Voter behavior, government capture and accountability in African States: A comparative analysis based on cross-country estimations of spatial voting

Laura Seide[1], Christian Henning[1] and Svetlana Petri[1]

[1]University of Kiel, Department of Agricultural Economics, Kiel, Germany

1. Introduction

A well known empirical finding is the positive correlation of democratization and income per capita. Although many Sub-Saharan African countries became democracies during the "Third Wave" of democratization (Manning (2005), they are still suffering from economic and political problems, leading to instability and poverty. One of the main principles that characterizes a democracy is electoral competition.

In political theory electoral competition is understood as a fundamental democratic mechanism to guarantee that governmental policies reflect societys interests. In reality, however, electoral competition is often restricted and hence, leads to biased policy outcomes. Basically, policy biases result from two major mechanisms: government capture and a lack of governmental accountability. The latter corresponds to the fact that elected politicians have not sufficient electoral incentives to implement policies benefiting socio-economic groups they are representing, but rather serve their self-interests, while the former corresponds to the fact that electoral competition is biased in favor of specific interests.

Micropolitical foundation of both phenomena is inherent in voter behavior. Accordingly, we estimate a probabilistic voter model, where voters have mixed motivations to vote. On the one hand voters are interested in policy outcomes, i.e. vote policy-oriented, while on the other hand voters vote ideologically (non-policy oriented), i.e. vote according to ethnical or regional preferences for various parties not related to party platforms. The higher the weight for non-policy voting in a society the lower is the governmental accountability. Moreover, the more the importance of non-policy voting varies across socio-economic groups the higher is government capture.

To deal with heterogeneity we estimate a probabilistic voting model using a mixed conditional logit model based on Afrobarometer election survey data for 19 African countries. Based on estimation results we calculate a country-specific indicator measuring the relative importance of non-policy versus policy voting implying different national levels of government accountability and capture. To explain cross-national variances in voter motives we regress estimated average national weights on

specific national macro-political and macro-economic indicators. The former includes the quality of democracy, while the latter includes national per-capita income.

The paper is structured as follows. Section 2 gives a brief overview on the relevant literature on voting behavior in developing countries focusing especially on different explanations for non-policy voting, i.e. information asymmetries, social polarization and missing accountability.

Applied estimation strategy and econometric models will be introduced in section 3, while in section 4 the used Afrobarometer data is described. In particular, the calculation of relevant policy issue distances used as exogenous variables in the estimation of the probabilistic voter model is presented in section 4 as well. Moreover, we derive the ideology index measuring the relative importance of non-policy versus policy voting in this section. Finally, section 5 concludes and discusses future research.

2. Literature overview on voter behavior in developing countries

> Eradicating extreme poverty continues to be one of the main challenges of our time, and is a major concern of the international community. Ending this scourge will require the combined efforts of all, governments, civil society organizations and the private sector, in the context of a stronger and more effective global partnership for development. The Millennium Development Goals set timebound targets, by which progress in reducing income poverty, hunger, disease, lack of adequate shelter and exclusion - while promoting gender equality, health, education and environmental sustainability - can be measured. They also embody basic human rights - the rights of each person on the planet to health, education, shelter and security. The Goals are ambitious but feasible and, together with the comprehensive United Nations development agenda, set the course for the world's efforts to alleviate extreme poverty by 2015.
>
> *United Nations Secretary-General BAN Ki-moon*

UN Secretary-General Ban Ki-Moon emphasizes the importance of combined efforts to reach the Millennium Development Goals (MDG). He explicitly mentions governments, civil society organizations and the private sector. Although the goals are precisely defined, many countries are still struggling to fulfill them. The main reason behind this are market failures that instead of improving even worsen the situation of the poor and conserve a situation in which poor people are capitalized and not able to find a way out of their dilemma. Recent research on poverty reduction focuses especially on the government and its political incentives for providing public services. Keefer and Khemani (2005) summarize most of the literature indicating that even in democracies politicians often have distorted incentives to provide good and efficient policies.

Generally one can distinguish between *broad goods* that benefit many voters and *targetable goods* that serve only a subset of voters (Persson and Tabellini (2003). Due to imperfections in political markets politicians prefer to provide targetable goods like private transfers to few people rather than

providing public services that reduce poverty in a more general way (broad goods). This behavior results out of a reason: Politicians are rent seeking and their main goal is to maximize their utility by being reelected. Especially in developing countries often reelection does not come together with the quality of policies, it is therefore unnecessary for a politician or a party to provide broad public services (e.g. education and welfare benefits). Electoral competition can be won a lot easier by promising narrow targetable goods such as infrastructure, agricultural subsidies or governmental jobs. Keefer and Khemani (2005) focus on the voter's role to explain the redistribution gap from the wealthy to the poor. They mainly make out three aspects that support market imperfections: a) asymmetric information of voters, b) social polarization and c) missing accountability of political actors.

2.1. Information asymmetries

The basic theory regarding distorted electoral competition through imperfectly and asymmetrically informed voters goes back to Baron (1994) and Grossman and Helpman (1996). Baron (1994) makes a distinction between informed and uninformed voters. Informed voters vote policy oriented, whereas uninformed voters heavily rely on party loyalties and ideologies. Their vote can be influenced by campaign expenditures unrelated to political decisions. Especially in developing countries people are only coarsely informed on policies. This is among others due to illiteracy, limited mobility and restricted media access. Without information people are not able to assess politicians adequately on their political performance but rather use proxies to do so. These proxies are mainly easily observable policies or already existing party loyalties. Khemani (2004) finds that policies that are easy observable increase when elections are near. The influence of party loyalties is described in Bardhan and Mookherjee (2002) they assume that a higher level of voter loyalty increases capture and reduces electoral competition. Reduced electoral competition in turn leads to lower political accountability.

As a consequence Mani and Mukand (2002) show that politicians maximizing their political support have strong incentives to focus on targeted and visible policies at the cost of broad social services. Basically, this follows because only few voters have enough specific substantial information to evaluate if policies have contributed to better quality services. Second, measurable benefits may not emerge until several years after a policy has been implemented, increasing voters difficulties to reward (or punish) politicians within a particular policy cycle. Third, providing service jobs or building roads and buildings can easily be targeted to the own constituencies and hence is even for low-informed voters highly visible. Gazdar (2000), World Bank (1998), _ World Bank (, as well as _ Keefer (provide empirical evidence for this phenomenon.

One strand of evidence on the importance of information for voter behavior and induced governmental performance comes from the literature on electoral cycles in fiscal and monetary policies. Cross-country analyses indicates that electoral cycles in monetary and fiscal policies are significantly larger in developing countries (Schuknecht (2000; Block (2002; Shi and Svensson (2000). Shi and Svensson (2000) establish a direct link between electoral budget cycles and limited

information available to voters, where the later is measured via access to free media. Analogously, Besley and Burgess (2003) show that state governments in India respond to declines in food production and crop flood damage through higher public food distribution and calamity relief spending where newspaper circulation is greater. Thus, external interventions such as information campaigns by civic society organizations may be useful in promoting the diffusion of information needed for political accountability, particularly in poorer countries.

Overall, although there is theory and some empirical evidence for the importance of information for voter behavior and induced political incentives of elected politicians to perform on a high level, it is still fair to conclude that a comprehensive micro-political foundation has not been provided, yet.

2.2. Social Polarization

Social polarization stands for people that identify strongly with a specific group, this might be religious, ethnic, linguistic etc. Especially ethnicity is believed to be a driving force in elections in African countries (Olorunsola, ed (1972; Horowitz (1991; Berman et al., eds (2004). If people are strongly divided in ethnic groups and tend to vote on this basis, elections do not represent political opinions any more but rather a census of ethnicities (Lever (1979; Horowitz (1985; Ferree (2006; McLaughlin (2008). The less voters care about policies, the less issue orientated and accountable a politician needs to be. Easterly and Levine (1997) find a negative correlation between ethnic diversity and the quantity and quality of public goods. This is confirmed by studies in Kenya that show that high ethnic diversity leads to lower spending in primary school funding and school facilities (Miguel (2001). The recent study by Eifert et al. (2010) again confirms the importance of ethnicity in elections; they demonstrate that ethnicity becomes more salient the closer an upcoming election is.

Just like information asymmetries also social polarization leads to a situation in which politicians are missing electoral incentives to implement policies that benefit the country as a whole. Instead they can focus on maximizing their own and clientelistic interests. This explains why in many developing countries, where the population is divided in heterogeneous groups, suboptimal policies are executed.

2.3. Missing Accountability

A third imperfection of political markets corresponds to politician's inability to make credible promises in elections. Persson and Tabellini (2000) demonstrate that when pre-election premises are not credible, elections become less effective instruments for holding politicians accountable. Keefer (2002a) shows that in countries where political parties are weak or not established politicians tend to make credible promises only to voters with whom they have built a personal reputation. Such ties emerge most clearly as the patron-client relationship that a large body of literature identifies with politics in developing countries. Young relatively unstable democracies with weakly established political party systems provide only short time horizons for elected politicians and hence impede

credible political commitments. Empirical evidence for clientelistic politics is provided for example by Sanmartin (2001), Glewwe and Jacoby (1994) as well as Glaeser and Shleifer (2002).

Again, to our knowledge there hardly exist empirical studies applying econometric estimations of probabilistic voter models based on individual election survey data to estimate the relative importance of information asymmetries, social polarization and lack of credible commitments as determinants of distorted political incentives derived from electoral competition. Therefore, we consider it as an important contribution to literature to provide econometric estimations of probabilistic voter models including explicitly voters motivation for non-policy oriented voting, e.g. ideological or personal voting, induced by asymmetric information, social polarization or lack of credible commitments.

3. Methodology

The paper is aiming at explaining voter behavior in developing countries using spatial voter models. Special emphasis is placed on the role of policy-oriented versus non-policy oriented or ideological voting. Policy-oriented voters are interested in policies; they know the current political situation and have a clear picture in mind of what kind of policies they expect to see in future times. On the other hand the ideological voter is uninformed, and cannot be bothered with policies. She votes out of ideological preferences that are not related to party platforms. The terminology comes from the Literature on political economics (Persson and Tabellini (2000). Persson and Tabellini (2000) refer to ideology as preferences that can include e.g. competence or appearance. The crucial point is that ideological preferences are exogenous in the sense that they are a permanent attribute of parties, i.e., cannot be changed at will during election campaign. This concept has to be clearly separated from the term of ideological voting used in spatial voting theory, following Hinich and Munger (1994) ideology breaks down several political issues to an underlying ideological dimension, often a liberal-conservative/left-right dimension.

The extent of ideology within a state determines people's behavior during elections. From a politicians point of view uninformed voters are easier convinced to make the right choice at the ballot-box. Relatively cheap election campaigns and easy targetable policy programs, like investment in infrastructure or governmental jobs should be sufficient to catch their votes. The informed or policy oriented voter on the other hand can only be convinced by true political action, which has a positive political impact on the whole country. Depending on the share of policy-oriented and expressive voters within a country, candidates have different incentives to provide proper policy programs in an accountable way. When the share of policy oriented voters is high, they need to provide broad public services to win the electoral competition therefore candidates' incentives to act accountable are pretty high. Is the share low, it is more effective to use easy observable policies or already existing party loyalties to win at the ballot-box; accountability does not play a major role then.

To gain insight in the distribution of people in informed and uninformed voters we are estimating a probabilistic voter model and developed an index measuring the importance of ideological voting for

each country. Using this index we can draw conclusions about accountability and political incentives of each countries candidates.

3.1. Probabilistic Voter Model

The political system of a country consists of political agents, making political decisions, on the one side and of interest groups and voters on the other side. Interest groups are groups of voters that have similar interests in certain political fields. In a democratic system people are able to appoint political agents via elections and are therefore highly responsible for the formation of the government. To get an understanding of the whole process one needs to identify the incentives and motives why people choose to vote a certain party. One way to analyze voting behavior is the probabilistic voting theory.

Elections can be described as an oligopoly, with only a few suppliers (of political goods) and many consumers (Thurner (1998). Political agents supply political goods in form of policies (e.g. infrastructure, tax reductions or improvement of education system) and voters demand these goods. Consumers have spatial, personal and factual preferences. Spatial preferences describe that an idea that is closer to my own point of view is always preferred to a point that is further away. Personal preferences account for relationships between the market partners, for example if one has known someone for quite a while already. Finally factual preferences are built because of the actual good itself, a good of higher quality is preferred to one of lower quality. Therefore parties are evaluated not only because of the good they provide, but also because of the position they take within the policy space and personal characteristics they own. People always vote the party that provides the highest utility for them. When a party is only evaluated because of its position the utility function is a unimodal symmetrical function, with its maximum at the voters' optimum. If the utility functions and the positions of the political agent and the voter are known, the election results can be easily predicted.

$$\begin{aligned} (P_1 = 1) &\Leftrightarrow U_1 > U_2 \\ (P_1 = 0.05) &\Leftrightarrow U_1 = U_2 \\ (P_2 = 1) &\Leftrightarrow U_1 < U_2 \end{aligned} \qquad (1)$$

In reality elections are no deterministic processes and therefore hard to predict. People do not always vote for the party that seems to provide highest utility. Election results are biased by random influences like natural disasters, political instabilities or economic crises. Hence it is hard or rather impossible to perfectly predict election results. When modeling voting decision it is therefore indispensable to include random influences. This way only probabilities about voting behavior can be predicted.

$$\mathrm{P}(\mathrm{j}_{\mathrm{opt},\mathrm{i}} = \mathrm{Prob}(\mathrm{U}_{\mathrm{ij}} \geq \mathrm{U}_{\mathrm{ih}} \quad \forall\, \mathrm{j}, \mathrm{h} \in \mathrm{A}, \mathrm{j} \neq \mathrm{h}) \qquad (2)$$

Random influences are included with an error term ε_{ij} in the utility function.

Modeling the random utility model a mixed conditional logit model (MCL) is used. The MCL is a certain kind of discrete choice model that is able to investigate the relationship between a categorical

dependent variable and categorical or metric independent variables. In the case of voter behavior vote choice acts as dependent variable. Independent variables can be separated in alternative-specific and individual-specific variables. The former provide information about the decision maker relative to each alternative. Policy distances are an example of alternative specific characteristics; they describe the distance from every individual to each alternative. Therefore the variable is different for every individual/Alternative combination. When estimating the MCL there will be only one coefficient β for every independent variable. If we are looking at the distance on a left-right scale, β explains the influence of this variable on all alternatives. Sociodemographic or individual specific variables on the other hand are characteristics of the decision maker; they differ between individuals but not between alternatives. As a result when estimating the MCL we get a coefficient for each alternative. When we are for example considering the effect of an individual's age on voting decision, we get a different effect of age for every alternative.

In our model we have two components that affect utility, a policy oriented component β which depends on the distance in the relevant policy space and an ideological component α. The utility of individual $i, i \epsilon$ N, of voting for party $p, p \epsilon$ P, $p = 1,2, \cdots, n$ results in:

$$U_{ip} = \alpha_p + \beta d_{ip} + \varepsilon_{ip} \quad (3)$$

The logit model is obtained by assuming that each ε_{ip} is distributed iid extreme value.
Then the logit choice probability results in:

$$P_{ip} = \frac{e^{U_{ip}}}{\sum_q e^{U_{iq}}} \quad (4)$$

3.2. Ideology Index

The idea behind our ideology index is to calculate a measure that allows us to compare the importance of ideological relative to policy-oriented voting between different countries. As already explained earlier accountability of the government and ideology are closely related, hence it would serve a big deal to know to which extent a country votes ideological. To measure ideology we need to transform the abstract concept of ideology into something that is measureable. The probability that an individual votes for a certain party depends on the ideological coefficient and the policy oriented coefficient multiplied with the distance within policy space. Therefore one can imagine finding a hypothetical distance, that makes up for ideological advantages or disadvantages. To get this clear: Imagine two Parties A and B and a voter V. Both parties have the same distance to V but A enjoys an ideological advantage compared to B. The only chance for B to win V's vote is to move towards her. A on the other hand could give up some policies and move away from V and would still win the election. Summarized, a party with an ideological advantage can increase the distance to the voter without losing the vote and a party that is ideologically disadvantaged has to move towards the voter to keep the chance of winning. Distance serves as a measurable indicator for ideology, the bigger the distance to compensate ideological advantages or disadvantages the more important is ideological voting

compared to policy oriented voting. To formulate the indicator we take a closer look at the odds ratio. The odds ratio describes the chance of one party to be chosen compared to another parties chances. If both parties have the same probability of being chosen the odds ratio equals one.

$$Odds - Ratio_{pq} = \frac{Prob_p}{Prob_q} = \frac{e^{U_p}/\sum_{q=1} e^{U_q}}{e^{U_q}/\sum_{p=1} e^{U_p}} = \frac{e^{U_p}}{e^{U_q}} = e^{U_p - U_q} \stackrel{!}{=} 1 \qquad (5)$$

Taking the logarithm of the above equation yields to

$$\Delta U_{qp} = U_p - U_q = 0 \qquad (6)$$

After substituting the utility function from equation (3) into equation (6), ΔU_{qp} results in:

$$\Delta U_{qp} = \alpha_q - \beta d_q - (\alpha_p - \beta d_p) = 0 \qquad (7)$$

Equation 6 shows that both parties have the same probability of winning the election when they provide the same utility. To get the distance that is necessary to compensate for ideological advantages or disadvantages, equation 7 needs to be solved for Δd_{pq}.

$$\begin{aligned} \Delta U_{qp} &= \alpha_q - \beta d_q - (\alpha_p - \beta d_p) = 0 \\ (\alpha_q - \alpha_p) - \beta(d_q - d_p) &= 0 \\ d_q - d_p &= \frac{\alpha_q - \alpha_p}{\beta} \\ \Delta d_{pq} &= \frac{\alpha_q - \alpha_p}{\beta} \end{aligned} \qquad (8)$$

Δd_{pq} is exactly what we were looking for earlier, an indicator that measures ideological differences in units of policy-distances. The advantage is obvious, policy distances are easy to interpret and have an ex-ante known unit of measurement. The resulting indicator exists only of α_p, α_q and β and can therefore be calculated easily once the MCL was estimated. Up to this point Δd_{pq} only measures ideology between party p and party q. To generalize the indicator we have to calculate averages, first the average role ideology plays for one party and afterwards the average ideology for a whole country. Matrix 9 shows how the average is calculated:

	q					
	1	⋯	q	⋯	n	
1	0	⋯	Δd_{1q}	⋯	Δd_{1n}	$\frac{1}{n-1}\sum_{q=1}^{n}\lvert d_1 - d_q\rvert$
⋮					⋮	⋮
p	Δd_{p1}	⋯	0	⋯	Δd_{pn}	$\frac{1}{n-1}\sum_{q=1}^{n}\lvert d_p - d_q\rvert$
⋮					⋮	⋮
n	Δd_{1n}	⋯	Δd_{nq}	⋯	0	$\frac{1}{n-1}\sum_{q=1}^{n}\lvert d_n - d_q\rvert$
						$\sum_{p=1}^{n} s_p \frac{1}{n-1}\sum_{q=1}^{n}\lvert d_d - d_q\rvert$

(9)

Depending on the sign of Δd_{pq} we know, whether Party p or Party q has an ideological advantage. If it is positive p enjoys the advantage if Δd_{pq} is negative it is the other way around. As we are not

interested in a certain p, q combination but more in the relationship in general we calculate the mean of all Δd_{1q} to get the mean difference between party one and all the other parties. It can be interpreted as the mean distance party p has to move to compensate for ideological advantages or disadvantages. We repeat this for all the other parties and calculate the mean again. As not all parties have the same influence within a country, we finally calculate a weighted mean, using voter shares s as weights. The result is the weighted mean difference over α for all parties P.

$$\Delta d_{pq} = \sum_{p=1}^{n} s_p \frac{1}{n-1} \sum_{q=1}^{n} \left| \frac{\alpha_q - \alpha_p}{\beta} \right| \quad (10)$$

As the indicator is used to compare different countries, with unequal policy spaces it is still ambiguous how to interpret differences between the indicators. Therefore it makes sense to build a relative indicator, we divide ΔU_{qp} by the respective size of the countries policy space. The policy space is calculated as the Euclidean distance between the minimum and maximum party position at each policy issue.

$$\text{Ideo} = \frac{\sum_{p=1}^{n} s_p \frac{1}{n-1} \sum_{q=1}^{n} \left| \frac{\alpha_q - \alpha_p}{\beta} \right|}{polspace} \quad (11)$$

The idea behind this is that there is only a certain policy space, within which parties can move their position. The whole space is bounded by the most extreme party positions. Finally we gain an indicator that indicates us how much a party has to move relative to its policy space to make up for ideological differences. An indicator greater than one means that a movement is necessary, that is practically not possible, as it would be bigger than the total policy space available. It suggests that ideology plays a very important role in voters' decision making. Is the indicator less than one indicates that ideology can be compensated by political issues. The closer it gets to zero, the less ideological voting counts. In democracies an indicator smaller than one should be expected, as otherwise electoral competition based on policy issues does not take place.

4. Empirical Application

4.1. Data

The data used in the paper originates from the fourth round of Afrobarometer conducted in 2008 (Afrobarometer (2008). Individual level data was collected in 20 different countries. Because of missing values Cape Verde had to be excluded from the analysis, which leaves us with a cross country examination of 19 countries. When estimating probabilistic voting models including spatial preferences, information about peoples' vote choice and political positions (on the respective policy issues) are needed as well as political positions eligible parties. Vote choice was asked in the following way: “Q55: If a presidential election were held tomorrow, which party's candidate would you vote for?”. Unfortunately Afrobarometer did not ask questions like: “How would you place

yourself in the following issue? or How would you place party XY in the following issue?", which would directly indicate positions on political issues. Therefore it was necessary to create the policy issues ourselves. We did a factor analysis with all the questions that occurred to us as politically relevant (see List in Appendix). Factors were extracted using the Kaiser criterion, each factor with an Eigenwert greater than one was used. The procedure resulted in the following numbers of factors for each country.

	Factors
Benin	7
Botswana	9
Burkina Faso	8
Ghana	9
Kenya	7
Lesotho	9
Liberia	8
Madagascar	8
Malawi	8
Mali	8
Mozambique	8
Namibia	8
Nigeria	8
Senegal	8
South Africa	6
Tanzania	8
Uganda	7
Zambia	8
Zimbabwe	7

Tabelle 1: Number of extracted factors in each country

Each factor stands for a single policy dimension, as we can see in table 1 there are between seven and nine policy dimensions in the countries. The value of the factors represent the position of each individual in the respective policy dimension. The positions of the parties were calculated with the mean factor value of all people that voted for that particular party.

In the preparation of the data parties that received less than one percent of the vote were combined to the group "other parties" (which will be used as the reference group later). As factor analysis cannot deal with missing values, some individuals had to be approximated and others totally excluded from the study. The policy questions were approximated by using the mean of the whole question. Missing values in the vote choice variable led to the elimination of the individual from the dataset, as approximation of vote choice did not seem appropriate.

4.2. Estimating voting behavior

To get an insight in voting behavior we estimated a mixed conditional logit model (MCL) in each country. Using an alternative specific constant and a generic coefficient measuring the importance of the respective policy issue, we gained the following probability function:

$$P_{ip} = \frac{e^{U_{ip}}}{\sum_q e^{U_{iq}}}$$

$$with\ U_{ip} = \alpha_p + \beta d_{ip} + \varepsilon_{ip} \qquad (12)$$

To get an impression of the results of the MCL we will representatively take a look at the findings in Malawi [1].

	Estimate	Std.Error	t-value	Pr(>|t|)
Democratic Progressive Party (DPP)	3.5710	0.2321	15.39	0.0000
Malawi Congress Party (MCP)	1.3089	0.2558	5.12	0.0000
United Democratic Front (UDF)	1.8633	0.2430	7.67	0.0000
Faktor1	-0.5852	0.1570	-3.73	0.0002
Faktor2	-0.4330	0.1180	-3.67	0.0002
Faktor3	-0.4037	0.1519	-2.66	0.0079
Faktor4	-0.3109	0.0950	-3.27	0.0011
Faktor5	-0.4143	0.1922	-2.16	0.0311
Faktor6	-0.3703	0.2002	-1.85	0.0643
Faktor7	-0.2678	0.0291	-9.20	0.0000
Faktor8	-0.2485	0.0699	-3.55	0.0004

Log-Likelihood: -632.42

McFadden R^2: 0.10427

Likelihood ratio test: chisq = 147,23 (p.value ≤2.22e-16)

Tabelle 2: Mixed Conditional Logit Model: Malawi (Reference Party: 999 (others))

The Model has a significant impact explaining voting behavior in Malawi. Most of the coefficients are significant on a one percent level, except for Factor five and six, which are significant on a five and ten percent level. The alternative specific constant has to be interpreted relative to the base category, which is in this case party 999 (the other parties). Compared to these other parties, DPP, MCP and UDF have a positive constant, indicating that the respondents have some inherent propensity to vote for one party over another for reasons that are not captured in the model. In our interpretation this inherent propensity is due to non-policy oriented voting. It seems to be stronger for DPP, than for MCP and UDF.

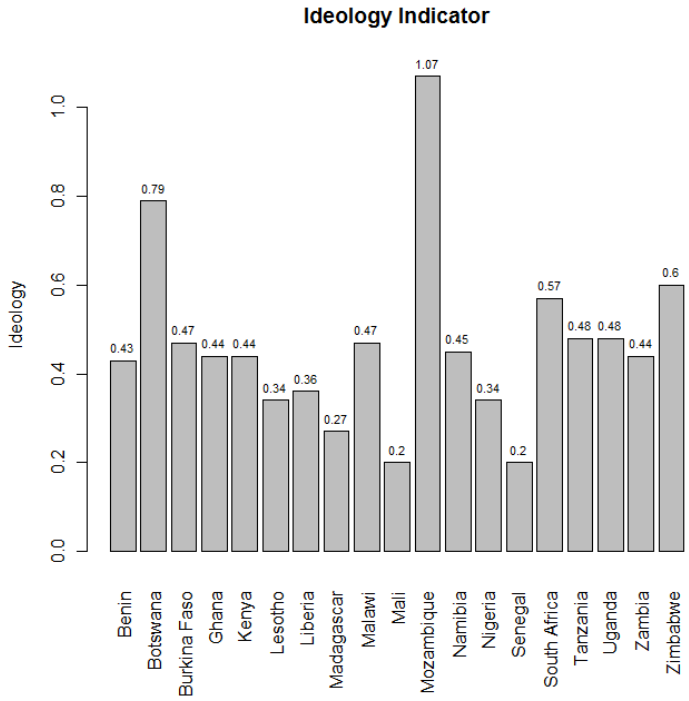
When looking at the coefficients for the policy issues (β_k), we get a negative sign for each of them. That makes sense as the probability of being elected decreases when the distance in a certain policy field increases. The results of the MCL model can be further interpreted in terms of probabilities and odds ratios, as this does not play a role for the aim of this paper, we will refrain from further

[1]The results for other countries are available from the authors if required.

explanations at this point. The results found for the other countries in the study all point in the same direction and are highly significant. The fact that β is always negative with only one exception (Mozambique) strongly supports the idea of proximity voting. The results found in Mozambique can most likely be explained by the party structure within the country. In Mozambique there is only one major party, the *Front of Liberation of Mozambique* which was named by 95 percent of the people, when they were asked who they vote for in the upcoming election. Hence it seems that voting behavior cannot be explained by proximity voting, but only by the strong position of this particular party.

After estimating the MCL we can use α_p and β to calculate the ideology indicator as explained in formula (11). The results can be seen in figure 1.

Figure 1: Differences in Ideology between Sub-Saharan African Countries



Taking a look at the first results shows clearly that countries differ in their kind of voting behavior. The index ranges from 0.2 to 1.07. Particularly noticeable is again Mozambique with the only indicator greater than one. Taking this outcome seriously would mean, that even if parties would be willing to move within the existing policy space they would not be able to make up for ideological disadvantages. The distance they would have to move is greater than the entire policy space available in that particular country. On the other hand parties enjoying an ideological advantage in Mozambique, like the Front of Liberation of Mozambique do not need to worry about which policies they implement, as policy oriented voting does not play a major role. Of course accountability in those countries suffers extremely in cases like that. As already mentioned above the findings in Mozambique indicate that proximity voting is not the right model to explain voting behavior, hence the results should be interpreted very cautiously. On the other hand we find that all other ideology indicators are less than one, which means that it is theoretically possible to overcome ideological gaps.

Senegal has the smallest indicator with 0.2, meaning a party would have to move by 20 percent of the total policy space to make up for ideological disadvantages. A movement of this dimension should be possible for a party which is seeking for power. Therefore on can expect politicians in a country with a low indicator to act more policy oriented and hence accountable, which in turn leads to better broad policies (e.g. increasing education level) and finally to better informed voters.

Intuitively one would expect countries with well developed democracies to have a lower ideology index than those of less democratic or autocratic countries. To test this hypothesis, we did a regression on the indicator using different macro-institutional and macro-sociological characteristics as independent variables. The state of the political system is included with the polity score from the Polity IV - Project (Marshall et al. (2008). The score ranges from -10 (hereditary monarchy) to +10 (consolidated democracy). The most democratic countries with a score of +10 include western countries like Germany, Sweden or the USA, the bottom end is taken by countries like Qatar and Saudi Arabia. The countries in the study range from autocratic countries like Zimbabwe (-3), Uganda (-1) and Tanzania (-1) to very democratic countries like South Africa (+9), Ghana (+8) and Botswana (+8) (we calculated a mean for the years from 2005-2009). Another index is used to identify the freedom within a country. Freedom House (2009) evaluates political rights and civil liberties, each on a scale from 1 - Free to 7 - Non-Free. By the combination of the political rights and civil liberties ratings the general state of freedom in a country can be determined. Again the western countries can be found on the top end, countries like Somalia, Vietnam or North Korea are categorized as Non-Free. Within the chosen Sub-Saharan African countries Ghana is the most free country (1.5) and Zimbabwe the least free one (6.4), again the mean from the years 2005-2009 was used. Further we will include GDP per capita, age and ethnic diversity as explaining variables. Age is included with three variables standing for the share of under 15, between 15 and 65 and the older than 65 year old people. To measure ethnicity with only one variable the Herfindahl index was used. The Herfindahl index specifies the probability that two randomly chosen people within a population will belong to the same group.

Finally we did a stepwise regression using the BIC as a criterion for model selection. The fully specified model included all the above mentioned variables: system, freedom, GDP, age14, age1465, age65up, ethnic and a dummy for Mozambique. As already explained above, Mozambique has to be treated differently as the model is unable to predict it's voting behavior properly. Therefore a dummy is included which equals one for Mozambique and zero for all other countries. The stepwise regression drops quite a few variables and leaves us with the following model.

$$Ideology = b_0 + b_1 system + b_2 GDP + b_3 Mozambique + \varepsilon$$

The results of the regression can be seen in table 2.

	Estimate	Std.Error	t-value	Pr(>|t|)
(Intercept)	0.4454	0.0393	11.34	0.0000
system	-0.0205	0.0070	-2.94	0.0101
GDP	0.0001	0.0000	4.52	0.0004

mozambique	0.7014	0.0994	7.06	0.0000

Residual standard error: 0.09577 on 15 degrees of freedom
Multiple R-squared: 0.8097, Adjusted R-squared: 0.7717
F-statistic: 21.28 on 3 and 15 DF, p-value: 1.164e-05

Tabelle 3: Explaining the ideology indicator using a OLS regression

The model is highly significant, and provides and Adjusted R-squared of 0.77. The variables are all significant on a five percent level, GDP and Mozambique even on a on percent level. The coefficient of the system indicator is negative, suggesting that a more democratic country tends to have a lower ideology index. The finding fits in our hypothesis that less democratic countries rely harder on ideologies and easy targetable goods. In comparison a more democratic country should act accountable and therefore lead voters to more policy oriented voting behavior. Striking is the negative coefficient of GDP, we would have expected a negative sign here as well. As it is well known that GDP and political system are usually positively correlated. What might be an explanation is that countries in Sub-Saharan Africa having a higher GDP also have more money to spend on election campaigns and media, but also on corruption. Therefore it makes sense that a richer country in a less democratic surrounding tends to increase ideological voting. The high significance of the Mozambique dummy supports our hypothesis that Mozambique's voting behavior cannot be explained by the model and needs to be treated differently in this study.

4.3. Heterogeneity within the countries

After bringing the whole voting behavior within a country down to one number, the ideology indicator, we were also interested in the heterogeneity within one country. We would expect different groups of people to vote out of diverse reasons. This idea goes back to the three reasons leading to market failure in voting, information asymmetries, social polarization and missing accountability. Taking a closer look at the individuals shows us that within a country the level of information is unequally distributed. There will be a few people that are very well informed, possible the richer, well educated people, who also have better access to media and information. But also many people that have no idea about policies at all, e.g., the poor part of the population, mainly without further school education. Only considering these two groups would lead to the idea that the first one surely votes more policy oriented than the latter one. A similar conclusion follows from the second problem, social polarization. Someone who is deeply involved in ethnical, religious or other groups will always vote for a certain party that shares the same ideas. For those people it does not count which policies will be implemented, but only to which ethnical, religious or other group the politician belongs to. A good example for voting behavior out of regional polarization is Benin in the presidential elections from 1991, when the south would only support Nicephore Soglo and the North Mathieu Kerekou (Battle and Seely (2007) .

To analyze the data for heterogeneity, we used a random parameter (or mixed) logit model, which assumes that the parameters in the model vary from one individual to another. Within the model we assumed that only the alternative specific constants vary between individuals, and the parameters for the policy issues are the same for all of them. The results show, that at least with this kind of model we cannot find any heterogeneity in voting behavior in Africa. The variances of the coefficient are not significantly different from zero in any of the countries we looked at. This finding can be due to many different reasons one of them might be the way we created the policy spaces. Also the calculating of the party position by simply taking the mean of all the voters might be problematic. In our future work we will surely come back to this problem and also try other models, like latent class models to shed more light on the question of heterogenic voting behavior.

5. Conclusions

The paper focused on the role of voting behavior in Sub-Saharan African countries. We wanted to point out the connection between political accountability and policy-oriented and respectively ideological or non-policy oriented voting. Therefore we developed an indicator that to measure ideological voting. To calculate the measure a mixed conditional logit model was estimated with an alternative specific constant and a generic policy issue parameter. The results of the ideological indicator were quite promising. The measure ranges from 0.2 (Senegal) to 0.79(Botswana). Further on we regressed the national ideology weights on specific national macro-institutional and macro-sociological characteristics. The hypothesis to proof was that countries suffering from problems like information asymmetries, social polarization and missing accountability would have a high indicator and the other way around. As we have no direct measures of these problems, we tried to use other macro indicators to explain differences in ideological voting. Included variables were political system, freedom within the country, GDP per capita, age shares, ethnic diversity and a dummy for Mozambique. After performing a stepwise regression the political system, GDP and the Mozambique Dummy were kept in the model. With these variables we were able to explain ideology very well on a highly significant level. It seems that the more democratic a country is the more policy oriented it votes, this is shown by the negative coefficient of the political system and fits very well into our hypothesis. What seems a bit odd is the positive effect of GDP, indicating that the higher a countries GDP the more ideological a country votes. This might be a phenomenon of developing countries; those countries are generally less democratic than industrialized or especially western countries. It is possible that a higher GDP occurring together with a lower level of democratization encourages governments to pay more money in promoting themselves but not their policies. Another hypothesis might be that a lot of money is used for corruption and therefore does not support voters trust in policies. The high significance of the Mozambique Dummy reveals clearly that Mozambique's voting behavior cannot be explained with the available model.

Heterogeneity in voting behavior was also a concern of this paper. We expected to find quite different voting patterns within one country, especially in the sense of different education levels, ethnic or regional origin. Unfortunately we were not able to support our hypothesis as none of the findings were significant. For further research we will definitely go back to heterogeneity in voting behavior. Latent class analysis might be a method that is able to give a clearer picture.

After summarizing the findings of the paper, we will take a look at future research. Surely the indicator is a first step in evaluating how policy oriented countries vote. But surely we have not reached final achievements here yet. Especially the estimation of the MCL needs further development. So far we only consider a constant and policy issues as explaining variables. Especially the factors we were also looking at when we considered heterogeneous voting were not further considered, but just presumed that they will be included in the constant. In further research it would make sense to include those variables by parametrizing the constant. This would allow us to explicitly include these effects and would surely also improve the explanatory power of the model. Generally better data on policy issues is required for future research.

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