Kenya at the point of transition. In Guinea the shift in power between Malinke and Susu in 1984 at the death of Ahmed Sékou Touré, a Malinke, produced a visible drop in overweighting of that group and a jump for the Susu. Similar dynamics are evident under Moi in Kenya. What is surprising however is not change in leadership premia, which we already documented and explain the volatility, but the substantial stability of the time series for the other 'non leader' ethnic groups.

6 Conclusions

This paper presents a new data set on the ethnic composition of Africa ministerial cabinets since independence. We show how African cabinets display a degree of ethnic inclusiveness and leadership premia which appear not drastically different from what observed in terms of cabinet representativeness in modern parliamentary democracies. The data reject strongly the view of African autocracies as being run as "one man shows" by a single leader and his ethnic group, with the sole exception of early post-colonial Liberia, and display instead a positive and highly statistically significant degree of proportionality to group size, suggesting a substantial degree of political bargaining occurring within these polities.

The paper also shows how coarser measures of form of government in the polity, such as indicators for the level of democracy, fail to capture the rich bargaining dynamics within elites. In this sense our data offer new insight on the internal mechanics of autocracies, otherwise particularly opaque governments, and their diverse upper echelons.

Future research should address what are the determinants of relative power among groups besides sheer population size, what are the dynamics of representation within the cabinet which precede and follow cabinet and leader transitions, and what is the predictive power of such measures of ethnic balance on the likelihood of internal and external conflict.

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Table 1a: Leadership in Cabinet Formation, Group Size, and Allocation of Cabinet Seats, 1960-2004. Conditional on Party/Ethnic Group Belonging to Cabinet

	Parliamentary Democracies	African Sample	Parliamentary Democracies	African Sample	Parliamentary Democracies	African Sample
	(1)	(2)	(3)	(4)	(5)	(6)
Group Size	**1.2359**	**0.6585**	**1.1397**	**0.6519**	**0.7983**	**-**
	[0.1602]**	**[0.0621]****	**[0.1917]****	**[0.0634]****	**[0.0937]****	-
Formateur/Leader	**0.1300**	**0.0898**	**0.1129**	**0.0898**	**0.0352**	**0.0784**
	[0.0528]*	**[0.0238]****	**[0.0416]***	**[0.0239]****	**[0.0160]***	**[0.0168]****
Largest			0.0440	0.0021		
			[0.0282]	[0.0227]		
Constant	0.0346	0.0790	0.0451	0.0793	0.1502	0.1189
	[0.0318]	[0.0167]**	[0.0324]	[0.0161]**	[0.0247]**	[0.0095]**
χ^2 *test p. val.: Group Size*		***0.0018***		***0.0150***		
χ^2 *test p. val.: Formateur*		***0.4809***		***0.6315***		***0.0485***
χ^2 *test p. val.: Largest*				***0.1759***		
Country FE	Yes	Yes	Yes	Yes	-	-
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Party-Country FE/ Group-Country FE	-	-	-	-	Yes	Yes
R^2	0.76	0.51	0.76	0.51	0.92	0.73
N	520	6,480	520	6,480	520	6,480

Dep. Var. = Share of Cabinet Posts

Group Size = Share of Voting Weight for Democracies from Ansolabehere, Snyder, Strauss and Ting (2005), Share of Population for African Sample.

Largest Group = Largest Party in Parliament for Democracies, Largest Ethnic Group for African Sample.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

p values reported for chi2(1) tests of equality of coefficients.

Table 1b: Leadership in Cabinet Formation, Group Size, and Allocation of Cabinet Seats, 1960-2004. All Parties in Parliament/Ethnic Groups

	Parliamentary Democracies	African Sample	Parliamentary Democracies	African Sample	Parliamentary Democracies	African Sample
	(1)	(2)	(3)	(4)	(5)	(6)
Group Size	**0.4645**	**0.7725**	**0.4759**	**0.8160**	**0.7621**	-
	[0.1226]**	**[0.0753]****	**[0.1380]****	**[0.0505]****	**[0.2434]****	-
Formateur/Leader	**0.3478**	**0.1123**	**0.3503**	**0.1124**	**0.2923**	**0.0908**
	[0.0493]**	**[0.0270]****	**[0.0497]****	**[0.0270]****	**[0.0744]****	**[0.0168]****
Largest			-0.0077	-0.0154		
			[0.0466]	[0.0226]		
Constant	0.0249	0.0060	0.0239	0.0045	-0.0225	0.0492
	[0.0157]	[0.0034]	[0.0163]	[0.0021]*	[0.0357]	[0.0012]**
χ^2 *test p. val.: Group Size*		***0.0335***		***0.0198***		***0.0005***
χ^2 *test p. val.: Formateur*		***0.0000***		***0.0000***		***0.0023***
χ^2 *test p. val.: Largest*				***0.8539***		
Country FE	Yes	Yes	Yes	Yes	-	-
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Party-Country FE/ Group-Country FE	-	-	-	-	Yes	Yes
R^2	0.63	0.55	0.63	0.55	0.74	0.76
N	1,285	11,749	1,285	11,749	1,285	11,749

Dep. Var. = Share of Cabinet Posts

Group Size = Share of All Parliamentary Seats for Democracies, Share of Population for African Sample.

Largest Group = Largest Party in Parliament for Democracies, Largest Ethnic Group for African Sample.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

p values reported for chi2(1) tests of equality of coefficients.

Table 1c: Leadership in Cabinet Formation, Group Size, and Allocation of Cabinet Top Seats, 1960-2004. Conditional on Ethnic Group Belonging to Cabinet

	African Sample	African Sample	African Sample
	(1)	(2)	(3)
Group Size	**68.8620**	**63.3309**	-
	[6.5551]**	**[9.3734]****	-
Formateur/Leader	**18.9520**	**18.9215**	**17.1112**
	[2.3559]**	**[2.3211]****	**[1.4935]****
Largest		1.7641	
		[3.3888]	
Constant	5.9851	6.2254	10.2047
	[1.5786]**	[1.5254]**	[0.8717]**
Country FE	Yes	Yes	-
Year FE	Yes	Yes	Yes
Group-Country FE	-	-	Yes
R^2	0.43	0.43	0.59
N	6,480	6,480	6,480

Dep. Var. = Share of Top Cabinet Posts (Presidency/Premiership, Defense, Budget, Commerce, Finance, Treasury, Economy, Agriculture, Justice, Foreign).

Group Size = Share of Population.

Largest Group = Largest Ethnic Group.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

Table 2a: Leadership in Cabinet Formation and Allocation of Cabinet Seats by Country, 1960-2004. Conditional on Party/Ethnic Group Belonging to Cabinet

	Benin	*Cameroon*	*Cote d'Ivoire*	*Congo (Kinshasa)*
Formateur/Leader	**0.0576**	**0.0577**	**0.1127**	**0.0321**
	[0.0152]**	**[0.0098]****	**[0.0222]****	**[0.0094]****
Constant	0.1101	0.0897	0.1249	0.0687
	[0.0328]**	[0.0180]**	[0.0330]**	[0.0143]**
R^2	0.66	0.86	0.75	0.74
N	332	509	456	645

	Gabon	*Ghana*	*Guinea*	*Kenya*
Formateur/Leader	**0.0660**	**0.0175**	**0.1446**	**0.1111**
	[0.0290]*	**[0.0117]**	**[0.0153]****	**[0.0130]****
Constant	0.1397	0.1096	0.1542	0.0908
	[0.0519]**	[0.0246]**	[0.0209]**	[0.0179]**
R^2	0.83	0.61	0.87	0.74
N	309	445	265	453

	Liberia	*Nigeria*	*Republic of Congo*	*Sierra Leone*
Formateur/Leader	**0.2108**	**0.0303**	**0.1130**	**0.1020**
	[0.0332]**	**[0.0085]****	**[0.0203]****	**[0.0107]****
Constant	0.3364	0.0956	0.1534	0.1521
	[0.0523]**	[0.0127]**	[0.0303]**	[0.0157]**
R^2	0.76	0.71	0.64	0.75
N	341	493	329	341

	Tanzania	*Togo*	*Uganda*
Formateur/Leader	**0.0135**	**0.0328**	**0.0710**
	[0.0048]**	**[0.0216]**	**[0.0075]****
Constant	0.0715	0.1815	0.0792
	[0.0095]**	[0.0456]**	[0.0095]**
R^2	0.56	0.73	0.76
N	666	399	497

Dep. Var. = Share of Cabinet Posts. Group Size = Share of Population. All regressions include ethnic group and year fixed effects. Robust standard errors in brackets. * $p<0.05$; ** $p<0.01$

Table 2b: Leadership in Cabinet Formation and Allocation of Cabinet Seats by Country, 1960-2004. All Parties in Parliament/Ethnic Groups

	Benin	*Cameroon*	*Cote d'Ivoire*	*Congo (Kinshasa)*
Formateur/Leader	**0.0813**	**0.0577**	**0.1163**	**0.0499**
	[0.0155]**	**[0.0086]****	**[0.0230]****	**[0.0073]****
Constant	0.0558	0.0449	0.0520	0.0317
	[0.0199]**	[0.0102]**	[0.0146]**	[0.0069]**
R^2	0.75	0.87	0.79	0.73
N	645	903	748	1,260

	Gabon	*Ghana*	*Guinea*	*Kenya*
Formateur/Leader	**0.0959**	**0.0310**	**0.1446**	**0.1137**
	[0.0165]**	**[0.0088]****	**[0.0149]****	**[0.0128]****
Constant	0.0904	0.0440	0.0950	0.0554
	[0.0413]*	[0.0099]**	[0.0135]**	[0.0129]**
R^2	0.86	0.73	0.90	0.79
N	440	968	396	640

	Liberia	*Nigeria*	*Republic of Congo*	*Sierra Leone*
Formateur/Leader	**0.2520**	**0.0407**	**0.1200**	**0.1231**
	[0.0339]**	**[0.0074]****	**[0.0206]****	**[0.0099]****
Constant	0.0499	0.0564	0.0880	0.0626
	[0.0226]*	[0.0082]**	[0.0215]**	[0.0127]**
R^2	0.69	0.72	0.69	0.79
N	660	731	430	602

	Tanzania	*Togo*	*Uganda*
Formateur/Leader	**0.0472**	**0.0891**	**0.0858**
	[0.0065]**	**[0.0246]****	**[0.0077]****
Constant	0.0258	0.0455	0.0352
	[0.0063]**	[0.0150]**	[0.0054]**
R^2	0.54	0.75	0.75
N	1,406	880	1,040

Dep. Var. = Share of Cabinet Posts. All regressions include ethnic group and year fixed effects. Robust standard errors in brackets. * $p<0.05$; ** $p<0.01$

Table 3: Group Size and Leadership, 1960-2004

	Parliamentary Democracies	African Sample	Parliamentary Democracies	African Sample
	(1)	(2)	(3)	(4)
Group Size	**0.8537**	**0.5484**	**0.6079**	**0.5793**
	[0.0646]**	**[0.0668]****	**[0.0690]****	**[0.1162]****
Largest			0.2195	-0.0099
			[0.0690]**	[0.0337]
χ^2 *test p. val.: Group Size*		***0.1774***		***0.4881***
χ^2 *test p. val.: Largest*				***0.0043***
Year FE	Yes	Yes	Yes	Yes
N	1,285	11,749	1,285	11,749

Dep. Var. = Indicator for the Party/Group being the one of the Formateur or of the Country Leader

Group Size = Share of All Parliamentary Seats for Democracies, Share of Total Population for African Sample.

Largest Group = Largest Party in Parliament for Democracies, Largest Ethnic Group for African Sample.

Probit marginal effects and standard errors clustered at the country level in brackets below.

* $p<0.05$; ** $p<0.01$

p values reported for chi2(1) tests of equality of coefficients.

Table 4: Group Size and Cabinet Membership, 1960-2004

	Parliamentary Democracies	African Sample	Parliamentary Democracies	African Sample
	(1)	(2)	(3)	(4)
Group Size	**1.2859**	**6.0376**	**1.0239**	**7.2146**
	[0.2869]**	**[1.0299]****	**[0.3417]****	**[0.6896]****
Largest			0.1551	-0.5072
			[0.1306]	[0.0733]**
χ^2 *test p. val.: Group Size*		***0.0001***		***0.0000***
χ^2 *test p. val.: Largest*				***0.0000***
Year FE	Yes	Yes	Yes	Yes
N	1,285	11,749	1,285	11,749

Dep. Var. = Indicator for the Party/Group being part of the Cabinet

Group Size = Share of All Parliamentary Seats for Democracies, Share of Total Population for African Sample.

Largest Group = Largest Party in Parliament for Democracies, Largest Ethnic Group for African Sample.

Probit marginal effects and standard errors clustered at the country level in brackets below.

* $p<0.05$; ** $p<0.01$

p values reported for chi2(1) tests of equality of coefficients.

Table 5: Ethnologue Linguistic Closeness to the Leader's Ethnic Group and Allocation of Cabinet Seats in Africa, 1960-2004. All Ethnic Groups.

	African Sample	African Sample	African Sample
	(1)	(2)	(3)
Group Size	0.7607	0.8009	
	[0.0761]**	[0.0516]**	
Formateur/Leader	0.1239	0.1237	0.0997
	[0.0311]**	[0.0308]**	[0.0216]**
Linguistic Closeness	**0.0169**	**0.0162**	**0.0158**
	[0.0110]	**[0.0108]**	**[0.0146]**
Largest		-0.0140	
		[0.0222]	
Constant	-0.0059	-0.0069	0.0384
	[0.0064]	[0.0056]	[0.0075]**
Country FE	Yes	Yes	-
Year FE	Yes	Yes	Yes
Group-Country FE	-	-	Yes
R^2	0.56	0.56	0.77
N	11,110	11,110	11,110

Dep. Var. = Share of Cabinet Posts

Group Size = Share of Total Population for African Sample.

Largest Group = Largest Ethnic Group for African Sample.

Linguistic Closeness = *(l/m)^1/2* where *l* = number of common linguistic branches in the Ethnologue and *m* = *max(l)* in the sample.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

Table 6a: Ethnologue Linguistic Closeness to the Leader's Ethnic Group and Allocation of Cabinet Seats by African Country, 1960-2004. All Ethnic Groups.

	Benin	*Cameroon*	*Cote d'Ivoire*	*Congo (Kinshasa)*
Formateur/Leader	0.0971	0.0362	0.1092	0.0550
	[0.0236]**	[0.0088]**	[0.0272]**	[0.0076]**
Linguistic Closeness	**0.0489**	**-0.0528**	**-0.0156**	**0.0081**
	[0.0288]	**[0.0120]****	**[0.0279]**	**[0.0078]**
Constant	0.0216	0.0622	0.0470	0.0266
	[0.0202]	[0.0121]**	[0.0158]**	[0.0078]**
R^2	0.75	0.87	0.81	0.74
N	602	860	704	1,218

	Gabon	*Ghana*	*Guinea*	*Kenya*
Formateur/Leader	-0.0826	0.0002	0.0896	0.1137
	[0.2297]	[0.0170]	[0.0700]	[0.0127]**
Linguistic Closeness	**-0.2186**	**-0.0545**	**-0.0852**	**-0.0123**
	[0.2711]	**[0.0206]****	**[0.1034]**	**[0.0045]****
Constant	0.2406	0.0805	0.1378	0.0579
	[0.2155]	[0.0163]**	[0.0533]*	[0.0127]**
R^2	0.87	0.73	0.90	0.79
N	396	924	352	600

	Liberia	*Nigeria*	*Republic of Congo*	*Sierra Leone*
Formateur/Leader	0.3095	0.0248	0.0979	0.1188
	[0.0236]**	[0.0071]**	[0.0903]	[0.0109]**
Linguistic Closeness	**0.4211**	**-0.0585**	**-0.0282**	**-0.0169**
	[0.0397]**	**[0.0102]****	**[0.1137]**	**[0.0136]**
Constant	0.0493	0.0639	0.1195	0.0745
	[0.0184]**	[0.0081]**	[0.0910]	[0.0145]**
R^2	0.79	0.73	0.66	0.79
N	616	688	387	559

	Tanzania	*Togo*	*Uganda*
Formateur/Leader	0.1087	0.1248	0.0880
	[0.0375]**	[0.0327]**	[0.0077]**
Linguistic Closeness	**0.0753**	**0.0489**	**0.0174**
	[0.0448]	**[0.0258]**	**[0.0029]****
Constant	-0.0280	0.0201	0.0298
	[0.0323]	[0.0197]	[0.0060]**
R^2	0.54	0.75	0.78
N	1,368	836	1,000

Dep. Var. = Share of Cabinet Posts. Linguistic Closeness = *(l/m)^1/2* with *l* = number of common branches in the Ethnologue and *m=max(l)* in the sample (*m = 12*). All regressions include ethnic group and year FE. Robust standard errors. * $p<0.05$; ** $p<0.01$

Table 6b: Effect of Linguistic Closeness to Leader in Cabinet Posts' Allocation Covaries Positively with Leader's Group Premium.

	OLS	Median Regression
	(1)	(2)
Leader's Premium	**1.4739**	**1.3832**
	[0.2311]**	**[0.3223]****
Constant	-0.1217	-0.1043
	[0.0201]**	[0.0363]*
R^2	0.84	
N	15	15

Dep. Var. = ∂Share of Cabinet Posts/∂Linguistic Closeness in Table 6a.

Leader's Premium = ∂Share of Cabinet Posts/∂Leader in Table 6a.

Robust standard errors in brackets.

* $p<0.05$; ** $p<0.01$

Table 7: Inclusiveness in Parliamentary Democracies and Africa.

Country	Share Voters Not Represented Mean	Country	Share Pop. Not Represented Mean
Australia	53.23	Benin	28.23
Austria	39.48	Cameroon	18.35
Belgium	41.05	Cote d'Ivoire	13.93
Denmark	59.34	Dem. Rep. Congo	28.16
Finland	40.38	Gabon	13.72
Germany	45.67	Ghana	29.84
Iceland	41.54	Guinea	7.54
Ireland	52.99	Kenya	8.93
Italy	49.08	Liberia	50.37
Luxembourg	41.19	Nigeria	12.12
Netherlands	42.51	Rep. of Congo	11.12
Norway	60.39	Sierra Leone	15.92
Portugal	64.90	Tanzania	42.87
Sweden	56.43	Togo	31.94
		Uganda	27.59
Total	***49.16***		***22.71***

T-stat for Difference in Means = 6.48; degrees of freedom = 27; p-val. 0.0000

Table 8: Disproportionality in Parliamentary Democracies and Africa.

Country	Disproportionality Mean	Country	Disproportionality Mean
Australia	40.13	Benin	27.94
Austria	26.61	Cameroon	18.09
Belgium	28.71	Cote d'Ivoire	13.77
Denmark	41.93	Dem. Rep. Congo	27.90
Finland	27.90	Gabon	13.83
Germany	35.55	Ghana	29.92
Iceland	31.44	Guinea	7.56
Ireland	40.87	Kenya	8.90
Italy	32.72	Liberia	49.52
Luxembourg	24.10	Nigeria	12.01
Netherlands	24.09	Rep. of Congo	10.96
Norway	41.40	Sierra Leone	15.69
Portugal	40.33	Tanzania	42.61
Sweden	39.79	Togo	31.85
		Uganda	28.35
Total	***33.97***		***22.59***

T-stat for Difference in Means = 2.98; degrees of freedom = 27; p-val. 0.0060

Table 9a: Level of Inclusiveness in Cabinet Seats Allocation and Level of Democracy in Africa, 1960-2004. Within-Country Evidence.

	Share Population Not Represented	Share Population Not Represented (Excluding Pol. Transitions)
	(1)	(2)
Polity2	**-0.0215**	**-0.0013**
	[0.1771]	**[0.1671]**
Cabinet Duration	0.0553	0.0623
	[0.1128]	[0.1353]
Leader Duration	-0.0399	0.0457
	[0.0922]	[0.1106]
Constant	964.9962	1,030.4311
	[106.5302]**	[105.9116]**
R^2	0.80	0.83
N	637	588

The share of the sample for which Polity2 ≥ 0 is 13.66%.

All specifications include country and year fixed effects and a linear trend by country.

Cabinet and leader duration indicate years since the leader was installed and years from the last occurrence of a simultaneous replacement of more than half the cabinet members, respectively.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

Table 9b: Level of Disproportionality in Cabinet Seats Allocation and Level of Democracy in Africa, 1960-2004. Within-Country Evidence.

All Posts	Least Squares Disproportionality (1)	Least Squares Disproportionality (Excluding Pol. Transitions) (2)	LH Disproportionality (3)	Rae Disproportionality (4)	Sainte-Laguë Disproportionality (5)
Polity2	**-0.0409**	**0.0006**	**-0.1240**	**-0.0148**	**-1.2646**
	[0.0545]	**[0.0541]**	**[0.1136]**	**[0.0136]**	**[1.2288]**
Cabinet Duration	0.0412	0.0378	0.0347	0.0092	1.8428
	[0.1105]	[0.1249]	[0.1079]	[0.0167]	[2.8227]
Leader Duration	-0.0363	-0.0107	-0.0555	-0.0086	-0.7221
	[0.0645]	[0.0753]	[0.0890]	[0.0138]	[0.8858]
Constant	357.5325	362.0341	402.2036	45.8475	1,594.7893
	[48.2469]**	[55.6950]**	[84.7444]**	[10.1471]**	[713.9573]*
R^2	0.75	0.77	0.77	0.80	0.81
N	637	588	637	637	637

The share of the sample for which Polity2 ≥ 0 is 13.66%.

All specifications include country and year fixed effects and a linear trend by country.

Cabinet and leader duration indicate years since the leader was installed and years from the last occurrence of a simultaneous replacement of more than half the cabinet members, respectively.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

Table 9c: Level of Disproportionality in Cabinet Top Seats Allocation and Level of Democracy in Africa, 1960-2004. Within-Country Evidence.

Top Posts Only	Least Squares Disproportionality	Least Squares Disproportionality (Excluding Pol. Transitions)	LH Disproportionality	Rae Disproportionality	Sainte-Laguë Disproportionality
	(1)	(2)	(3)	(4)	(5)
Polity2	**-0.1055**	**-0.0849**	**-0.3518**	**-0.0418**	**-8.9300**
	[0.1087]	**[0.1113]**	**[0.2086]**	**[0.0289]**	**[3.0936]***
Cabinet Duration	0.0655	0.0890	-0.0210	0.0030	-0.3077
	[0.1374]	[0.1615]	[0.1860]	[0.0215]	[3.9169]
Leader Duration	-0.1077	-0.1390	-0.1091	-0.0193	-0.9886
	[0.1119]	[0.1255]	[0.1699]	[0.0224]	[2.7541]
Constant	488.3622	459.2101	-115.1834	-5.7428	-2,902.4320
	[98.2396]**	[116.0080]**	[152.6310]	[16.8006]	[2,827.9582]
R^2	0.52	0.54	0.57	0.72	0.57
N	637	588	637	637	637

The share of the sample for which Polity2 ≥ 0 is 13.66%.

All specifications include country and year fixed effects and a linear trend by country.

Cabinet and leader duration indicate years since the leader was installed and years from the last occurrence of a simultaneous replacement of more than half the cabinet members, respectively.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

Table 10: Least Square Level of Disproportionality in Cabinet Seats Allocation and Polity Subcomponents in Africa, 1960-2004. Within-Country Evidence.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Polity2	**0.0006**									
	[0.0541]									
Xrreg		**0.2831**								
		[0.9317]								
Xrcomp			**0.6456**							
			[0.7211]							
Xropen				**0.5851**						
				[0.6446]						
Xconst					**0.1057**					
					[0.3344]					
Parreg						**-0.2274**				
						[0.5443]				
Parcomp							**0.0578**			
							[0.4948]			
Exrec								**-0.1163**		
								[0.2227]		
Exconst									**0.1057**	
									[0.3344]	
Polcomp										**0.0964**
										[0.2045]
Cabinet Duration	0.0378	0.0333	0.0229	-0.0006	0.0354	0.0353	0.0378	0.0376	0.0354	0.0355
	[0.1249]	[0.1152]	[0.1087]	[0.0932]	[0.1204]	[0.1251]	[0.1258]	[0.1259]	[0.1204]	[0.1235]
Leader Duration	-0.0107	-0.0133	0.0059	-0.0002	-0.0075	-0.0083	-0.0108	-0.0165	-0.0075	-0.0086
	[0.0753]	[0.0848]	[0.0711]	[0.0783]	[0.0752]	[0.0771]	[0.0799]	[0.0771]	[0.0752]	[0.0785]
Constant	362.0341	370.4218	425.7991	457.2809	374.1895	390.3566	362.5502	349.5262	374.1895	385.6889
	[55.6950]**	[53.7790]**	[47.2339]**	[86.8900]**	[56.0480]**	[92.1935]**	[62.4100]**	[67.8845]**	[56.0480]**	[61.5545]**
R^2	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
N	588	588	588	588	588	588	588	588	588	588

Sample excludes periods for which Polity assumes values -66, -77,-88, typically transitions. All specifications include country and year fixed effects and a linear trend by country.

Cabinet and leader duration indicate years since the leader was installed and years from the last occurrence of a simultaneous replacement of more than half the cabinet members, respectively.

Standard errors clustered at the country level in brackets. * $p<0.05$; ** $p<0.01$

Appendix Table 1: Leadership in Cabinet Formation, Group Size, and Allocation of Cabinet Seats, 1960-2004. Conditional on Party/Ethnic Group Belonging to Cabinet

	Parliamentary Democracies	Parliamentary Democracies	Parliamentary Democracies
	(1)	(2)	(3)
Group Size	**0.7871**	**0.8016**	**0.7074**
	[0.0366]**	**[0.0300]****	**[0.0510]****
Formateur/Leader	**0.0010**	**0.0057**	**-0.0113**
	[0.0142]	**[0.0170]**	**[0.0154]**
Largest		-0.0152	
		[0.0210]	
Constant	0.0810	0.0803	0.0938
	[0.0128]**	[0.0124]**	[0.0144]**
Country FE	Yes	Yes	-
Year FE	Yes	Yes	Yes
Party-Country FE/ Group-Country FE	-	-	Yes
R^2	0.92	0.92	0.96
N	520	520	520

Dep. Var. = Share of Cabinet Posts

Group Size = Share of Cabinet Parliamentary Seats for Democracies.

Largest Group = Largest Party in Parliament for Democracies.

Standard errors clustered at the country level in brackets.

* $p<0.05$; ** $p<0.01$

Figure 1: Share of Voters Not Represented in Cabinet, Parliamentary Democracies, 1960-2004



Figure 2: Population Share of Ethnicities Not Represented in Cabinet, African Sample, 1960-2004

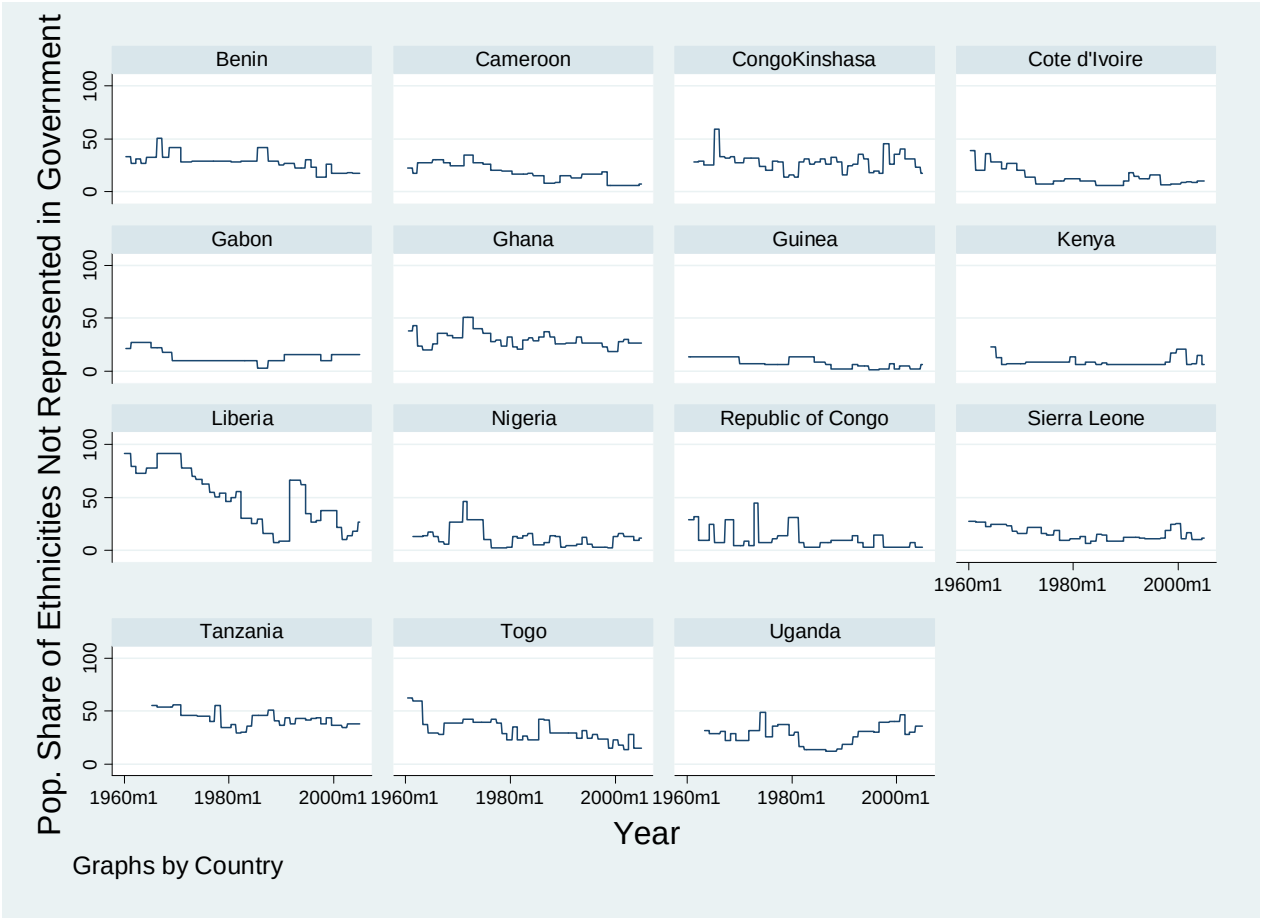


Figure 3: Effect of Linguistic Closeness to Leader in Cabinet Posts' Allocation Covaries Positively with Leader's Group Premium

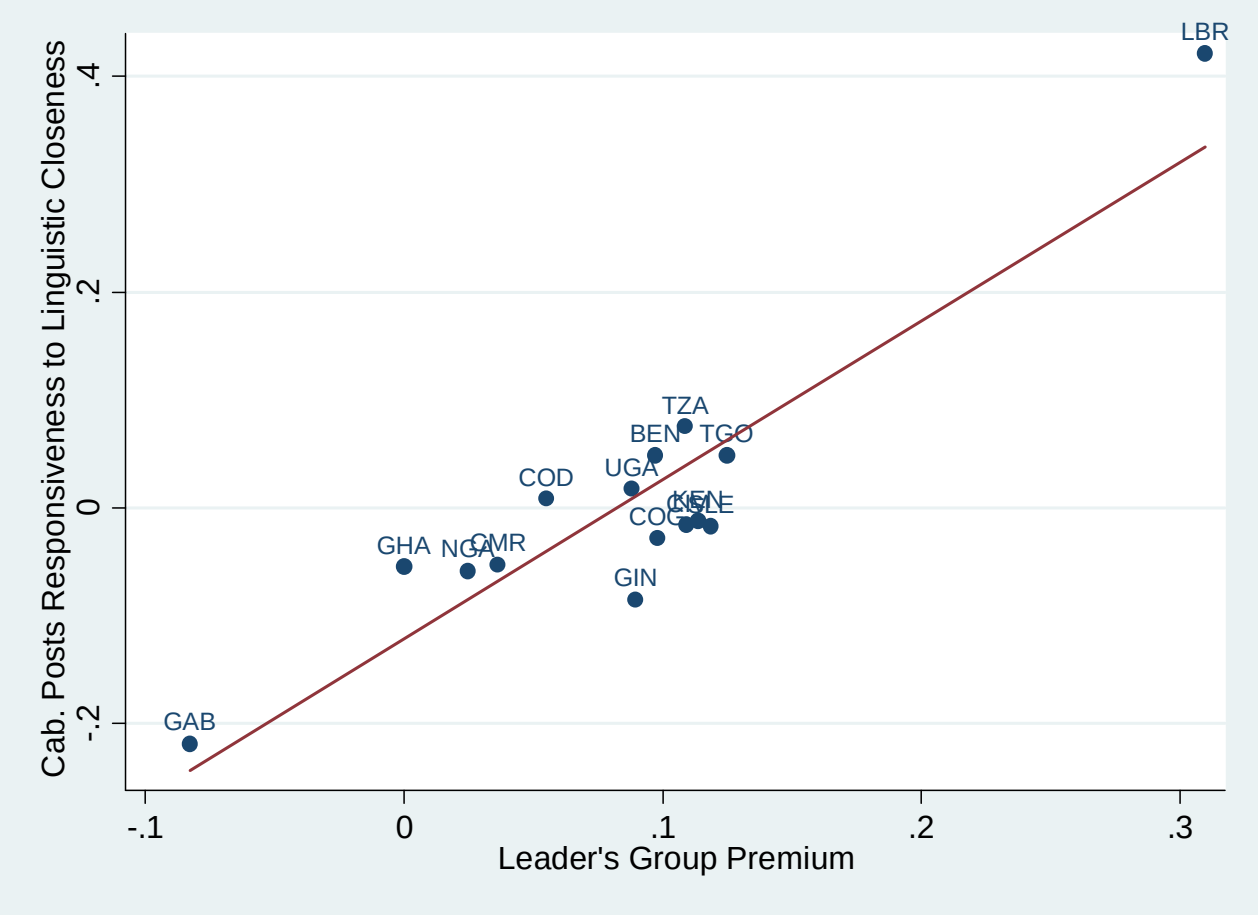


Figure 4: Disproportionality in Cabinet Allocation, Parliamentary Democracies, 1960-2004



Figure 5: Disproportionality in Cabinet Allocation, African Sample, 1960-2004

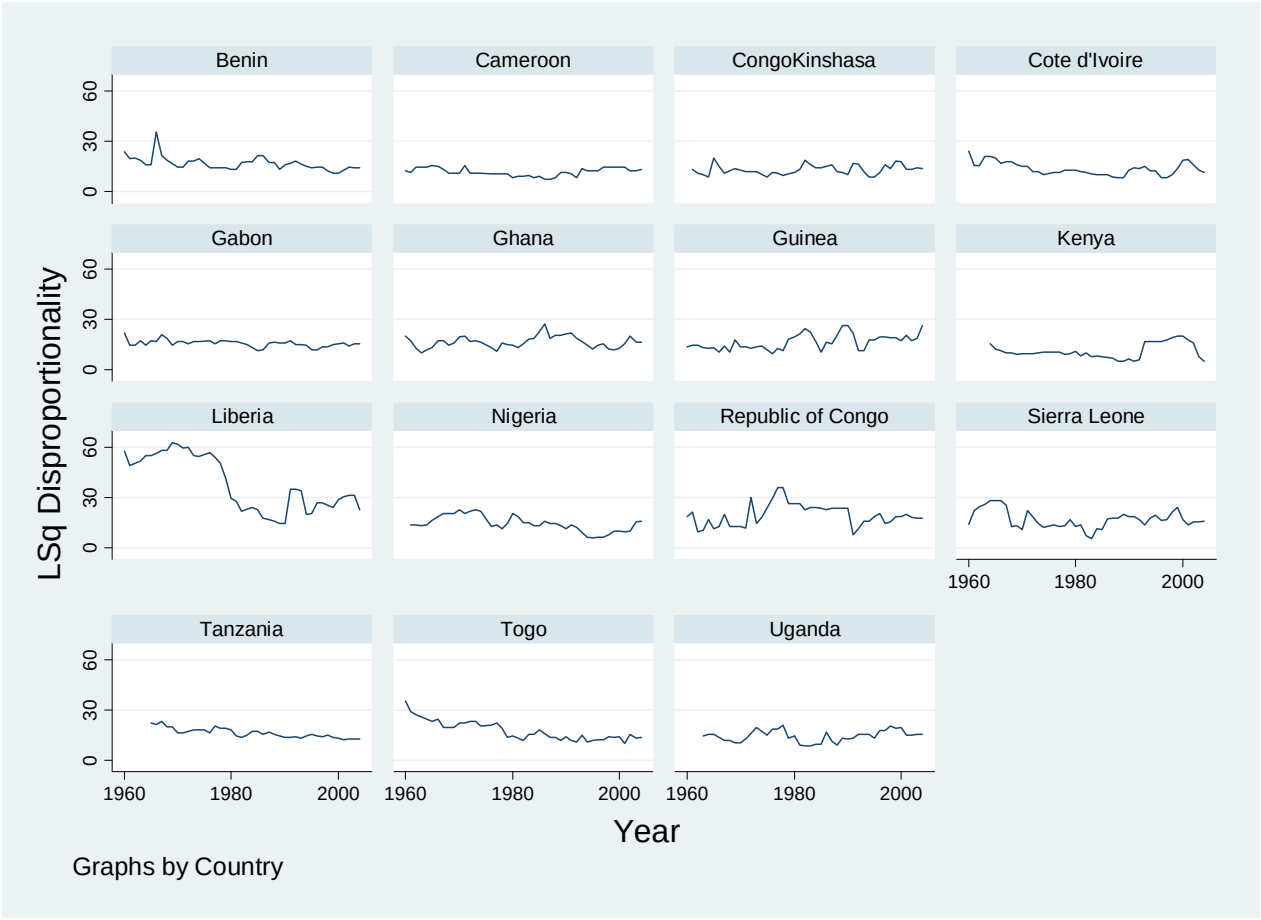


Figure 6: Autocracy and Disproportionality in Cabinet Allocation, African Sample, 1960-2004

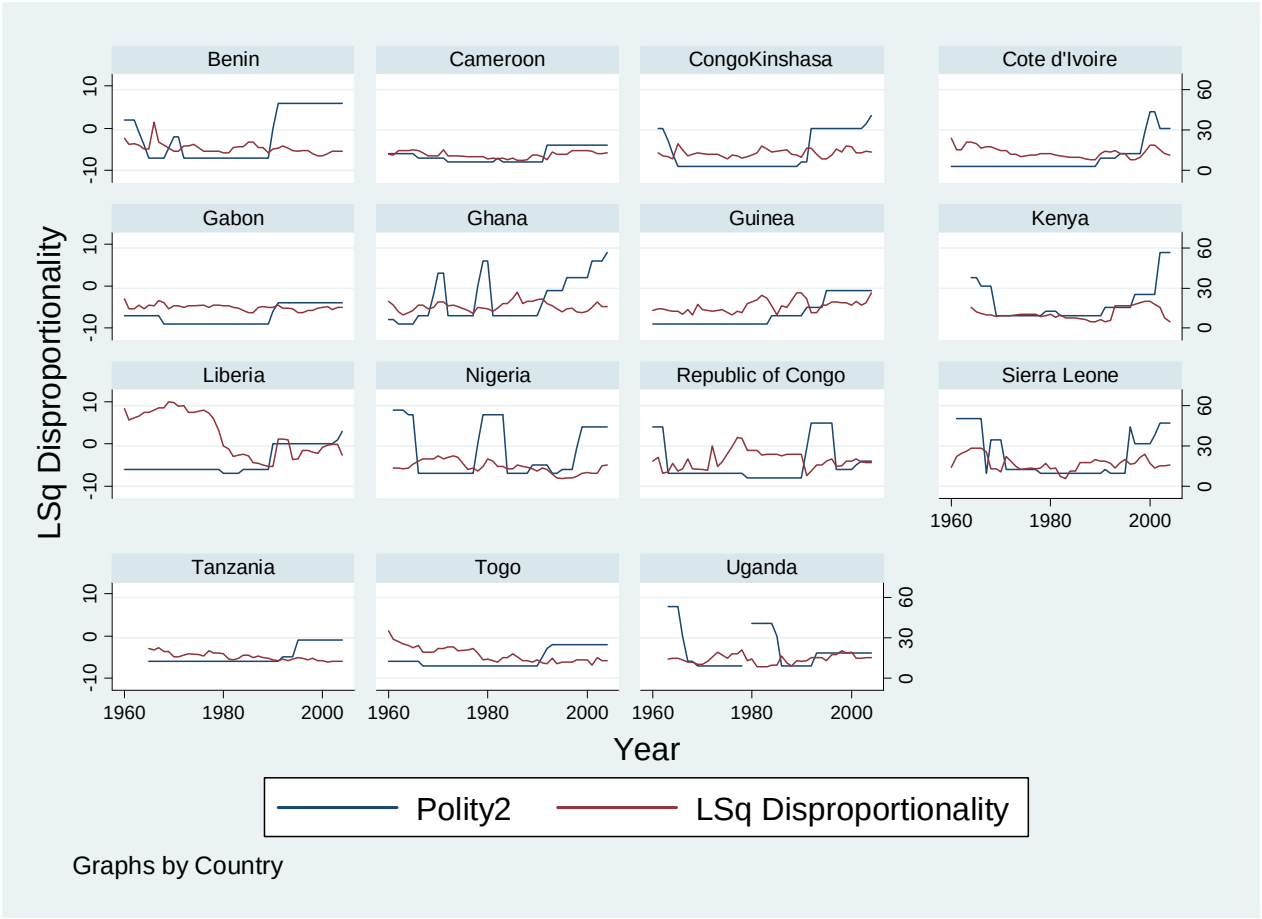


Figure 7: Leader Transitions and Disproportionality in Cabinet Allocation, African Sample, 1960-2004

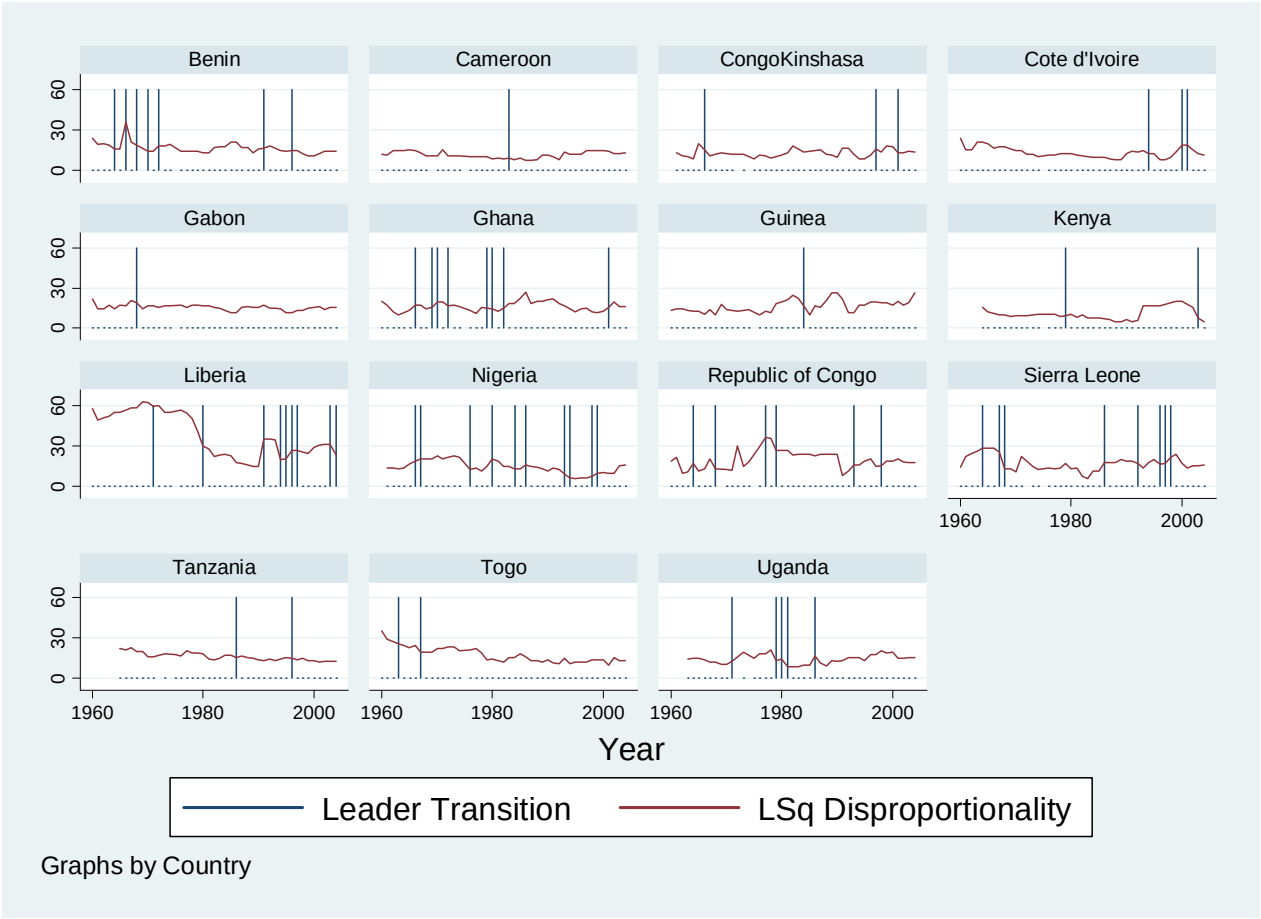


Figure 8a: Difference between Cabinet Shares and Population Shares.
Guinea, 1960-2004

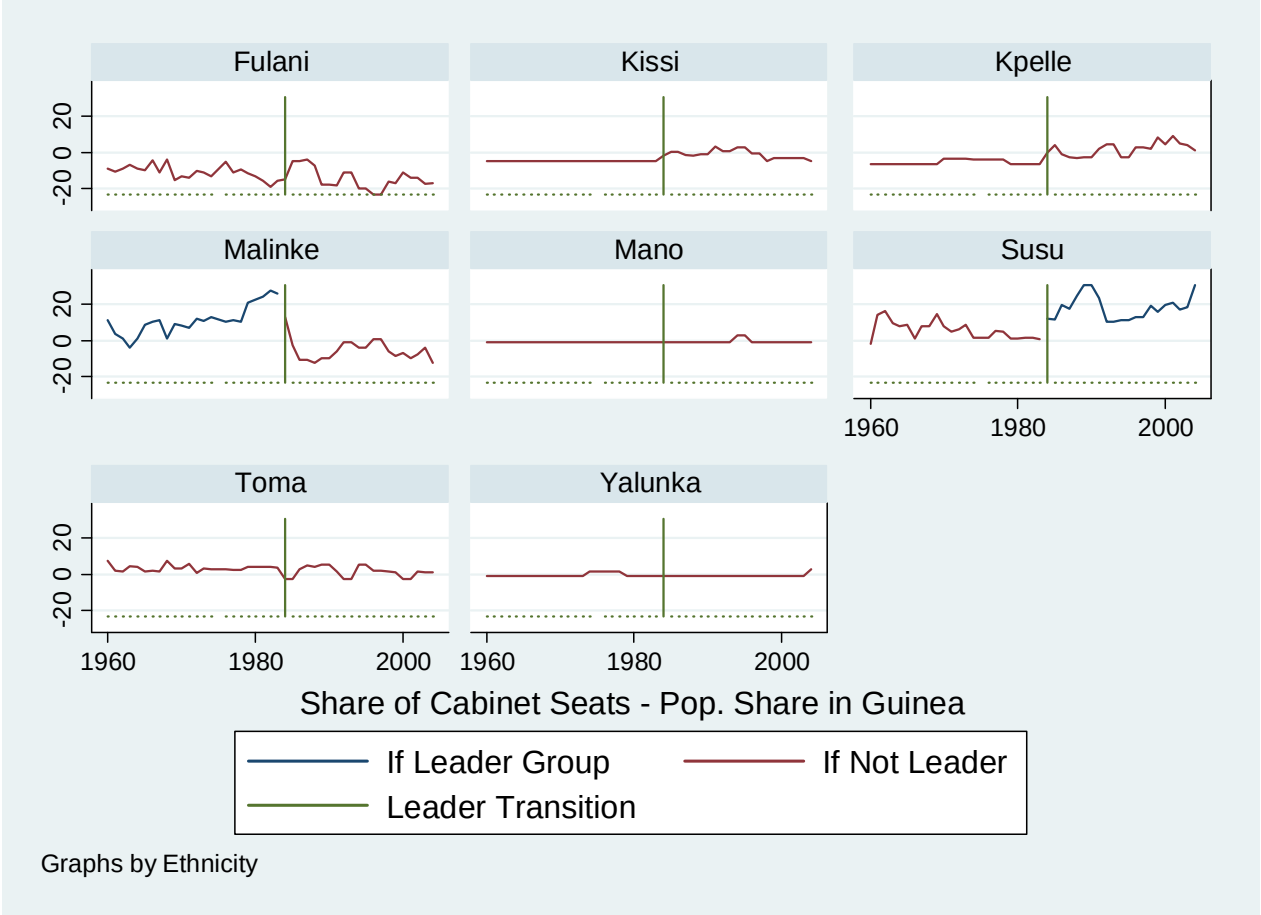
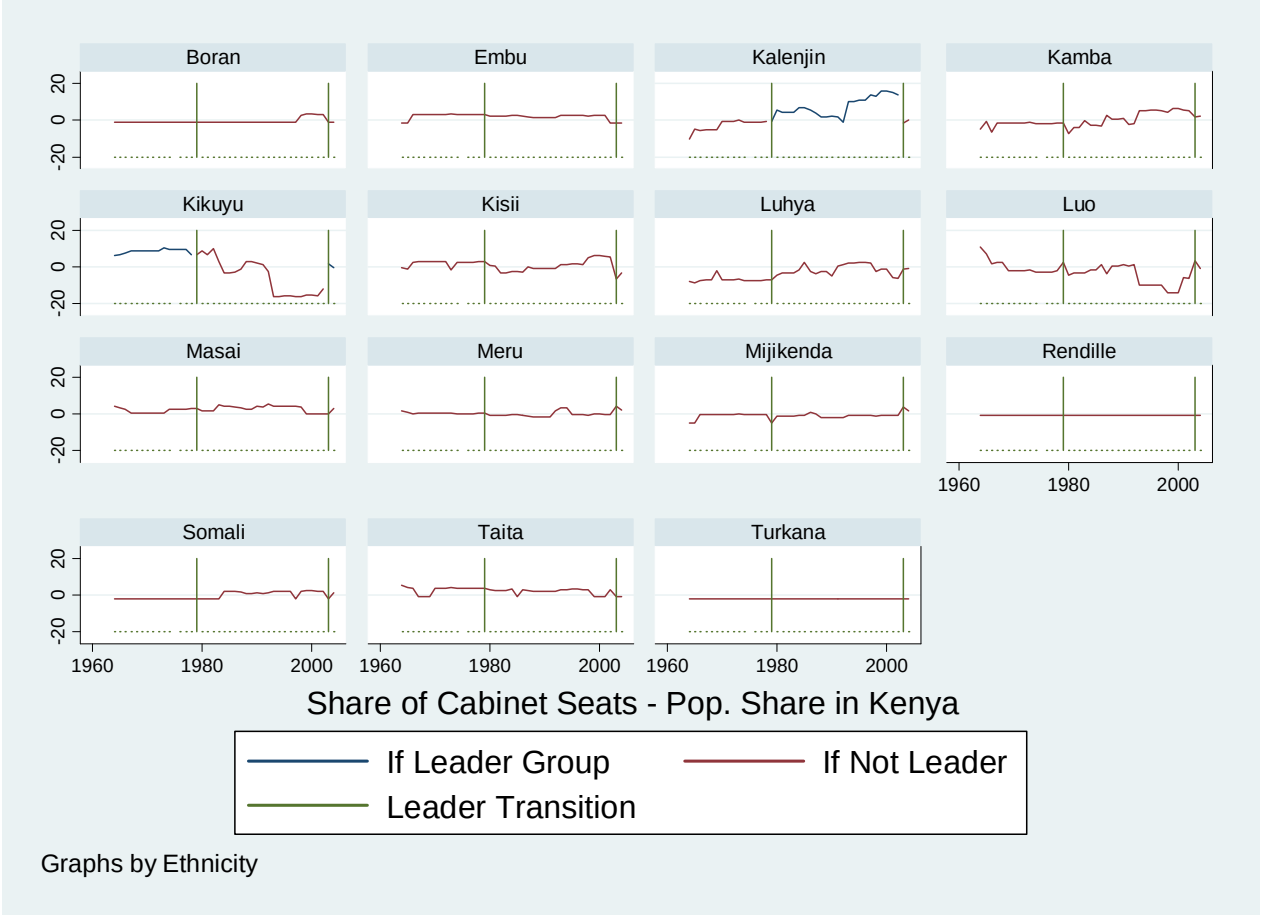


Figure 8b: Difference between Cabinet Shares and Population Shares.
Kenya, 1960-2004



Appendix Figure 1: Electoral Disproportionality, Parliamentary Democracies, 1960-2004

